# Alpha Signals
# Monthly Model Performance Report

December 2023

S&P Global
Market Intelligence

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# Monthly Performance Recap

**US:**

The models over the US Large Cap universe struggled during the month. Most models had a negative performance. The models over the US Small Cap universe struggled during the month. On the 12-month basis, the Value Momentum 2 model performed best at 25.73% while the performance of the Earnings Momentum model continued to lag.

**Developed Europe:**

The models over the Developed Europe universe exhibited subpar performance during the month.  On a 12-month basis, the Deep Value model performed the best, at 21.12% cumulative.

**Developed Pacific:**

Over the Developed Pacific universe, the Price Momentum model had the strongest one month decile return spread performance, returning 0.92%, while the Earnings Momentum model lagged. The Deep Value model led the performance over the recent one year, delivering 20.97.

**Emerging Markets:**

Within the Emerging Markets universe, the Value Momentum model returned 3.38% on one month quintile return spread basis. Most of the models within the universe had positive returns as well. The Value Momentum model continued to lead over the one-year period, with returns at 14.31%.

**Sector Rotation:**

The US Large Cap Sector Rotation model returned 0.10%.The Cyclicals sector had a favorable ranking and the Financials sector had an unfavorable ranking.The US Small Cap Sector Rotation model earned a return of 5.30%. The Non-Cyclicals sector had a favorable ranking and the Financials sector had an unfavorable ranking.The Developed Europe Sector Rotation model struggled during the month.The Financials sector had a favorable ranking and the Non-Cyclicals sector had an unfavorable ranking.

**Specialty Models:**

The Retail model's one year cumulative performance was the highest at 33.43% while the REIT 2 model's performance was the lowest at -0.68%. Within the specialty model library the REIT 2 and the Bank and Thrift 2 models had the strongest one month quintile return spread performance returning 4.09% and 0.77%, respectively, while the Retail and the Technology models struggled.

# Alpha Signals Model Matrix

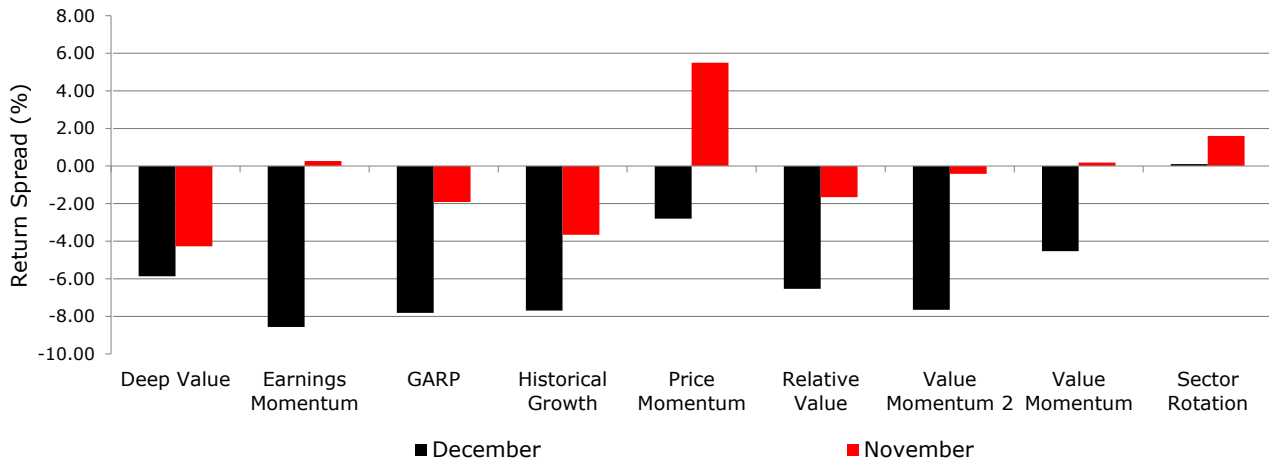| | Deep Value | Earnings Momentum | Price Momentum | Relative Value | Value Momentum |
|---|---|---|---|---|---|
| US Large Cap | -5.860 | -8.558 | -2.795 | -6.534 | -4.531 |
| US Small Cap | -8.387 | -2.332 | -0.142 | -6.166 | -5.357 |
| Developed World ex North America | 0.120 | -1.723 | -1.583 | 1.200 | -0.274 |
| Canada 500 | 0.095 | -0.746 | -3.524 | 0.132 | -2.661 |
| Developed Pacific STDCAP | 0.544 | -1.762 | 0.918 | 0.406 | -0.710 |
| Emerging Markets STDCAP | 2.442 | -0.080 | 1.596 | 3.037 | 3.379 |
| Frontier Markets STDCAP | -0.836 | 0.721 | -0.287 | -2.361 | 0.454 |
| Europe 1000 | -3.150 | -4.556 | -7.021 | -1.404 | -5.441 |
| Japan 2000 | -0.603 | 0.447 | -0.480 | -0.371 | -0.658 |
| Australia-New Zealand 250 | -1.591 | -0.169 | -1.691 | -1.415 | -2.017 |

Worst ▬▬▬▬▬▬ Best

# US Large Cap[1]

The models over the US Large Cap universe struggled during the month. Most models had a negative performance.

The US Large Cap Sector Rotation model returned 0.10%.The Cyclicals sector had a favorable ranking and the Financials sector had an unfavorable ranking.
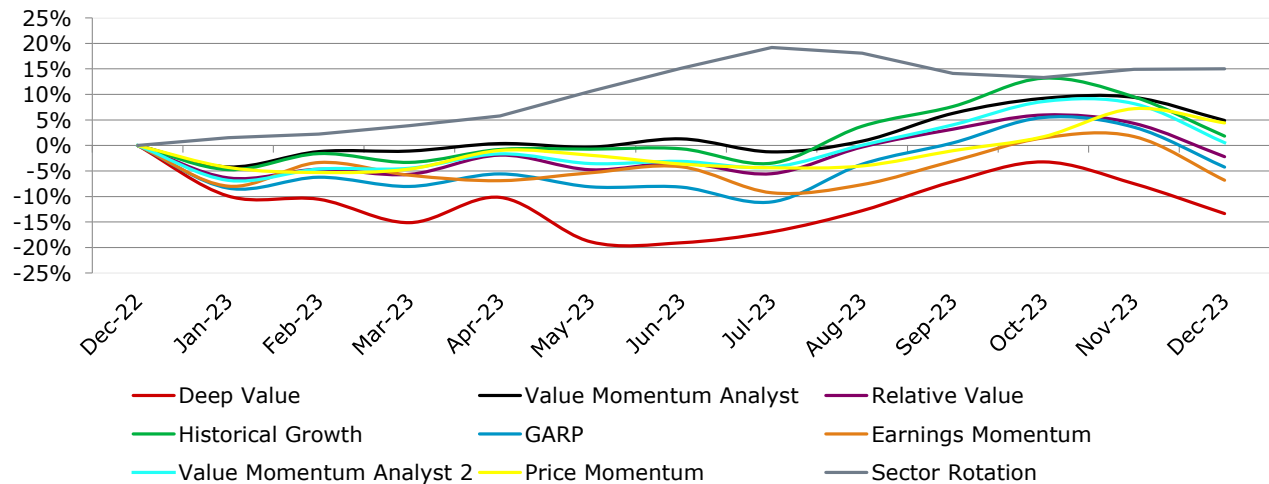
| Model [2] | Decile Return Spread [3] | | | D1 Excess Return [3] | | | D10 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | -5.86 | -6.27 | -13.37 | 0.93 | 1.03 | 3.12 | 6.79 | 7.30 | 16.48 | -0.12 | -0.01 | 0.02 |
| **Earnings Momentum** | -8.56 | -3.76 | -6.83 | -2.16 | 1.03 | 0.51 | 6.39 | 4.79 | 7.34 | -0.25 | -0.05 | 0.00 |
| **GARP** | -7.82 | -4.75 | -4.24 | -1.61 | -0.40 | 4.19 | 6.20 | 4.35 | 8.43 | -0.17 | -0.02 | 0.02 |
| **Historical Growth** | -7.69 | -5.80 | 1.82 | -2.32 | -1.31 | 3.90 | 5.37 | 4.49 | 2.09 | -0.19 | -0.03 | 0.02 |
| **Price Momentum** | -2.80 | 5.44 | 4.41 | -1.22 | 2.68 | 4.22 | 1.57 | -2.77 | -0.19 | -0.14 | 0.01 | 0.00 |
| **Relative Value** | -6.53 | -5.40 | -2.21 | -1.46 | 0.26 | 8.12 | 5.07 | 5.66 | 10.32 | -0.12 | -0.01 | 0.02 |
| **Value Momentum 2** | -7.65 | -3.49 | 0.52 | -2.32 | -1.56 | 2.32 | 5.33 | 1.93 | 1.80 | -0.20 | -0.01 | 0.02 |
| **Value Momentum** | -4.53 | -1.40 | 4.90 | -0.98 | 0.44 | 3.22 | 3.56 | 1.84 | -1.68 | -0.16 | -0.02 | 0.03 |
| **Sector Rotation** | 0.10 | 0.90 | 15.00 | -0.40 | 0.80 | 9.80 | -0.40 | 0.00 | -5.00 | - | - | - |

Equal Weighted US Large Cap Universe 1-Month Return = 8.68%

## Long/Short Return Performance



## 1 Year Cumulative Spread Returns  (1-Month Holding Period)

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# US Small Cap[1]

The models over the US Small Cap universe struggled during the month. On the 12-month basis, the Value Momentum 2 model performed best at 25.73% while the performance of the Earnings Momentum model continued to lag.

The US Small Cap Sector Rotation model earned a return of 5.30%. The Non-Cyclicals sector had a favorable ranking and the Financials sector had an unfavorable ranking.
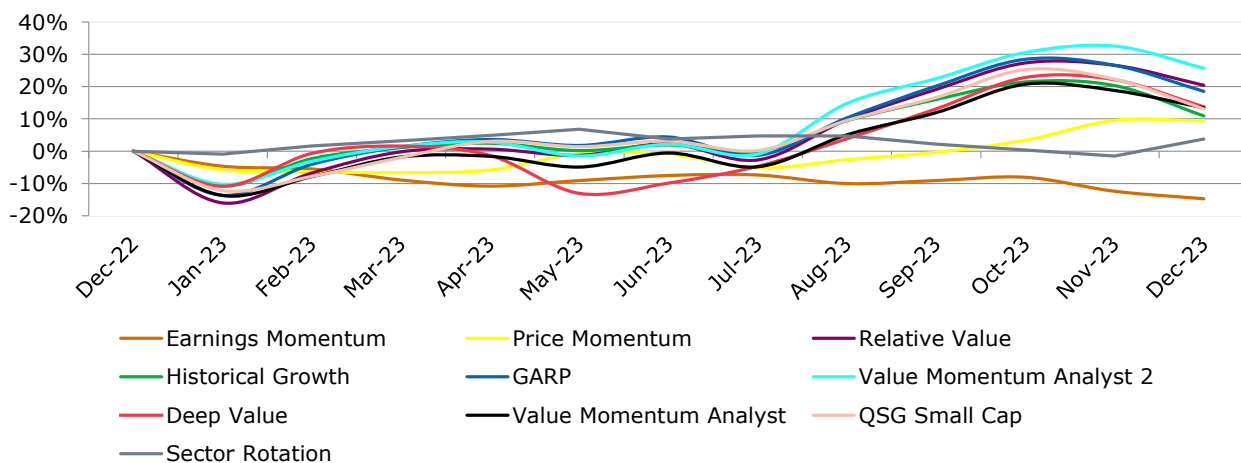
| Model [2] | Decile Return Spread [3] | | | D1 Excess Return [3] | | | D10 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | -8.39 | 0.63 | 13.75 | 0.29 | 5.70 | 6.97 | 8.68 | 5.07 | -6.78 | -0.07 | 0.06 | 0.07 |
| **Earnings Momentum** | -2.33 | -5.64 | -14.75 | 1.48 | 1.49 | -1.21 | 3.81 | 7.14 | 13.54 | 0.00 | 0.00 | -0.01 |
| **GARP** | -8.07 | -1.64 | 18.52 | -2.01 | -0.31 | 7.03 | 6.05 | 1.32 | -11.50 | -0.10 | 0.03 | 0.06 |
| **Historical Growth** | -9.39 | -5.07 | 10.94 | -3.97 | -4.28 | 6.21 | 5.42 | 0.79 | -4.72 | -0.12 | 0.00 | 0.04 |
| **Price Momentum** | -0.14 | 9.74 | 9.41 | 0.73 | 1.83 | 0.82 | 0.87 | -7.91 | -8.59 | -0.04 | 0.03 | 0.00 |
| **Relative Value** | -6.17 | 1.30 | 20.42 | -0.76 | 0.60 | 7.04 | 5.41 | -0.70 | -13.38 | -0.06 | 0.04 | 0.07 |
| **Value Momentum 2** | -6.81 | 3.26 | 25.74 | -1.32 | 0.54 | 7.32 | 5.48 | -2.72 | -18.41 | -0.11 | 0.03 | 0.07 |
| **Small Cap** | -9.20 | -3.54 | 13.10 | -1.55 | 0.16 | 5.75 | 7.66 | 3.70 | -7.35 | -0.10 | 0.02 | 0.05 |
| **Sector Rotation** | 5.30 | 1.60 | 3.80 | 2.60 | 1.30 | -0.70 | -2.70 | -0.30 | -4.80 | - | - | - |

Equal Weighted US Small Cap Universe 1-Month Return = 13.94%

## Long/Short Return Performance
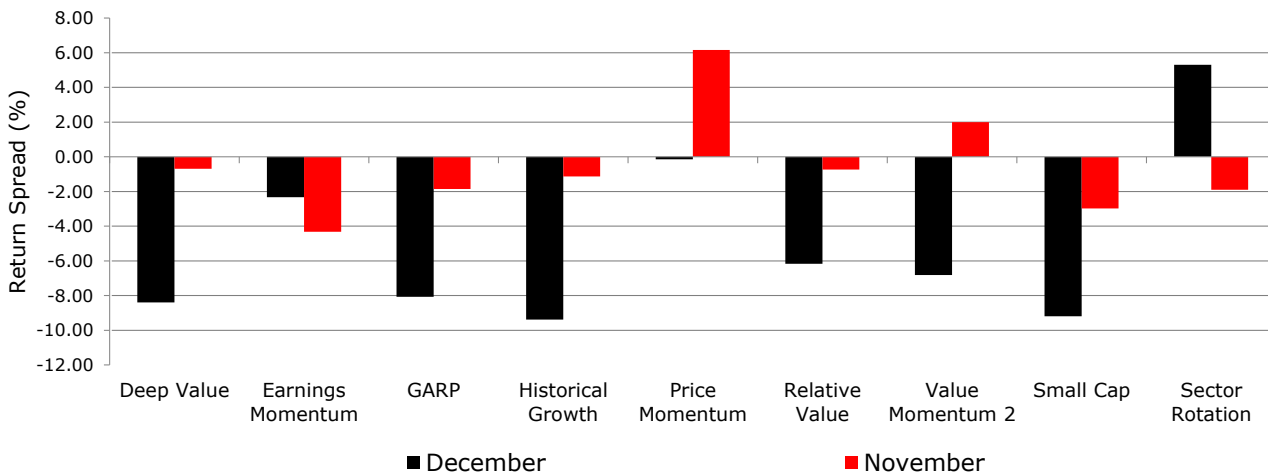


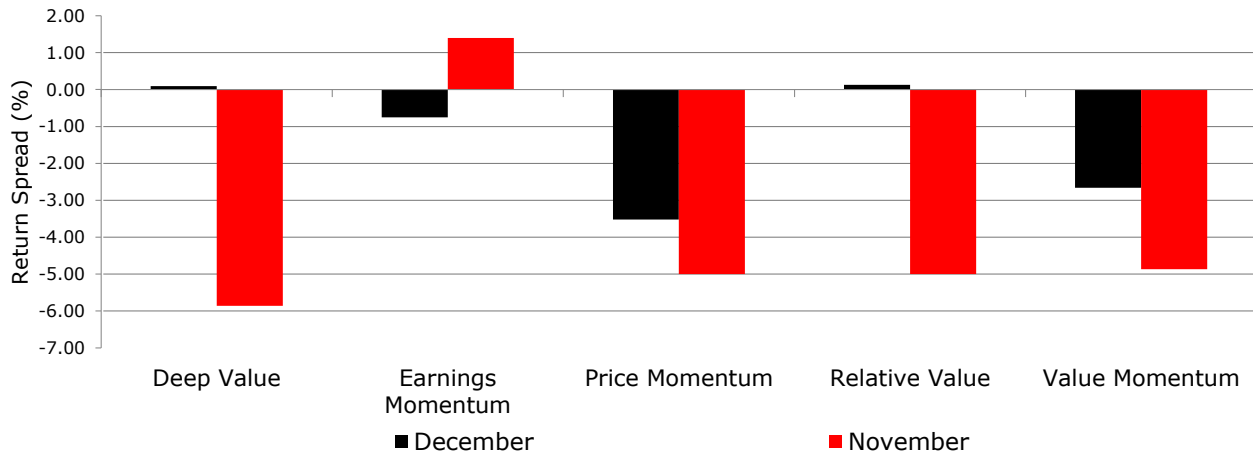## 1 Year Cumulative Spread Returns (1-Month Holding Period)

# Canada 500[1]

The models over the Canadian universe exhibited unfavorable results during the month. On the 12-month basis, the Deep Value model performed the best at 7.77% while the performance of the Price Momentum model trailed all the other models.
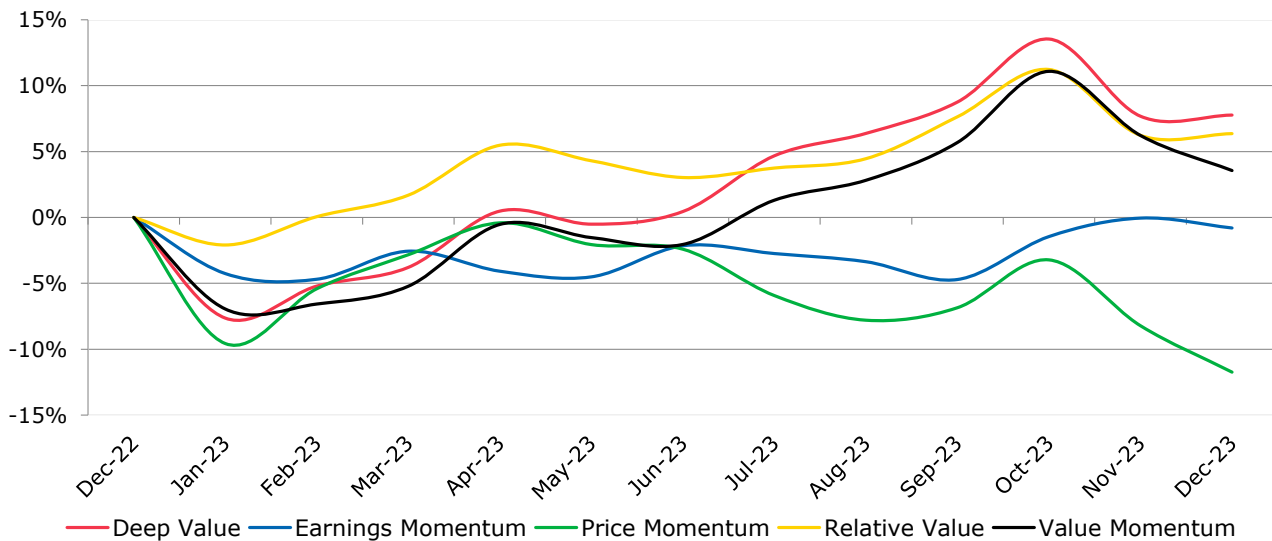
| Model [2] | Quintile Return Spread [3] | | | Q1 Excess Return [3] | | | Q5 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | 0.09 | -0.98 | 7.78 | -0.16 | -2.32 | 1.41 | -0.26 | -1.34 | -6.37 | -0.07 | -0.01 | 0.04 |
| **Earnings Momentum** | -0.75 | 3.91 | -0.79 | 0.20 | 0.44 | -0.19 | 0.94 | -3.47 | 0.61 | -0.05 | 0.03 | -0.02 |
| **Price Momentum** | -3.52 | -4.89 | -11.73 | -1.41 | -0.44 | -2.79 | 2.11 | 4.45 | 8.95 | -0.15 | -0.05 | -0.01 |
| **Relative Value** | 0.13 | -1.28 | 6.35 | -0.53 | -1.15 | 1.75 | -0.66 | 0.13 | -4.60 | 0.01 | 0.03 | 0.04 |
| **Value Momentum** | -2.66 | -2.13 | 3.57 | -2.21 | -5.15 | -3.19 | 0.46 | -3.02 | -6.75 | -0.06 | -0.01 | 0.04 |

Equal Weighted Canada 500 Universe 1-Month Return = 3.65%

## Long/Short Return Performance



## 1 Year Cumulative Spread Returns (1-Month Holding Period)

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# Japan 2000[1]

Within the Japan universe the models struggled during the month.

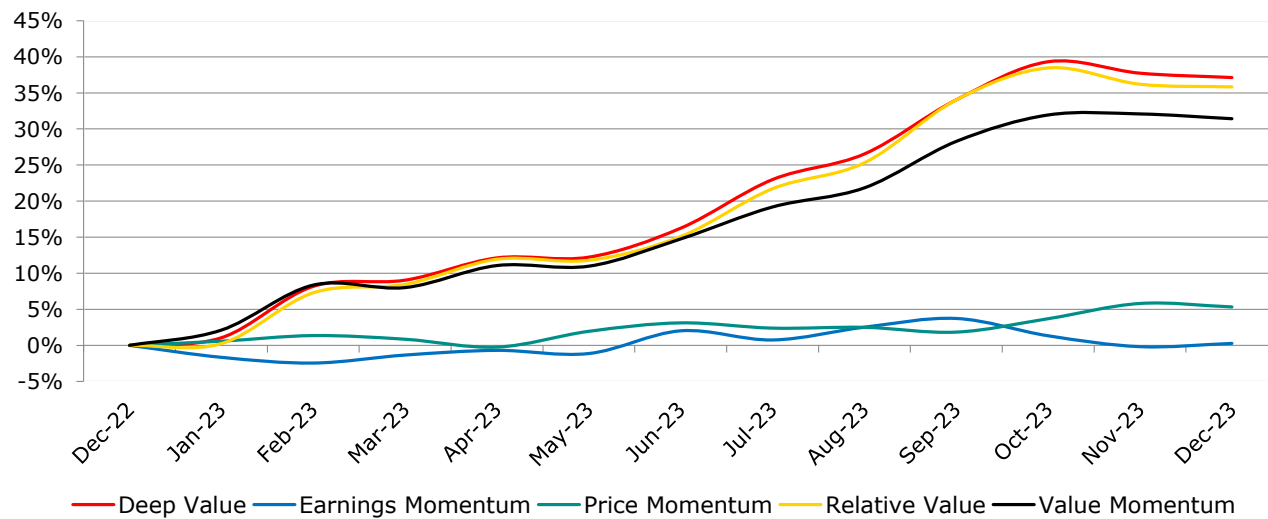The Deep Value model's one year cumulative performance was the highest at 37.13%

| Model [2] | Decile Return Spread [3] | | | D1 Excess Return [3] | | | D10 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | -0.60 | 3.09 | 37.13 | -1.00 | 0.10 | 16.27 | -0.40 | -2.99 | -20.86 | -0.05 | 0.04 | 0.14 |
| **Earnings Momentum** | 0.45 | -3.46 | 0.25 | -0.11 | -2.26 | 3.01 | -0.56 | 1.21 | 2.76 | -0.02 | -0.05 | 0.00 |
| **Price Momentum** | -0.48 | 3.48 | 5.32 | -0.62 | 1.45 | 0.18 | -0.14 | -2.03 | -5.14 | -0.04 | 0.02 | 0.00 |
| **Relative Value** | -0.37 | 1.80 | 35.82 | -0.52 | 0.02 | 14.45 | -0.15 | -1.78 | -21.37 | -0.02 | 0.02 | 0.13 |
| **Value Momentum** | -0.66 | 3.15 | 31.42 | -0.90 | 1.13 | 15.52 | -0.24 | -2.01 | -15.90 | -0.03 | 0.02 | 0.13 |

Equal Weighted Japan 2000 Universe 1-Month Return = 0.73%

## Long/Short Return Performance



## 1 Year Cumulative Spread Returns  (1-Month Holding Period)
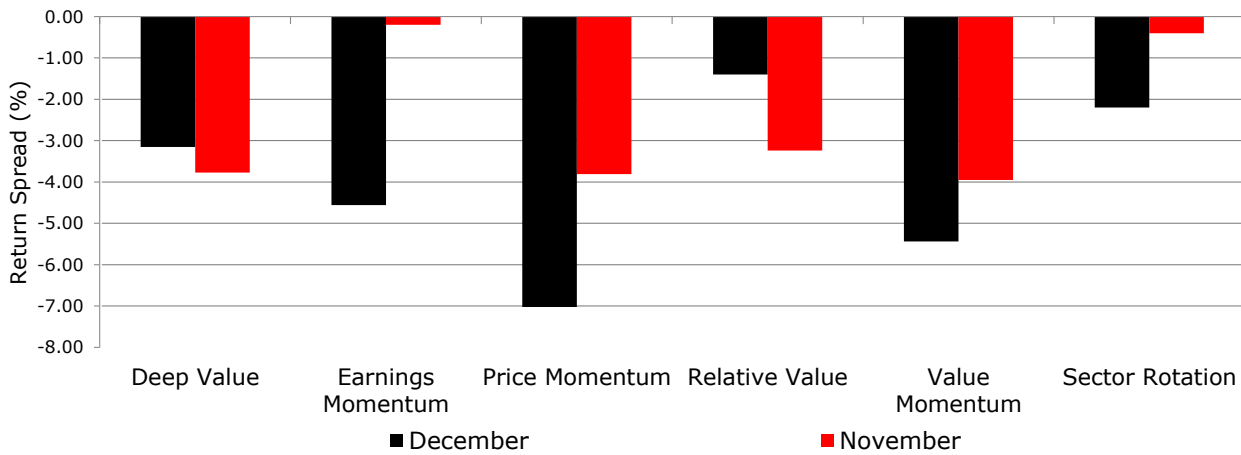


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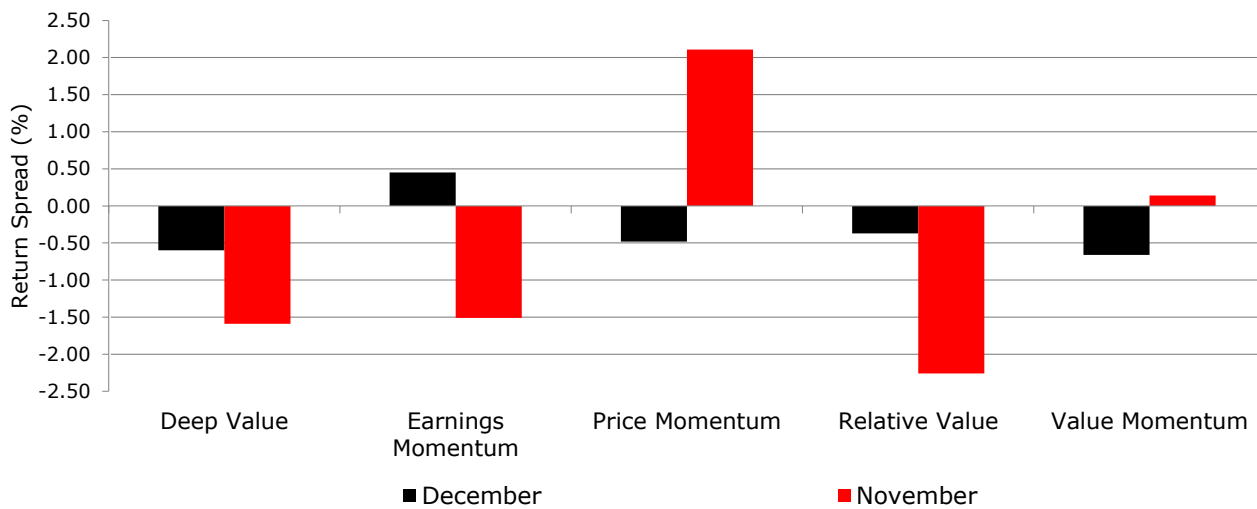
# Developed Europe[1]

The models over the Developed Europe universe exhibited subpar performance during the month. On a 12-month basis, the Deep Value model performed the best, at 21.12% cumulative.

The Developed Europe Sector Rotation model struggled during the month.The Financials sector had a favorable ranking and the Non-Cyclicals sector had an unfavorable ranking.
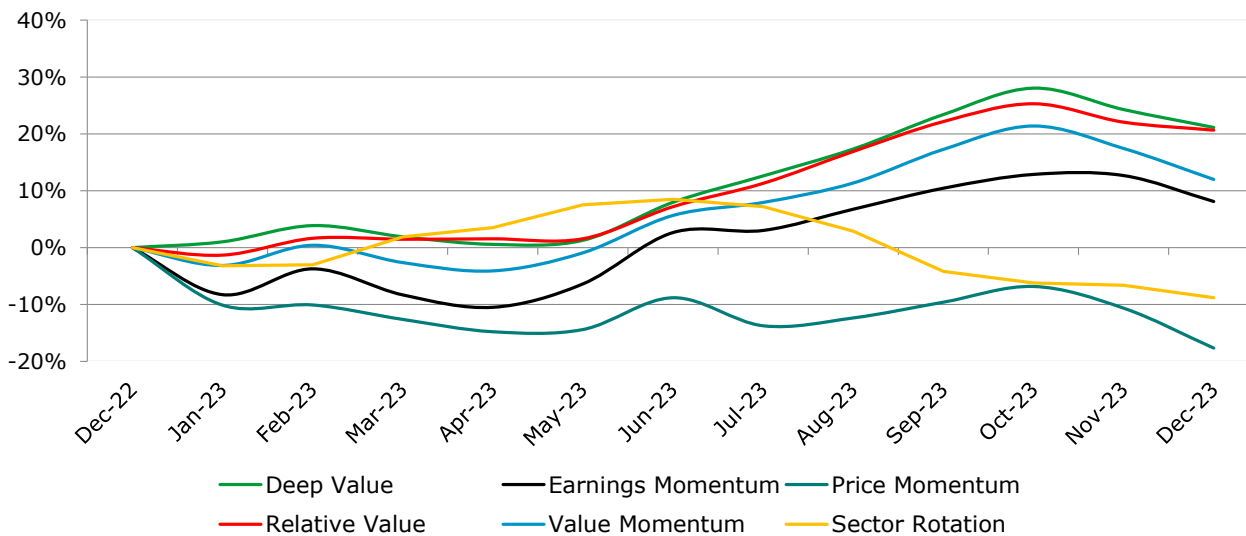
| Model [2] | Decile Return Spread [3] | | | D1 Excess Return [3] | | | D10 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | -3.15 | -2.27 | 21.10 | -1.83 | -3.32 | 9.21 | 1.32 | -1.05 | -11.89 | -0.16 | -0.06 | 0.05 |
| **Earnings Momentum** | -4.56 | -2.33 | 8.10 | -3.20 | -2.45 | 6.77 | 1.35 | -0.12 | -1.34 | -0.20 | -0.06 | 0.01 |
| **Price Momentum** | -7.02 | -8.06 | -17.66 | -3.35 | -3.13 | -9.64 | 3.68 | 4.93 | 8.03 | -0.27 | -0.09 | -0.04 |
| **Relative Value** | -1.40 | -1.51 | 20.66 | -1.34 | -3.23 | 12.66 | 0.06 | -1.71 | -7.99 | -0.09 | -0.04 | 0.05 |
| **Value Momentum** | -5.44 | -5.28 | 11.97 | -3.79 | -5.00 | 10.33 | 1.65 | 0.28 | -1.64 | -0.19 | -0.06 | 0.03 |
| **Sector Rotation** | -2.20 | -4.60 | -8.80 | -1.00 | -4.60 | -12.60 | 1.20 | 0.00 | -3.60 | - | - | - |

Equal Weighted Europe 1000 Universe 1-Month Return = 4.92%

## Long/Short Return Performance



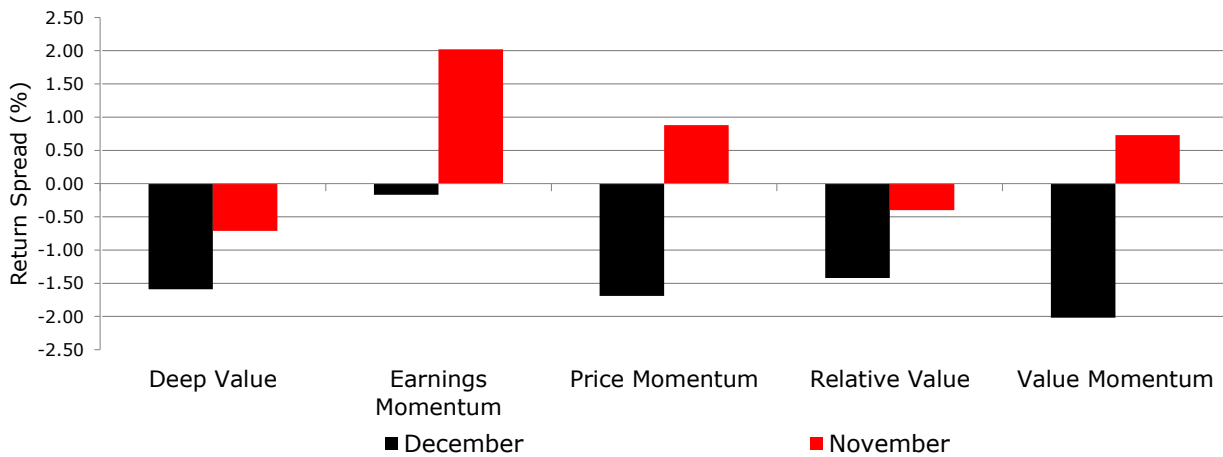## 1 Year Cumulative Spread Returns  (1-Month Holding Period)

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# Australia-New Zealand 250[1]

The Deep Value model's one year cumulative performance was at 8.77% and the performance of the Price Momentum model returned -4.99%The models over the Australia-New Zealand universe struggled during the month, as all five models had a negative return spread. Value Momentum struggled the most.
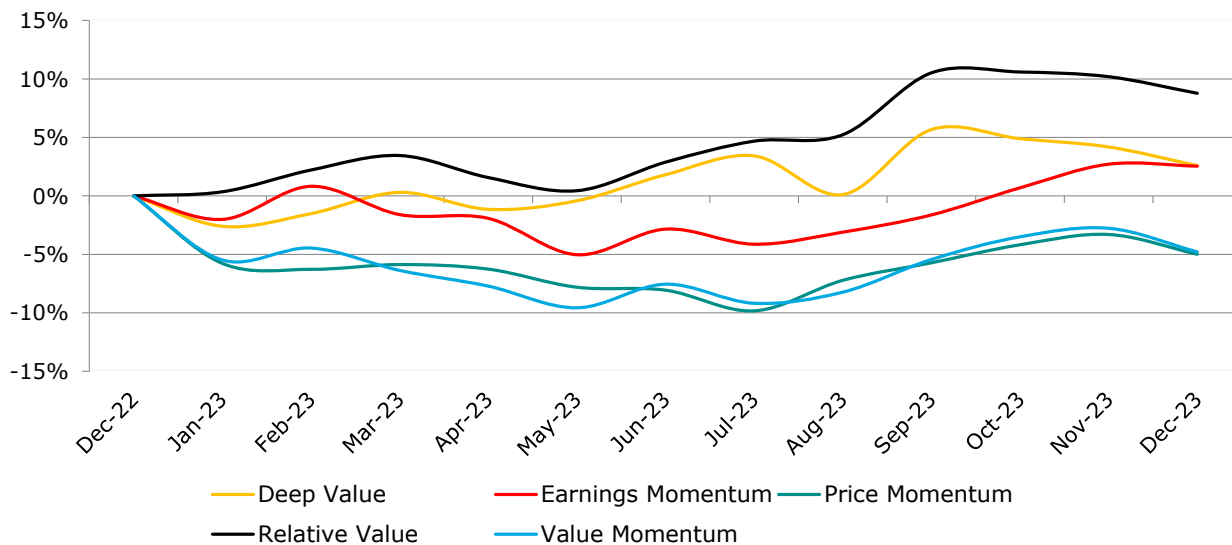
| Model [2] | Quintile Return Spread [3] | | | Q1 Excess Return [3] | | | Q5 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | -1.59 | -3.08 | 2.57 | -0.94 | -2.26 | 0.61 | 0.65 | 0.82 | -1.96 | -0.06 | -0.07 | 0.00 |
| **Earnings Momentum** | -0.17 | 4.17 | 2.54 | -0.03 | 1.60 | -1.57 | 0.14 | -2.57 | -4.11 | -0.04 | 0.04 | 0.01 |
| **Price Momentum** | -1.69 | 0.73 | -4.98 | -0.63 | -0.10 | -4.82 | 1.06 | -0.84 | 0.16 | -0.08 | 0.03 | -0.01 |
| **Relative Value** | -1.42 | -1.75 | 8.75 | -0.99 | -1.70 | 4.37 | 0.43 | 0.05 | -4.38 | -0.10 | -0.06 | 0.03 |
| **Value Momentum** | -2.02 | 0.65 | -4.78 | -0.60 | -0.06 | -2.76 | 1.42 | -0.71 | 2.02 | -0.09 | 0.01 | 0.00 |

Equal Weighted Australia New Zealand 250 Universe 1-Month Return = 5.92%

## Long/Short Return Performance



## 1 Year Cumulative Spread Returns  (1-Month Holding Period)



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# Developed Pacific[1]

Over the Developed Pacific universe, the Price Momentum model had the strongest one month decile return spread performance, returning 0.92%, while the Earnings Momentum model lagged.

The Deep Value model led the performance over the recent one year, delivering 20.97%.
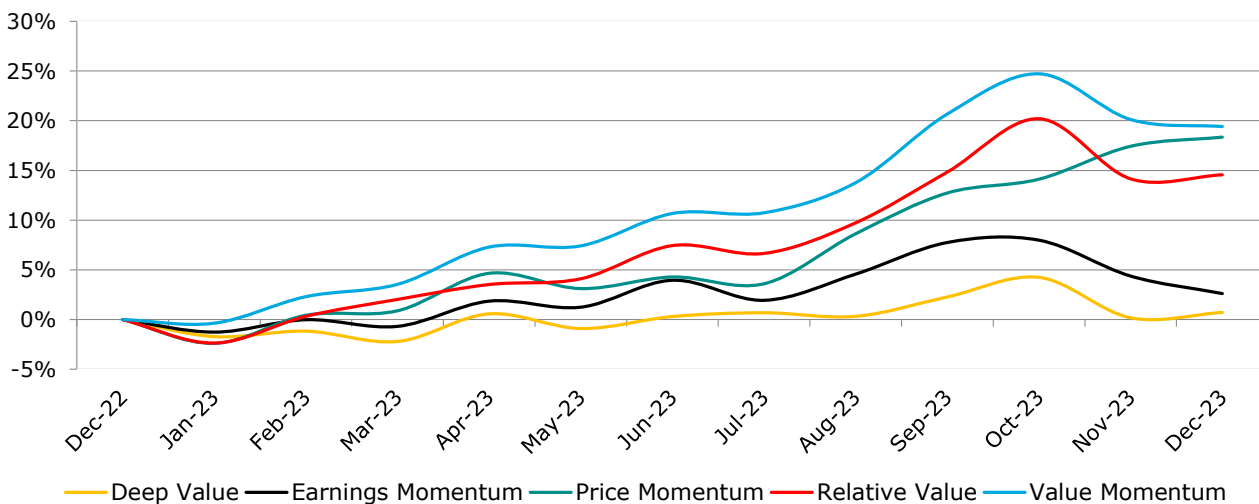
| Model [2] | Decile Return Spread [3] | | | D1 Excess Return [3] | | | D10 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | 0.54 | -3.59 | 20.97 | -2.04 | -4.29 | 7.18 | -2.59 | -0.70 | -13.78 | -0.03 | 0.00 | 0.08 |
| **Earnings Momentum** | -1.76 | -5.14 | 2.59 | -1.06 | -1.99 | 3.46 | 0.70 | 3.15 | 0.87 | -0.03 | -0.03 | 0.02 |
| **Price Momentum** | 0.92 | 5.62 | 18.35 | 0.28 | 2.64 | 6.80 | -0.64 | -2.98 | -11.55 | 0.03 | 0.06 | 0.07 |
| **Relative Value** | 0.41 | -0.28 | 14.57 | -1.25 | -0.51 | 4.72 | -1.65 | -0.23 | -9.85 | -0.01 | 0.03 | 0.07 |
| **Value Momentum** | -0.71 | -1.27 | 19.41 | -2.22 | -1.94 | 9.64 | -1.51 | -0.67 | -9.77 | -0.02 | 0.03 | 0.08 |

Equal Weighted Developed Pacific Universe 1-Month Return = 7.76%

## Long/Short Return Performance
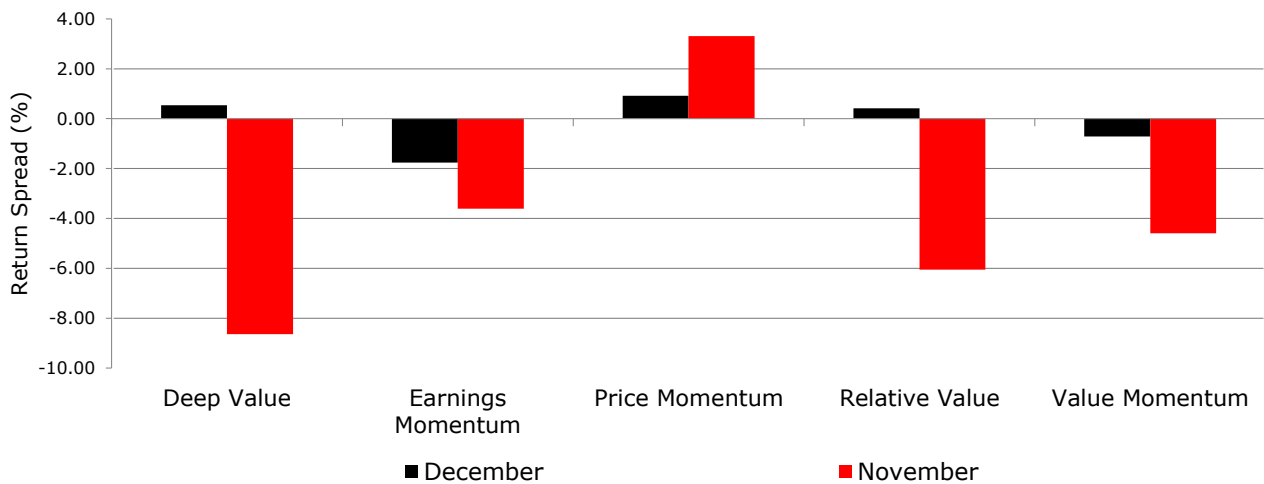


## 1 Year Cumulative Spread Returns  (1-Month Holding Period)
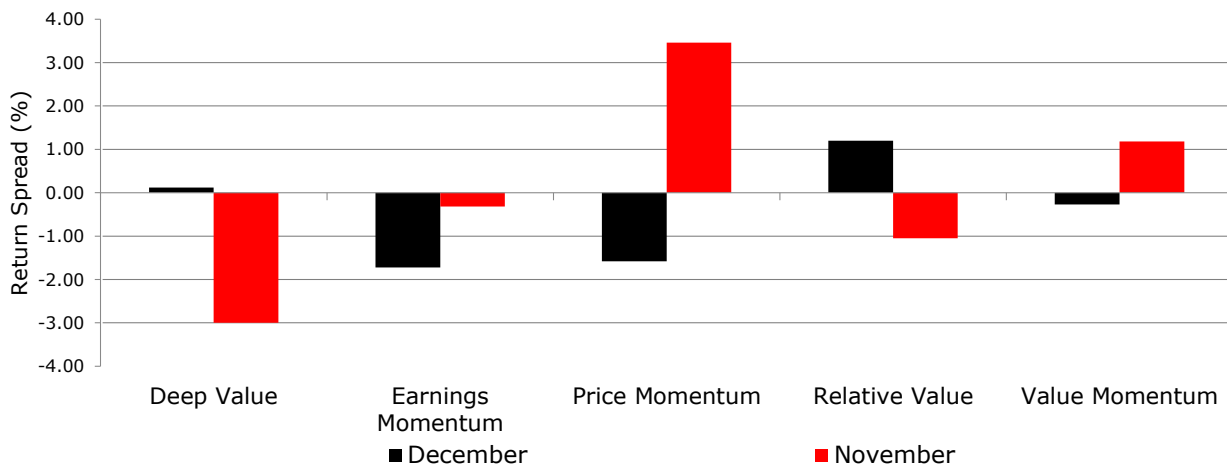
# Developed World Ex North America (EAFE)[1]

Within the Developed World Ex North America (EAFE) universe, the Relative Value model posted positive one month decile return spread performance, returning 1.20%.

The Deep Value model was the most improved during the month on a one month decile spread basis improving by 3.12% over its performance in November.

| Model [2] | Decile Return Spread [3] | | | D1 Excess Return | | | D10 Excess Return | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | 0.12 | -2.05 | 15.75 | -0.07 | -0.72 | 9.58 | -0.18 | 1.33 | -6.17 | -0.02 | -0.02 | 0.06 |
| **Earnings Momentum** | -1.72 | -0.73 | 2.43 | -0.16 | 0.25 | 3.38 | 1.56 | 0.98 | 0.95 | -0.13 | -0.04 | 0.01 |
| **Price Momentum** | -1.58 | 2.39 | 0.01 | 0.30 | 2.80 | -0.19 | 1.88 | 0.41 | -0.20 | -0.09 | 0.01 | 0.00 |
| **Relative Value** | 1.20 | 1.35 | 7.81 | 1.29 | 1.07 | 4.46 | 0.09 | -0.28 | -3.35 | 0.01 | 0.00 | 0.03 |
| **Value Momentum** | -0.27 | 2.23 | 6.09 | -0.07 | 1.62 | 0.30 | 0.20 | -0.61 | -5.79 | -0.07 | -0.01 | 0.03 |

Equal Weighted Developed World Ex North America (EAFE) 1-Month Return = 4.05%

## Long/Short Return Performance



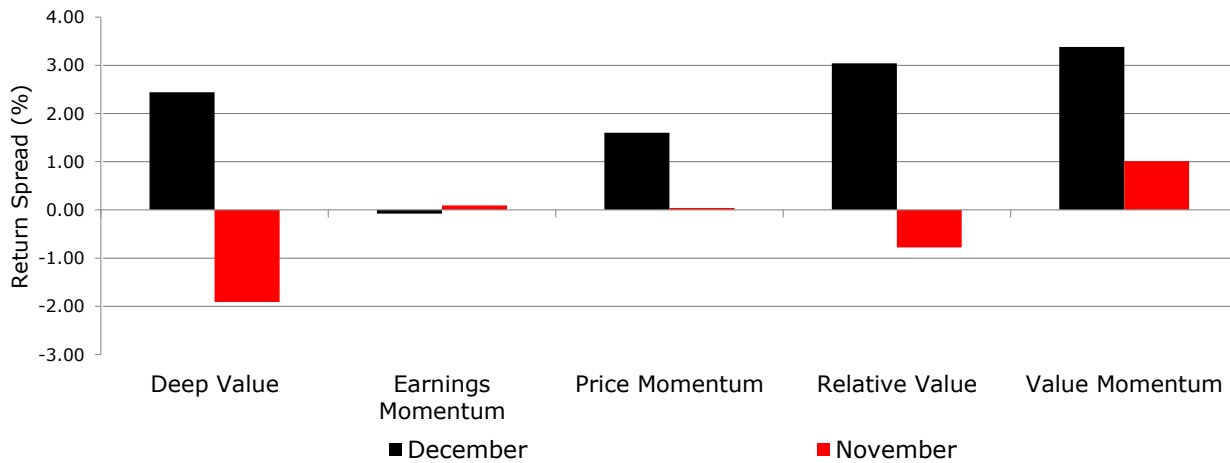## 1 Year Cumulative Spread Returns  (1-Month Holding Period)

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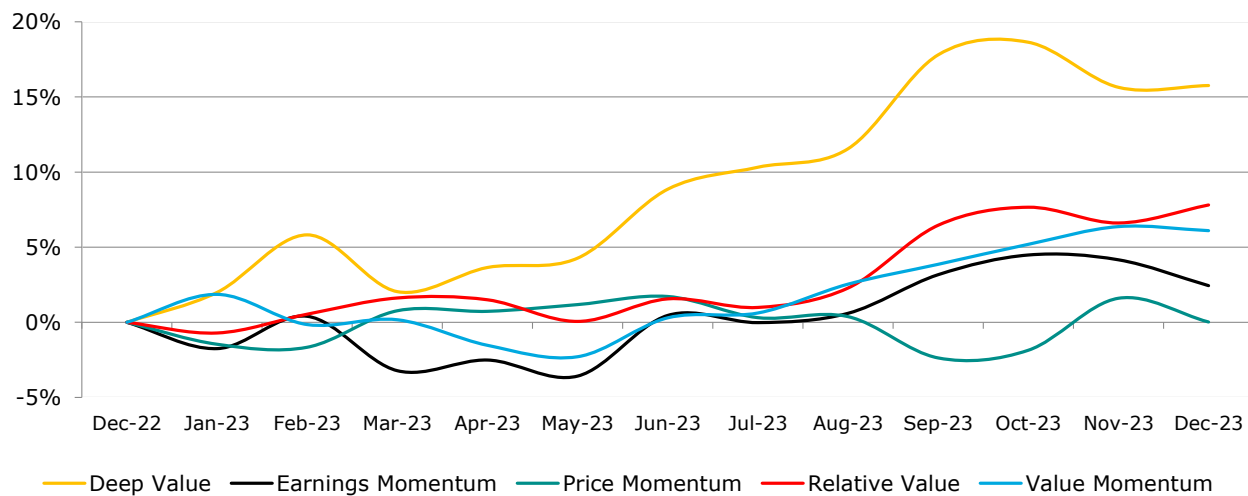
# Emerging Markets[1]

Within the Emerging Markets universe, the Value Momentum model returned 3.38% on one month quintile return spread basis. Most of the models within the universe had positive returns as well. The Value Momentum model continued to lead over the one-year period, with returns at 14.31%.
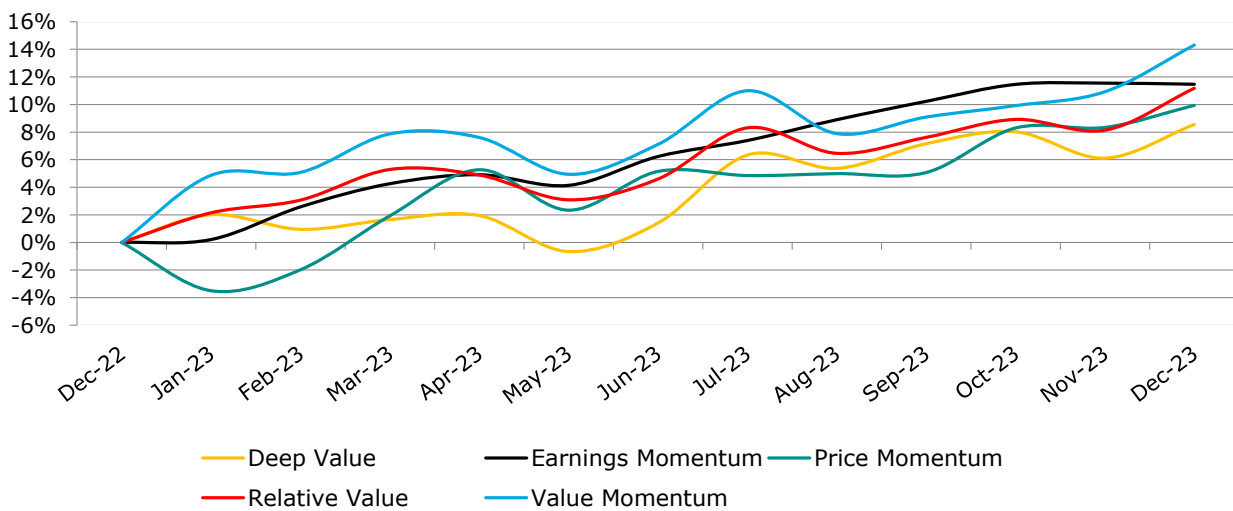
| Model [2] | Quintile Return Spread [3] | | | Q1 Excess Return [3] | | | Q5 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | 2.44 | 1.39 | 8.55 | 1.33 | 0.36 | 3.25 | -1.11 | -1.02 | -5.30 | 0.13 | 0.04 | 0.04 |
| **Earnings Momentum** | -0.08 | 1.23 | 11.46 | 0.91 | 1.07 | 7.77 | 0.99 | -0.16 | -3.68 | -0.03 | 0.00 | 0.02 |
| **Price Momentum** | 1.60 | 4.87 | 9.94 | 0.58 | 2.14 | 5.93 | -1.01 | -2.73 | -4.00 | 0.08 | 0.08 | 0.04 |
| **Relative Value** | 3.04 | 3.56 | 11.18 | 1.50 | 1.59 | 4.67 | -1.53 | -1.97 | -6.52 | 0.12 | 0.05 | 0.04 |
| **Value Momentum** | 3.38 | 5.22 | 14.30 | 1.77 | 2.69 | 7.52 | -1.61 | -2.53 | -6.77 | 0.13 | 0.08 | 0.05 |

Equal Weighted Emerging Markets Universe 1-Month Return = 5.24%

## Long/Short Return Performance



## 1 Year Cumulative Spread Returns  (1-Month Holding Period)

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# Frontier Markets[1]

The Frontier Market's models performed well, with Earnings Momentum model had the strongest one month quintile return spread performance, returning 0.72%.

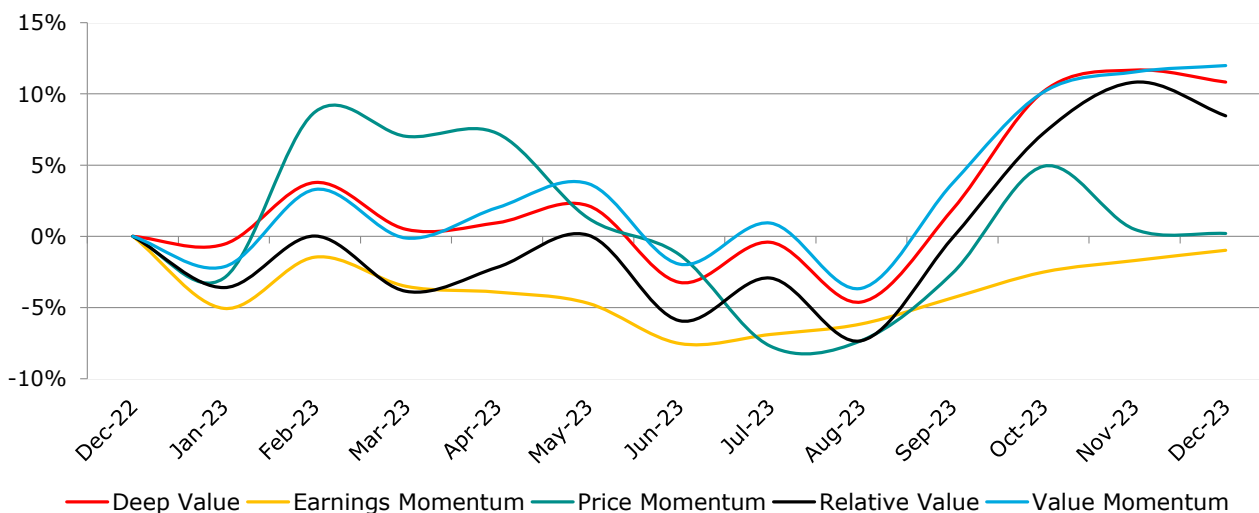The Value Momentum model's one year cumulative performance reached 11.99%.

| Model [2] | Quintile Return Spread [3] | | | Q1 Excess Return [3] | | | Q5 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Deep Value** | -0.84 | 8.96 | 10.84 | -1.26 | 6.77 | 4.27 | -0.43 | -2.19 | -6.57 | 0.03 | 0.10 | 0.06 |
| **Earnings Momentum** | 0.72 | 3.34 | -1.10 | 0.35 | 0.95 | -0.39 | -0.37 | -2.39 | 0.71 | -0.02 | 0.02 | 0.01 |
| **Price Momentum** | -0.29 | 2.79 | 0.20 | -0.33 | -0.50 | 2.29 | -0.05 | -3.29 | 2.09 | -0.01 | 0.05 | 0.03 |
| **Relative Value** | -2.36 | 8.57 | 8.47 | -1.35 | 6.13 | 2.51 | 1.01 | -2.44 | -5.97 | -0.04 | 0.10 | 0.06 |
| **Value Momentum** | 0.45 | 8.28 | 11.99 | 0.04 | 5.58 | 4.46 | -0.42 | -2.69 | -7.53 | 0.01 | 0.10 | 0.07 |

Equal Weighted Frontier Markets Universe 1-Month Return = 2.34%

## Long/Short Return Performance
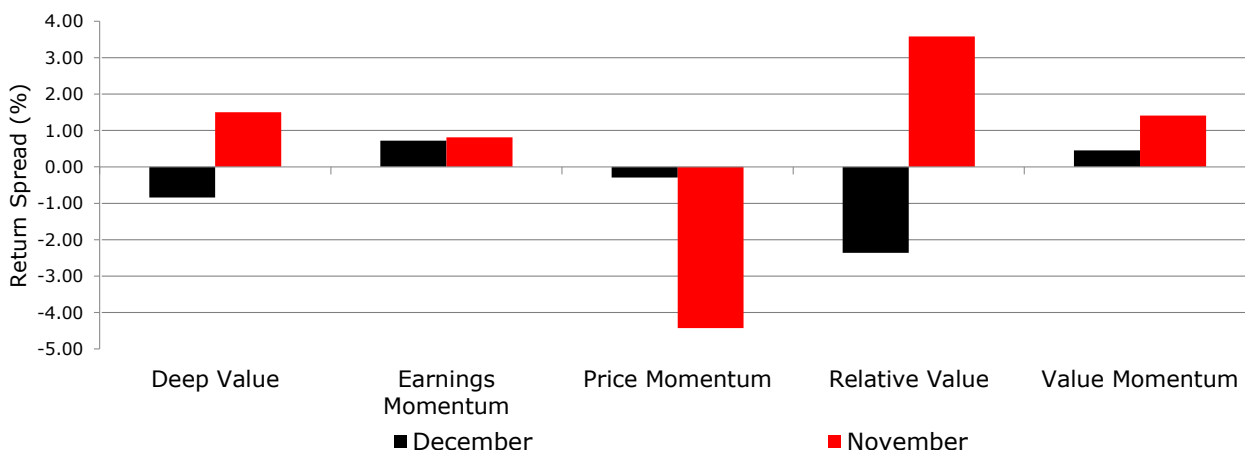


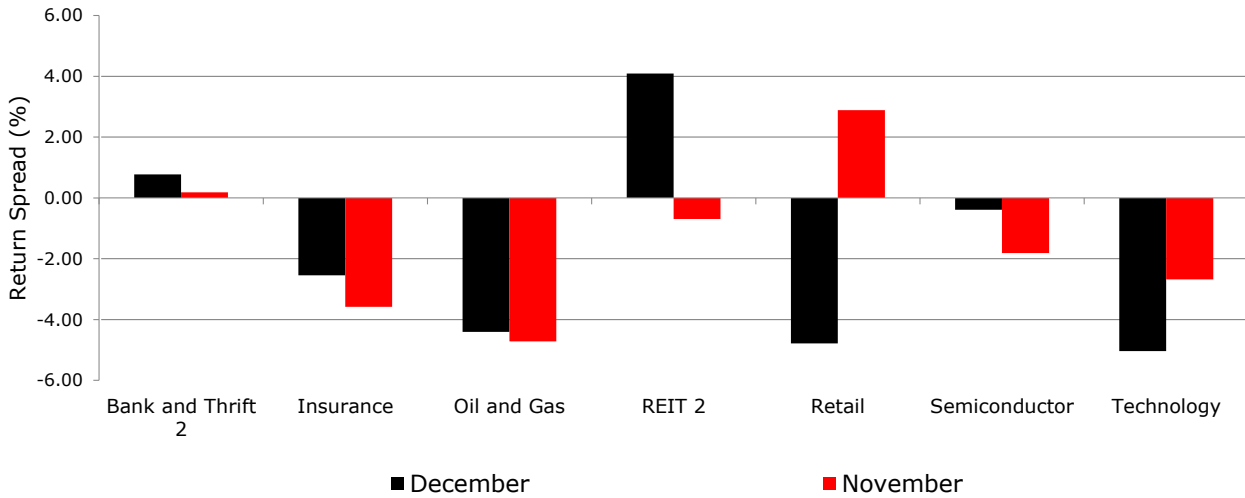## 1 Year Cumulative Spread Returns  (1-Month Holding Period)

## Specialty Models[1]

The Retail model's one year cumulative performance was the highest at 33.43% while the REIT 2 model's performance was the lowest at -0.68%.

Within the specialty model library the REIT 2 and the Bank and Thrift 2 models had the strongest one month quintile return spread performance returning 4.09% and 0.77%, respectively, while the Retail and the Technology models struggled.

| Model [2] | Decile/Quintile Return Spread [3] | | | D1 Excess Return [3] | | | D10 Excess Return [3] | | | Information Coefficient [3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo | 1mo | 3mo | 12mo |
| **Bank and Thrift 2**[4] | 0.77 | 2.33 | 2.11 | 0.87 | 2.04 | 3.56 | 0.11 | -0.29 | 1.45 | 0.06 | 0.04 | 0.04 |
| **Insurance** | -2.55 | -4.32 | 2.54 | -1.94 | -0.61 | 0.39 | 0.61 | 3.71 | -2.14 | -0.15 | -0.04 | 0.02 |
| **Oil and Gas** | -4.41 | -3.09 | 5.87 | -2.19 | -0.94 | 1.95 | 2.22 | 2.15 | -3.91 | -0.16 | -0.02 | 0.04 |
| **REIT 2** | 4.09 | 4.84 | -0.68 | 1.83 | -0.03 | 1.29 | -2.27 | -4.87 | 1.97 | 0.19 | 0.08 | 0.00 |
| **Retail** | -4.79 | 1.05 | 33.43 | -2.10 | -0.02 | 19.22 | 2.69 | -1.07 | -14.21 | -0.14 | 0.02 | 0.08 |
| **Semiconductor** | -0.39 | 0.72 | 22.47 | 0.59 | 1.16 | 10.87 | 0.98 | 0.44 | -11.60 | 0.02 | 0.04 | 0.07 |
| **Technology** | -5.04 | -3.95 | 2.25 | -0.51 | -0.57 | -6.56 | 4.53 | 3.37 | -8.81 | -0.11 | -0.04 | 0.02 |

### Long/Short Return Performance



### 1 Year Cumulative Spread Returns  (1-Month Holding Period)
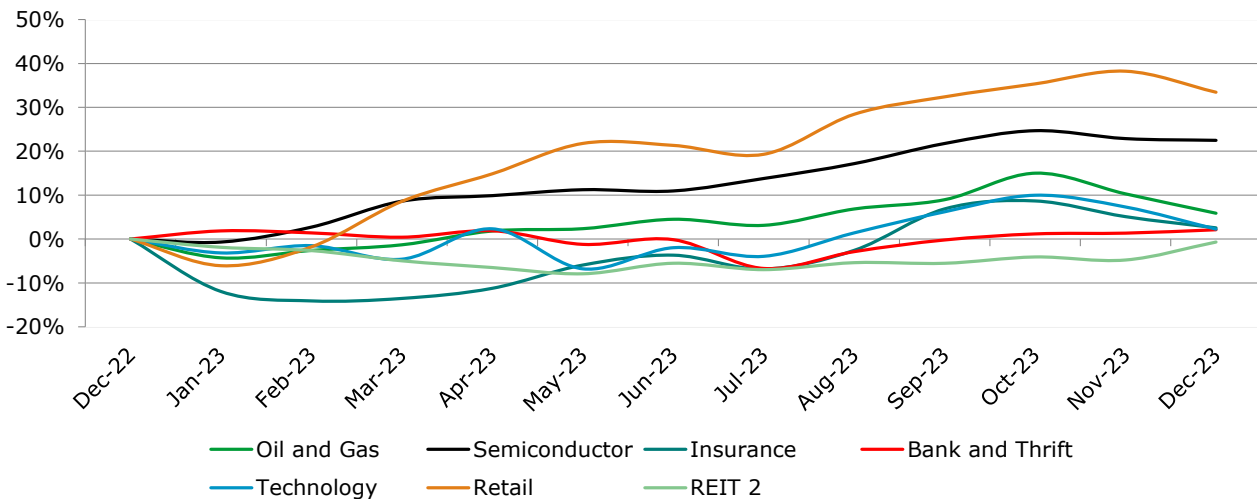
# APPENDIX

## 1.1 UNIVERSE DESCRIPTIONS

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**US Large Cap:**  Top 90% of US stocks by cumulative market-cap, including securities held by passively benchmarked ETF's tracking the same market segment.

**US Small Cap:**  Securities in 91-98% of US stocks by cumulative market-cap, including securities held by passively benchmarked ETF's tracking the same market segment.

**Canada 500:**  Top 500 Canada stocks by market-cap.

**Japan 2000:**  Top 2000 Japan stocks by market-cap.

**Australia - New Zealand 250:**  Top 250 stocks by market-cap in Australia and New Zealand.

**Developed Europe:**  Top 1000 securities in the Developed Europe markets by market-cap.

**Developed Pacific:** Top 95% of stocks by cumulative free float market-cap among developed countries in the region, subject to a minimum free float market-cap of USD 250 mm.

**Developed World Ex-North America (EAFE):**  Top 80% of stocks by cumulative market-cap stocks, in global developed countries excluding US/ Canada.

**Emerging Markets:** Top 95% of stocks by cumulative free float market-cap among emerging market countries, subject to a minimum free float market cap of USD 100 mm.

**Frontier Markets:** Top 95% of stocks by cumulative free float market-cap among frontier market countries, subject to a minimum free float market cap of USD 100 mm.

**Bank and Thrift:** All bank and thrift stocks that are part of the US Total Cap universe (top 98% of US stocks), with a share price > $5 and market-cap >= .01% of the largest bank in the universe.

**Insurance Universe:**  All insurance companies listed on US exchanges, excluding ADR's and Insurance brokers.

**Oil & Gas:**  Global stocks in the oil & gas industry

**REIT:**  All US REITs that are part of the US Total Cap universe (top 98% of US stocks), excluding mortgage REIT's.

**Retail:**  All Retail companies in the US Total Cap universe (top 98% of US stocks), including those in the Cyclical and Non-Cyclical sectors.

**Semiconductors:**  Global securities classified in the Semiconductor industry.

**Technology:**  All Technology companies in the US Total Cap universe (top 98% of US stocks).

## 1.2 MODEL DESCRIPTIONS

**Deep Value Model (DVM):** seeks to identify securities trading at a steep discount to their intrinsic
.

**Earnings Momentum Model (EMM):** incorporates analyst forecasts alongside in conjunction with
past earnings strength to estimate future earnings potential.

**Price Momentum Model (PMM):** seeks to combine price changes with several risk factors to
provide a consistent short term investment signal.

**Relative Value Model (RVM):** an alternative approach to the DVM that considers valuation
indicators on an industry adjusted basis thus mitigating any concentration risk.

**Value Momentum Analyst (VMA):** a comprehensive style model which includes factors from Value,
Price and Earnings Momentum themes to identify attractive/ unattractive securities.

**GARP Model (GARP):** designed to identify attractively valued stocks using valuation techniques that
take growth into consideration. The Valuation component selects stocks with attractive valuation
characteristics.

**Historical Growth Model (HGM):** identifies stocks with an above-average track-record of earnings
growth, strong sales growth and high sustainable growth. This blended approach enables our
Historical Growth Model to not only identifies traditional growth stocks, but also value stocks on the
verge of growth.

**Small Cap Model:** seeks to exploit the noticeable excess performance in the small cap arena.
Constituent factors selected for its individual and orthogonal power within the small cap space.

**Bank and Thrift II Model (QBM2):** seeks to generate consistent outperformance by leveraging
specialty data sources to create bank-and-thrift-specific factors which complement a set of broad
factors exhibiting strong performance within the bank and thrift industries.

**Insurance Model (QIM):** provides a robust methodology to enhance stock selection processes by
comparing the relative performance of insurance companies on a consistent valuation framework
designed to identify stocks with significant alpha generating potential.

**Oil and Gas Model (OGM):** uses a comprehensive scoring system that systematically values
companies utilizing energy specific operating metrics and fundamental factors relevant to the oil and
gas industry.

**Retail Model (QRT):** designed to generate alpha by employing general factor signals alongside key
retail specific measures. Retail specific indicators include Same Store Sales and Earnings
Expectations.

**REIT Model (QRM):** incorporates detailed property level information such as occupancy rate,
location, and building quality to construct a bottom up approach assessment of REIT Net Asset
Value; along with several other metrics.

**Technology Model (QTA2):** a multidimensional approach of combining several industry-specific
models with a cross-sectional overlay. The model seeks to generate alpha by accounting for the
inherent cyclicality and volatility of sub-industries.

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## 1.3 PERFORMANCE STATS CALCULATION

*The reported Information Coefficient (correlation between model ranks and equity return) is the average over the given time period.  The reported Decile 1 and Decile 10 Excess Returns are Cumulative Sum (CUMSUM) and are measured as the excess return of their respective benchmark over a given time period*

*The reported Decile 1 Excess Returns and Decile 10 Excess Returns are Cumulative Sum (CUSUM) returns and are measured as the excess return of their respective benchmark over the given time period.*

*The reported Long-Short Spread Returns are Cumulative SUM returns and are calculated by subtracting the total returns of stocks in the bottom decile/quintile from those in the top decile/quintile over the given time period.*

*Quintiles are used for performance stats calculations, instead of deciles, in cases of smaller universe sizes.*

*The reported performance stats are all in local currency.*

### DISLCAIMER