FORSYTH BARR

NEW ZEALAND QUANTITATIVE RESEARCH
9 APRIL 2021

What's in Style
Returns for Risk

MATTHEW LEACH
matthew.leach@forsythbarr.co.nz
+64 4 495 1324

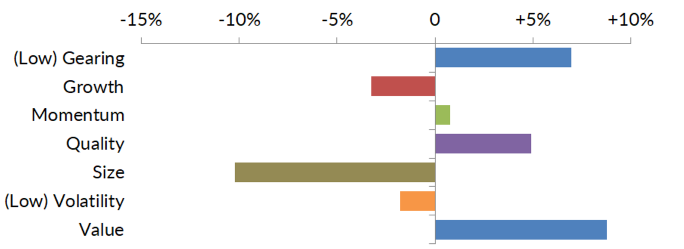
LIAM DONNELLY
liam.donnelly@forsythbarr.co.nz
+64 4 495 8194

Twelve months on from the COVID-19 sell off, Thematic returns across the market are aplenty, with economic growth rebounding and therefore providing Cyclicals with the largest gains (+61%). However, there were also healthy rewards in both Structural Growth (+53%) and Defensive Yield (+40%). We see similar patterns for the one, three and six month periods, where Cyclicals have outperformed, followed by Structural Growth and Defensive Yield. Twelve month Expected Total Returns (ETR) have bounced across all three thematics, at both a median and weighted level, despite the strong run in share prices and PEs at above average levels. Looking forward, Structural Growth currently provides the highest potential reward. Return dispersion, market concentration and correlation appear to be normalising to pre COVID-19 levels.

Value continues to dominate

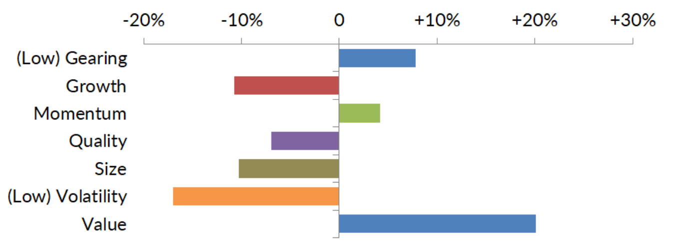
Using the differential performance between the best and worst factor constituents (i.e. stocks ranked in the top third of the market versus the bottom third) provides the best measure of a style factor's contribution. We find that over the last three months Value continues as the dominant style factor, with Low Gearing and Quality also featuring. Extending returns out to six months, unsurprisingly, Value remains the best performing factor, with evidence of a "Risk On" approach, with portfolios exposed to Low Volatility performing the worst.

Figure 1. Style factor returns (long-short, three months)



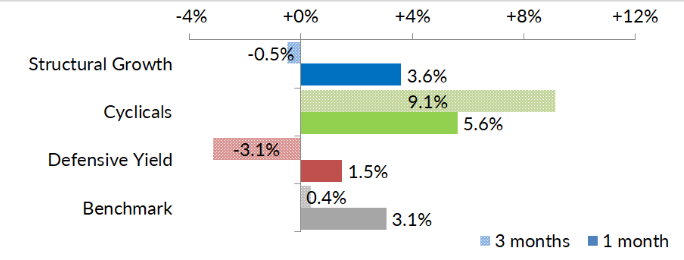
, Source: Forsyth Barr analysis, Bloomberg

Figure 2. Style factor returns (long-short, six months)



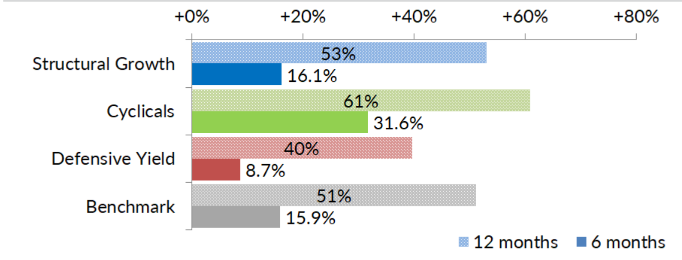
Source: Forsyth Barr analysis, Bloomberg

Figure 3. Style thematic returns: 1 & 3 months



Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 4. Style thematic returns: 6 & 12 months



Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

This publication is not for reproduction, public circulation or the use of any third party (whether in whole or in part) without the prior written consent of Forsyth Barr Limited.

Contents

What's Worked in Equities......3
A range of charts showing returns by Quant style factor, thematic and metric

Longer Term Returns......7
Long term (three and five year) and rolling returns (12 and 36 month) by Quant style factor and thematic

Where are the Fundamentals?......11
A range of charts showing fundamentals across Quant style factors and thematics

Global Comparisons......15
A range of charts showing global thematic PE multiples, three year EPS growth expectations and dividend yields

What is Screening Well......17
Charts and tables showing what companies are screening well for each Quant style factor

Patterns and Trends......21
Regression analysis of market and individual stock drivers

Return Dispersion, Expectations & ETR versus History......23
Charts showing the return and concentration dispersion, along with Expected Total Returns (ETR), current and historic, for the market and thematics

Appendix 1......26
A technical explanation of Quant style factors and metrics

Appendix 2......27
Thematic construction, New Zealand and global markets

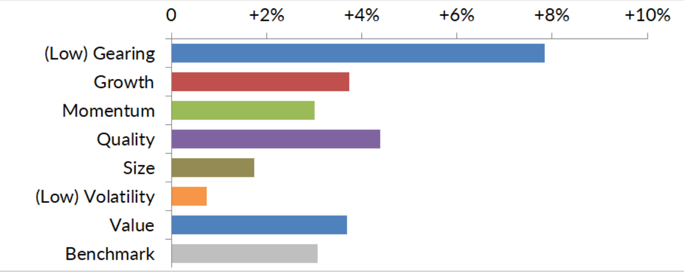
What's Worked

Points to note:

- Long returns are constructed by calculating the subsequent return of stocks ranked in the top third of the market (in terms of what an average investor would intuitively prefer; where this means a series is inverted [small is preferred to large] we denote using a *). Short returns are simply the inverse; long-short returns are the difference.
- Explanation of what each metric is and the stock characteristics we are trying to screen for in each style factor, and how each style factor is constructed, are contained in Appendix 1.

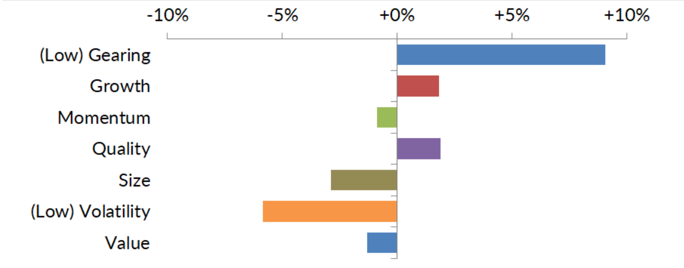
One Month

Figure 5. Style factor returns (long only, one month)



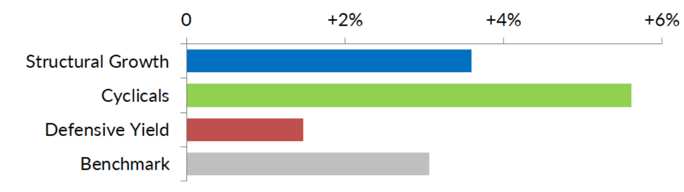
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 6. Style factor returns (long-short, one month)



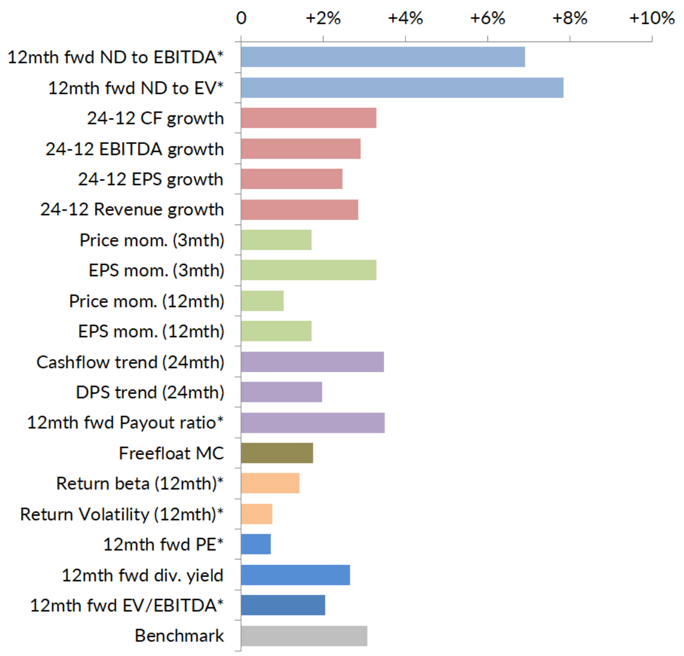
Source: Forsyth Barr analysis, Bloomberg

Figure 7. Thematic performance, one month



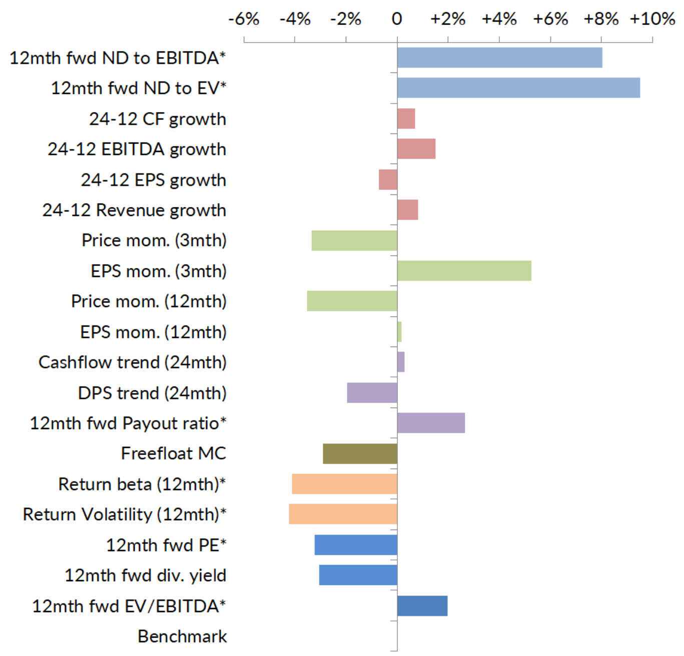
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 8. Style metric returns (long only, one month)



Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

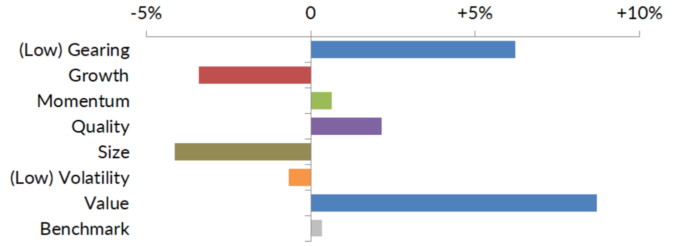
Figure 9. Style metric returns (long-short, one month)



Source: Forsyth Barr analysis, Bloomberg

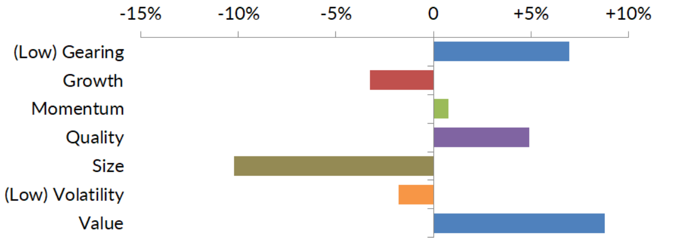
Three months

Figure 10. Style factor returns (long only, three months)



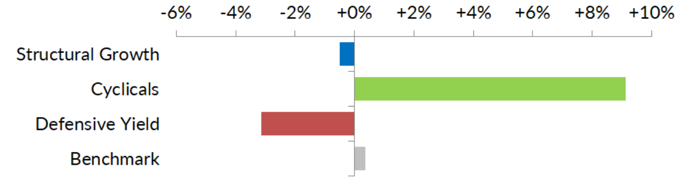
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 11. Style factor returns (long-short, three months)



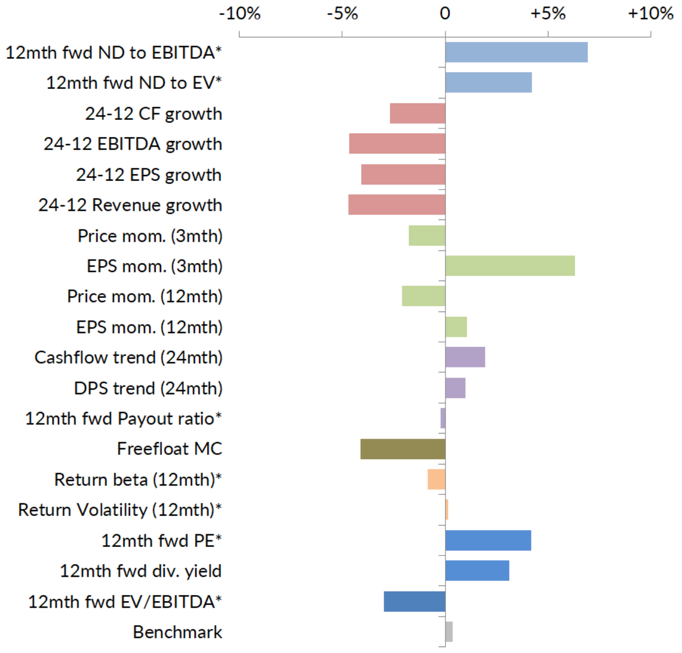
Source: Forsyth Barr analysis, Bloomberg

Figure 12. Thematic performance, three months



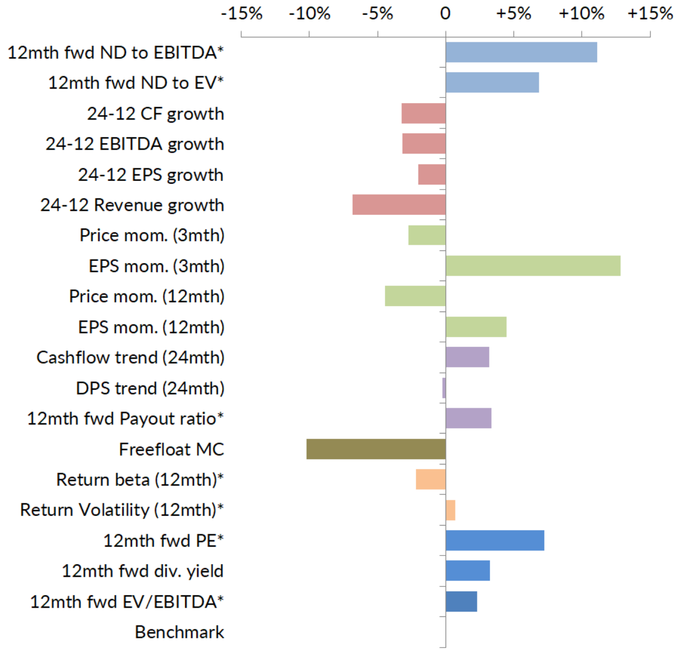
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 13. Style metric returns (long only, three months)



Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

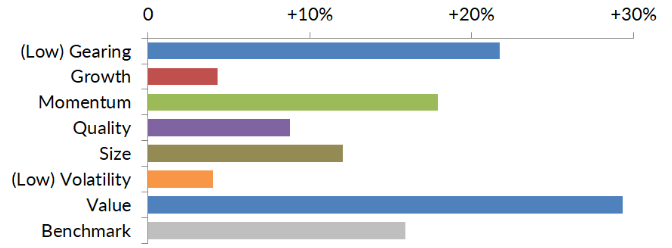
Figure 14. Style metric returns (long-short, three months)



Source: Forsyth Barr analysis, Bloomberg

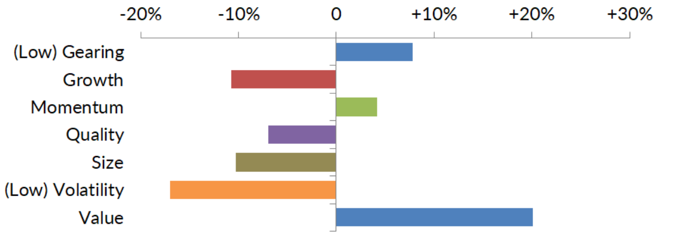
Six months

Figure 15. Style factor returns (long only, six months)



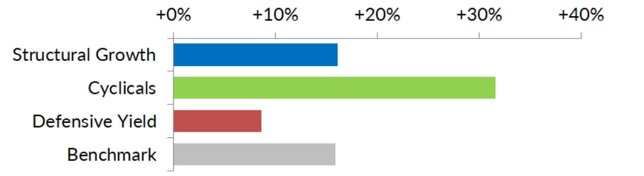
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 16. Style factor returns (long-short, six months)



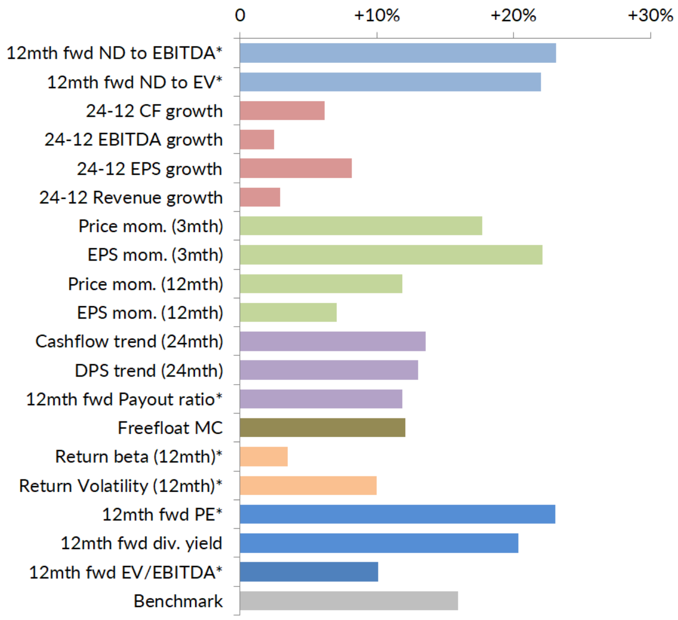
Source: Forsyth Barr analysis

Figure 17. Thematic performance, six months



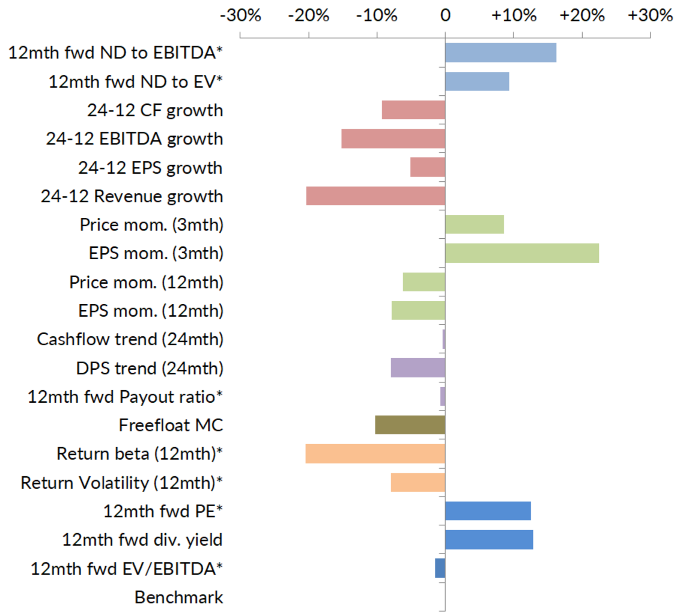
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 18. Style metric returns (long only, six months)



Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

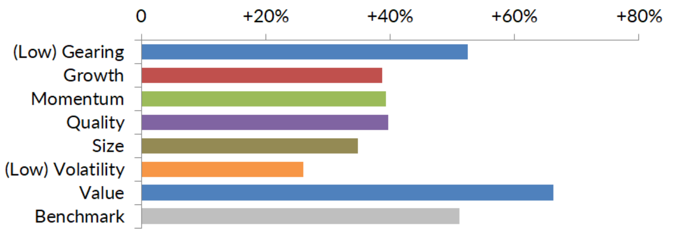
Figure 19. Style metric returns (long-short, six months)



Source: Forsyth Barr analysis

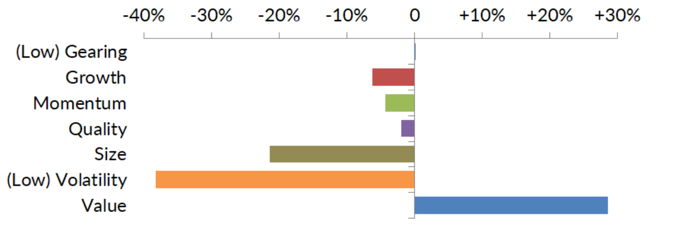
12 months

Figure 20. Style factor returns (long only, twelve months)



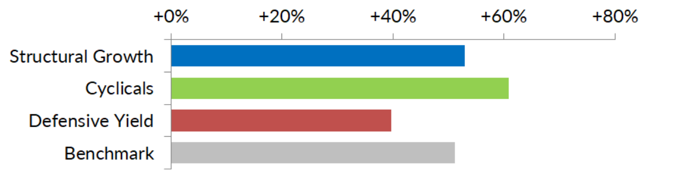
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 21. Style factor returns (long-short, twelve months)



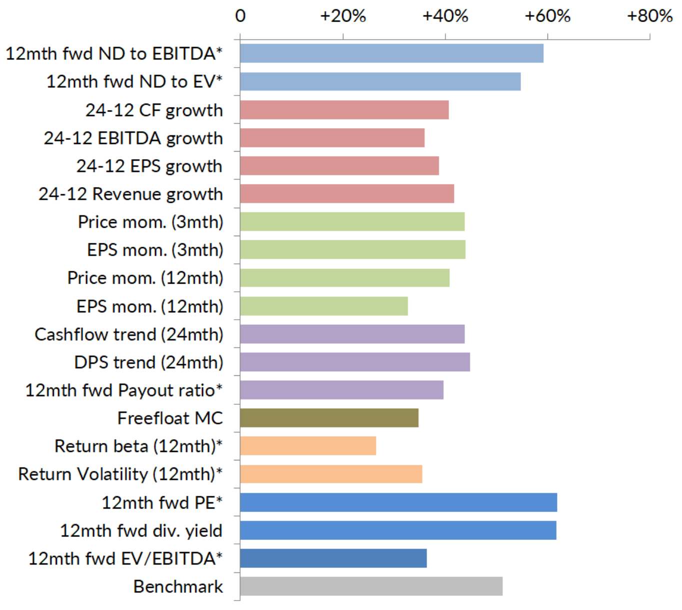
Source: Forsyth Barr analysis, Bloomberg

Figure 22. Thematic performance, twelve months



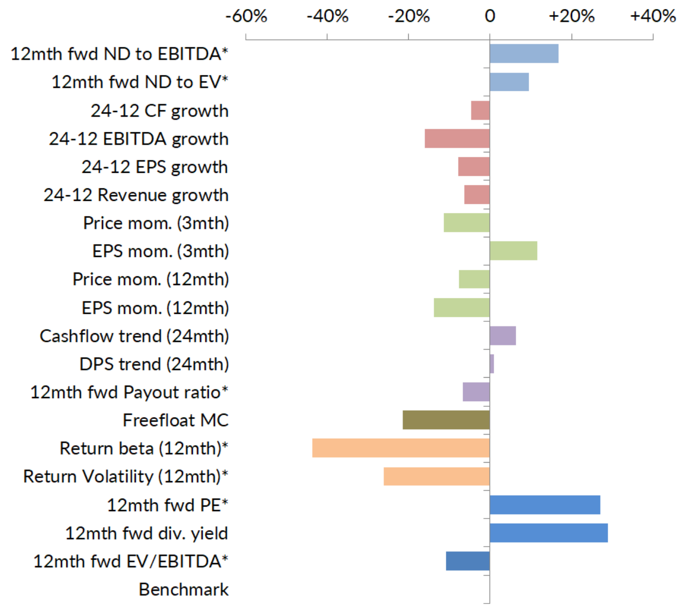
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 23. Style metric returns (long only, twelve months)



Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

Figure 24. Style metric returns (long-short, twelve months)



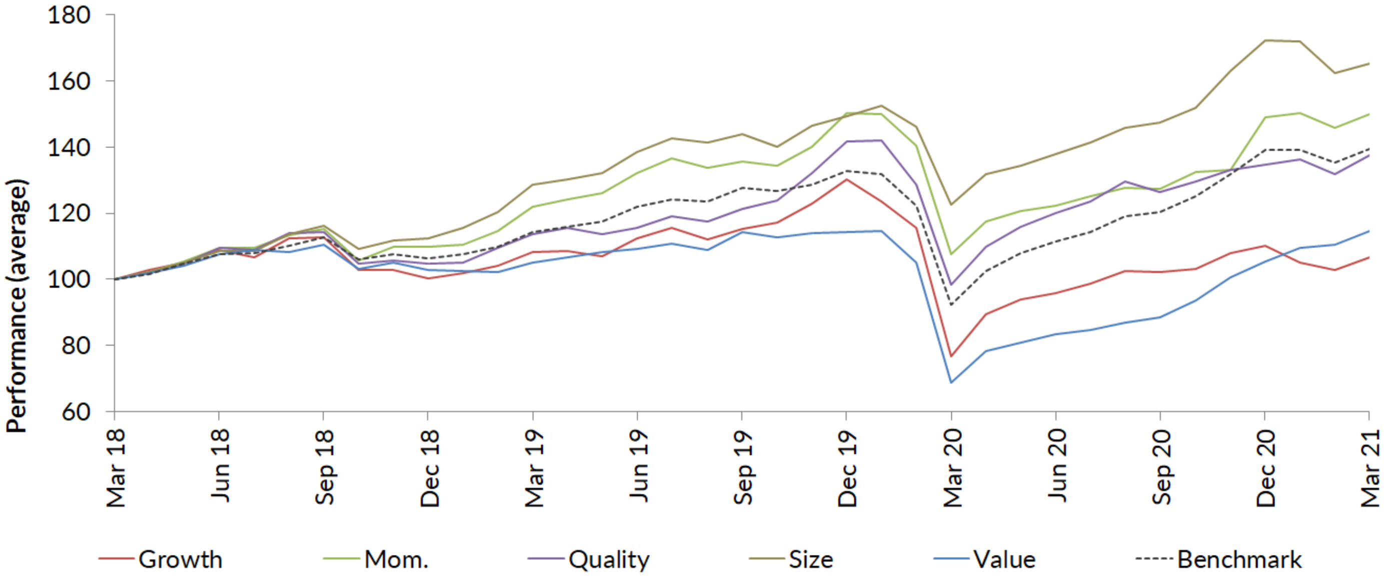
Source: Forsyth Barr analysis, Bloomberg

Longer term

Quant styles

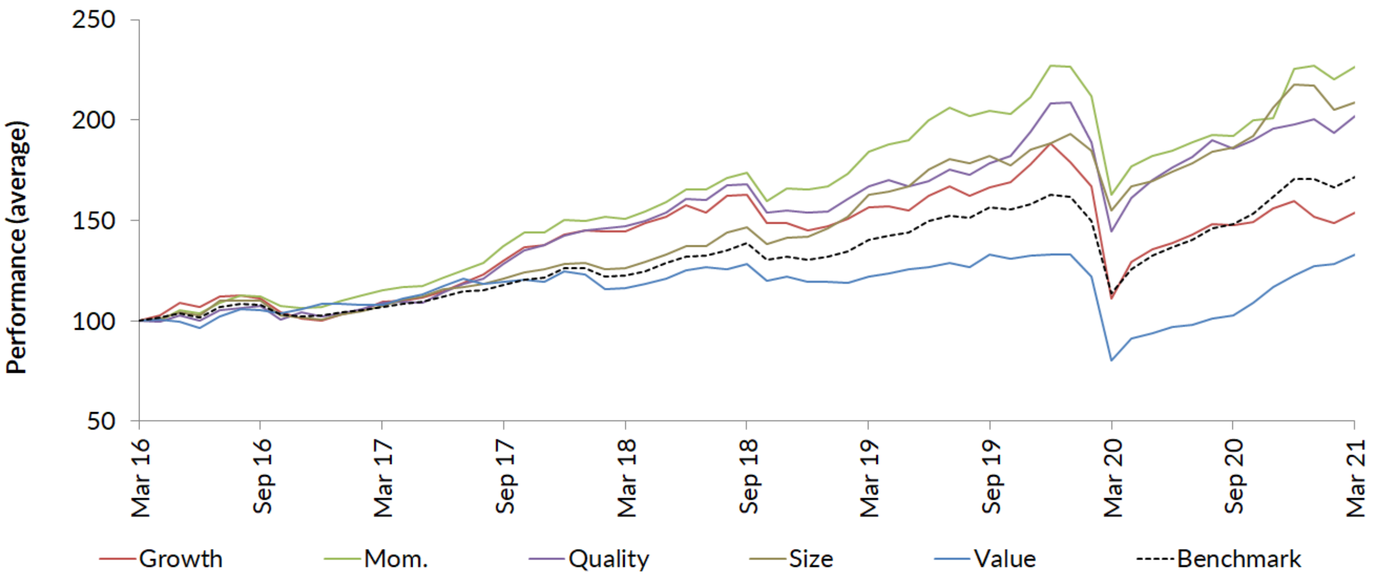
Below we present the returns of our style factors over a three and five year period.

Figure 25. Three year long-only Quant style factor performance



Source: Forsyth Barr analysis, Bloomberg

Figure 26. Five year long-only Quant style factor performance

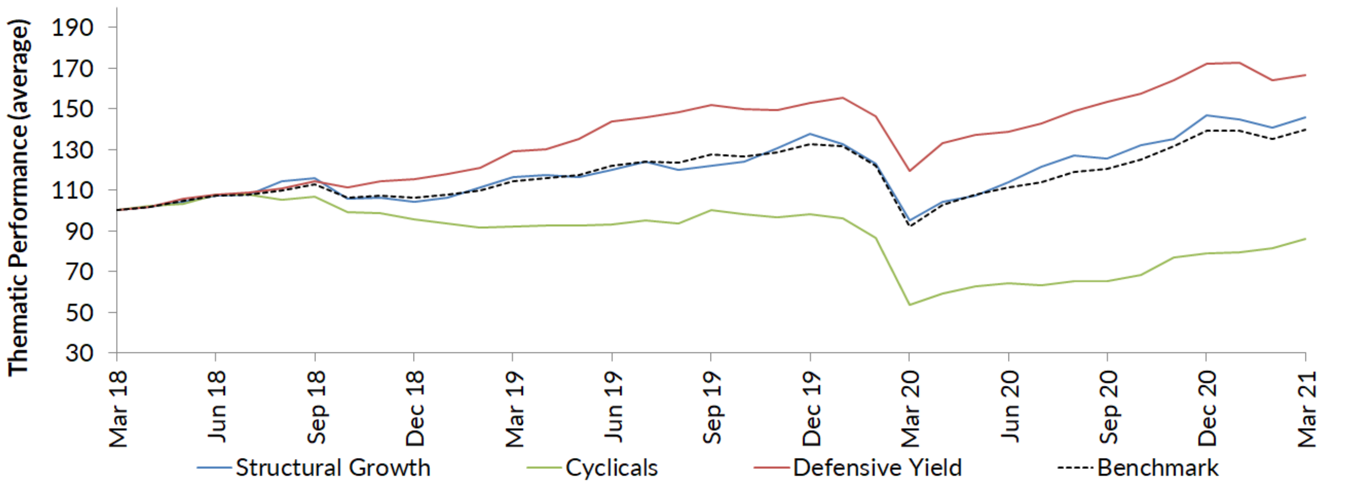


Source: Forsyth Barr analysis, Bloomberg

By thematic

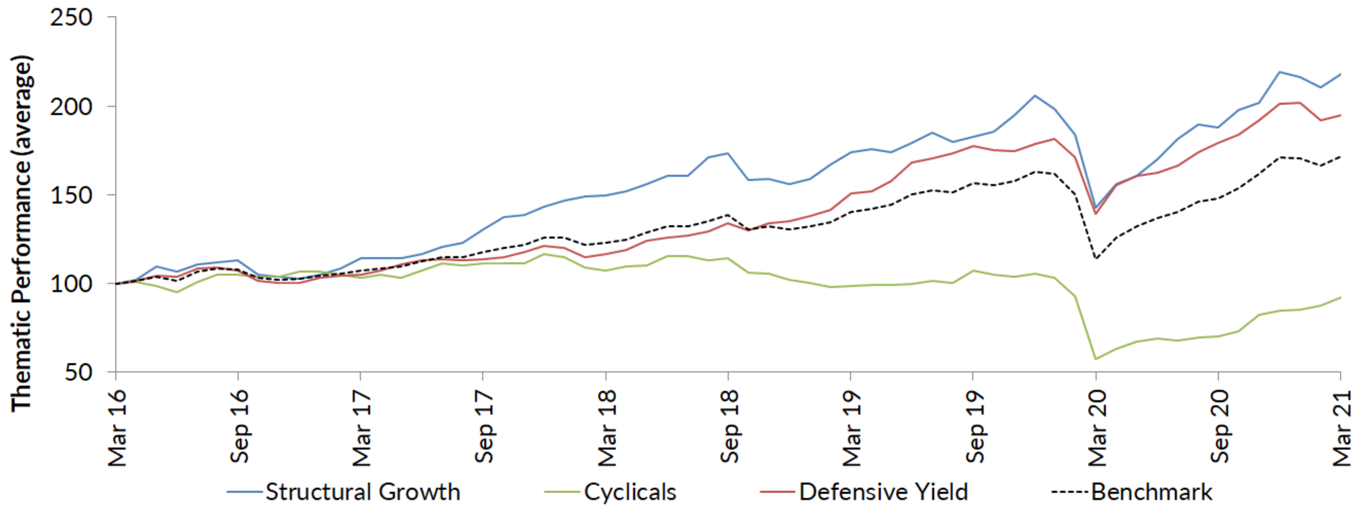
Below we present the returns of our Forsyth Barr defined thematics over a three and five year period.

Figure 27. Three year Forsyth Barr thematic performance



berSource: Forsyth Barr analysis, Bloomberg

Figure 28. Five year Forsyth Barr thematic performance



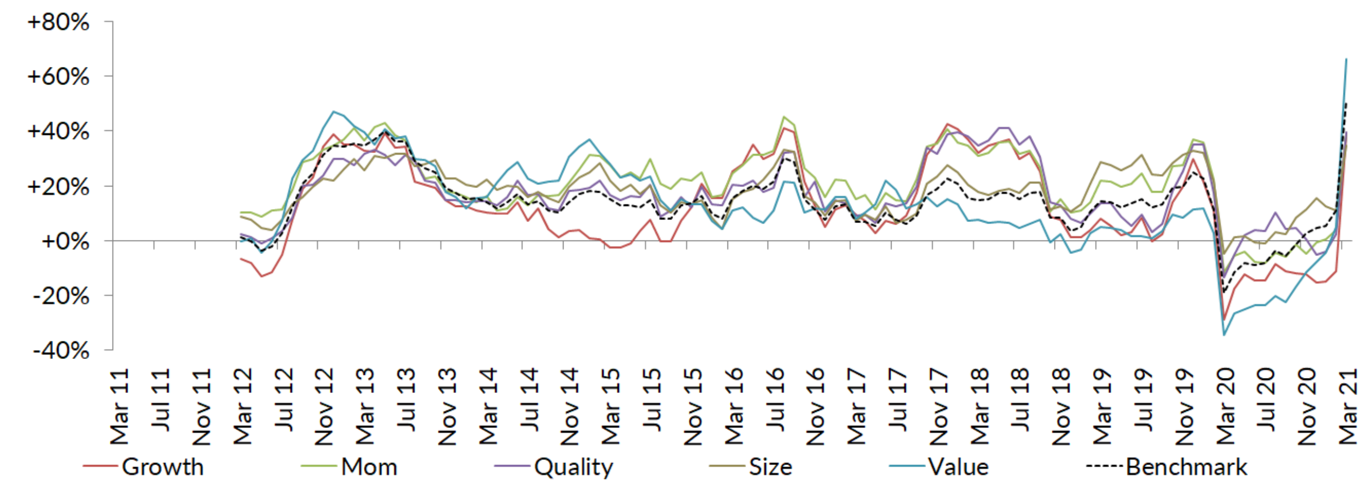
Source: Forsyth Barr analysis, Bloomberg

Rolling Returns

We also present 12 and 36 month rolling returns for each Quant style factor and thematic.

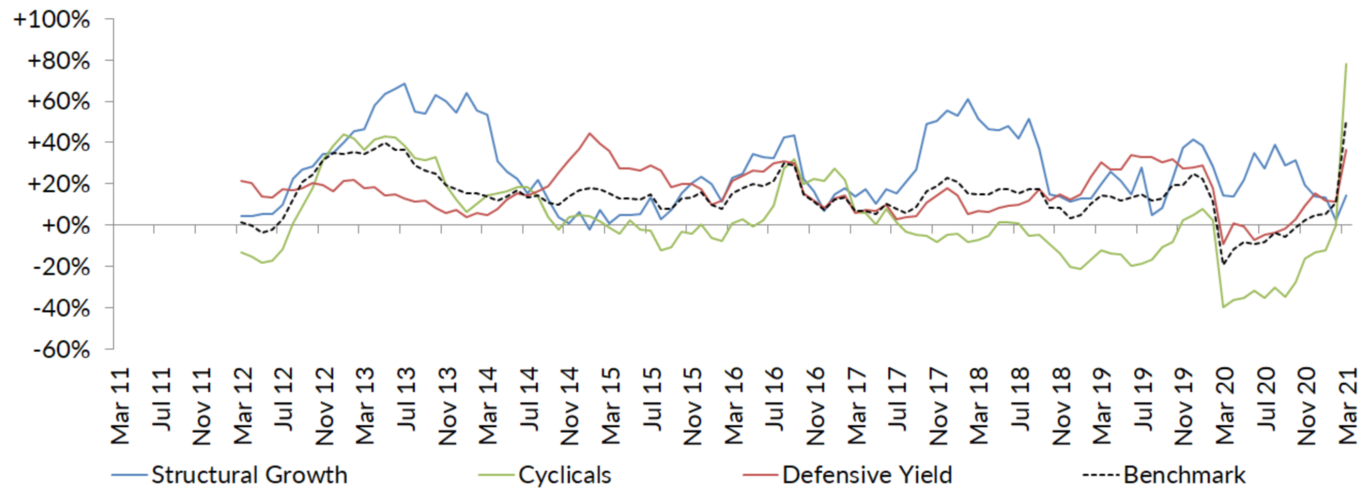
Twelve months

Figure 29. Quant Style Factor 12mth Rolling Returns (average)



Source: Forsyth Barr analysis

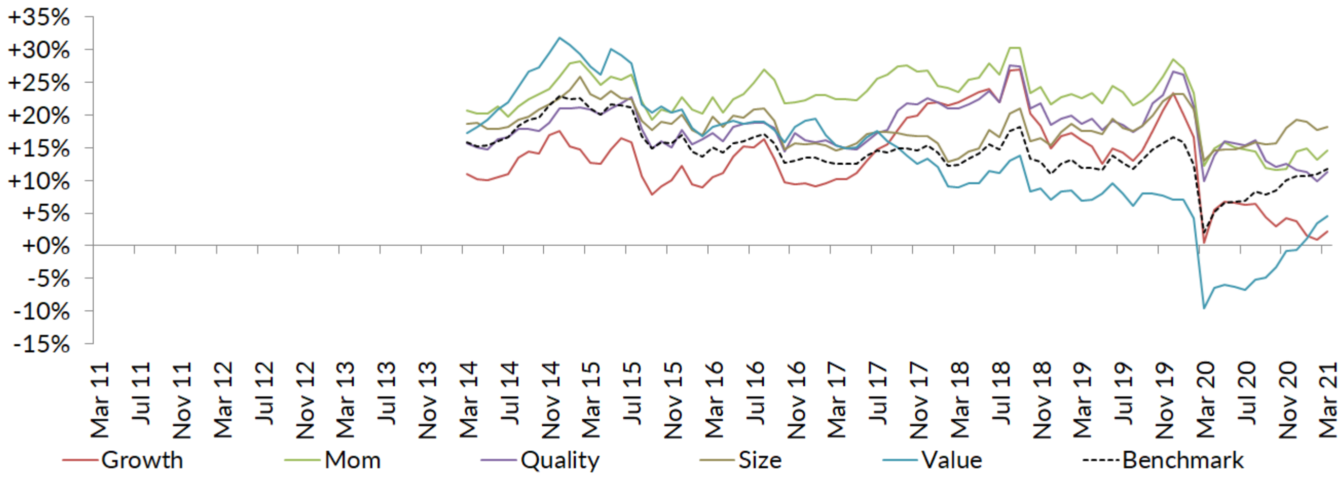
Figure 30. Thematic 12mth Rolling Returns (average)



Source: Forsyth Barr analysis

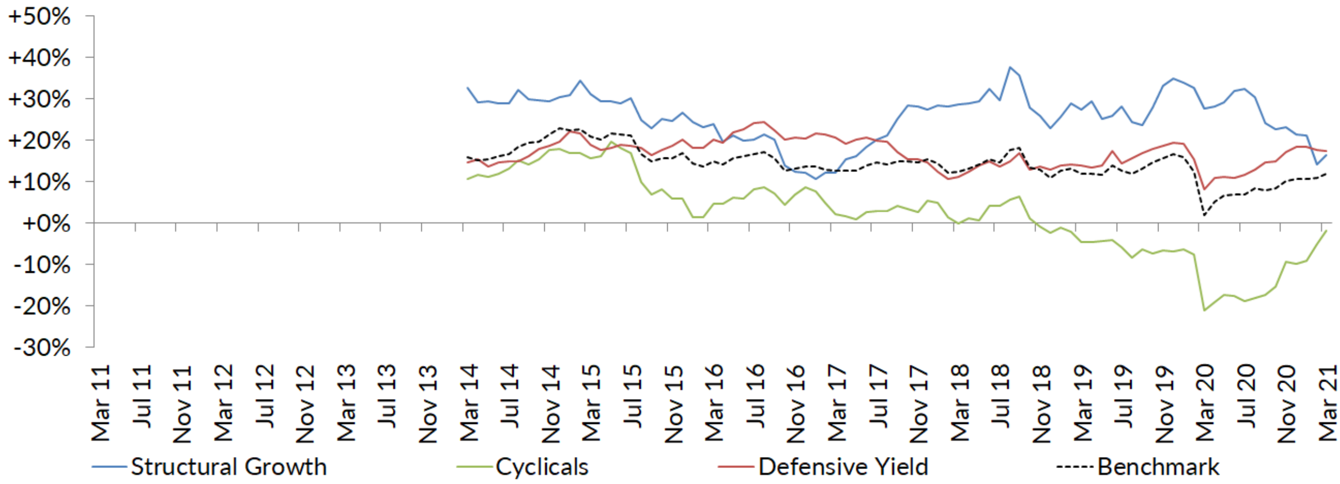
Thirty six months

Figure 31. Quant Style Factor 36mth Rolling Returns (average)



Source: Forsyth Barr analysis

Figure 32. Thematic 36mth Rolling Returns (average)



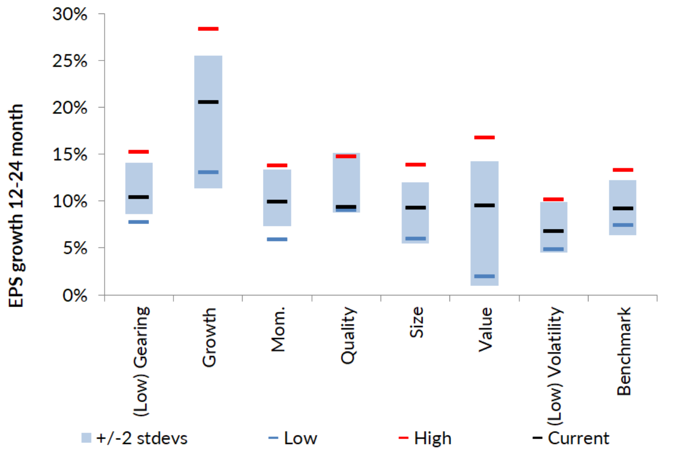
Source: Forsyth Barr analysis

Where are the Fundamentals

Quant style factors and thematics

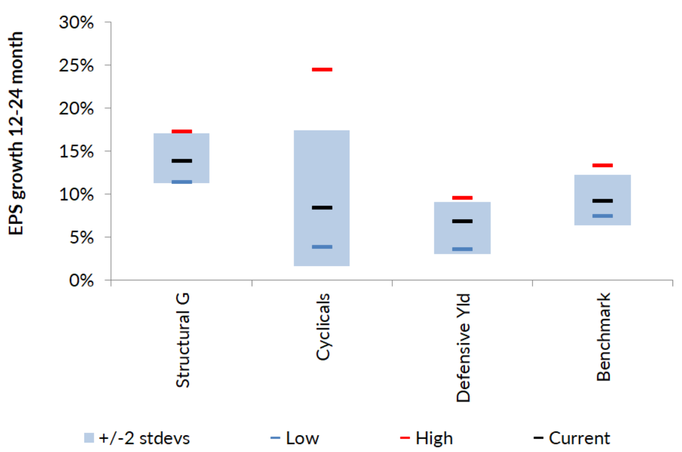
Below we highlight how our long-only quantitative style portfolios stack up in terms of normalised 12–24 month EPS growth, 12 month forward PE and 12 month forward net dividend yield, in terms of both spot and relative to the five-year history.

Figure 33. 12-24 month forward EPS growth: Factor



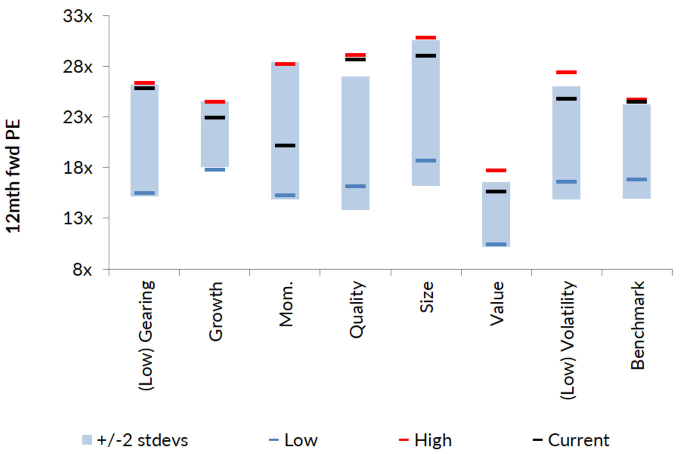
Source: Forsyth Barr analysis, Bloomberg

Figure 34. 12-24 month forward EPS growth: Thematic



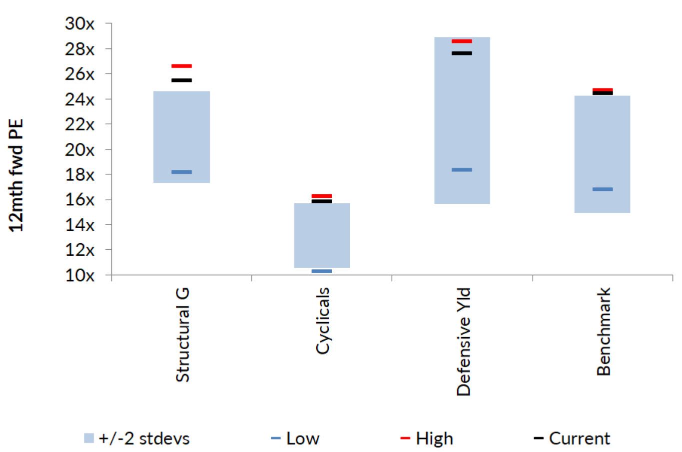
Source: Forsyth Barr analysis, Bloomberg

Figure 35. 12 month forward PE: Factor



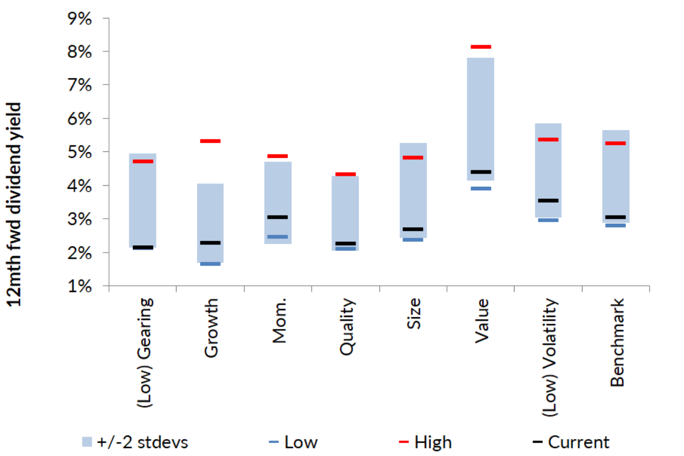
Source: Forsyth Barr analysis, Bloomberg

Figure 36. 12 month forward PE: Thematic



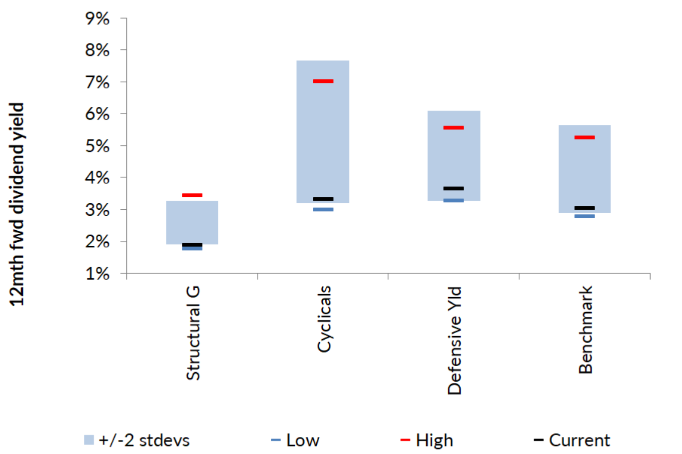
Source: Forsyth Barr analysis, Bloomberg

Figure 37. 12 month forward net dividend yield: Factor



Source: Forsyth Barr analysis, Bloomberg

Figure 38. 12 month forward net dividend yield: Thematic



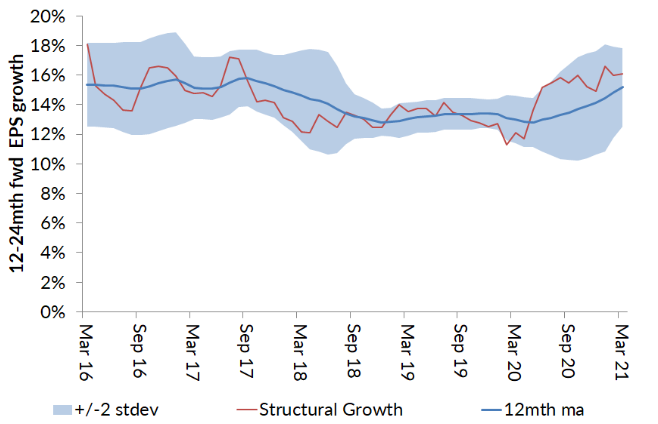
Source: Forsyth Barr analysis, Bloomberg

Thematic Fundamentals

Normalised EPS growth

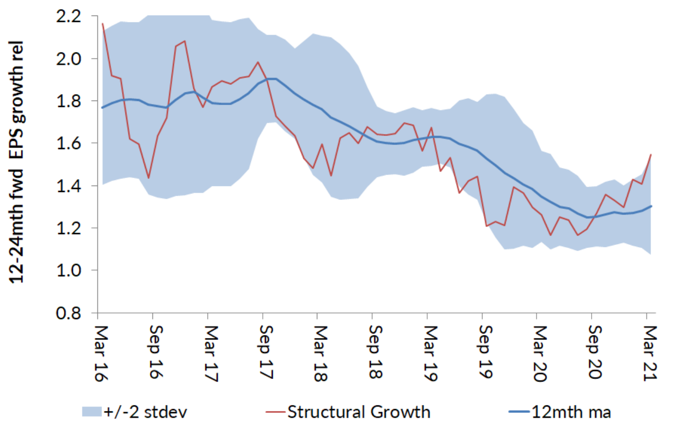
Below we highlight the fundamentals of the S&P/NZX 50, split by thematic (as defined by Forsyth Barr).

Figure 39. Normalised EPS growth: Structural growth



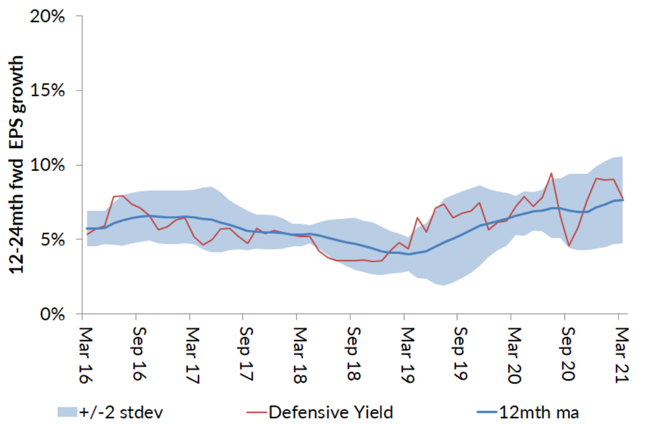
Source: Forsyth Barr analysis, Bloomberg

Figure 40. Normalised EPS growth relative: Structural growth



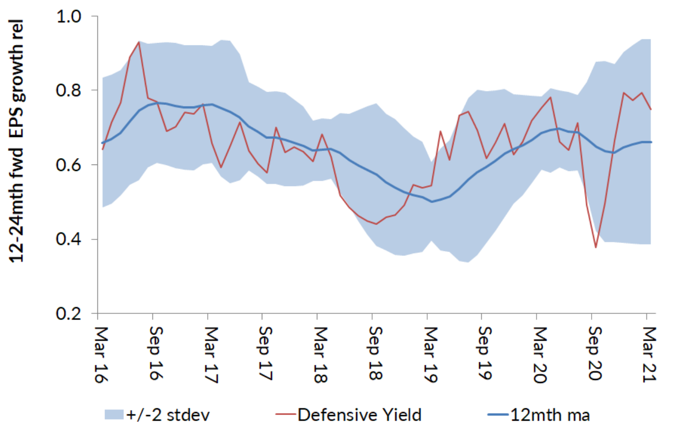
Source: Forsyth Barr analysis, Bloomberg

Figure 41. Normalised EPS growth: Defensive yield



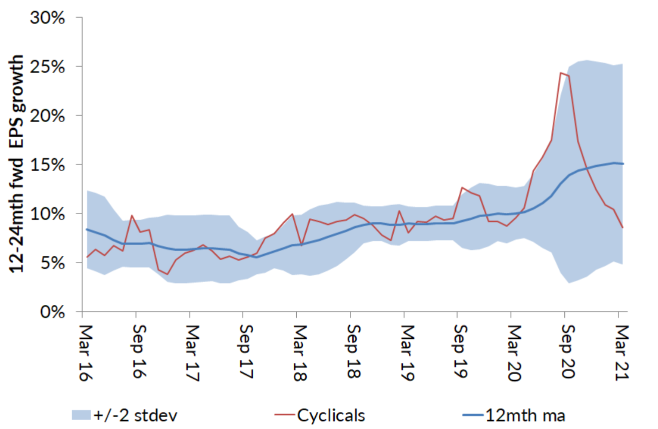
Source: Forsyth Barr analysis, Bloomberg

Figure 42. Normalised EPS growth relative: Defensive yield



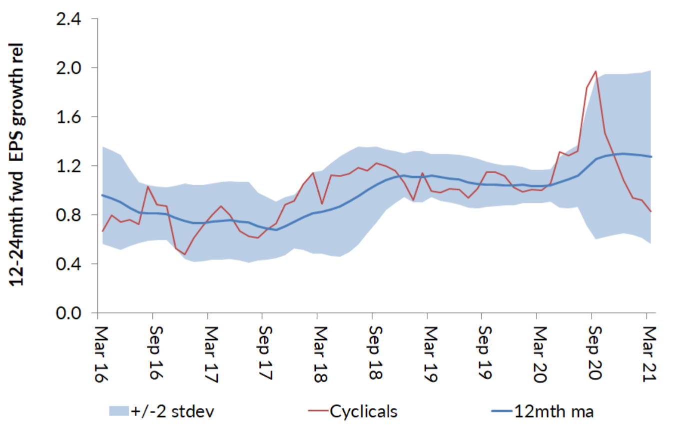
Source: Forsyth Barr analysis, Bloomberg

Figure 43. Normalised EPS growth: Cyclicals



Source: Forsyth Barr analysis, Bloomberg

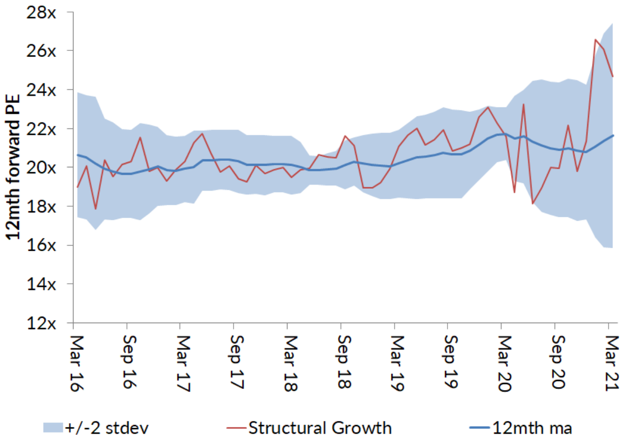
Figure 44. Normalised EPS growth relative: Cyclicals



Source: Forsyth Barr analysis, Bloomberg

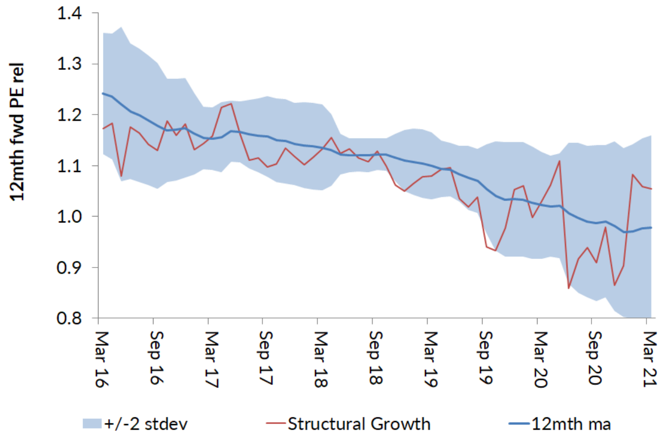
12 month forward PE

Figure 45. 12 month forward PE: Structural growth



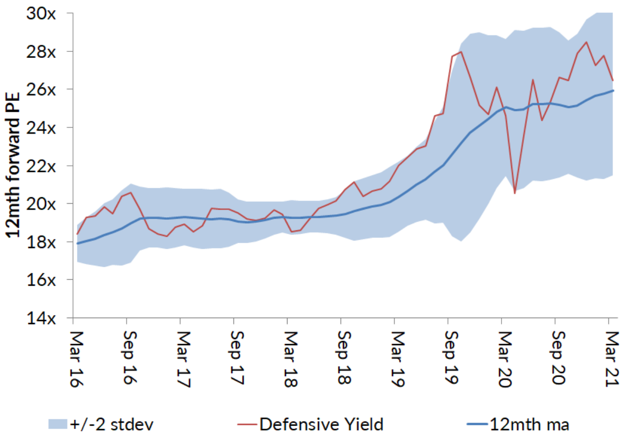
Source: Forsyth Barr analysis, Bloomberg

Figure 46. 12 month forward PE relative: Structural growth



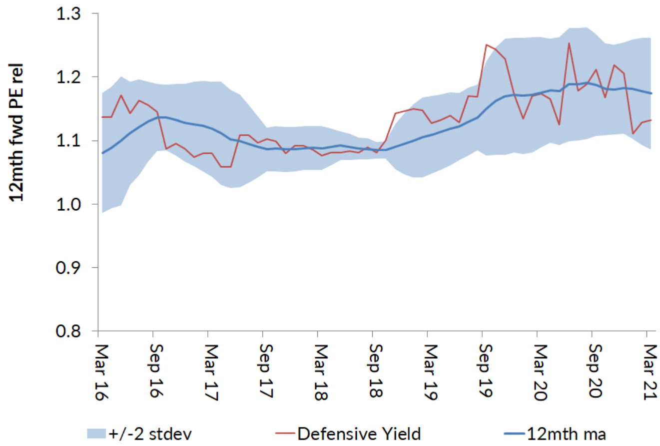
Source: Forsyth Barr analysis, Bloomberg

Figure 47. 12 month forward PE: Defensive yield



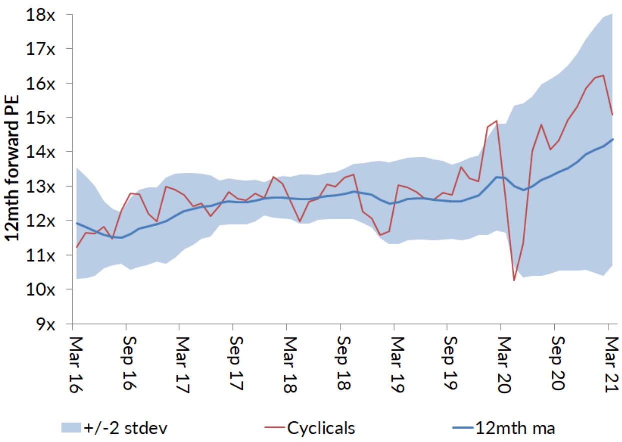
Source: Forsyth Barr analysis, Bloomberg

Figure 48. 12 month forward PE relative: Defensive yield



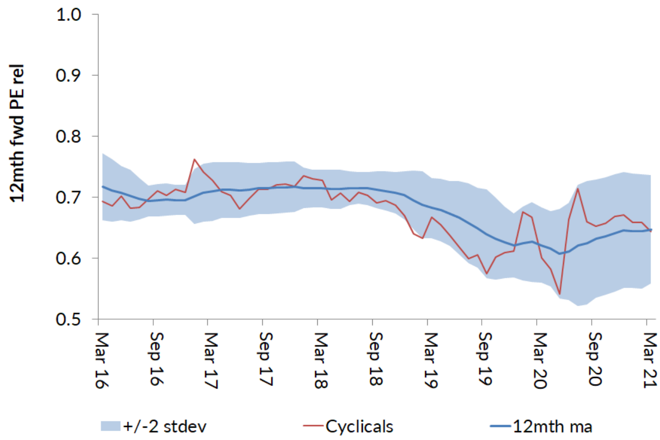
Source: Forsyth Barr analysis, Bloomberg

Figure 49. 12 month forward PE: Cyclicals



Source: Forsyth Barr analysis, Bloomberg

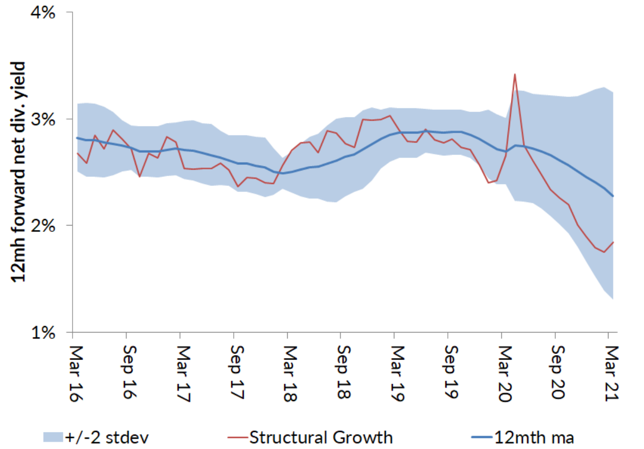
Figure 50. 12 month forward PE relative: Cyclicals



Source: Forsyth Barr analysis, Bloomberg

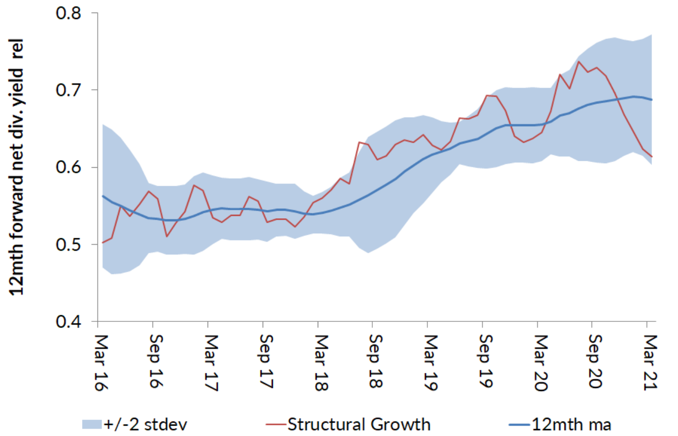
12 month forward net dividend yield

Figure 51. 12 month forward net div. yield: Structural growth



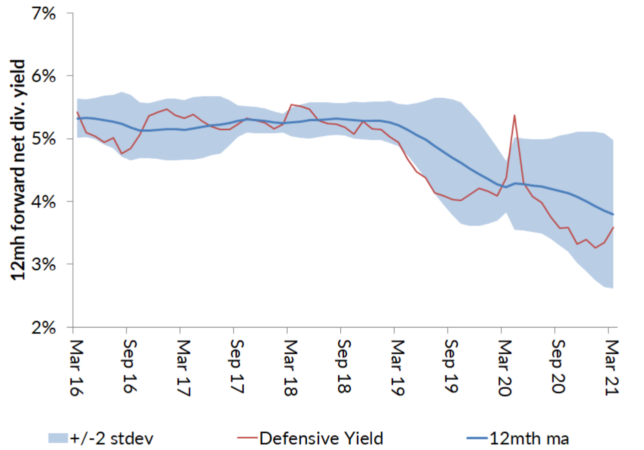
Source: Forsyth Barr analysis, Bloomberg

Figure 52. 12 month forward net div. yield rel: Structural growth



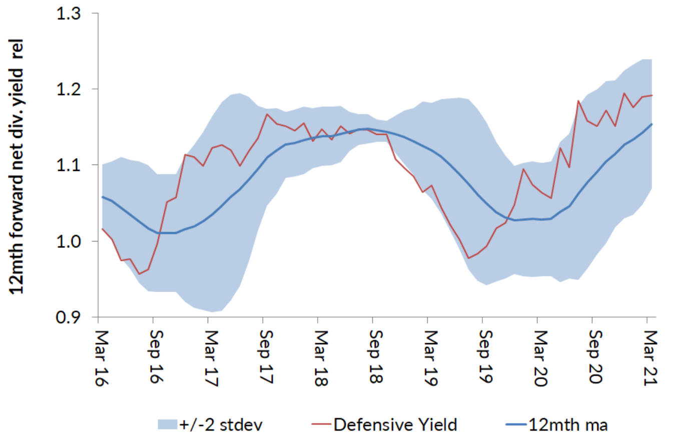
Source: Forsyth Barr analysis, Bloomberg

Figure 53. 12 month forward net div. yield: Defensive yield



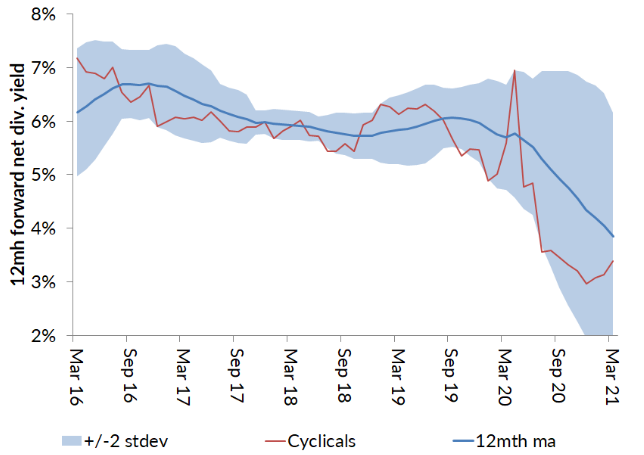
Source: Forsyth Barr analysis, Bloomberg

Figure 54. 12 month forward net div. yield rel: Defensive yield



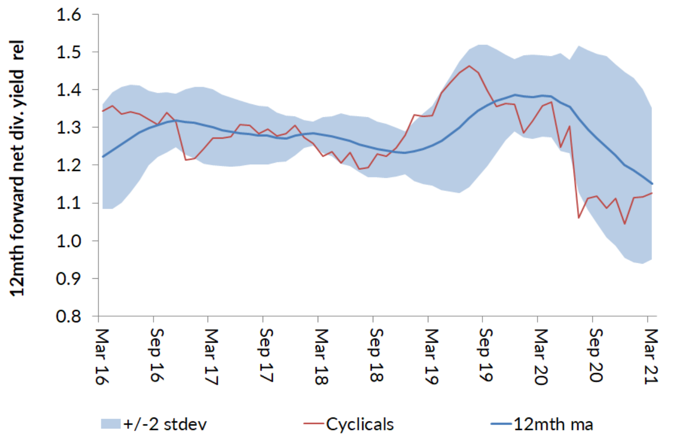
Source: Forsyth Barr analysis, Bloomberg

Figure 55. 12 month forward net div. yield: Cyclicals



Source: Forsyth Barr analysis, Bloomberg

Figure 56. 12 month forward net div. yield rel: Cyclicals

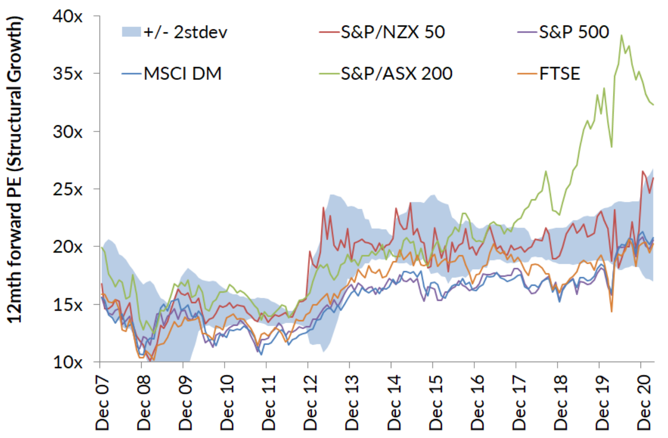


Source: Forsyth Barr analysis, Bloomberg

Global Comparisons

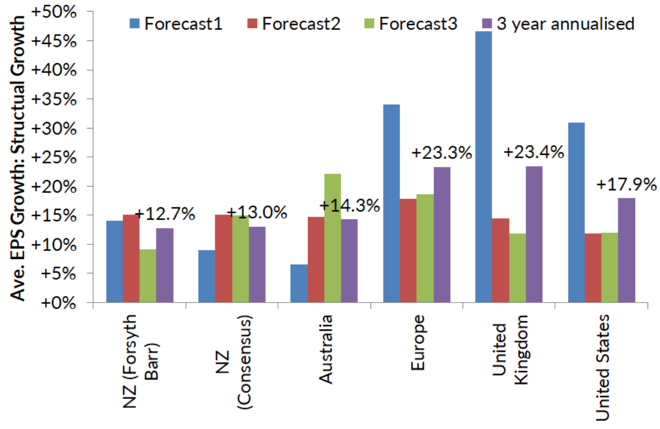
Below we show the comparison of global thematic PE multiples along with the average EPS growth for each global thematic.

Figure 57. Global 12 month forward PE: Structural growth



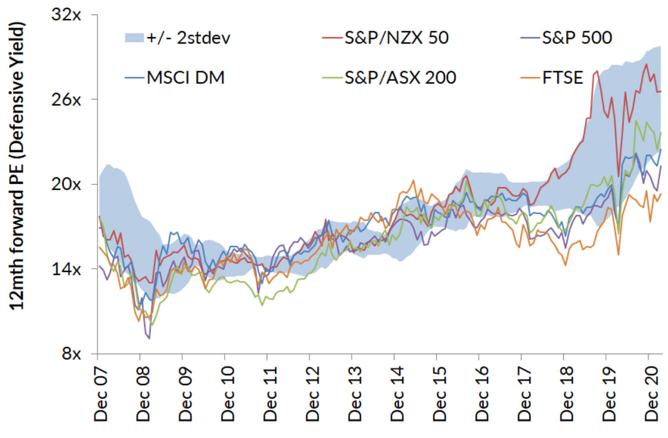
Source: Forsyth Barr analysis, Bloomberg

Figure 58. Global EPS growth (average): Structural Growth



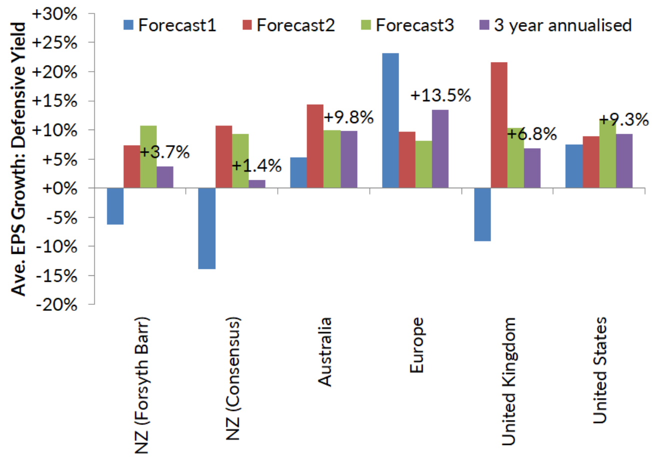
Source: Forsyth Barr analysis, Bloomberg

Figure 59. Global 12 month forward PE: Defensive yield



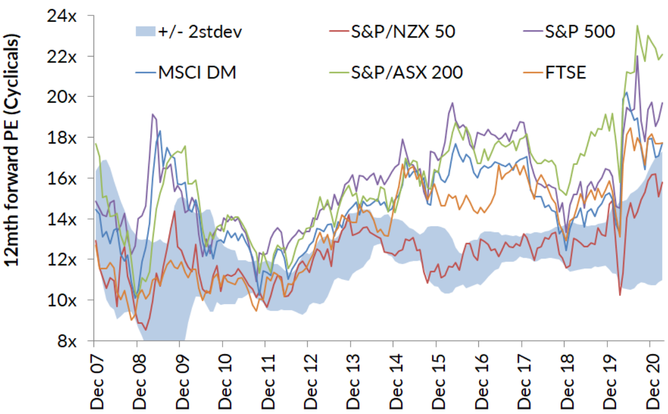
Source: Forsyth Barr analysis, Bloomberg

Figure 60. Global EPS growth (average): Defensive yield



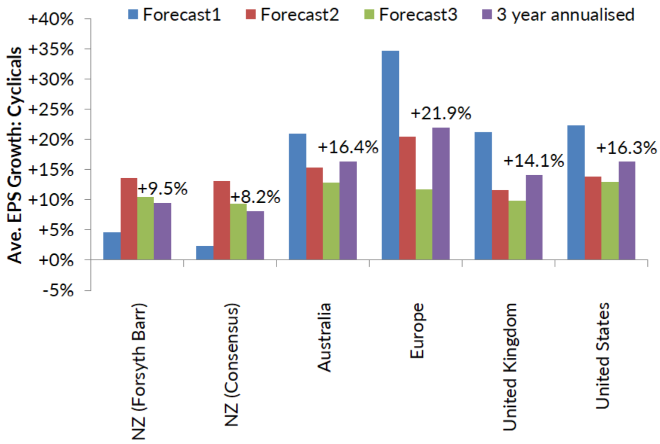
Source: Forsyth Barr analysis, Bloomberg

Figure 61. Global 12 month forward PE: Cyclicals



Source: Forsyth Barr analysis, Bloomberg

Figure 62. Global EPS growth (average): Cyclicals

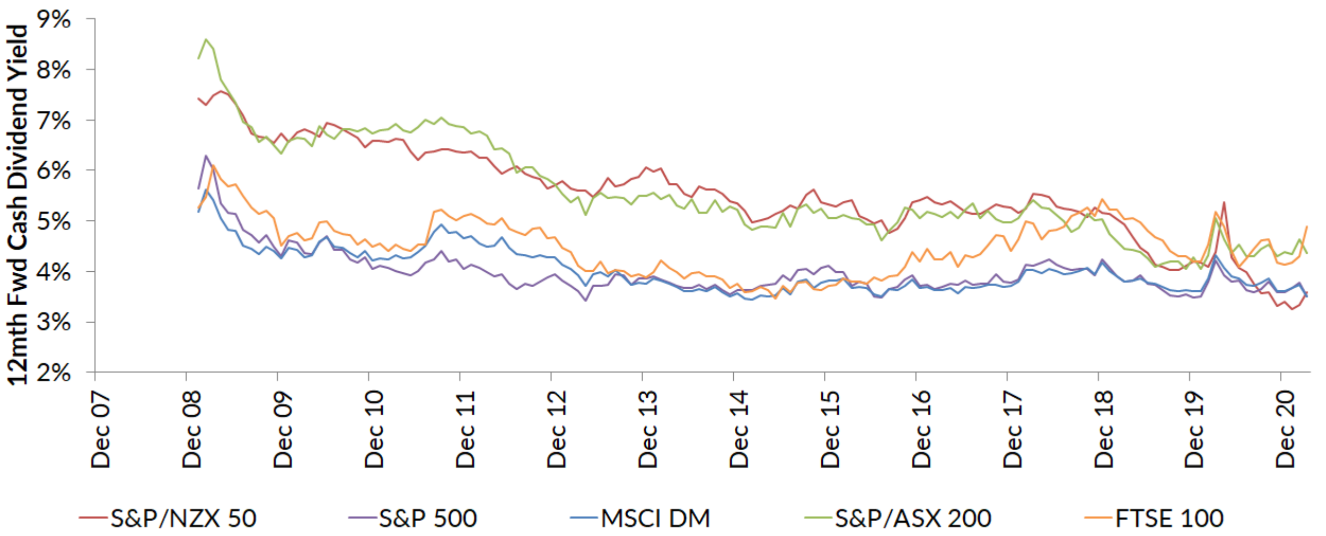


Source: Forsyth Barr analysis, Bloomberg

Global Comparison

As the hunt for yield continues, we present a comparison of global 12 month forward dividend yields across the Defensive Yield thematic.

Figure 63. Global 12 month forward net dividend yield: Defensive yield thematic

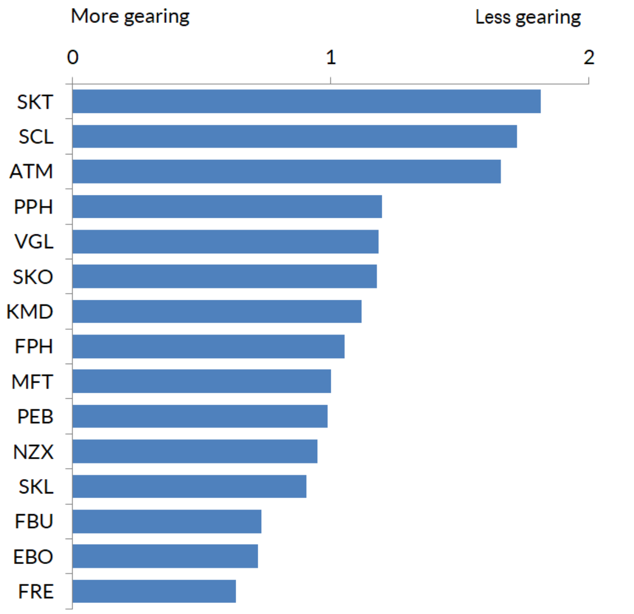


Source: Forsyth Barr analysis, Bloomberg

What is Screening Well

The charts below show the top 15 of each Quant style factor (the long of each factor) as well as each company's relative exposure to that factor.

Figure 64. (Low) gearing exposure



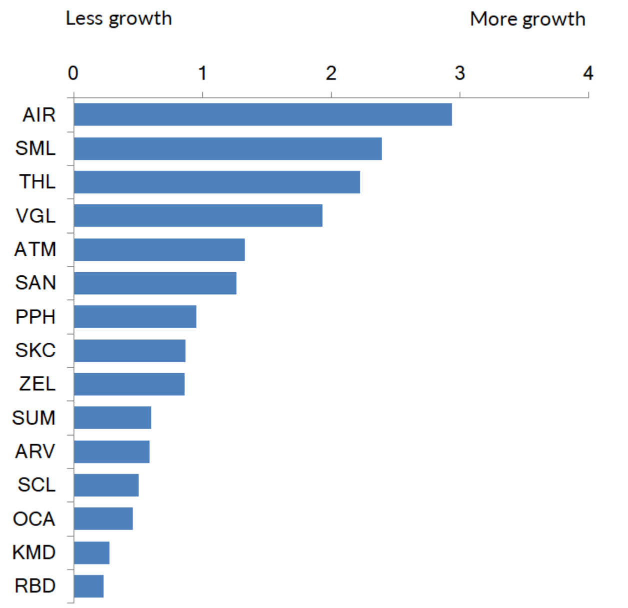
Source: Forsyth Barr analysis, Bloomberg

Figure 65. (Low) gearing screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
SKT	10.2x	+2.3%	-11.8%
SCL	22.3x	+4.1%	+19.2%
ATM	23.8x	0.0%	+19.3%
PPH	49.5x	+0.1%	+21.4%
VGL	n/a	0.0%	n/a
SKO	n/a	0.0%	n/a
KMD	11.7x	+4.9%	+14.9%
FPH	45.4x	+1.4%	+10.3%
MFT	33.7x	+1.2%	+12.7%
PEB	n/a	n/a	n/a
NZX	31.3x	+3.1%	+13.4%
SKL	20.8x	+4.0%	+7.3%
FBU	15.9x	+3.9%	+0.7%
EBO	24.4x	+2.9%	+8.1%
FRE	22.8x	+3.4%	+7.5%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Figure 66. Growth exposure



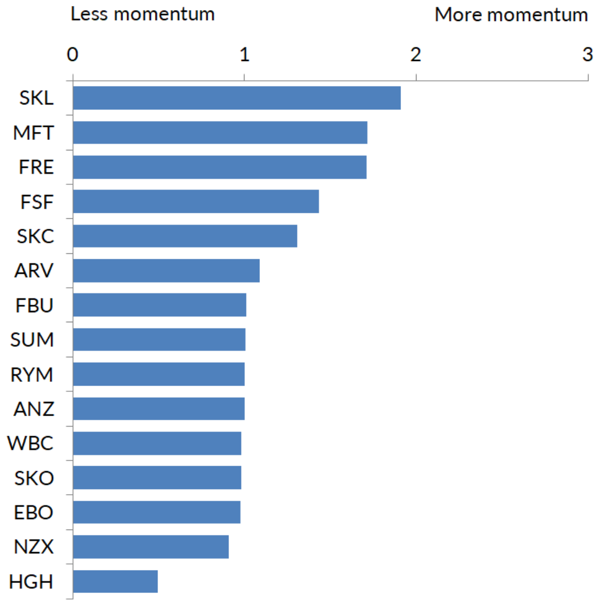
Source: Forsyth Barr analysis, Bloomberg

Figure 67. Growth screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
AIR	n/a	+1.2%	n/a
SML	21.0x	0.0%	n/a
THL	n/a	+0.4%	n/a
VGL	n/a	0.0%	n/a
ATM	23.8x	0.0%	+19.3%
SAN	17.7x	+1.8%	+34.3%
PPH	49.5x	+0.1%	+21.4%
SKC	23.7x	+3.2%	+23.1%
ZEL	17.4x	+8.7%	+36.8%
SUM	20.0x	+1.5%	+21.0%
ARV	13.8x	+3.9%	+16.7%
SCL	22.3x	+4.1%	+19.2%
OCA	15.4x	+3.3%	+20.5%
KMD	11.7x	+4.9%	+14.9%
RBD	29.7x	+0.1%	+16.5%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Figure 68. Momentum exposure



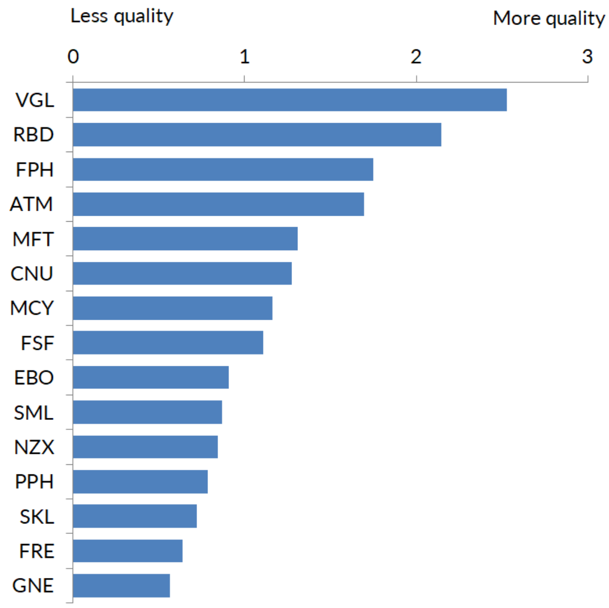
Source: Forsyth Barr analysis, Bloomberg

Figure 69. Momentum screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
SKL	20.8x	+4.0%	+7.3%
MFT	33.7x	+1.2%	+12.7%
FRE	22.8x	+3.4%	+7.5%
FSF	14.7x	+3.2%	+11.3%
SKC	23.7x	+3.2%	+23.1%
ARV	13.8x	+3.9%	+16.7%
FBU	15.9x	+3.9%	+0.7%
SUM	20.0x	+1.5%	+21.0%
RYM	25.0x	+2.0%	+13.2%
ANZ	14.0x	+4.8%	+3.4%
WBC	14.8x	+4.7%	+3.6%
SKO	n/a	0.0%	n/a
EBO	24.4x	+2.9%	+8.1%
NZX	31.3x	+3.1%	+13.4%
HGH	12.0x	+5.8%	+2.1%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Figure 70. Quality exposure



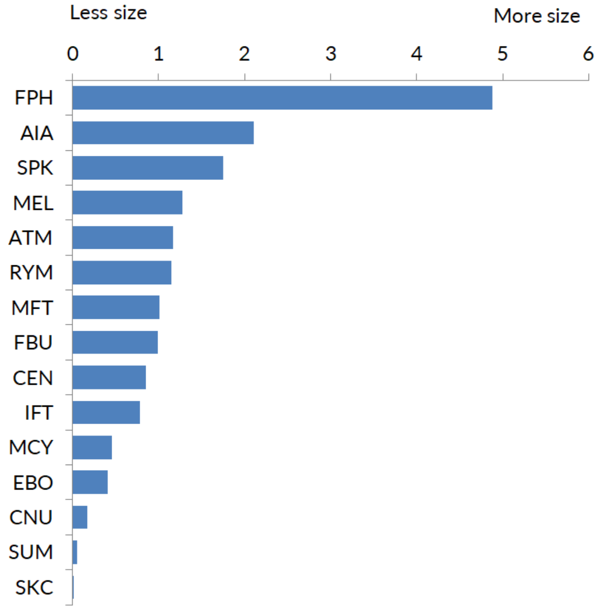
Source: Forsyth Barr analysis, Bloomberg

Figure 71. Quality screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
VGL	n/a	0.0%	n/a
RBD	29.7x	+0.1%	+16.5%
FPH	45.4x	+1.4%	+10.3%
ATM	23.8x	0.0%	+19.3%
MFT	33.7x	+1.2%	+12.7%
CNU	n/a	+3.9%	+6.5%
MCY	43.9x	+2.8%	+3.4%
FSF	14.7x	+3.2%	+11.3%
EBO	24.4x	+2.9%	+8.1%
SML	21.0x	0.0%	n/a
NZX	31.3x	+3.1%	+13.4%
PPH	49.5x	+0.1%	+21.4%
SKL	20.8x	+4.0%	+7.3%
FRE	22.8x	+3.4%	+7.5%
GNE	16.9x	+5.0%	+0.9%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Figure 72. Size exposure



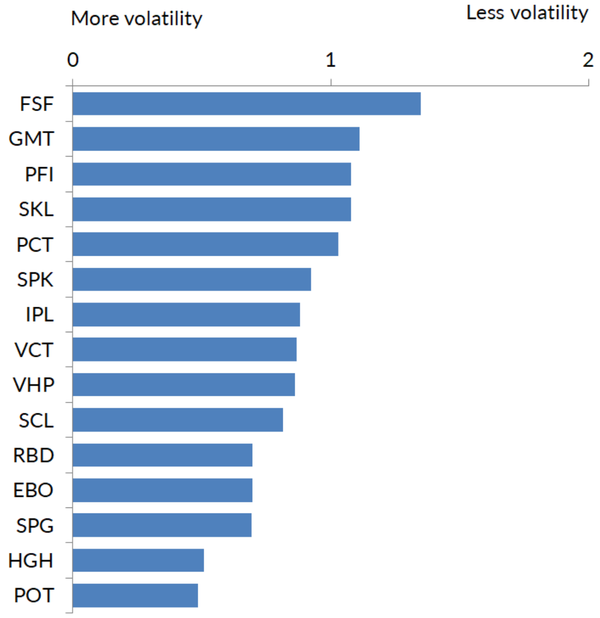
Source: Forsyth Barr analysis, Bloomberg

Figure 73. Size screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
FPH	45.4x	+1.4%	+10.3%
AIA	n/a	+0.4%	n/a
SPK	20.1x	+5.6%	+7.6%
MEL	38.3x	+3.2%	+6.5%
ATM	23.8x	0.0%	+19.3%
RYM	25.0x	+2.0%	+13.2%
MFT	33.7x	+1.2%	+12.7%
FBU	15.9x	+3.9%	+0.7%
CEN	35.1x	+5.1%	+0.5%
IFT	n/a	+2.5%	+8.8%
MCY	43.9x	+2.8%	+3.4%
EBO	24.4x	+2.9%	+8.1%
CNU	n/a	+3.9%	+6.5%
SUM	20.0x	+1.5%	+21.0%
SKC	23.7x	+3.2%	+23.1%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Figure 74. (Low) Volatility exposure



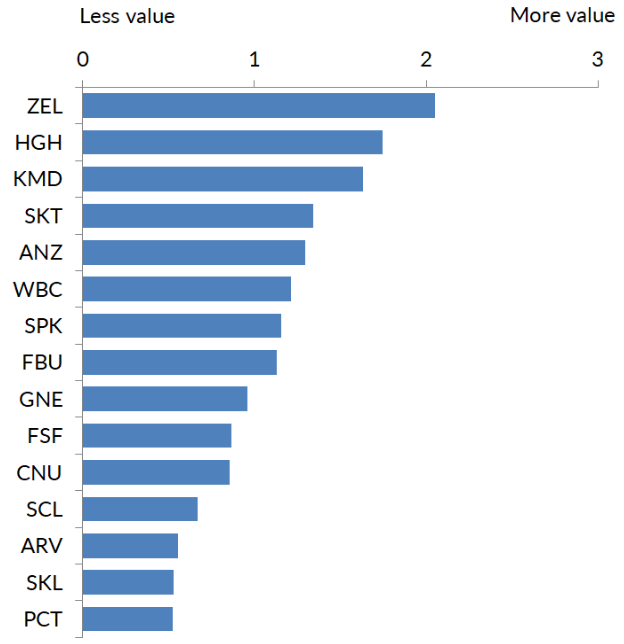
Source: Forsyth Barr analysis, Bloomberg

Figure 75. (Low) Volatility screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
FSF	14.7x	+3.2%	+11.3%
GMT	32.3x	+2.5%	+4.3%
PFI	30.2x	+2.8%	0.0%
SKL	20.8x	+4.0%	+7.3%
PCT	22.6x	+4.1%	+4.2%
SPK	20.1x	+5.6%	+7.6%
IPL	24.2x	+3.8%	+5.9%
VCT	28.3x	+4.2%	0.0%
VHP	24.3x	+3.2%	+6.7%
SCL	22.3x	+4.1%	+19.2%
RBD	29.7x	+0.1%	+16.5%
EBO	24.4x	+2.9%	+8.1%
SPG	20.4x	+4.5%	+1.8%
HGH	12.0x	+5.8%	+2.1%
POT	n/a	+1.8%	+5.9%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Figure 76. Value exposure



Source: Forsyth Barr analysis, Bloomberg

Figure 77. Value screen fundamentals

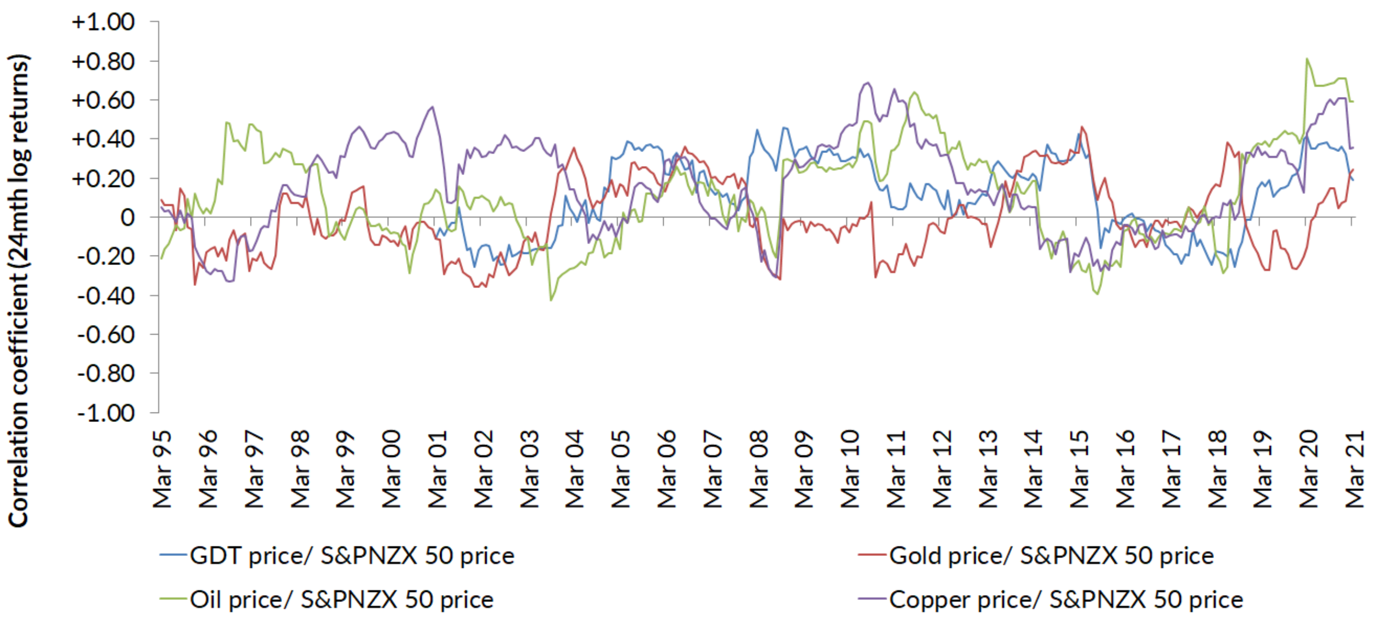
Code	12mth fwd PE	12mth fwd div. yield	EPS growth
ZEL	17.4x	+8.7%	+36.8%
HGH	12.0x	+5.8%	+2.1%
KMD	11.7x	+4.9%	+14.9%
SKT	10.2x	+2.3%	-11.8%
ANZ	14.0x	+4.8%	+3.4%
WBC	14.8x	+4.7%	+3.6%
SPK	20.1x	+5.6%	+7.6%
FBU	15.9x	+3.9%	+0.7%
GNE	16.9x	+5.0%	+0.9%
FSF	14.7x	+3.2%	+11.3%
CNU	n/a	+3.9%	+6.5%
SCL	22.3x	+4.1%	+19.2%
ARV	13.8x	+3.9%	+16.7%
SKL	20.8x	+4.0%	+7.3%
PCT	22.6x	+4.1%	+4.2%
S&P/NZX 50 mean	24.0x	+3.0%	+9.4%

Source: Forsyth Barr analysis, Bloomberg

Patterns and Trends

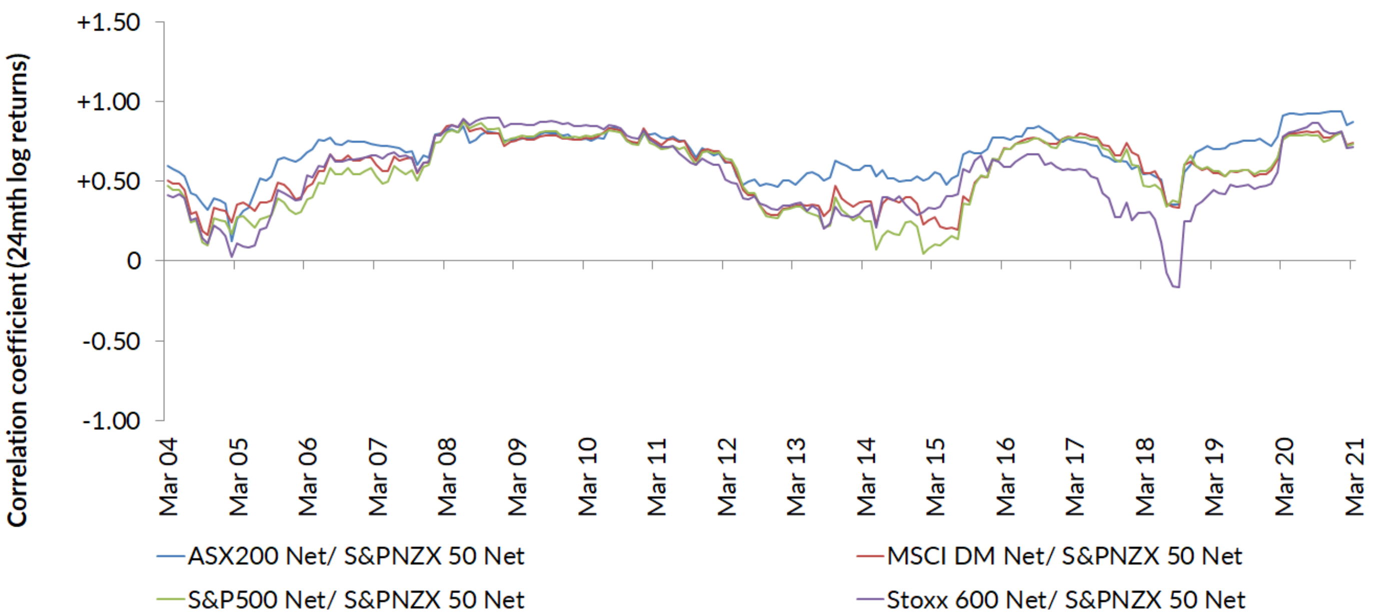
Below we show the correlation of the New Zealand equity market (be it returns or prices with various commodities, currencies, interest rates and other markets) on a 24 month rolling basis.

Figure 78. Key commodity price correlations to New Zealand equity market prices



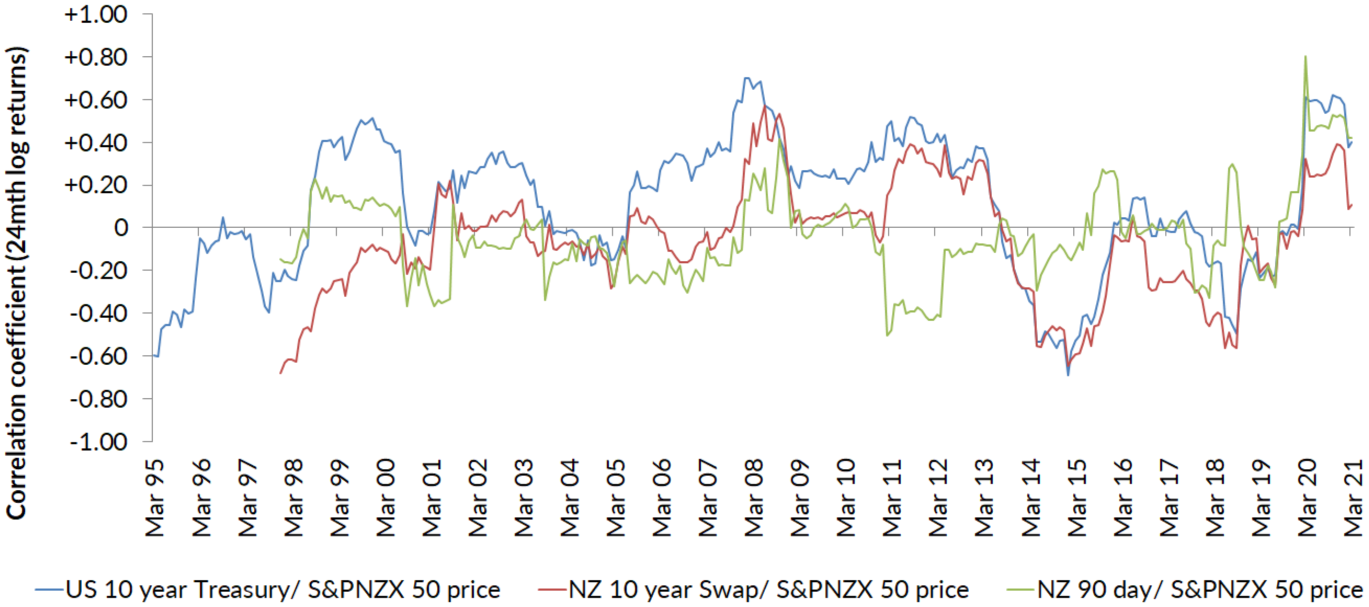
Source: Forsyth Barr analysis, Bloomberg

Figure 79. Key overseas market correlations to New Zealand equity market returns



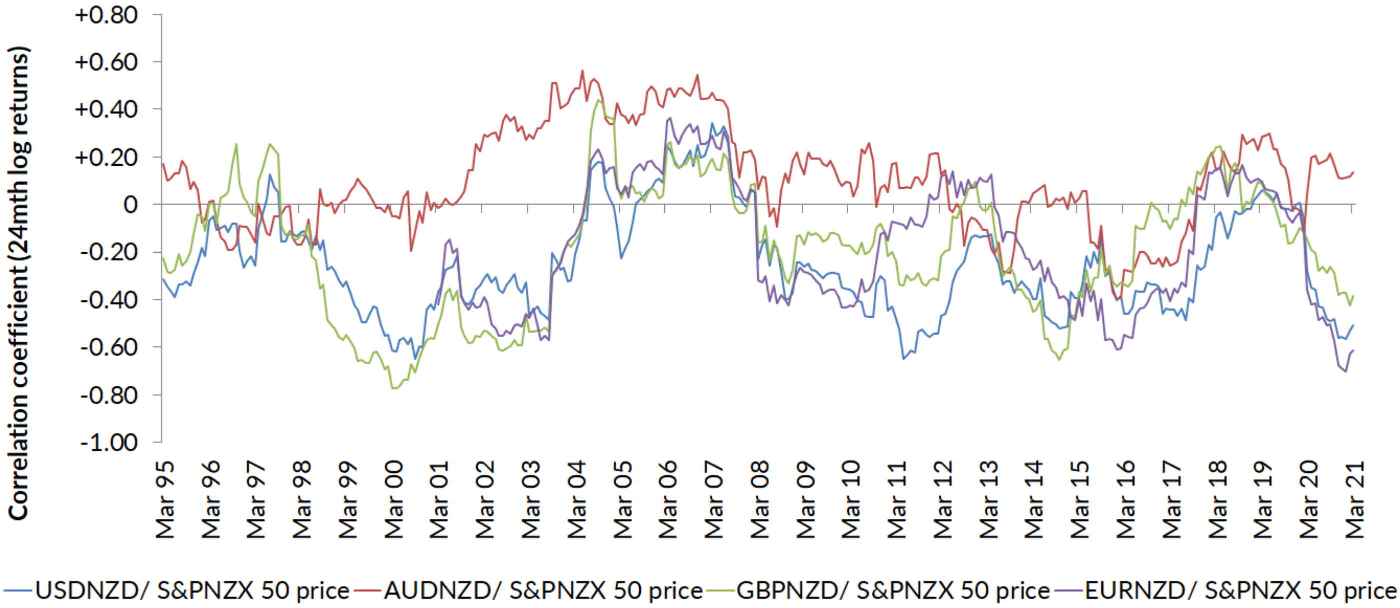
Source: Forsyth Barr analysis, Bloomberg

Figure 80. Key interest rate duration correlations to New Zealand equity market prices



Source: Forsyth Barr analysis, Bloomberg

Figure 81. Key currency correlations to New Zealand equity market prices

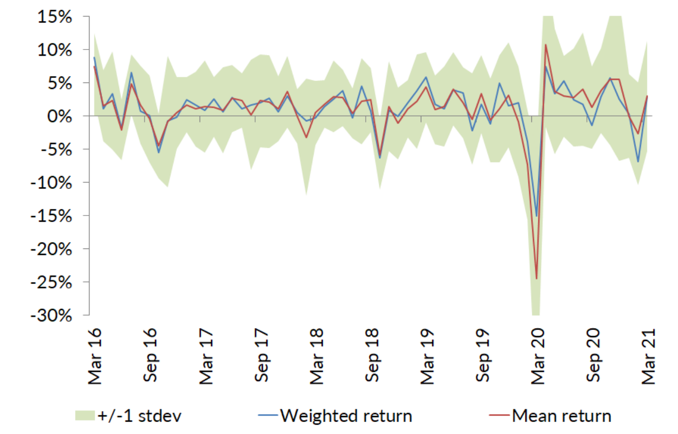


Source: Forsyth Barr analysis, Bloomberg

Return Dispersion

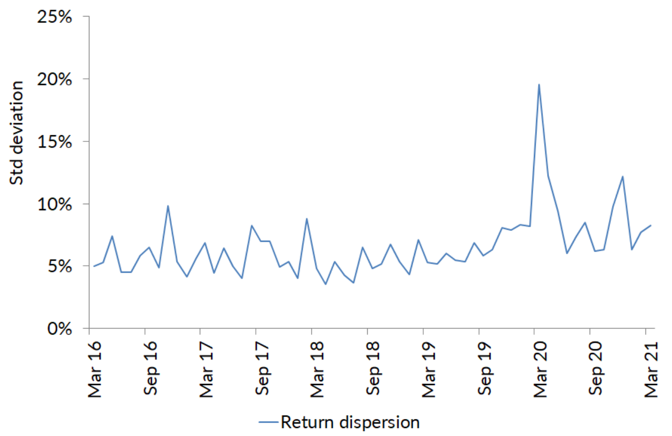
The following charts show the return and contribution dispersion and concentration for the S&P/NZX 50, market leadership, as well as the average pairwise stock-to-stock correlation.

Figure 82. Return dispersion: Weighted versus average



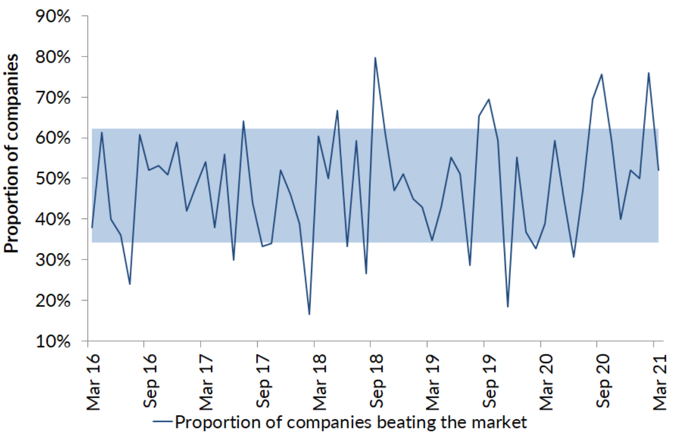
Source: Forsyth Barr analysis, Bloomberg

Figure 83. Return dispersion



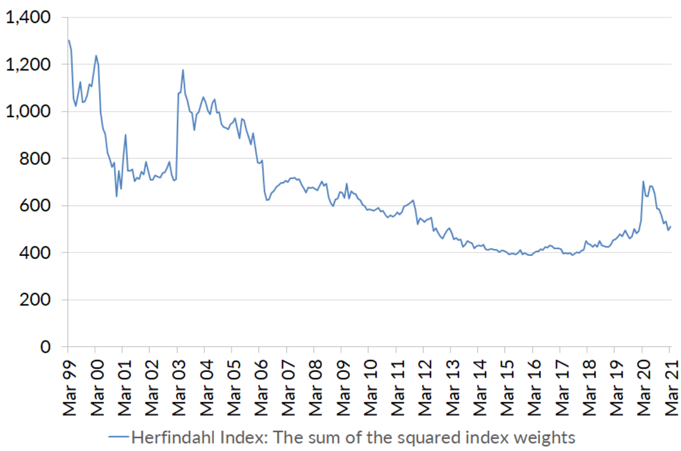
Source: Forsyth Barr analysis, Bloomberg

Figure 84. Market leadership



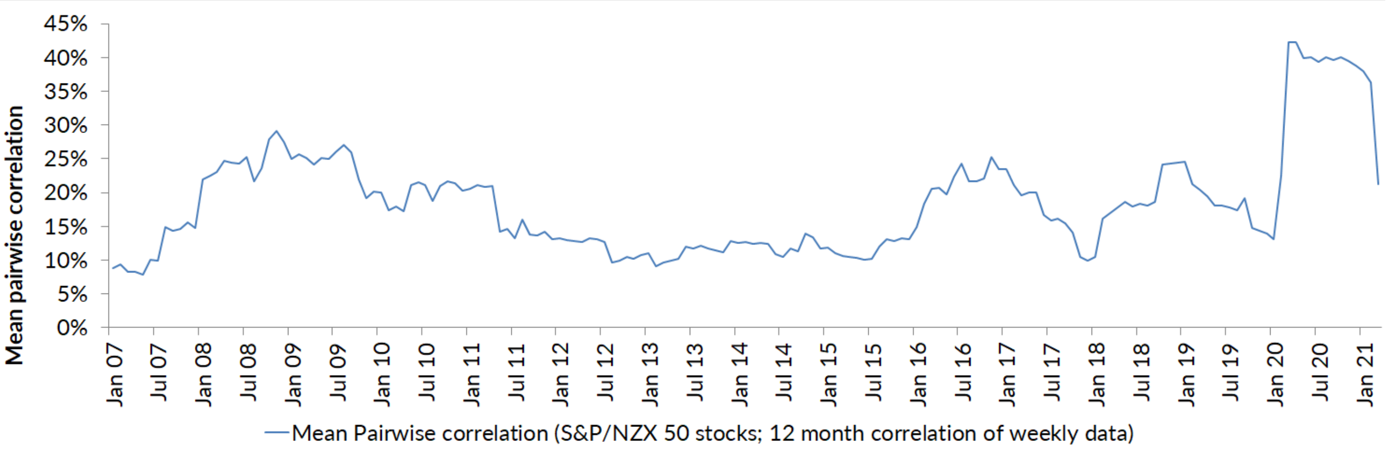
Source: Forsyth Barr analysis, Bloomberg

Figure 85. Market Concentration



, Source: Forsyth Barr analysis, Bloomberg

Figure 86. Mean average pairwise stock-to-stock correlation

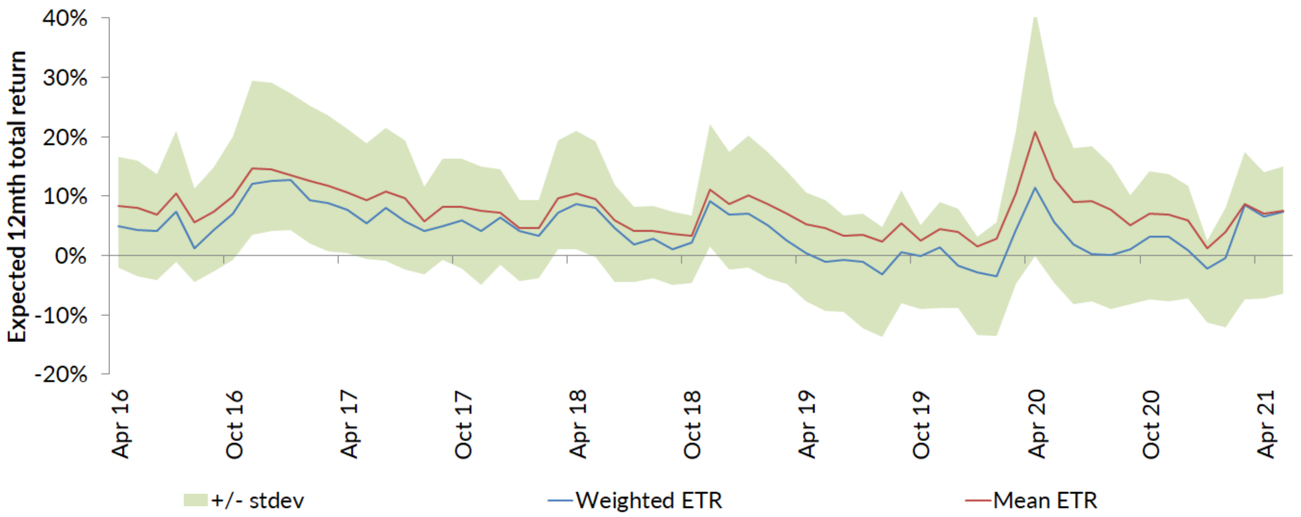


Source: Forsyth Barr analysis, Bloomberg

Expectations

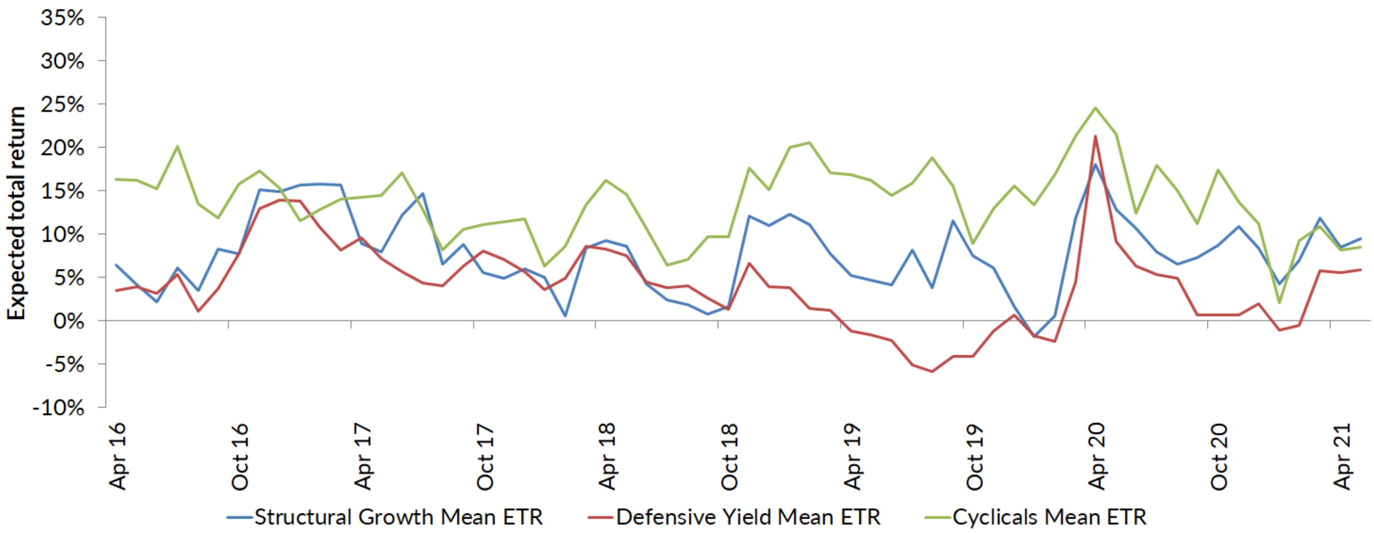
Below we show the mean, range and standard deviation of the Expected Total Return (ETR) for the market and each of the thematics.

Figure 87. S&P/NZX 50 expected total returns



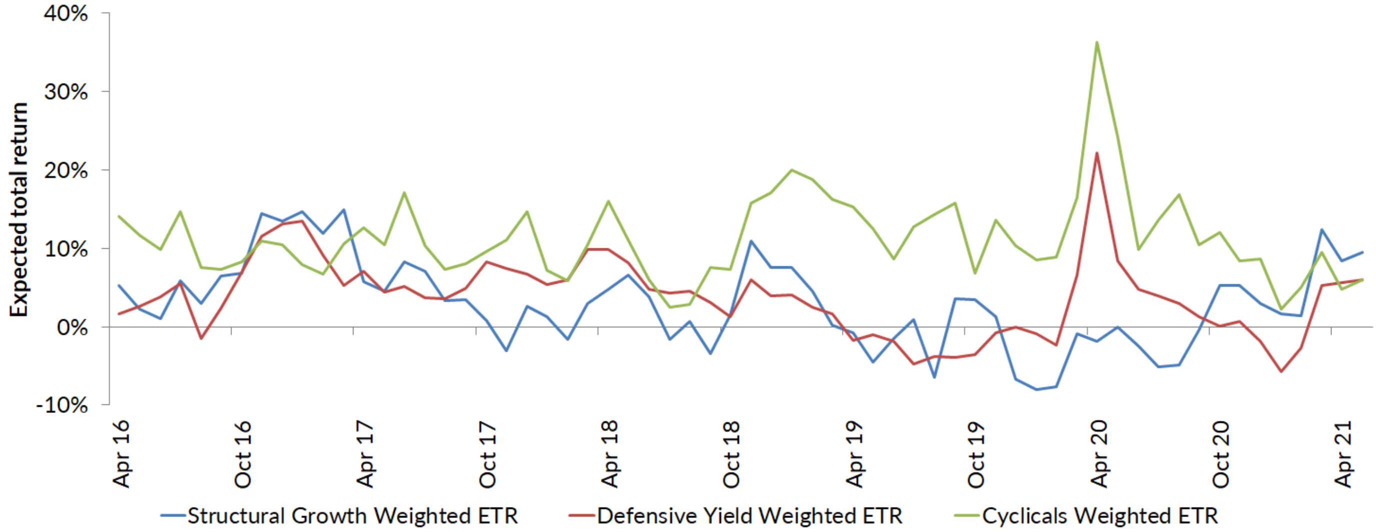
Source: Forsyth Barr analysis, Bloomberg

Figure 88. Expected average total returns – By thematic



Source: Forsyth Barr analysis, Bloomberg

Figure 89. Expected weighted average total returns – By thematic



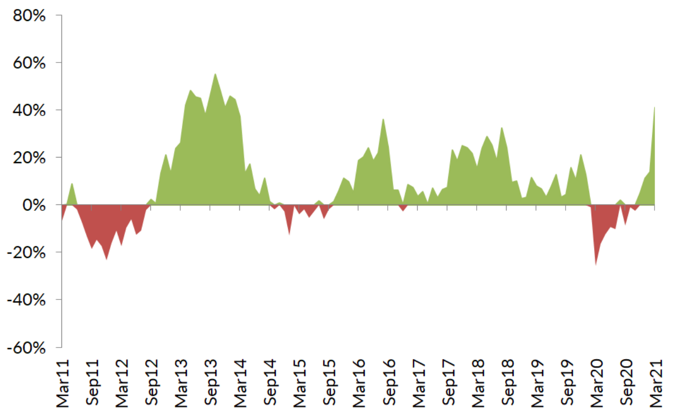
Source: Forsyth Barr analysis, Bloomberg

FORSYTH BARR

ETR versus History

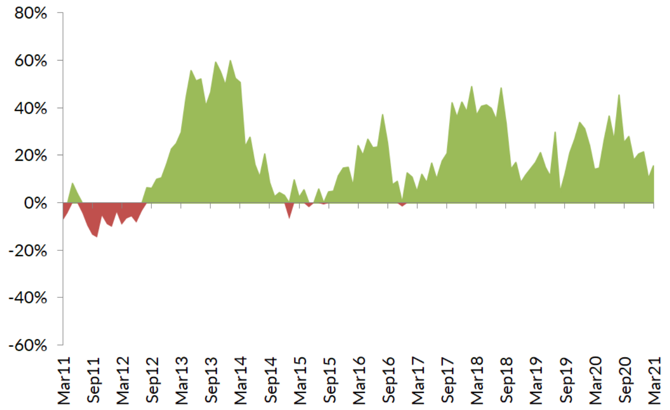
We also present the history of actual 12-month return less the Expected Total Return (ETR), at an average and weighted average level, split by thematic.

Figure 90. Act 12mth return less ETR: Structural growth (ave)



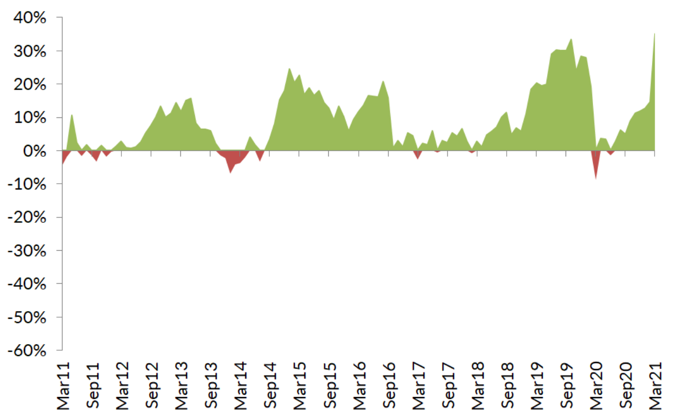
gSource: Forsyth Barr analysis, Bloomberg

Figure 91. Act 12mth return less ETR: Structural gwth (wgtd ave)



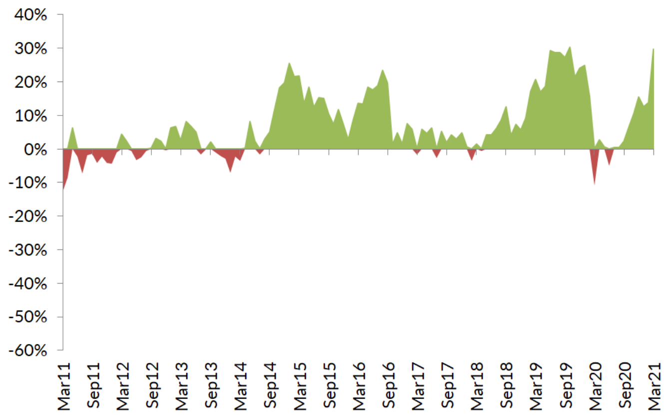
Source: Forsyth Barr analysis, Bloomberg

Figure 92. Act 12mth return less ETR: Defensive yield (ave)



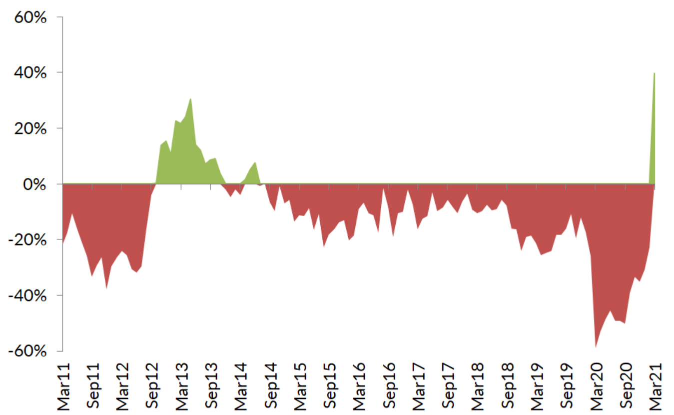
Source: Forsyth Barr analysis, Bloomberg

Figure 93. Act 12mth return less ETR: Defensive yield (wgtd ave)



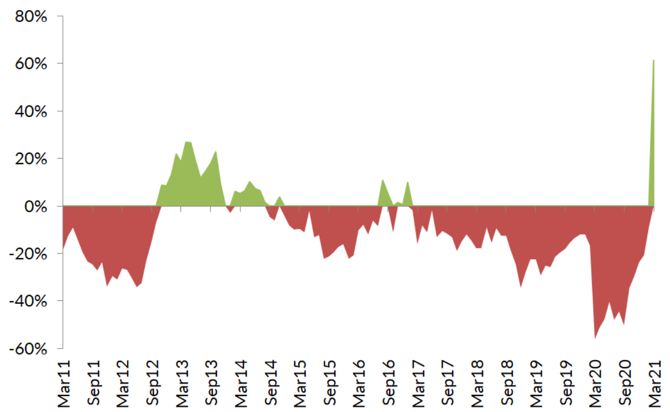
Source: Forsyth Barr analysis, Bloomberg

Figure 94. Act 12mth return less ETR: Cyclicals (ave)



Source: Forsyth Barr analysis, Bloomberg

Figure 95. Act 12mth return less ETR: Cyclicals (wgtd ave)



Source: Forsyth Barr analysis, Bloomberg

Appendix 1: Metric Definition

The figures below provide a brief explanation of what we are looking for in each style factor, the metrics that we use to screen for those characteristics, and finally how the screens are constructed.

All data is sourced from Bloomberg.

Figure 96. What we are looking for in each Quant style factor

Style Factor	What are we looking for?
(Low) Gearing	Companies with the lowest balance sheet gearing.
Growth	The companies with the highest forecast earnings growth.
Momentum	The companies with the strongest trend in price and earnings in recent history.
Quality	The companies whose analysts have consistently upgraded operating cashflows and dividends over time, along with low payout ratios which indicate they have profitable avenues for investment in their own business.
Size	The largest companies, as measured by free float.
(Low) Volatility	The companies with the least volatile recent trading histories.
Value	The least expensive companies.

Source: Forsyth Barr analysis

Figure 97. What metrics go in which Quant style factor

Style Factor	Style metric	Explanation
(Low) Gearing	12mth fwd ND to EBITDA*	Ratio of 12 month forward net debt to EBITDA
(Low) Gearing	12mth fwd ND to EV*	Ratio of 12 month forward net debt to EV.
Growth	12-24 CF growth	24 month forward operating cashflow divided by 12 month forward operating cashflow, less one.
Growth	12-24 EBITDA growth	24 month forward EBITDA divided by 12 month forward EBITDA, less one.
Growth	12-24 EPS growth	24 month forward EPS divided by 12 month forward EPS, less one.
Growth	12-24 Revenue growth	24 month forward Revenue divided by 12 month forward Revenue, less one.
Momentum	Price mom. (3mth)	The t-stat of the estimated slope of the previous 13 weeks of price forecasts.
Momentum	EPS mom. (3mth)	The t-stat of the estimated slope of the previous 13 weeks of 12 month forward EPS forecasts.
Momentum	Price mom. (12mth)	The t-stat of the estimated slope of the previous 52 weeks of price forecasts.
Momentum	EPS mom. (12mth)	The t-stat of the estimated slope of the previous 52 weeks of 12 month forward EPS forecasts.
Quality	Cashflow trend (24mth)	The t-stat of the estimated slope of the previous 104 weeks of 12 month forward operating cashflow forecasts.
Quality	DPS trend (24mth)	The t-stat of the estimated slope of the previous 104 weeks of 12 month forward dividend per share forecasts.
Quality	12mth fwd Payout ratio*	Ratio of 12 month forward dividend per share to 12 month forward operating cashflow per share.
Size	Free float MC	Free float market cap.
(Low) Volatility	Return beta (12mth)*	The covariance of the previous 52 weeks of stock returns and the market, divided by the variance of market returns.
(Low) Volatility	Return Volatility (12mth)*	The standard deviation of the previous 52 weeks of stock returns.
Value	12mth fwd PE*	Ratio of price to 12 month forward earnings.
Value	12mth fwd div. yield	Ratio of 12 month forward dividend per share to price.
Value	12mth fwd EV/EBITDA*	Ratio of EV to 12 month forward EBITDA

Source: Forsyth Barr analysis

Figure 98. Calculation of Quant style factors

Style Factor	Calculation
(Low) Gearing	Average relative difference to 12 month forward net-debt-to-EBITDA and 12 month forward net-debt-to-EV.
Growth	Average relative difference to 12 to 24 month operating cashflow, EBITDA, EPS and Revenue growth.
Momentum	Average relative difference to the t-stat of a univariate regression slope through 13 and 52 weeks of EPS and prices.
Quality	Average relative difference to the t-stat of a univariate regression slope through 104 weeks of 12mth forward DPS and operating cashflow estimates, as well as the z-score of the dividend-to-operating cashflow payout where lower payout is preferred.
Size	Z-score of size.
(Low) Volatility	Average relative difference to the market mean of 12 month observed beta and volatility using weekly returns.
Value	Average relative difference to the market mean of the 12 month forward PE, dividend yield and EV/EBITDA, where lower PEs and EV/EBITDAs are preferred.

Source: Forsyth Barr analysis

The average relative difference refers to the z-score (the difference between the stocks metric and the market mean, divided by the standard deviation of the metric across the market).

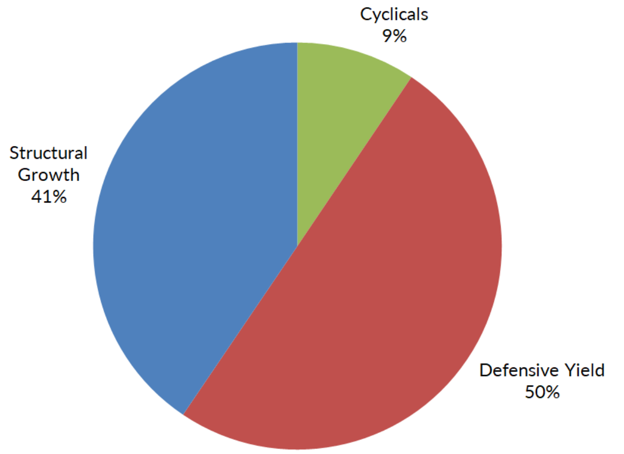
Appendix 2: Thematic Classifications

Figure 99. Forsyth Barr GIC Thematic Classification

Thematic	Global Industry Classification (GIC)
Cyclicals	Consumer Discretionary, Energy, Financials, Industrials, Materials
Defensive Yield	Communication Services, Consumer Staples, Real Estate, Utilities
Structural Growth	Health Care, Information Technology

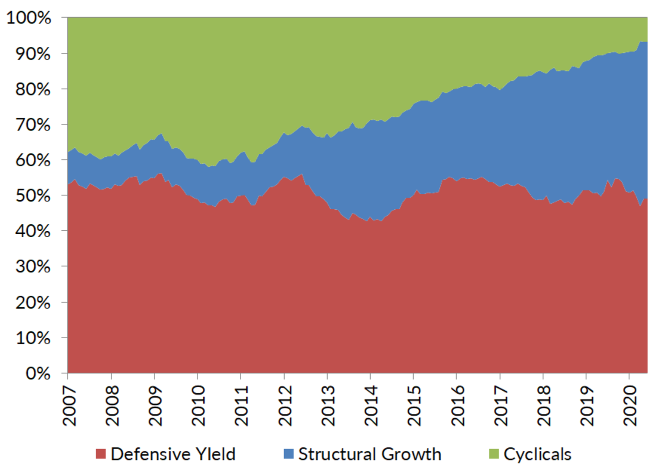
Source: Forsyth Barr analysis

Figure 100. Spot thematic weights: New Zealand



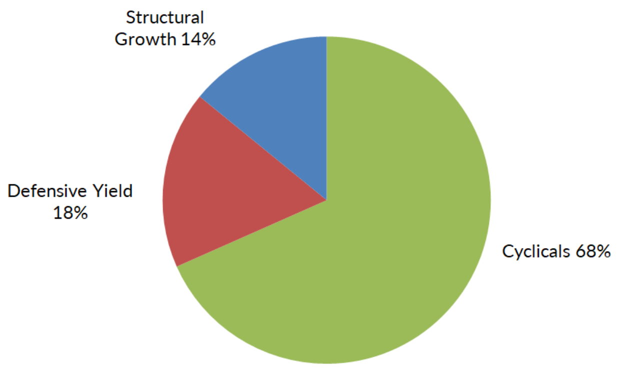
Source: Forsyth Barr analysis, IRESS

Figure 101. Historic thematic weights: New Zealand



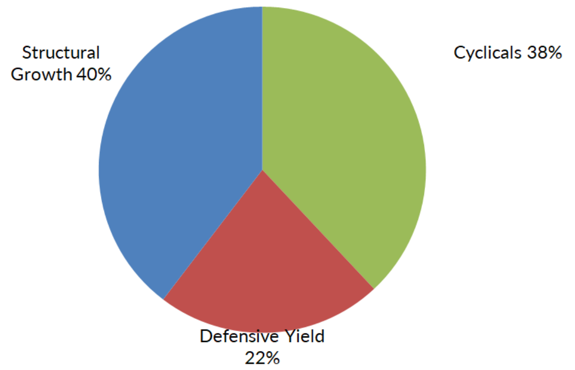
Source: Forsyth Barr analysis, Bloomberg

Figure 102. Spot thematic weights: Australia



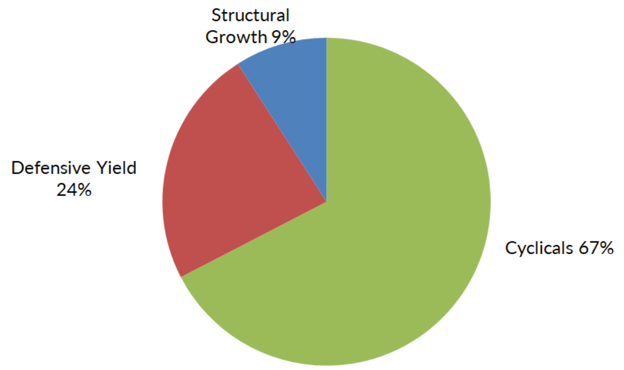
Source: Forsyth Barr analysis, Bloomberg

Figure 103. Spot thematic weights: United States



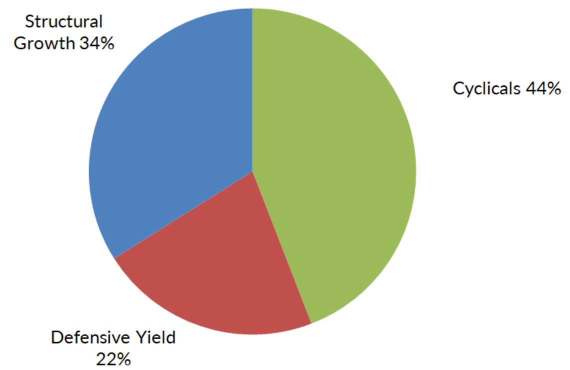
Source: Forsyth Barr analysis, Bloomberg

Figure 104. Spot thematic weights: United Kingdom



Source: Forsyth Barr analysis, Bloomberg

Figure 105. Spot thematic weights: MSCI World



Source: Forsyth Barr analysis, Bloomberg

Figure 106. Forsyth Barr Thematic sectors — alphabetical order

AIA	Defensive Yield
AIR	Cyclicals
ANZ	Cyclicals
ARG	Defensive Yield
ARV	Structural Growth
ATM	Structural Growth
CEN	Defensive Yield
CNU	Defensive Yield
EBO	Structural Growth
FBU	Cyclicals
FPH	Structural Growth
FRE	Structural Growth
FSF	Cyclicals
GMT	Defensive Yield
GNE	Defensive Yield
HGH	Cyclicals
IFT	Defensive Yield
IPL	Defensive Yield
KMD	Cyclicals
KPG	Defensive Yield
MCY	Defensive Yield
MEL	Defensive Yield
MFT	Structural Growth
NPH	Defensive Yield
NZX	Cyclicals
OCA	Structural Growth
PCT	Defensive Yield
PEB	Structural Growth
PFI	Defensive Yield
POT	Defensive Yield
PPH	Structural Growth
RBD	Defensive Yield
RYM	Structural Growth
SAN	Cyclicals
SCL	Structural Growth
SKC	Defensive Yield
SKL	Structural Growth
SKO	Structural Growth
SKT	Cyclicals
SML	Structural Growth
SPG	Defensive Yield
SPK	Defensive Yield
SUM	Structural Growth
THL	Cyclicals
TPW	Defensive Yield
VCT	Defensive Yield
VGL	Structural Growth
VHP	Defensive Yield
WBC	Cyclicals
ZEL	Defensive Yield

Source: Forsyth Barr analysis

Figure 107. Forsyth Barr Thematic sectors — by sector

AIR	Cyclicals
ANZ	Cyclicals
FBU	Cyclicals
FSF	Cyclicals
HGH	Cyclicals
KMD	Cyclicals
NZX	Cyclicals
SAN	Cyclicals
SKT	Cyclicals
THL	Cyclicals
WBC	Cyclicals
AIA	Defensive Yield
ARG	Defensive Yield
CEN	Defensive Yield
CNU	Defensive Yield
GMT	Defensive Yield
GNE	Defensive Yield
IFT	Defensive Yield
IPL	Defensive Yield
KPG	Defensive Yield
MCY	Defensive Yield
MEL	Defensive Yield
NPH	Defensive Yield
PCT	Defensive Yield
PFI	Defensive Yield
POT	Defensive Yield
RBD	Defensive Yield
SKC	Defensive Yield
SPG	Defensive Yield
SPK	Defensive Yield
TPW	Defensive Yield
VCT	Defensive Yield
VHP	Defensive Yield
ZEL	Defensive Yield
ARV	Structural Growth
ATM	Structural Growth
EBO	Structural Growth
FPH	Structural Growth
FRE	Structural Growth
MFT	Structural Growth
OCA	Structural Growth
PEB	Structural Growth
PPH	Structural Growth
RYM	Structural Growth
SCL	Structural Growth
SKL	Structural Growth
SKO	Structural Growth
SML	Structural Growth
SUM	Structural Growth
VGL	Structural Growth

Source: Forsyth Barr analysis

FORSYTH BARR

Important information about this publication

Forsyth Barr Limited ("**Forsyth Barr**") holds a licence issued by the Financial Markets Authority to provide financial advice services. In making this publication available, Forsyth Barr (and not any named analyst personally) is giving any financial advice it may contain. Some information about us and our financial advice services is publicly available. You can find that on our website at www.forsythbarr.co.nz/choosing-a-financial-advice-service

Any recommendations or opinions in this publication do not take into account your personal financial situation or investment goals, and may not be suitable for you. If you wish to receive personalised financial advice, please contact your Forsyth Barr Investment Adviser.

The value of financial products may go up and down and investors may not get back the full (or any) amount invested. Past performance is not necessarily indicative of future performance.

Forsyth Barr's research ratings are OUTPERFORM, NEUTRAL, and UNDERPERFORM. The ratings are relative to our other equity security recommendations across our New Zealand market coverage and are based on risk-adjusted Estimated Total Returns for the securities in question. Risk-adjusted Estimated Total Returns are calculated from our assessment of the risk profile, expected dividends and target price for the relevant security.

As at 7 Apr 2021, Forsyth Barr's research ratings were distributed as follows:	OUTPERFORM	NEUTRAL	UNDERPERFORM
	42.6%	44.4%	13.0%

This publication has been prepared in good faith based on information obtained from sources believed to be reliable and accurate. However, that information has not been independently verified or investigated by Forsyth Barr. If there are material inaccuracies or omissions in the information it is likely that our recommendations or opinions would be different. Any analyses or valuations will also typically be based on numerous assumptions (such as the key WACC assumptions); different assumptions may yield materially different results.

Forsyth Barr does not undertake to keep current this publication; any opinions or recommendations may change without notice to you.

In giving financial advice, Forsyth Barr is bound by duties under the Financial Markets Conduct Act 2013 ("**FMCA**") to:

- exercise care, diligence, and skill,
- give priority to the client's interests, and
- when dealing with retail clients, comply with the Code of Professional Conduct for Financial Advice Services, which includes standards relating to competence, knowledge, skill, ethical behaviour, conduct, and client care.

There are likely to be fees, expenses, or other amounts payable in relation to acting on any recommendations or opinions in this publication. If you are Forsyth Barr client we refer you to the Advice Information Statement for your account for more information.

Analyst certification: The research analyst(s) primarily responsible for the preparation and content of this publication ("**Analysts**") are named on the first page of this publication. Each such Analyst certifies (other than in relation to content or views expressly attributed to another analyst) that (i) the views expressed in this publication accurately reflect their personal views about each issuer and financial product referenced and were prepared in an independent manner, including with respect to Forsyth Barr Limited and its related companies; and (ii) no part of the Analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that Analyst in this publication.

Analyst holdings: For information about analyst holdings in a particular financial product referred to in this publication, please refer to the most recent research report for that financial product.

Other disclosures: Forsyth Barr and its related companies (and their respective directors, officers, agents and employees) ("**Forsyth Barr Group**") may have long or short positions or otherwise have interests in the financial products referred to in this publication, and may be directors or officers of, and/or provide (or be intending to provide) investment banking or other services to, the issuer of those financial products (and may receive fees for so acting). Forsyth Barr is not a registered bank within the meaning of the Reserve Bank of New Zealand Act 1989. Members of the Forsyth Barr Group may buy or sell financial products as principal or agent, and in doing so may undertake transactions that are not consistent with any recommendations contained in this publication. Other Forsyth Barr business units may hold views different from those in this publication; any such views will generally not be brought to your attention. Forsyth Barr confirms no inducement has been accepted from the issuer(s) that are the subject of this publication, whether pecuniary or otherwise, in connection with making any recommendation contained in this publication. In preparing this publication, non-financial assistance (for example, access to staff or information) may have been provided by the issuer(s) being researched.

Investment banking engagements: For information about whether Forsyth Barr has within the past 12 months been engaged to provide investment banking services to an issuer that is the subject of this publication, please refer to the most recent research report for that issuer's financial products.

Managing conflicts: Forsyth Barr follows a research process (including through the Analyst certification above) designed to ensure that the recommendations and opinions in our research publications are not influenced by the interests disclosed above.

Complaints: Information about Forsyth Barr's complaints process and our dispute resolution process is available on our website – www.forsythbarr.co.nz.

Disclaimer: Where the FMCA applies, liability for the FMCA duties referred to above cannot by law be excluded. However to the maximum extent permitted by law, Forsyth Barr otherwise excludes and disclaims any liability (including in negligence) for any loss which may be incurred by any person acting or relying upon any information, analysis, opinion or recommendation in this publication. Nothing in this publication should be construed as a solicitation to buy or sell any financial product, or to engage in or refrain from doing so, or to engage in any other transaction.

Distribution: This publication is not intended to be distributed or made available to any person in any jurisdiction where doing so would constitute a breach of any applicable laws or regulations or would subject Forsyth Barr to any registration or licensing requirement within such jurisdiction.

Terms of use: Copyright Forsyth Barr Limited. You may not redistribute, copy, revise, amend, create a derivative work from, extract data from, or otherwise commercially exploit this publication in any way. By accessing this publication via an electronic platform, you agree that the platform provider may provide Forsyth Barr with information on your readership of the publications available through that platform.