

What's in Style

A Quality Quarter, A Momentous Year

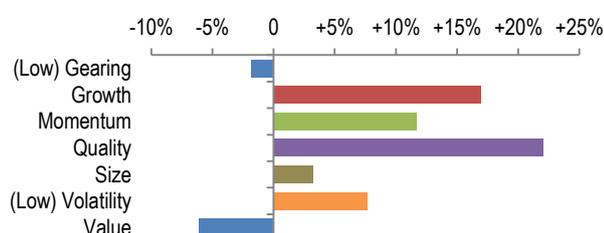
The decade has finished on a high with the New Zealand benchmark S&P/NZX 50 Index delivering an impressive return of +30.4% for the year (+5.2% for the quarter). This rounds off a very strong run for equity markets worldwide over the last 10 years, with the NZ market a stand out with an annualised return of +13.5% pa. *Structural Growth* provided the largest gains for the December quarter with rewards going to holders of *Quality* and/or *Growth* portfolios. For the 2019 year, *Structural Growth* and *Defensive Yield* performed equally well, with portfolios weighted to *Momentum* and/or *Low Volatility* providing rewards.

Quality comes out on top

Using the differential performance between the best and worst factor constituents provides the best measure of a style factors contribution. We find that during the December 2019 quarter, *Quality* and *Growth* were the dominant style factors within the NZ market. The rotation to *Value*, seen in Sept 2019, was indeed short-lived and finished the year as the worst performing factor for both the quarter and year.

Unsurprisingly, with the continual hunt for yield, *Low Volatility* featured strongly for the 2019 year.

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



Source: Forsyth Barr analysis, Bloomberg

We construct, through our factor database, long (and short) portfolios for each of the style factors. In a low growth environment, with significant geo-political risk, investors will continue to look for quality exposure. We outline in Figure 4 the top 15 companies which currently screen well for *Quality*.

Momentum — a driver over the long term

With the turn of the decade having passed, we see that over the long term *Momentum* portfolios have delivered the best outcomes for the 10 years to Dec 2019 (using a long run average quarterly ranking).

Figure 2. Average quarterly ranking (long - short, three months)

Period	(Low)				(Low)		
	Gearing	Growth	Mom	Quality	Size	Volatility	Value
Current	6.0	2.0	3.0	1.0	5.0	4.0	7.0
Prior 3 mths	4.7	2.7	5.3	1.3	5.3	3.7	5.0
Prior 6 mths	4.8	4.0	4.2	3.2	4.2	2.5	5.2
1 Year	5.0	4.9	2.9	4.0	3.0	2.6	5.6
3 Years	4.2	4.3	3.1	3.4	3.3	4.3	5.5
5 Years	4.4	4.1	2.8	3.6	3.3	4.6	5.2
10 Years	4.4	4.6	2.7	3.9	3.8	4.1	4.6
12 Years	4.4	4.6	2.9	4.1	3.8	3.9	4.4

Source: Forsyth Barr analysis, Bloomberg

Matthew Leach

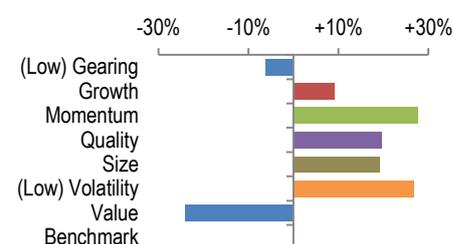
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Figure 3. Style factor returns (long-short, 12 months)



Source: Forsyth Barr analysis, Bloomberg

Figure 4. Dec 2109 Quantitative Quality Screen

Code	12mth fwd PE	12mth fwd div. yield	12-24mth EPS growth
MFT	24.8x	+2%	+11%
FRE	19.4x	+4%	+10%
SML	15.7x	0	+19%
CNU	0.0x	+4%	+5%
ARV	16.3x	+3%	+8%
ATM	29.2x	+0%	+18%
RBD	32.5x	0	+17%
RYM	28.6x	+2%	+15%
SUM	17.2x	+2%	+13%
VCT	29.4x	+5%	-11%
SKL	14.9x	+6%	+5%
OCA	14.2x	+4%	+2%
MET	14.7x	+2%	+12%
AIR	10.2x	+8%	+11%
PCT	26.2x	+3%	+6%
Market ave	21.8x	+4%	+9%

Source: Forsyth Barr analysis, Bloomberg

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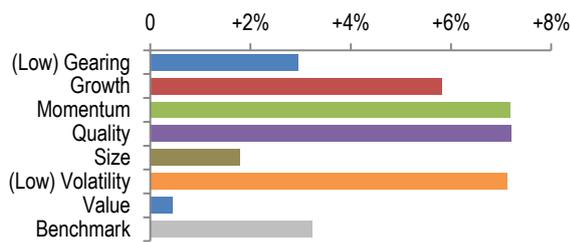
What's Worked

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.

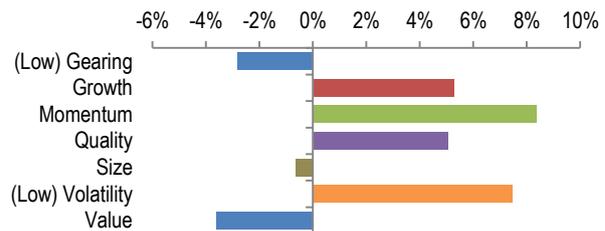
One month

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



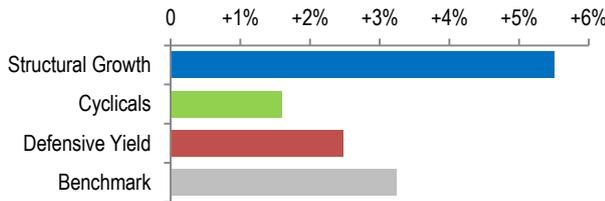
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



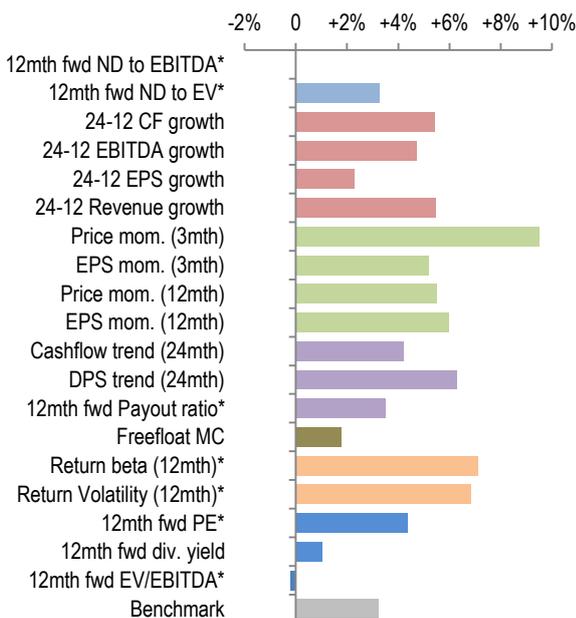
Source: Forsyth Barr analysis, Bloomberg

Figure 7. Thematic performance, one month



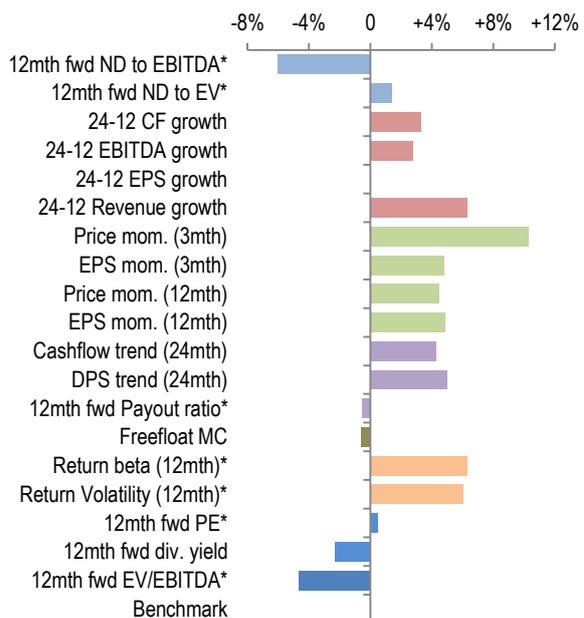
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



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

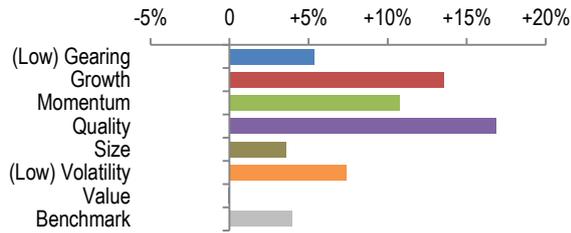
Figure 9. Style metric returns (long-short, one month)



Source: Forsyth Barr analysis, Bloomberg

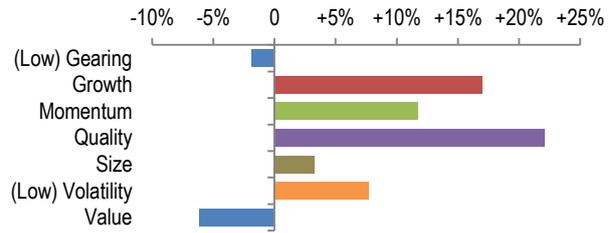
Three months

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



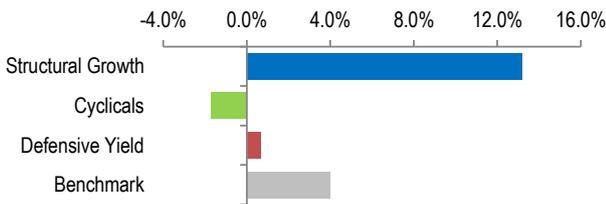
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



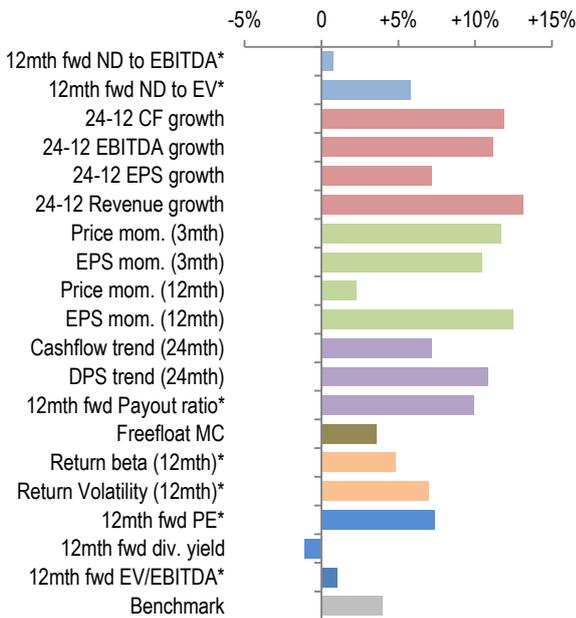
Source: Forsyth Barr analysis, Bloomberg

Figure 12. Thematic performance, three months



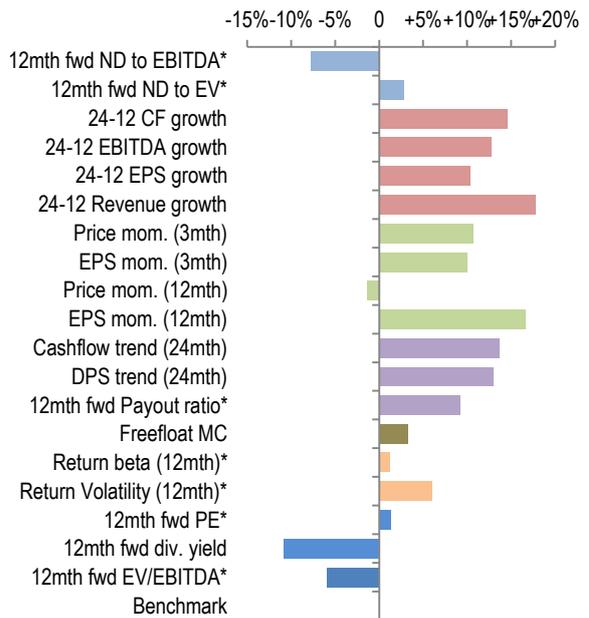
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



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

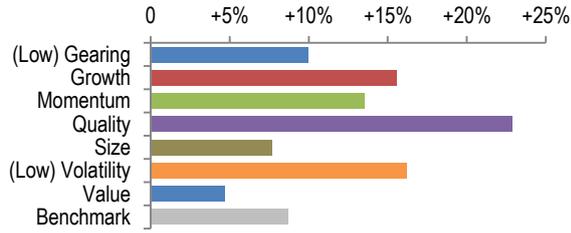
Figure 14. Style metric returns (long-short, three months)



Source: Forsyth Barr analysis, Bloomberg

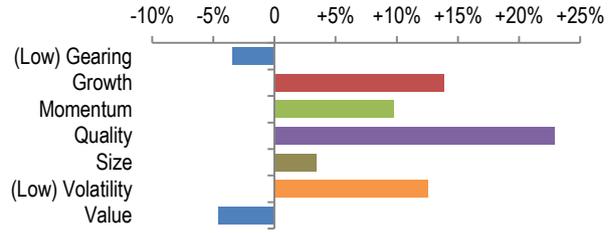
Six months

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



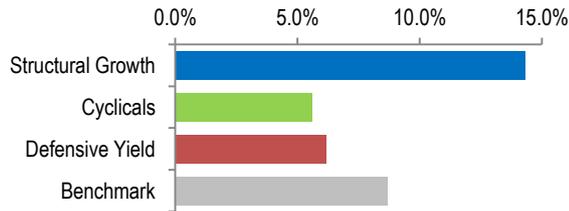
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



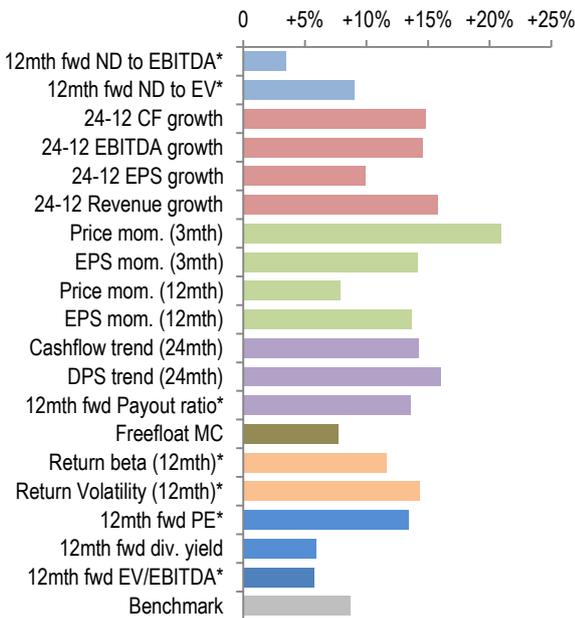
Source: Forsyth Barr analysis, Bloomberg

Figure 17. Thematic performance, six months



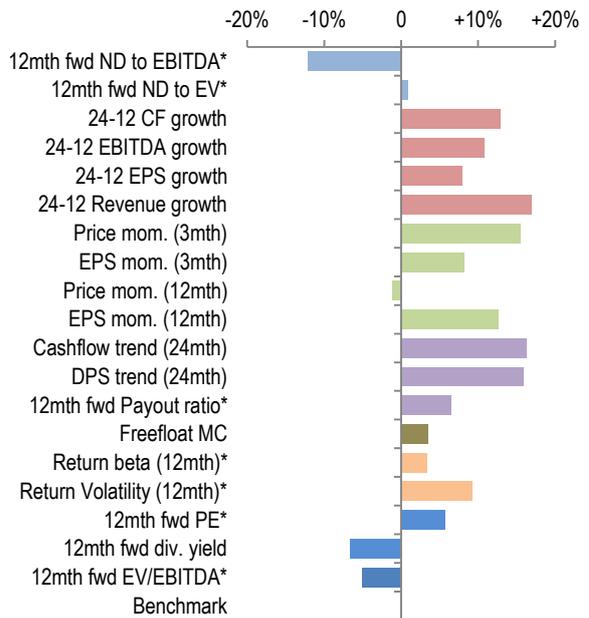
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



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

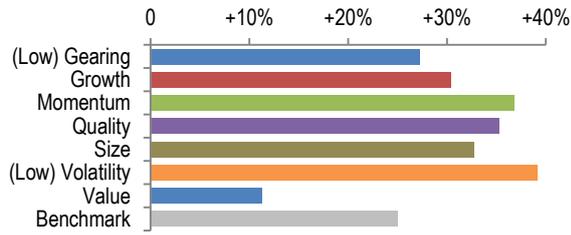
Figure 19. Style metric returns (long-short, six months)



Source: Forsyth Barr analysis, Bloomberg

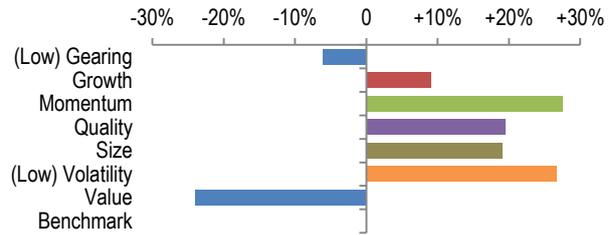
12 months

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



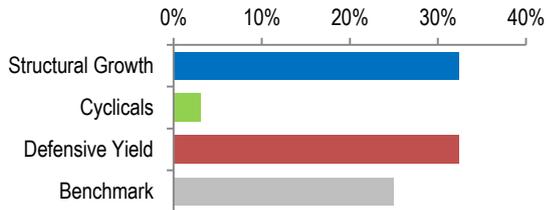
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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



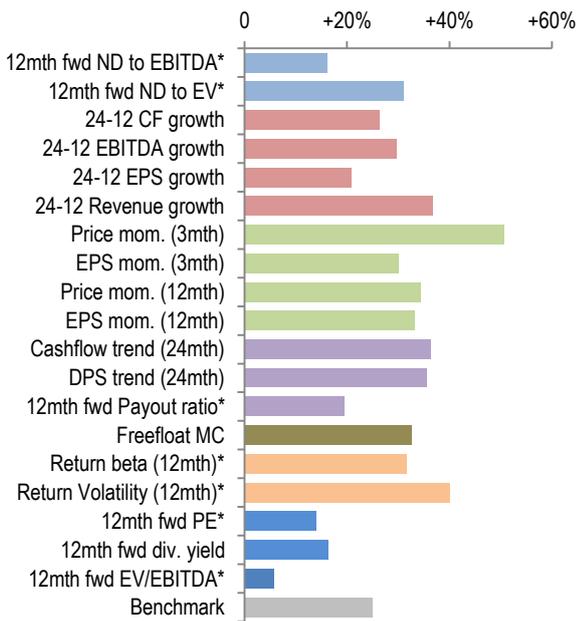
Source: Forsyth Barr analysis, Bloomberg

Figure 22. Thematic performance, twelve months



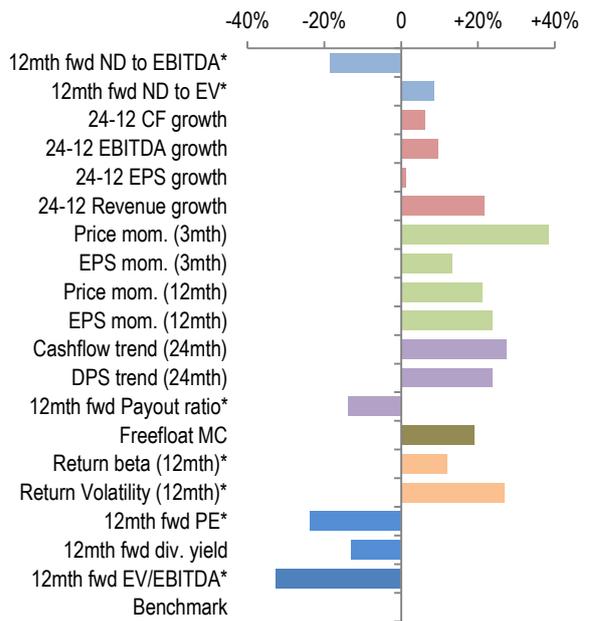
Source: Forsyth Barr analysis, Bloomberg, Returns: average of individual portfolio member returns

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)



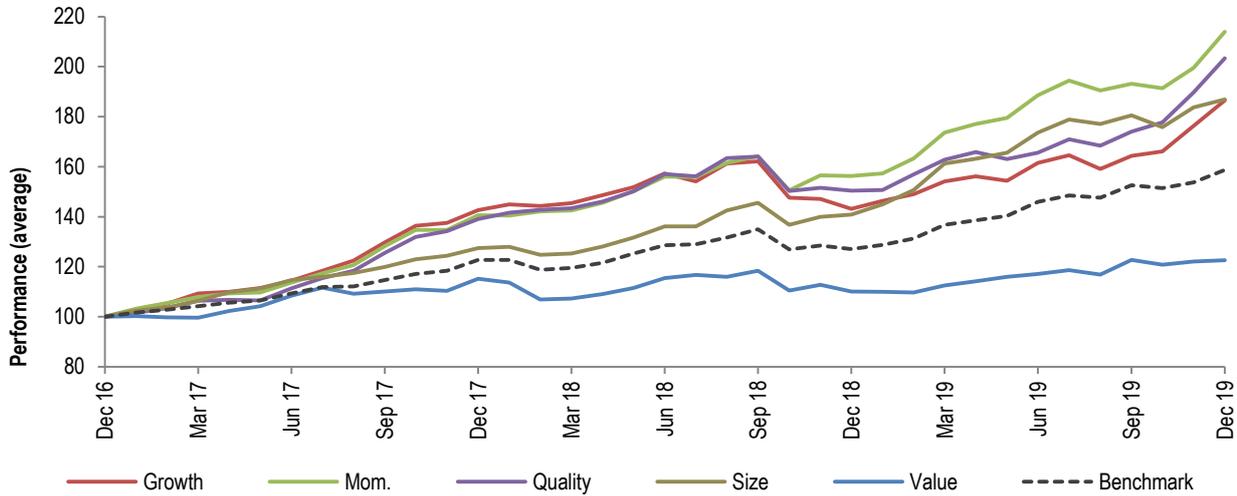
Source: Forsyth Barr analysis, Bloomberg

Longer term

Quant styles

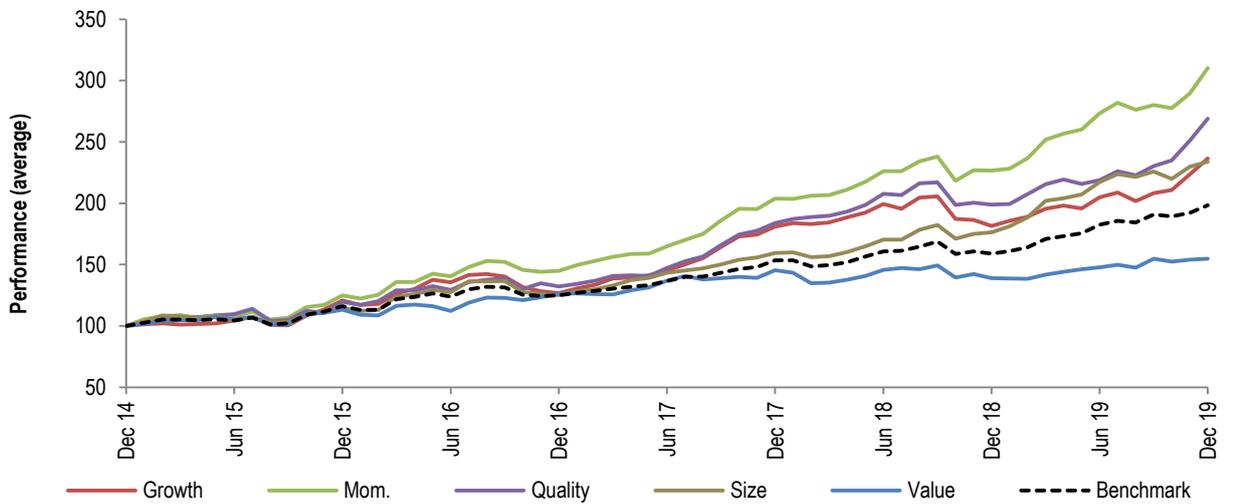
Below we present the returns of our style factors over a three and five year period.

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

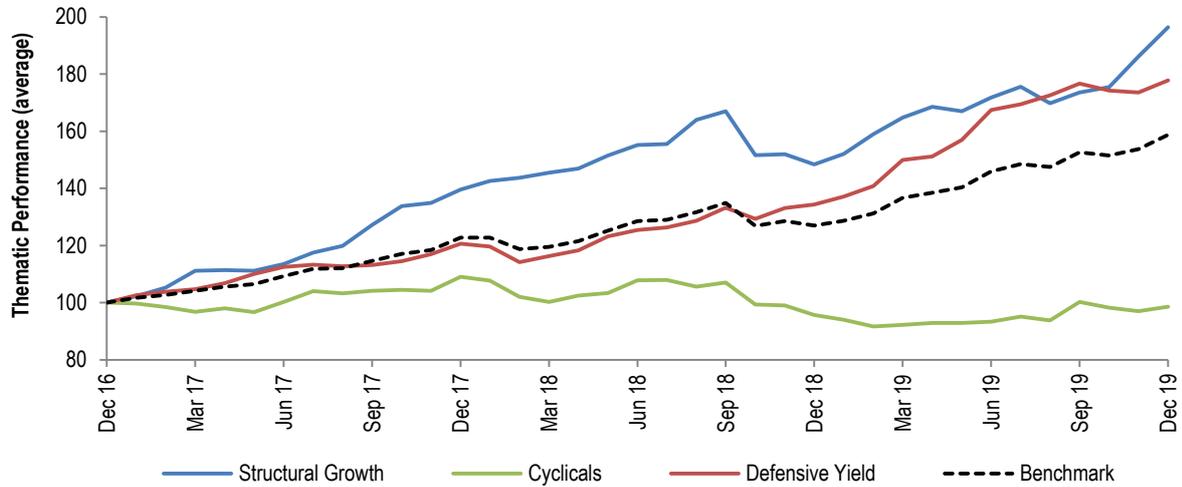


Source: Forsyth Barr analysis, Bloomberg

By thematic

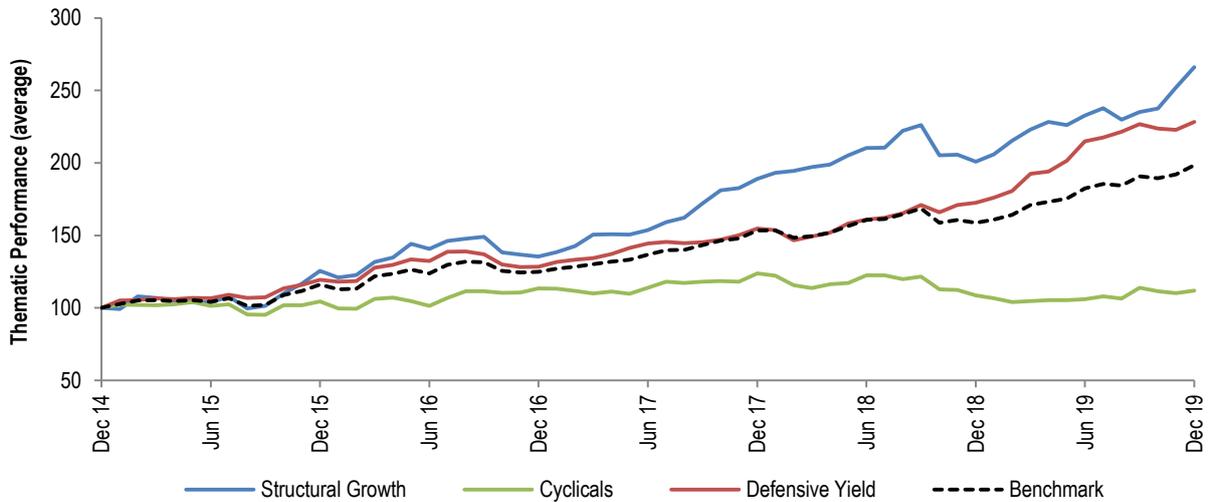
Below we present the returns of our Forsyth Barr defined thematics over a three and five year period.

Figure 27. Three year Forsyth Barr thematic performance



Source: Forsyth Barr analysis, Bloomberg

Figure 28. Five year Forsyth Barr thematic performance



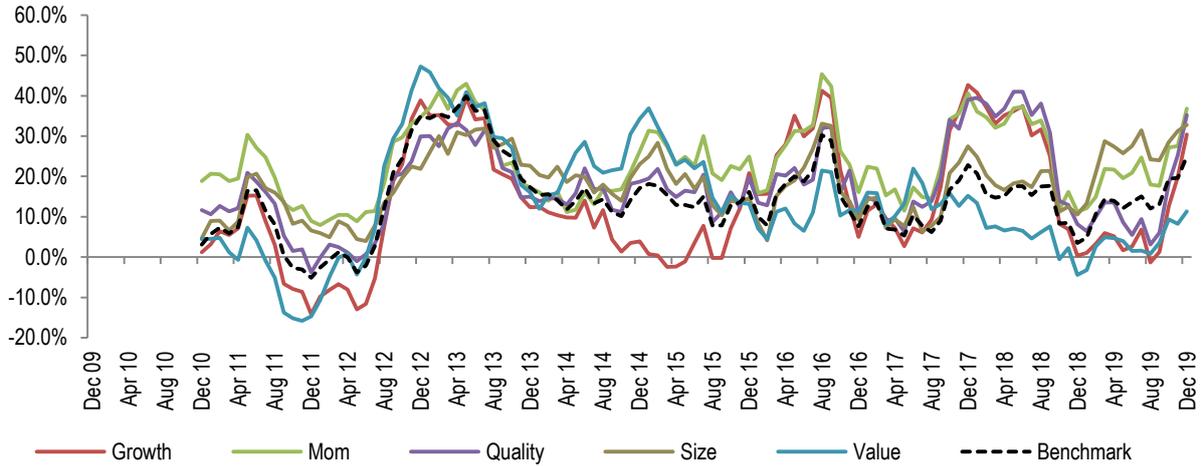
Source: Forsyth Barr analysis, Bloomberg

Rolling Returns

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

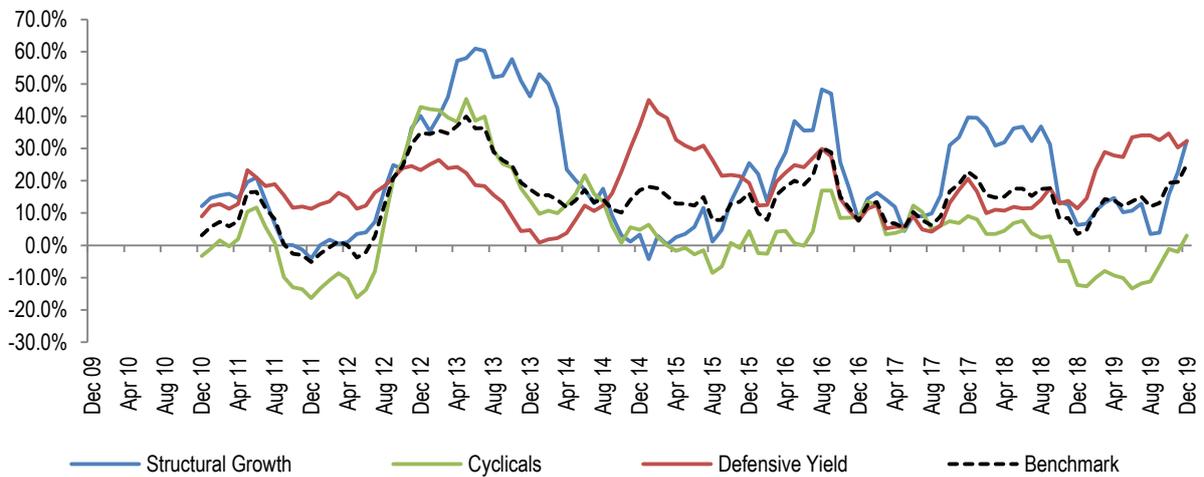
Twelve months

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



Source: Forsyth Barr analysis

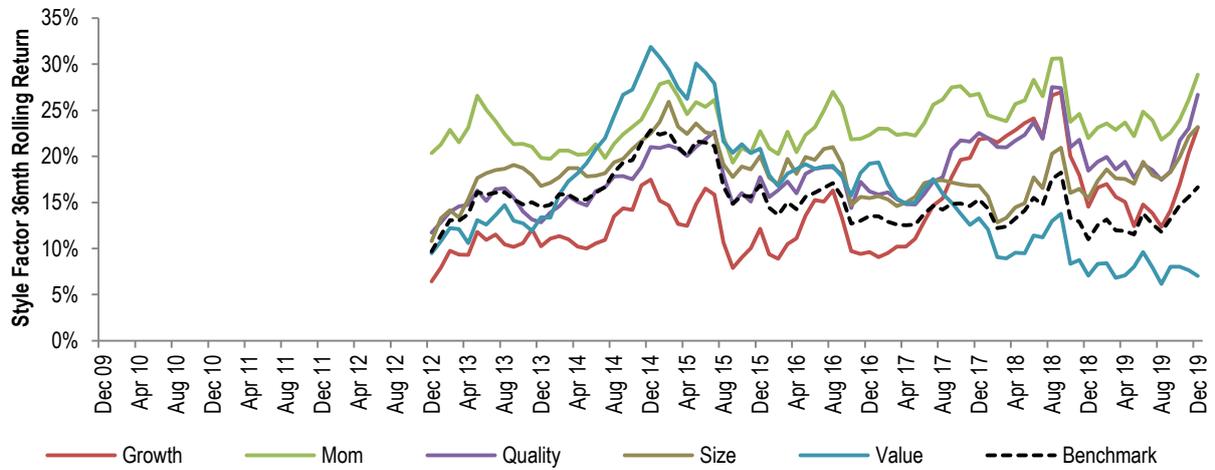
Figure 30. Thematic 12mth Rolling Returns (average)



Source: Forsyth Barr analysis

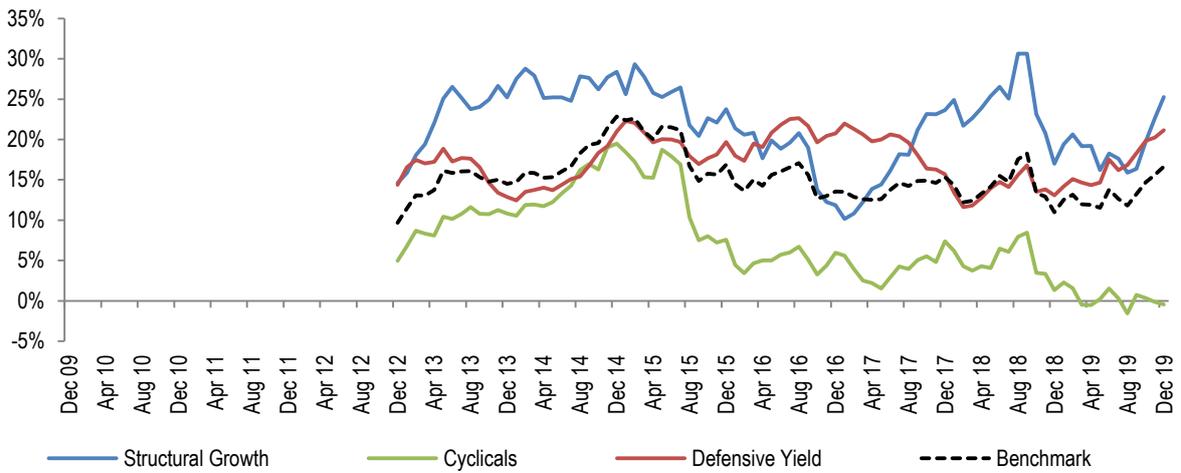
Thirty six months

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



Source: Forsyth Barr analysis

Figure 32. Thematic 36mth Rolling Returns (average)



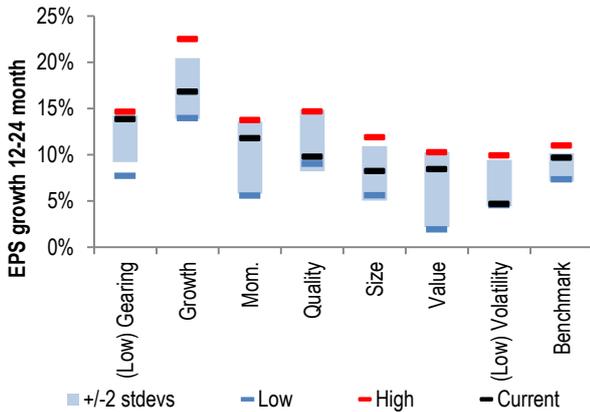
Source: Forsyth Barr analysis

Where are the Fundamentals

Quant style factors and thematics

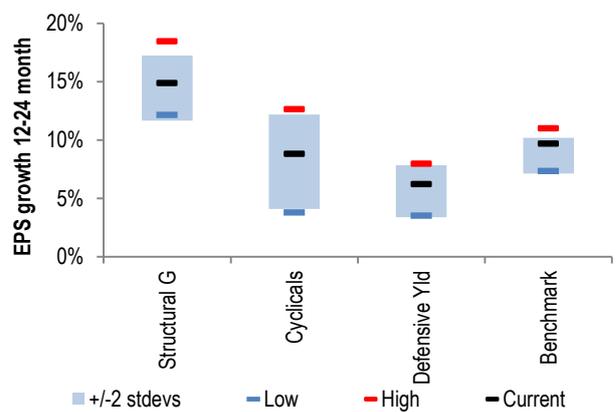
Below we highlight how our long-only quantitative style portfolios stack up in terms of normalised 12–24 month EPS growth, 12 month forward PE and 12 month forward net dividend yield, in terms of both spot and relative to the five-year history.

Figure 33. 12-24 month forward EPS growth: Quant Style Factors



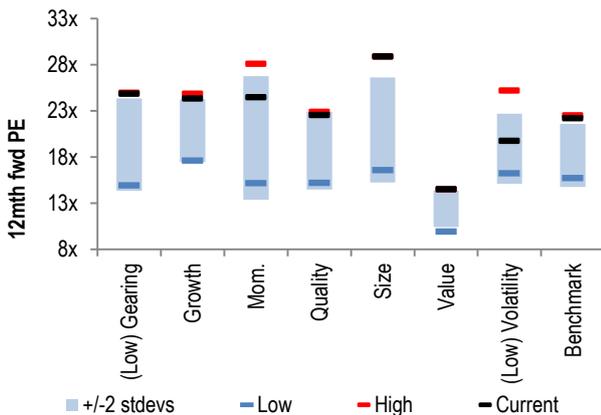
Source: Forsyth Barr analysis, Bloomberg

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



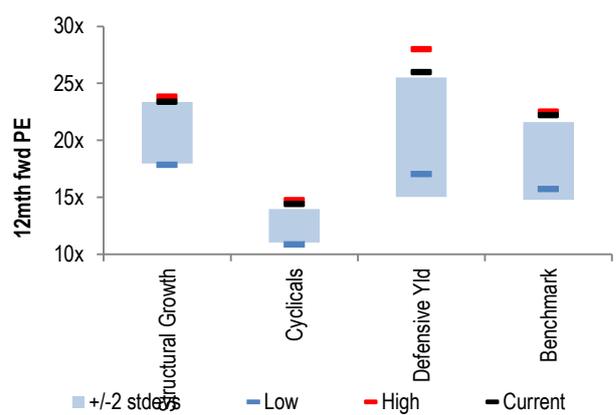
Source: Forsyth Barr analysis, Bloomberg

Figure 35. 12 month forward PE: Quant Style Factors



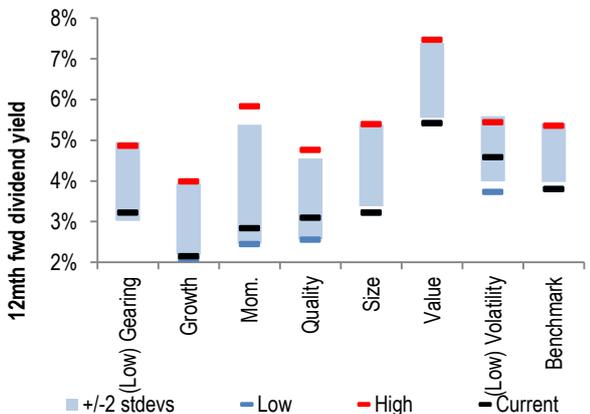
Source: Forsyth Barr analysis, Bloomberg

Figure 36. 12 month forward PE: Thematic



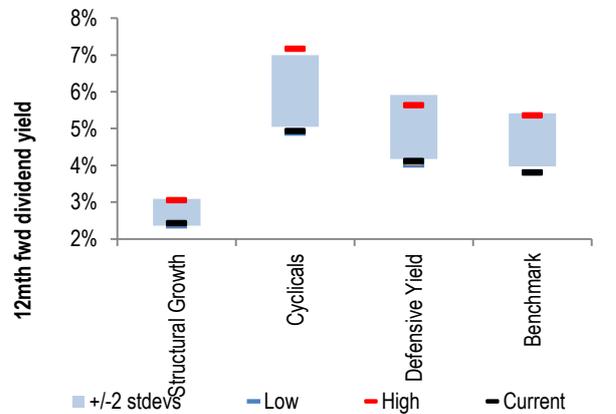
Source: Forsyth Barr analysis, Bloomberg

Figure 37. 12 month forward net dividend yield: Quant Style Factors



Source: Forsyth Barr analysis, Bloomberg

Figure 38. 12 month forward net dividend yield: Thematic



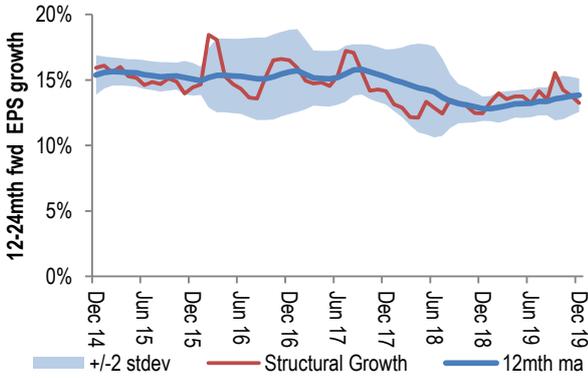
Source: Forsyth Barr analysis, Bloomberg

Thematic Fundamentals

Normalised EPS growth

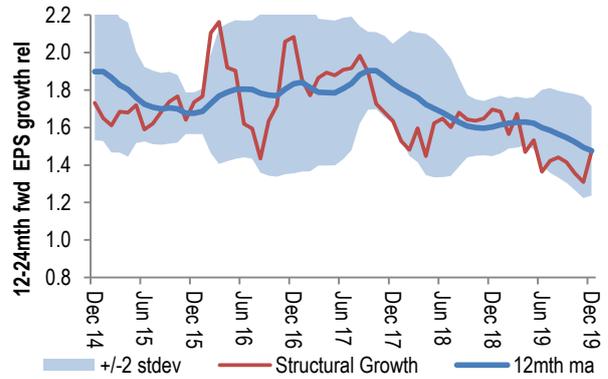
Below we highlight the fundamentals of the S&P/NZX 50, split by thematic (as defined by Forsyth Barr).

Figure 39. Normalised EPS growth: Structural Growth



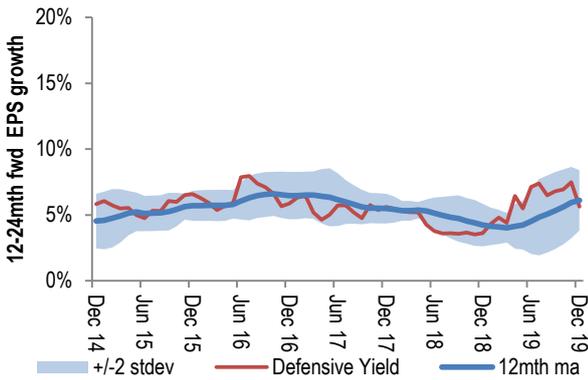
Source: Forsyth Barr analysis, Bloomberg

Figure 40. Normalised EPS growth relative: Structural Growth



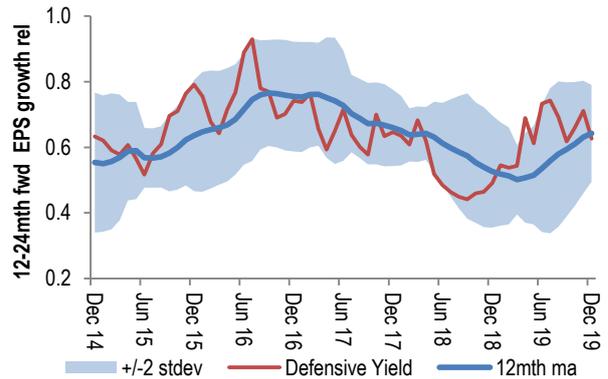
Source: Forsyth Barr analysis, Bloomberg

Figure 41. Normalised EPS growth: Defensive Yield



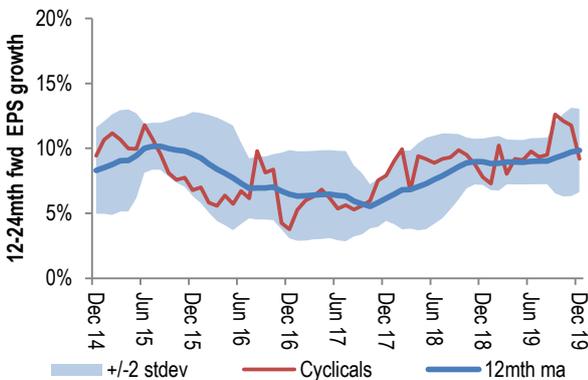
Source: Forsyth Barr analysis, Bloomberg

Figure 42. Normalised EPS growth relative: Defensive Yield



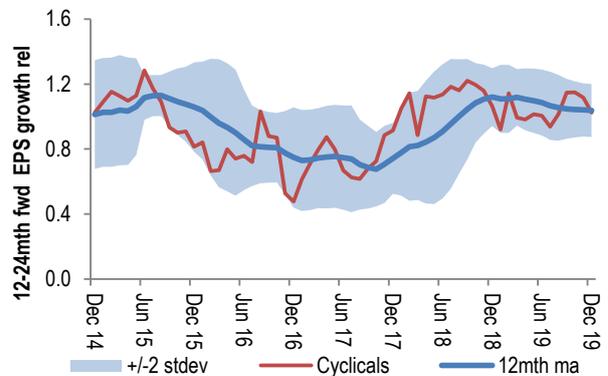
Source: Forsyth Barr analysis, Bloomberg

Figure 43. Normalised EPS growth: Cyclical



Source: Forsyth Barr analysis, Bloomberg

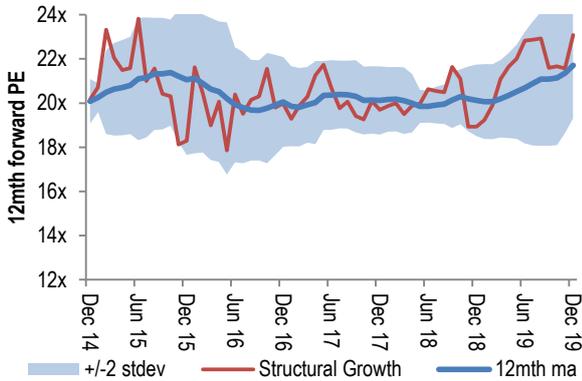
Figure 44. Normalised EPS growth relative: Cyclical



Source: Forsyth Barr analysis, Bloomberg

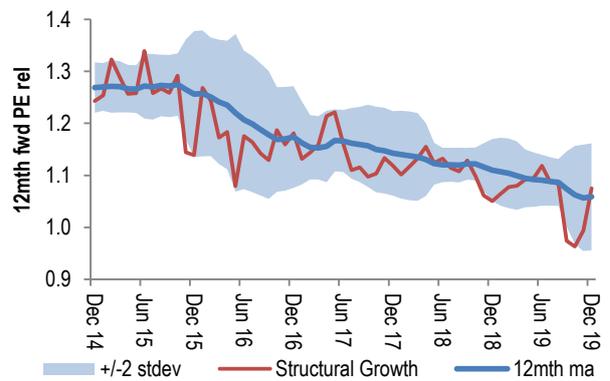
12 month forward PE

Figure 45. 12 month forward PE: Structural Growth



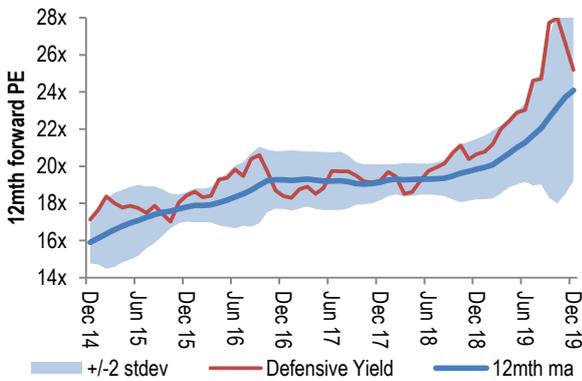
Source: Forsyth Barr analysis, Bloomberg

Figure 46. 12 month forward PE relative: Structural Growth



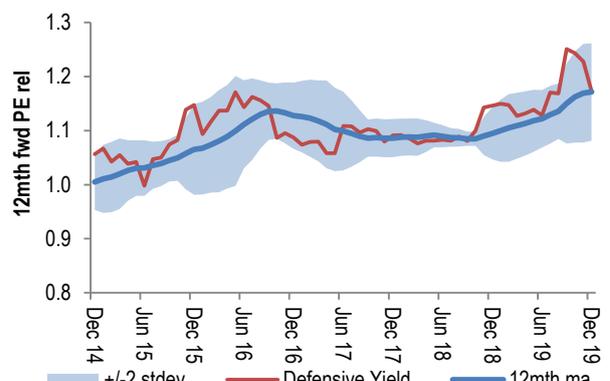
Source: Forsyth Barr analysis, Bloomberg

Figure 47. 12 month forward PE: Defensive Yield



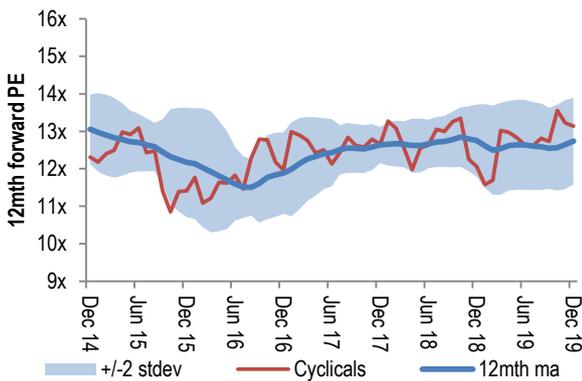
Source: Forsyth Barr analysis, Bloomberg

Figure 48. 12 month forward PE relative: Defensive Yield



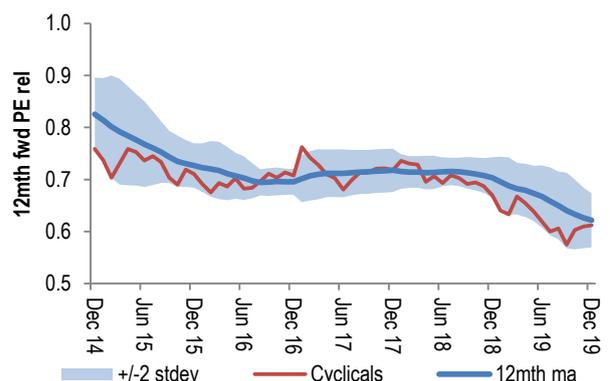
Source: Forsyth Barr analysis, Bloomberg

Figure 49. 12 month forward PE: Cyclical



Source: Forsyth Barr analysis, Bloomberg

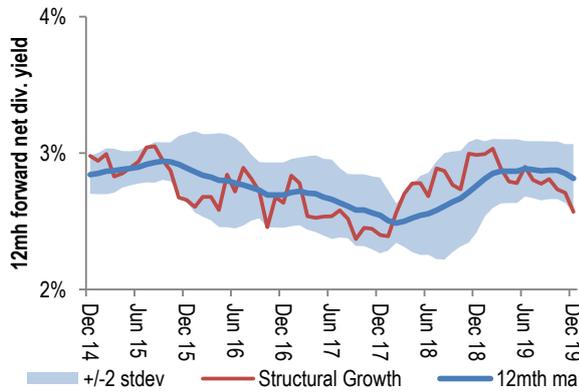
Figure 50. 12 month forward PE relative: Cyclical



Source: Forsyth Barr analysis, Bloomberg

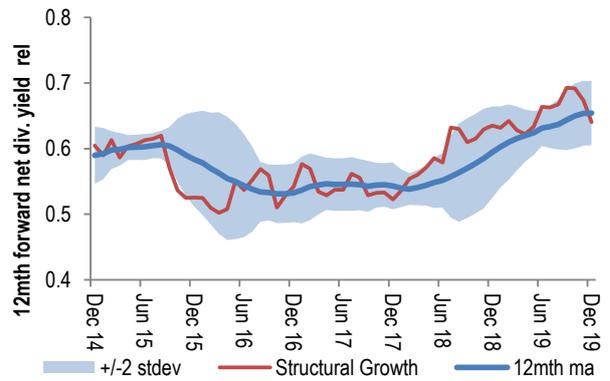
12 month forward net dividend yield

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



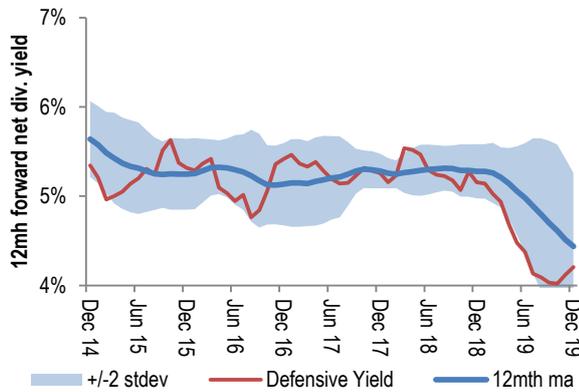
Source: Forsyth Barr analysis, Bloomberg

Figure 52. 12 month forward net div. yield relative: Structural Growth



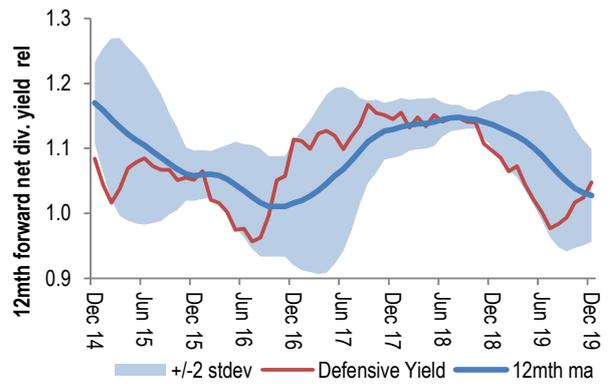
Source: Forsyth Barr analysis, Bloomberg

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



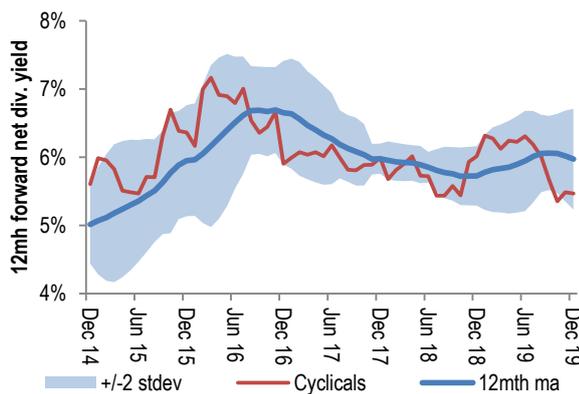
Source: Forsyth Barr analysis, Bloomberg

Figure 54. 12 month forward net div. yield relative: Defensive Yield



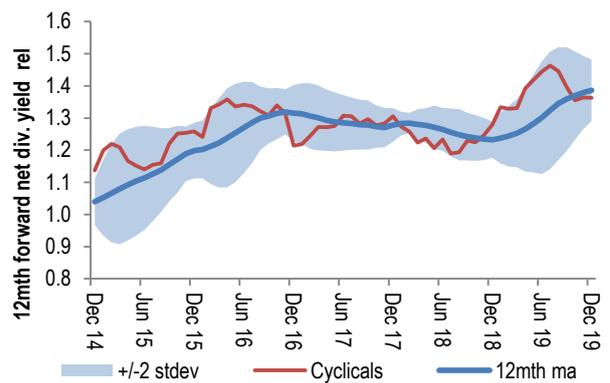
Source: Forsyth Barr analysis, Bloomberg

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



Source: Forsyth Barr analysis, Bloomberg

Figure 56. 12 month forward net div. yield relative: Cyclical

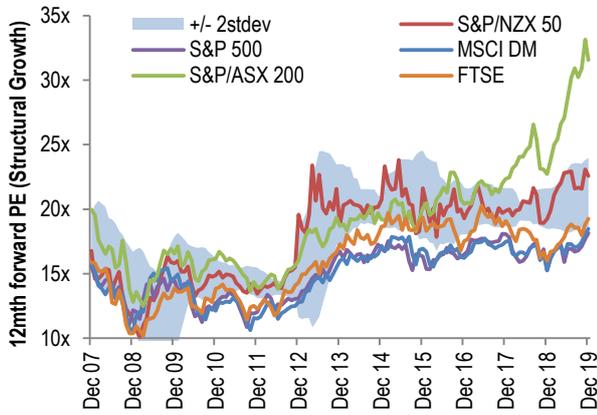


Source: Forsyth Barr analysis, Bloomberg

Global Comparisons

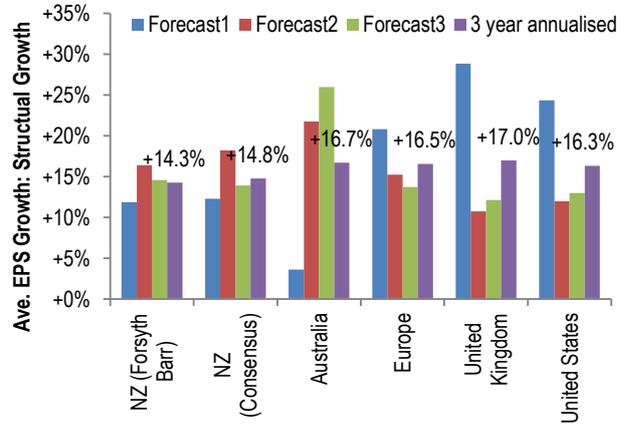
Below we show the comparison of global thematic PE multiples along with the average EPS growth for each global thematic.

Figure 57. Global 12 month forward PE: Structural Growth



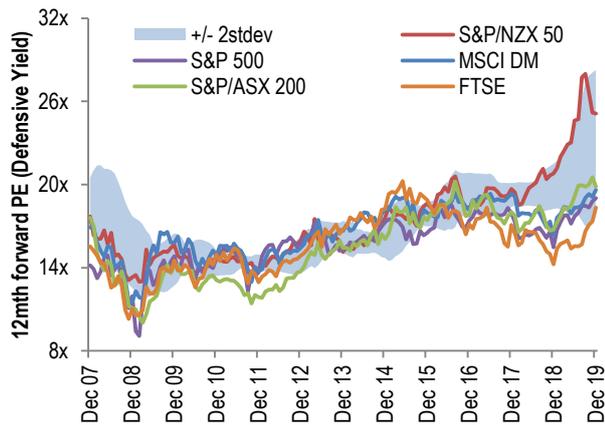
Source: Forsyth Barr analysis, Bloomberg

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



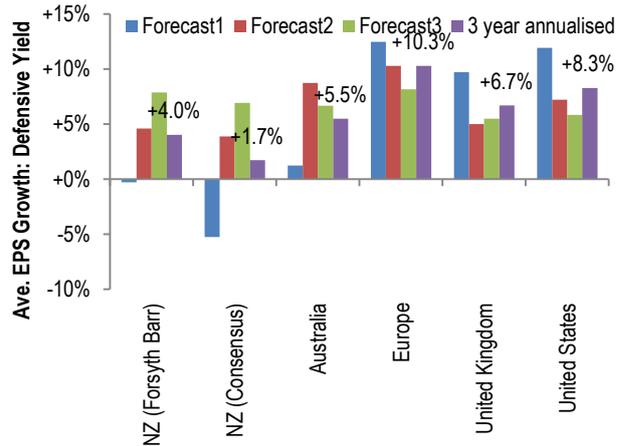
Source: Forsyth Barr analysis, Bloomberg

Figure 59. Global 12 month forward PE: Defensive Yield



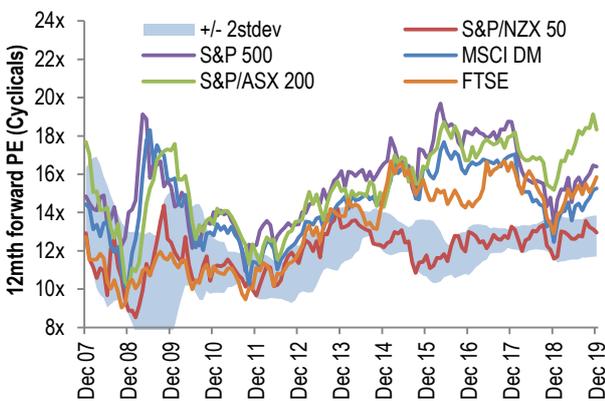
Source: Forsyth Barr analysis, Bloomberg

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



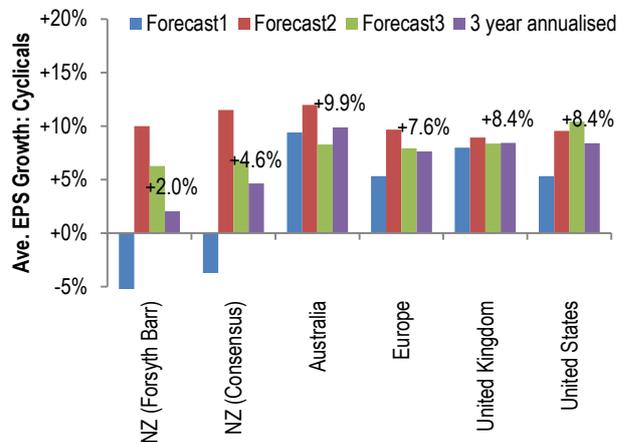
Source: Forsyth Barr analysis, Bloomberg

Figure 61. Global 12 month forward PE: Cyclical



Source: Forsyth Barr analysis, Bloomberg

Figure 62. Global EPS growth (average): Cyclical

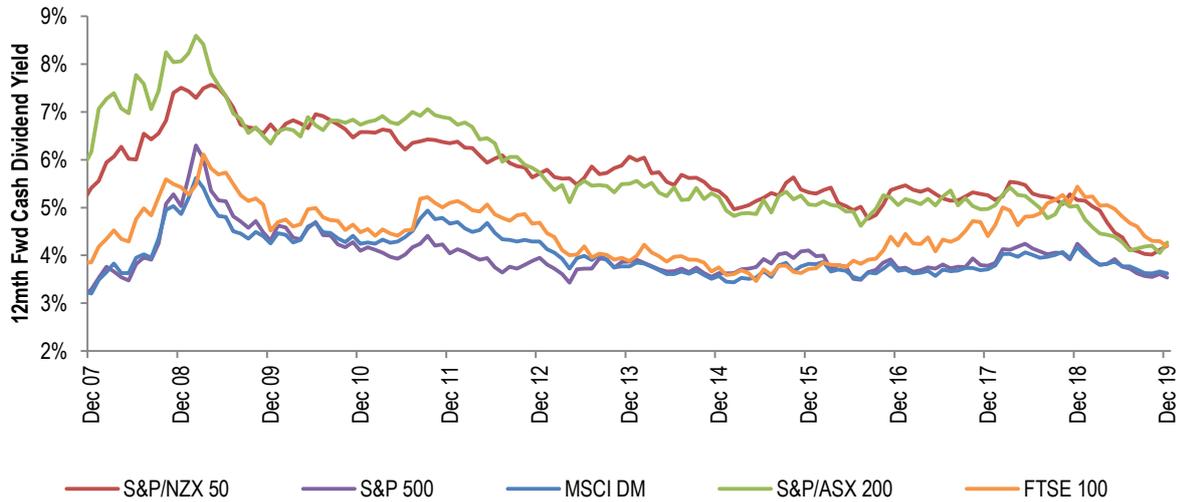


Source: Forsyth Barr analysis, Bloomberg

Global Comparisons

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

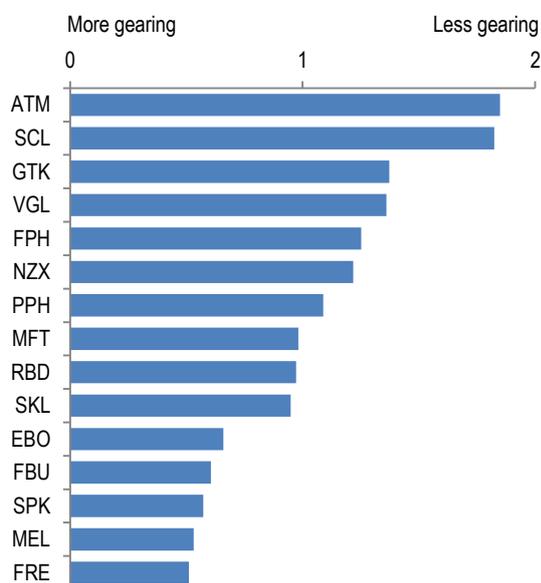


Source: Forsyth Barr analysis, Bloomberg

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



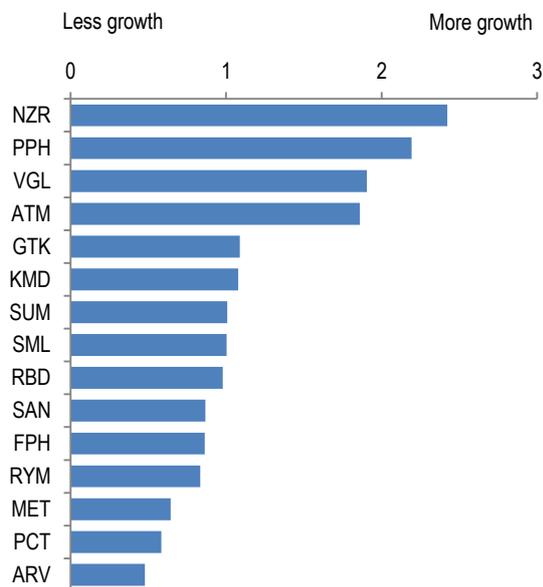
Source: Forsyth Barr analysis, Bloomberg

Figure 65. (Low) gearing screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
ATM	29.2x	+0%	+18%
SCL	20.9x	+4%	+8%
GTK	32.9x	+2%	+25%
VGL	30.3x	+1%	+20%
FPH	43.9x	+1%	+14%
NZX	23.1x	+5%	+8%
PPH	31.4x	n/a	+26%
MFT	24.8x	+2%	+11%
RBD	32.5x	0	+17%
SKL	14.9x	+6%	+5%
EBO	22.9x	+3%	+7%
FBU	14.1x	+5%	+7%
SPK	18.4x	+6%	+6%
MEL	29.1x	+4%	+3%
FRE	19.4x	+4%	+10%
S&P/NZX 50 mean	21.8x	+4%	+9%

Source: Forsyth Barr analysis, Bloomberg

Figure 66. Growth exposure



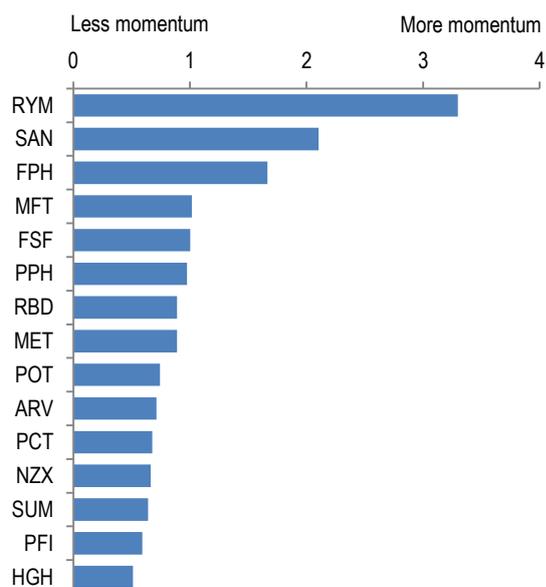
Source: Forsyth Barr analysis, Bloomberg

Figure 67. Growth screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
NZR	27.2x	+4%	n/a
PPH	31.4x	n/a	+26%
VGL	30.3x	+1%	+20%
ATM	29.2x	+0%	+18%
GTK	32.9x	+2%	+25%
KMD	11.8x	+5%	+10%
SUM	17.2x	+2%	+13%
SML	15.7x	0	+19%
RBD	32.5x	0	+17%
SAN	14.9x	+3%	+15%
FPH	43.9x	+1%	+14%
RYM	28.6x	+2%	+15%
MET	14.7x	+2%	+12%
PCT	26.2x	+3%	+6%
ARV	16.3x	+3%	+8%
S&P/NZX 50 mean	21.8x	+4%	+9%

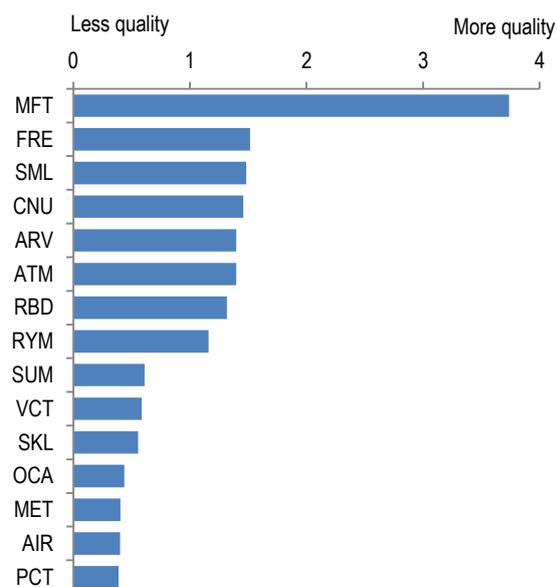
Source: Forsyth Barr analysis, Bloomberg

Figure 68. Momentum exposure



Source: Forsyth Barr analysis, Bloomberg

Figure 70. Quality exposure



Source: Forsyth Barr analysis, Bloomberg

Figure 69. Momentum screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
RYM	28.6x	+2%	+15%
SAN	14.9x	+3%	+15%
FPH	43.9x	+1%	+14%
MFT	24.8x	+2%	+11%
FSF	15.9x	+3%	+26%
PPH	31.4x	0	+26%
RBD	32.5x	0	+17%
MET	14.7x	+2%	+12%
POT	0.0x	+2%	+8%
ARV	16.3x	+3%	+8%
PCT	26.2x	+3%	+6%
NZX	23.1x	+5%	+8%
SUM	17.2x	+2%	+13%
PFI	26.8x	+3%	+3%
HGH	13.1x	+6%	+4%
S&P/NZX 50 mean	21.8x	+4%	+9%

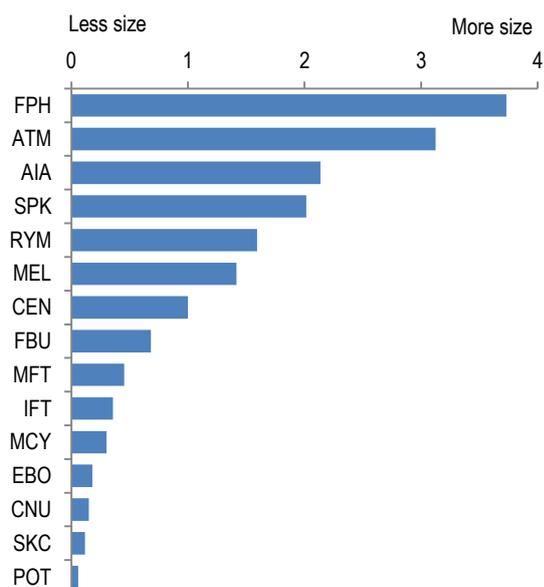
Source: Forsyth Barr analysis, Bloomberg

Figure 71. Quality screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
MFT	24.8x	+2%	+11%
FRE	19.4x	+4%	+10%
SML	15.7x	0	+19%
CNU	0.0x	+4%	+5%
ARV	16.3x	+3%	+8%
ATM	29.2x	+0%	+18%
RBD	32.5x	0	+17%
RYM	28.6x	+2%	+15%
SUM	17.2x	+2%	+13%
VCT	29.4x	+5%	-11%
SKL	14.9x	+6%	+5%
OCA	14.2x	+4%	+2%
MET	14.7x	+2%	+12%
AIR	10.2x	+8%	+11%
PCT	26.2x	+3%	+6%
S&P/NZX 50 mean	21.8x	+4%	+9%

Source: Forsyth Barr analysis, Bloomberg

Figure 72. Size exposure



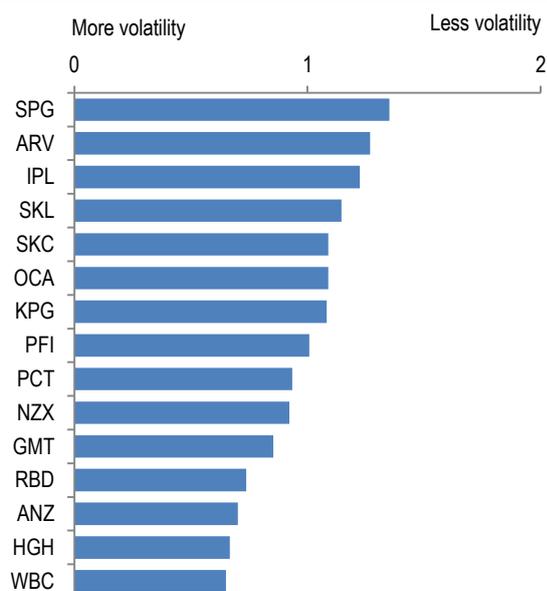
Source: Forsyth Barr analysis, Bloomberg

Figure 73. Size screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
FPH	43.9x	+1%	+14%
ATM	29.2x	+0%	+18%
AIA	37.4x	+3%	+4%
SPK	18.4x	+6%	+6%
RYM	28.6x	+2%	+15%
MEL	29.1x	+4%	+3%
CEN	20.1x	+6%	+10%
FBU	14.1x	+5%	+7%
MFT	24.8x	+2%	+11%
IFT	0.0x	+4%	0
MCY	37.7x	+3%	+8%
EBO	22.9x	+3%	+7%
CNU	0.0x	+4%	+5%
SKC	17.5x	+5%	+2%
POT	0.0x	+2%	+8%
S&P/NZX 50 mean	21.8x	+4%	+9%

Source: Forsyth Barr analysis, Bloomberg

Figure 74. (Low) Volatility exposure



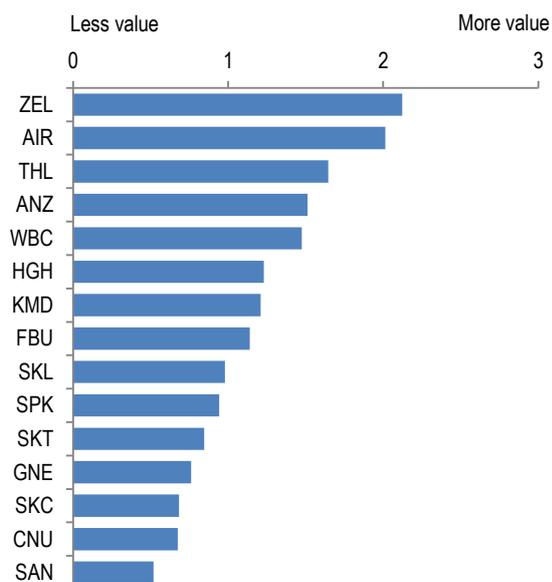
Source: Forsyth Barr analysis, Bloomberg

Figure 75. (Low) Volatility screen fundamentals

Code	12mth fwd PE	12mth fwd div. yield	EPS growth
SPG	22.9x	+4%	+2%
ARV	16.3x	+3%	+8%
IPL	21.9x	+4%	+5%
SKL	14.9x	+6%	+5%
SKC	17.5x	+5%	+2%
OCA	14.2x	+4%	+2%
KPG	21.4x	+5%	+4%
PFI	26.8x	+3%	+3%
PCT	26.2x	+3%	+6%
NZX	23.1x	+5%	+8%
GMT	31.3x	+3%	+3%
RBD	32.5x	0	+17%
ANZ	11.6x	+6%	+3%
HGH	13.1x	+6%	+4%
WBC	12.8x	+7%	+8%
S&P/NZX 50 mean	21.8x	+4%	+9%

Source: Forsyth Barr analysis, Bloomberg

Figure 76. Value exposure



Source: Forsyth Barr analysis, Bloomberg

Figure 77. Value screen fundamentals

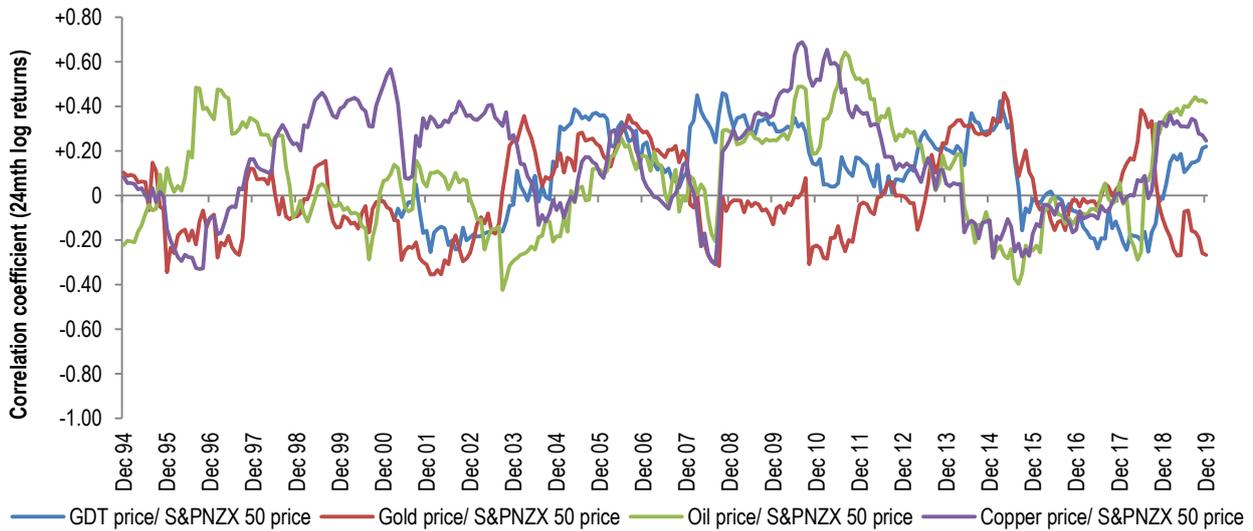
Code	12mth fwd PE	12mth fwd div. yield	EPS growth
ZEL	12.5x	+10%	+11%
AIR	10.2x	+8%	+11%
THL	15.1x	+8%	+26%
ANZ	11.6x	+6%	+3%
WBC	12.8x	+7%	+8%
HGH	13.1x	+6%	+4%
KMD	11.8x	+5%	+10%
FBU	14.1x	+5%	+7%
SKL	14.9x	+6%	+5%
SPK	18.4x	+6%	+6%
SKT	6.8x	+0%	-16%
GNE	17.9x	+6%	+31%
SKC	17.5x	+5%	+2%
CNU	0.0x	+4%	+5%
SAN	14.9x	+3%	+15%
S&P/NZX 50 mean	21.8x	+4%	+9%

Source: Forsyth Barr analysis, Bloomberg

Patterns and Trends

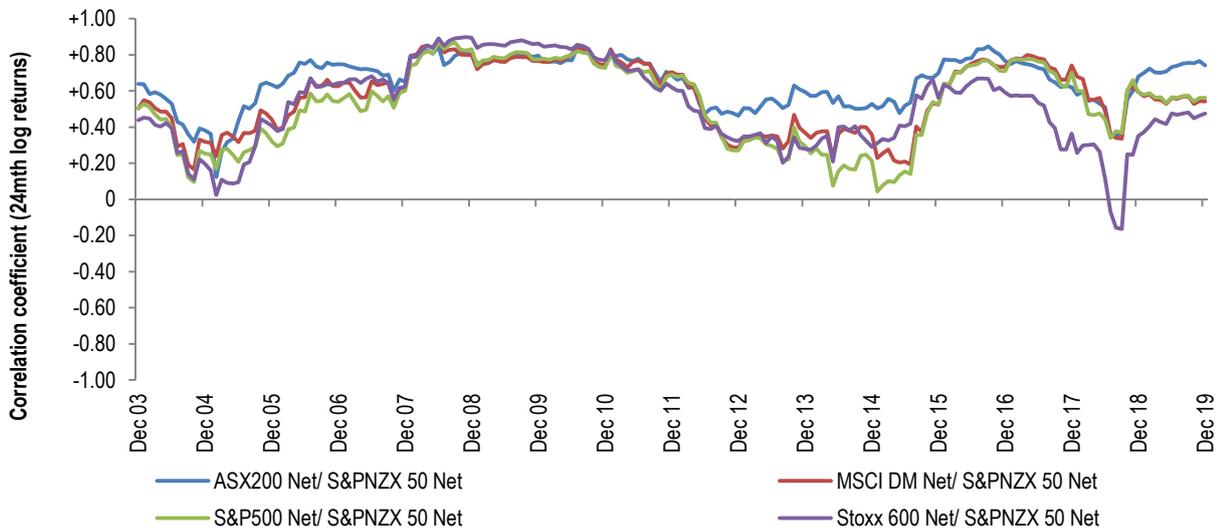
Below we show the correlation of the New Zealand equity market (be it returns or prices with various commodities, currencies, interest rates and other markets) on a 24 month rolling basis.

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



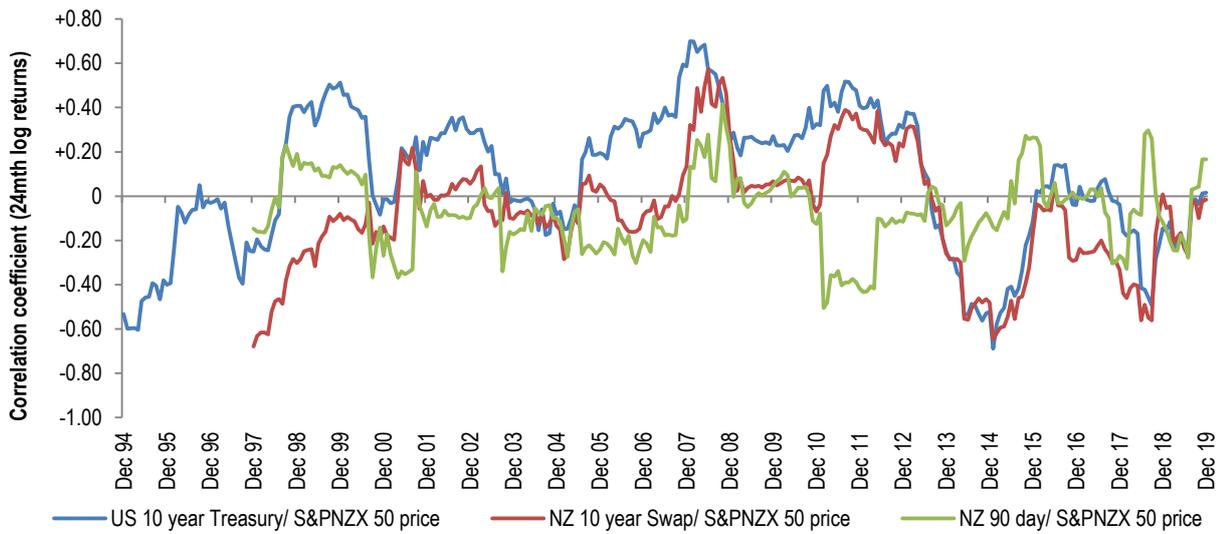
Source: Forsyth Barr analysis, Bloomberg

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



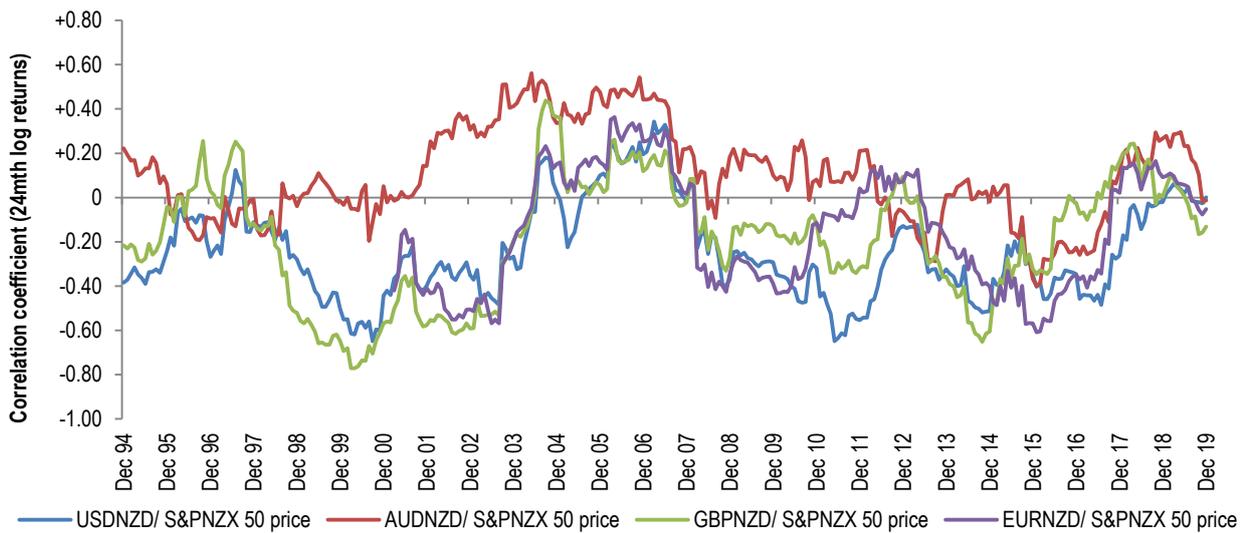
Source: Forsyth Barr analysis, Bloomberg

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

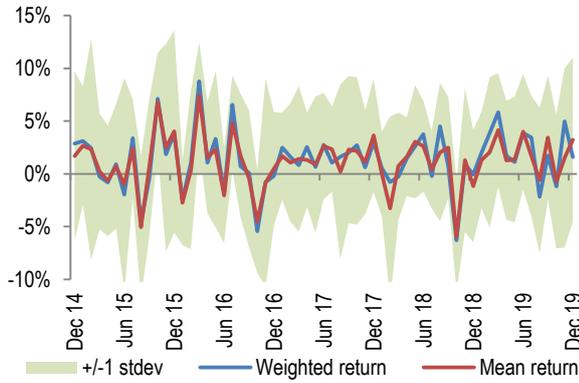


Source: Forsyth Barr analysis, Bloomberg

Return Dispersion

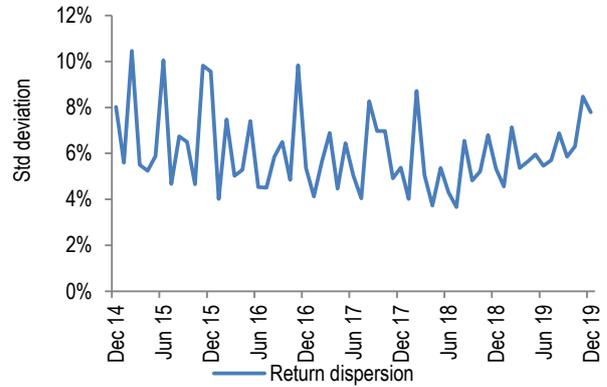
The following charts show the return and contribution dispersion and concentration for the S&P/NZX 50, market leadership, as well as the average pairwise stock-to-stock correlation.

Figure 82. Return dispersion



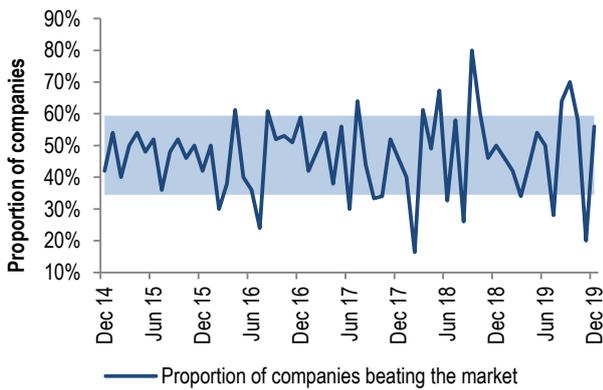
Source: Forsyth Barr analysis, Bloomberg

Figure 83. Return dispersion



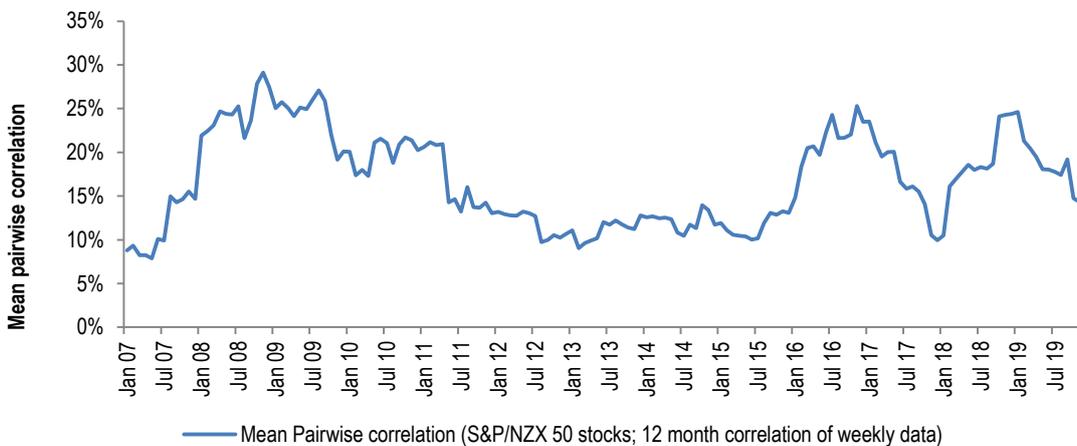
Source: Forsyth Barr analysis, Bloomberg

Figure 84. Market leadership



Source: Forsyth Barr analysis, Bloomberg

Figure 85. Mean average pairwise stock-to-stock correlation

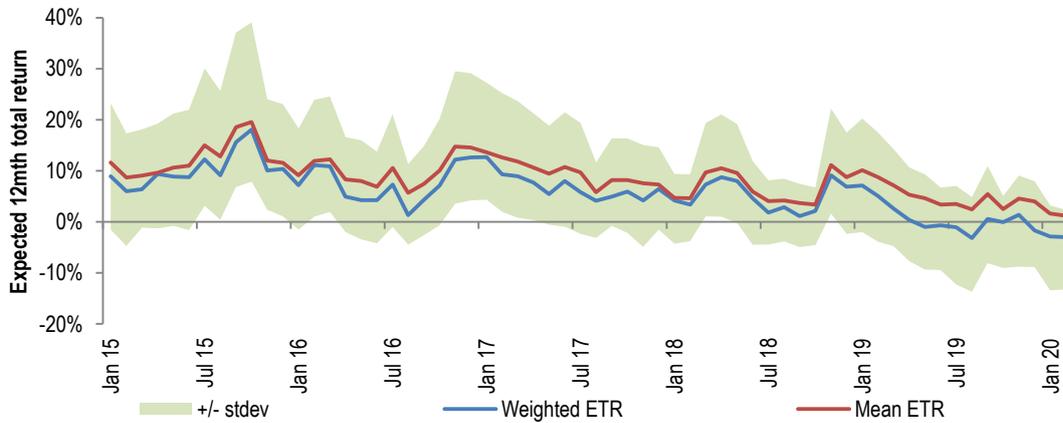


Source: Forsyth Barr analysis, Bloomberg

Expectations

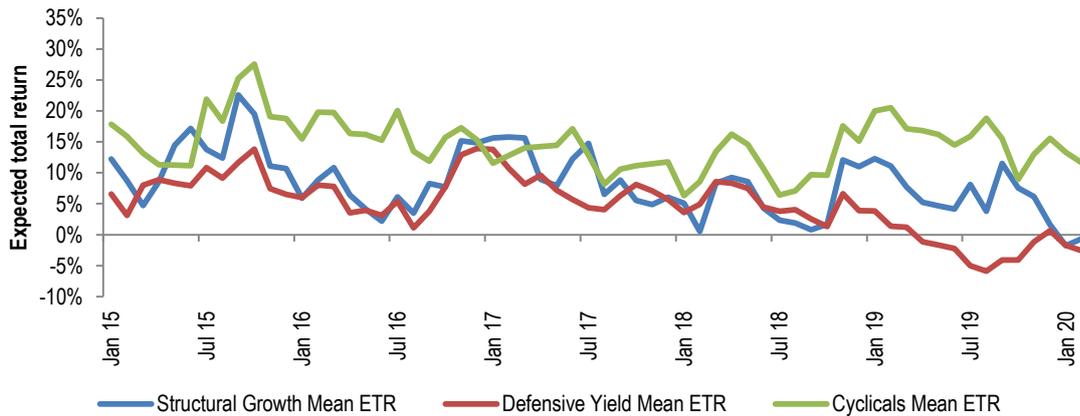
Below we show the mean, range and standard deviation of the Expected Total Return (ETR) for the market and each of the thematic.

Figure 86. S&P/NZX 50 expected total returns



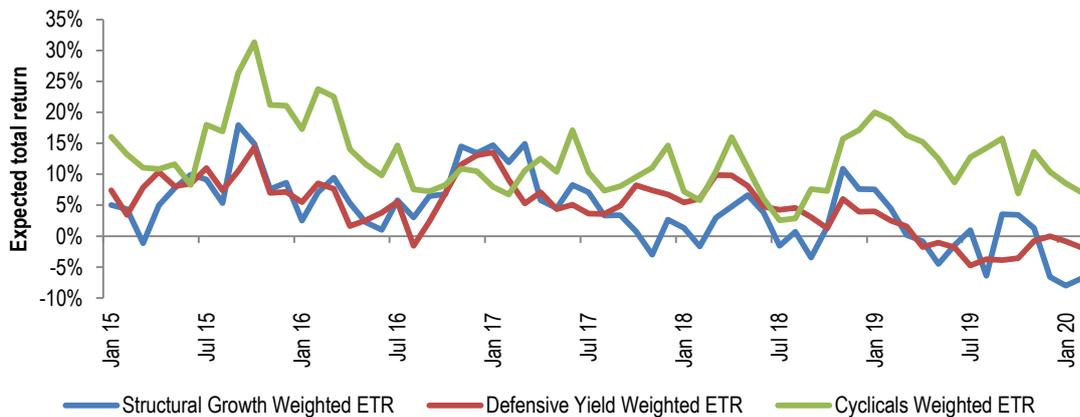
Source: Forsyth Barr analysis, Bloomberg

Figure 87. Expected average total returns – By thematic



Source: Forsyth Barr analysis, Bloomberg

Figure 88. Expected weighted total returns – By thematic

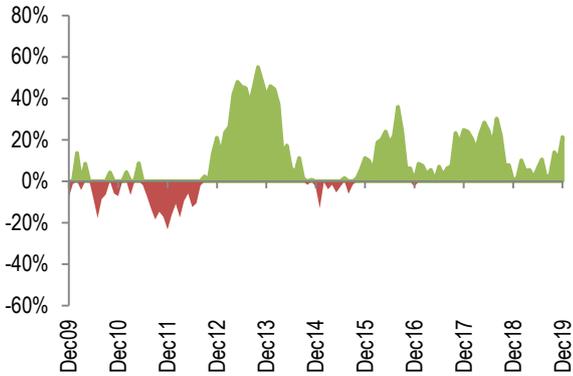


Source: Forsyth Barr analysis, Bloomberg

ETR versus History

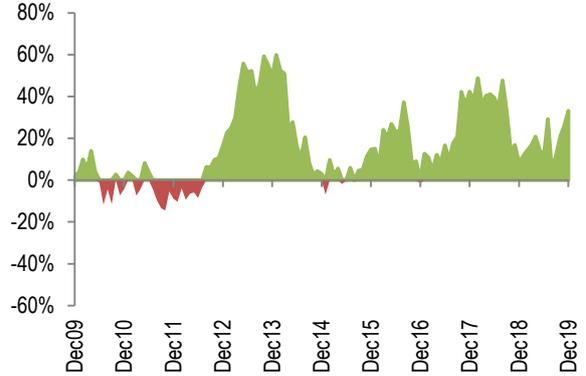
We also present the history of actual 12-month return less the Expected Total Return (ETR), at an average and weighted average level, split by thematic.

Figure 89. Actual 12mth Return less Expected: Structural Growth (ave)



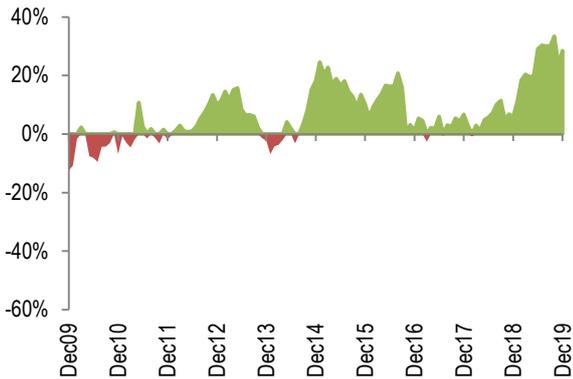
Source: Forsyth Barr analysis, Bloomberg

Figure 90. Actual 12mth Return less Expected: Structural Growth (wgt'd ave)



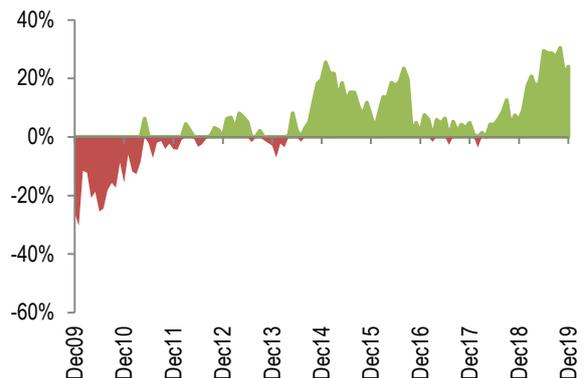
Source: Forsyth Barr analysis, Bloomberg

Figure 91. Actual 12mth Return less Expected: Defensive Yield (ave)



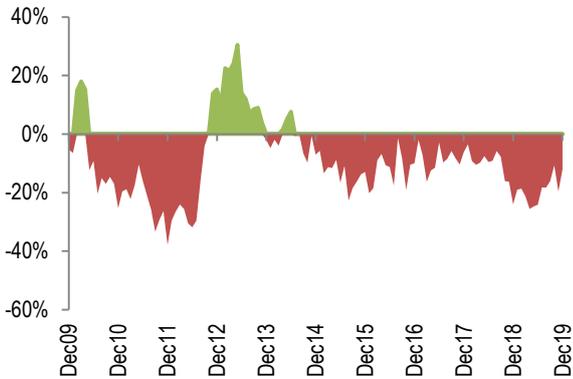
Source: Forsyth Barr analysis, Bloomberg

Figure 92. Actual 12mth Return less Expected: Defensive Yield (wgt'd ave)



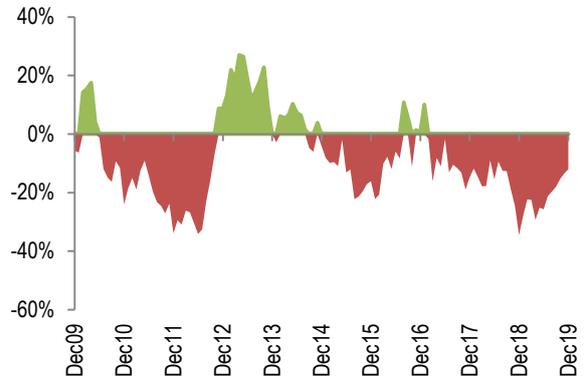
Source: Forsyth Barr analysis, Bloomberg

Figure 93. Actual 12mth Return less Expected: Cyclical (ave)



Source: Forsyth Barr analysis, Bloomberg

Figure 94. Actual 12mth Return less Expected: Cyclical (wgt'd 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 95. 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 who 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 96. 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 97. 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 PE's and EV/EBITDA's 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).

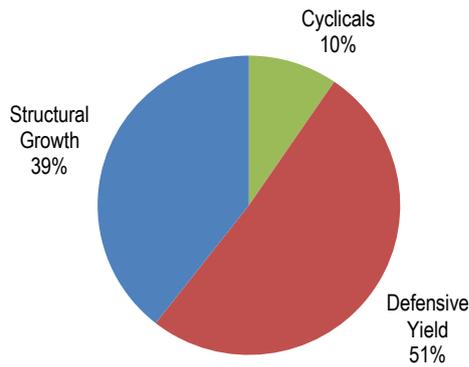
Appendix 2: Thematic Classifications

Figure 98. Forsyth Barr GIC Thematic Classification

Cyclicals	Defensive Yield	Structural Growth
Consumer Discretionary	Communication Services	Health Care
Energy	Consumer staples	Information Technology
Financials	Real Estate Investment Trusts	
Industrials	Utilities	
Materials		

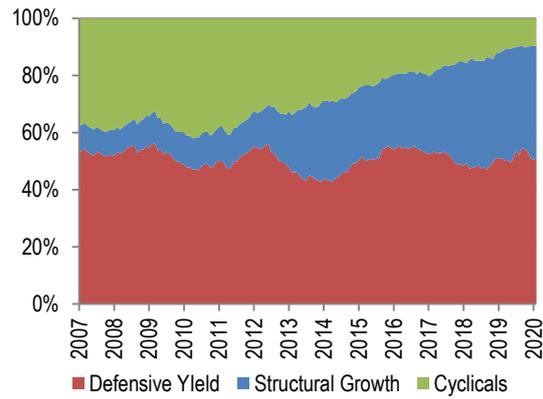
Source: Forsyth Barr analysis

Figure 99. Spot thematic weights: New Zealand



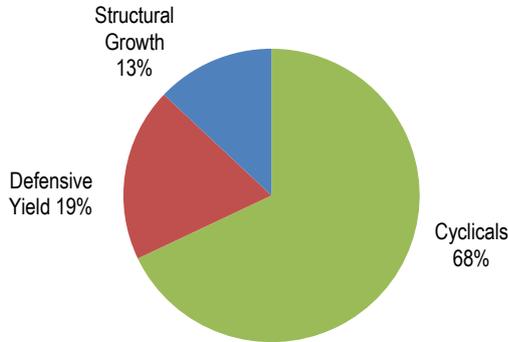
Source: Forsyth Barr analysis, IRESS

Figure 100. Historic thematic weights: New Zealand



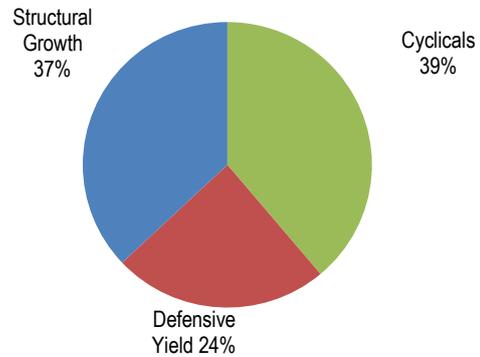
Source: Forsyth Barr analysis, Bloomberg

Figure 101. Spot thematic weights: Australia



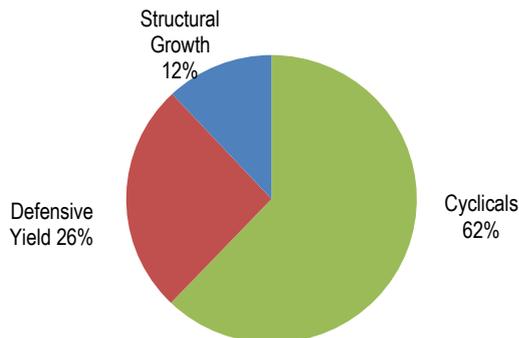
Source: Forsyth Barr analysis, Bloomberg

Figure 102. Spot thematic weights: United States



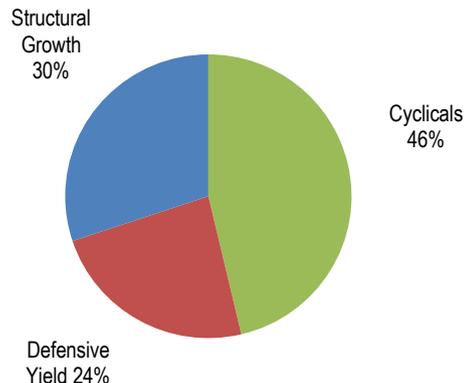
Source: Forsyth Barr analysis, Bloomberg

Figure 103. Spot thematic weights: United Kingdom



Source: Forsyth Barr analysis, Bloomberg

Figure 104. Spot thematic weights: MSCI World



Source: Forsyth Barr analysis, Bloomberg

Figure 105. Forsyth Barr Thematic sectors — alphabetical order

Code	FB Sector
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
GTK	Structural Growth
HGH	Cyclicals
IFT	Defensive Yield
IPL	Defensive Yield
KMD	Cyclicals
KPG	Defensive Yield
MCY	Defensive Yield
MEL	Defensive Yield
MET	Structural Growth
MFT	Structural Growth
NZR	Cyclicals
NZX	Cyclicals
OCA	Structural Growth
PCT	Defensive Yield
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
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 106. Forsyth Barr Thematic sectors — by sector

Code	FB Sector
AIR	Cyclicals
ANZ	Cyclicals
FBU	Cyclicals
FSF	Cyclicals
HGH	Cyclicals
KMD	Cyclicals
NZR	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
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
GTK	Structural Growth
MET	Structural Growth
MFT	Structural Growth
OCA	Structural Growth
PPH	Structural Growth
RYM	Structural Growth
SCL	Structural Growth
SKL	Structural Growth
SML	Structural Growth
SUM	Structural Growth
VGL	Structural Growth

Source: Forsyth Barr analysis

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