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Research Signals

Monthly Model Performance Report

May 2022

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Monthly Performance Recap

US:

Within the US Large Cap universe, all models performed well. The Relative Value model had the strongest one month decile return spread performance, returning 9.93%. Over the US Small Cap universe, almost all of our models had positive performance. The GARP model had the strongest one month decile return spread performance, returning 10.99%.

Developed Europe:

Over the Developed Europe universe, our Deep Value model returned 4.61% on a one month decile return spread basis, while Price Momentum lagged.

Developed Pacific:

Over the Developed Pacific universe, the Deep Value model had the strongest one month decile return spread performance, returning 3.78%, while the Price Momentum model lagged. The Value Momentum model's one year cumulative performance is currently 29.81%.

Emerging Markets:

Within the Emerging Markets universe, our Value Momentum model returned 8.06% on one month quintile return spread basis. The rest of the models within the universe had positive returns as well. The Price Momentum model's one year cumulative performance is still the highest for the EM universe at 25.12%.

Sector Rotation:

The US Large Cap Sector Rotation model returned 2.70%. The Energy sector had a favorable ranking and the Cyclical sector had an unfavorable ranking. The US Small Cap Sector Rotation model with a return of 3.20%. The Energy sector had a favorable ranking and the Telecom sector had an unfavorable ranking. The Developed Europe Sector Rotation model struggled during the month. The Basic Materials sector had a favorable ranking and the Financials sector had an unfavorable ranking.

Specialty Models:

Within our specialty model library the Technology and the Oil and Gas models had the strongest one month quintile return spread performance returning 8.22% and 6.72%, respectively, while the Bank and Thrift 2 and the Insurance models struggled. The Semiconductor model's one year cumulative performance is the highest at 30.38% while the Bank and Thrift 2 model's performance is the lowest at 5.43%.

Research Signals Model Matrix

	Deep Value	Earnings Momentum	Price Momentum	Relative Value	Value Momentum
US Large Cap	9.166	6.128	4.301	9.927	7.570
US Small Cap	9.957	4.940	-0.488	10.208	6.828
US Total Cap	8.667	4.377	-0.275	8.754	8.067
Canada 500	7.740	4.328	6.561	5.216	9.333
Developed Pacific STDCAP	3.776	1.963	-1.737	2.304	3.344
Emerging Markets STDCAP	5.951	1.004	3.947	6.538	8.055
Frontier Markets STDCAP	-0.203	-0.930	4.938	0.143	2.656
Europe 1000	4.611	2.511	-1.746	3.461	2.866
Japan 2000	0.795	2.661	2.422	1.692	2.433
Australia-New Zealand 250	6.151	0.296	-0.287	3.962	3.515

Worst

Best



US Large Cap⁽¹⁾

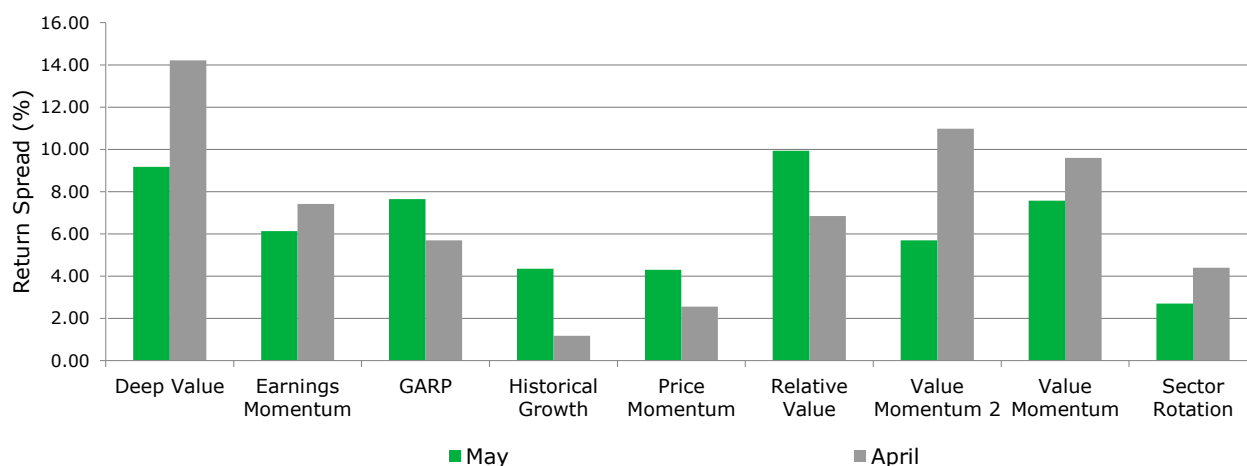
Within the US Large Cap universe, all models performed well. The Relative Value model had the strongest one month decile return spread performance, returning 9.93%.

The US Large Cap Sector Rotation model returned 2.70%. The Energy sector had a favorable ranking and the Cyclical sector had an unfavorable ranking.

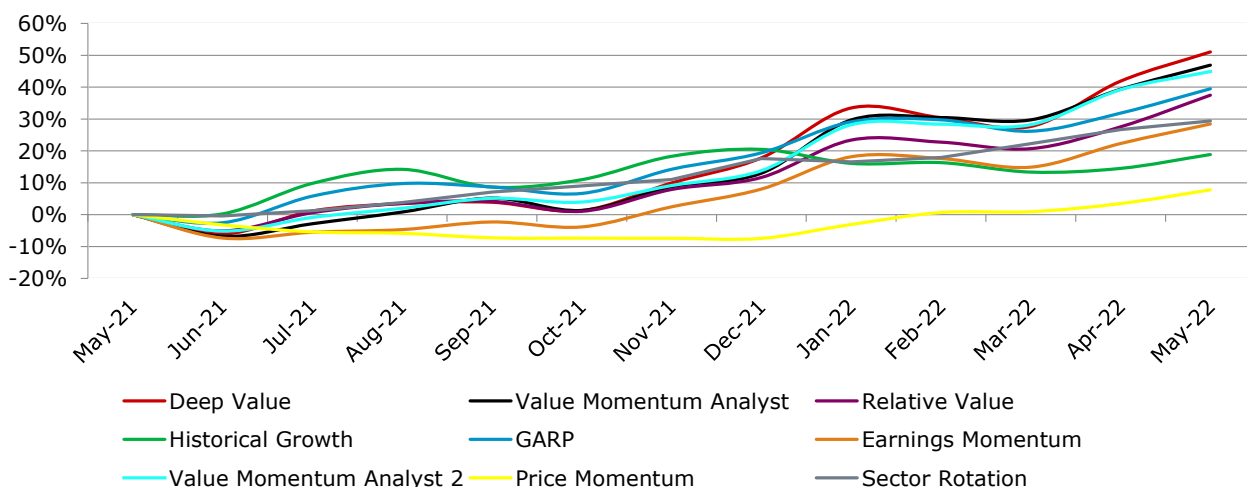
Model ⁽²⁾	Decile Return Spread ⁽³⁾			D1 Excess Return ⁽³⁾			D10 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	9.17	20.62	51.06	3.67	7.12	13.22	-5.50	-13.50	-37.85	0.23	0.16	0.10
Earnings Momentum	6.13	10.85	28.44	3.56	4.69	11.70	-2.57	-6.16	-16.75	0.15	0.07	0.05
GARP	7.64	9.76	39.50	3.24	1.51	9.55	-4.40	-8.25	-29.94	0.19	0.06	0.08
Historical Growth	4.35	2.55	18.86	1.96	0.74	5.43	-2.39	-1.81	-13.43	0.12	-0.02	0.04
Price Momentum	4.30	7.10	7.77	2.48	2.71	3.58	-1.82	-4.39	-4.19	0.06	0.04	0.01
Relative Value	9.93	14.74	37.50	3.78	5.31	10.40	-6.14	-9.44	-27.10	0.23	0.11	0.07
Value Momentum 2	5.69	16.51	44.90	2.84	6.42	18.22	-2.84	-10.09	-26.68	0.14	0.08	0.07
Value Momentum	7.57	16.45	46.91	3.80	6.94	17.28	-3.77	-9.52	-29.63	0.22	0.14	0.08
Sector Rotation	2.70	4.90	-35.10	2.40	-1.10	-12.00	-0.30	-6.00	23.10	-	-	-

Equal Weighted US Large Cap Universe 1-Month Return = 1.1%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



US Small Cap⁽¹⁾

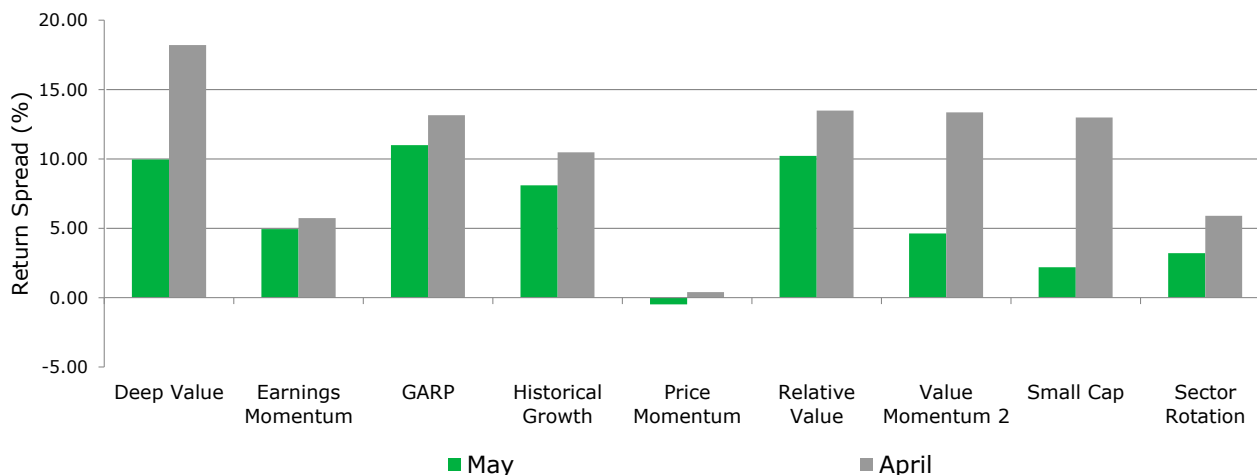
Over the US Small Cap universe, almost all of our models had positive performance. The GARP model had the strongest one month decile return spread performance, returning 10.99%.

The US Small Cap Sector Rotation model with a return of 3.20%. The Energy sector had a favorable ranking and the Telecom sector had an unfavorable ranking.

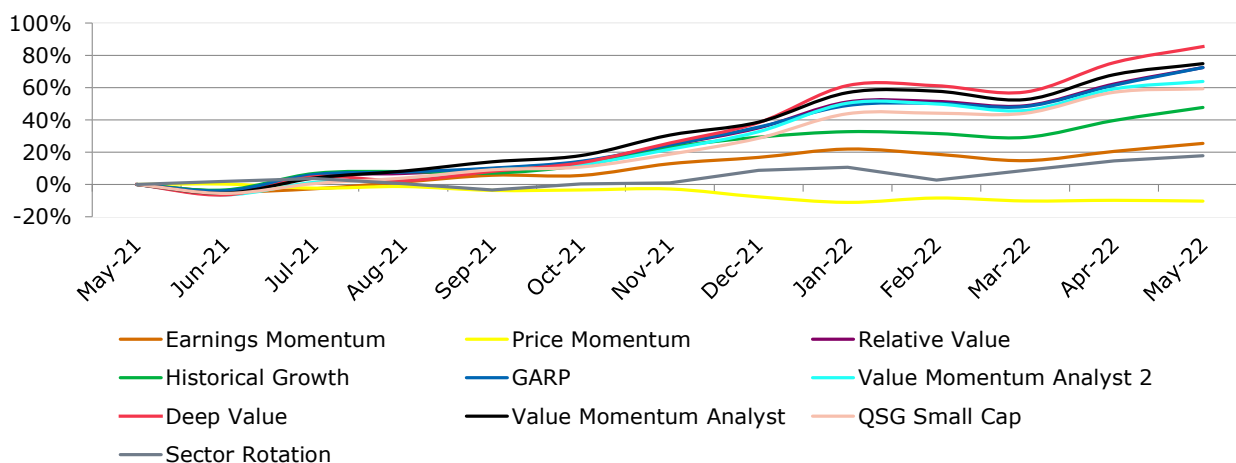
Model ⁽²⁾	Decile Return Spread ⁽³⁾			D1 Excess Return ⁽³⁾			D10 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	9.96	24.24	85.43	3.38	7.28	26.49	-6.57	-16.96	-58.94	0.25	0.22	0.19
Earnings Momentum	4.94	6.70	25.44	2.81	1.79	13.92	-2.13	-4.91	-11.52	0.08	0.05	0.06
GARP	10.99	22.17	72.43	4.68	6.18	20.76	-6.31	-15.99	-51.67	0.21	0.15	0.15
Historical Growth	8.09	16.16	47.72	3.24	3.43	14.07	-4.85	-12.73	-33.65	0.16	0.09	0.10
Price Momentum	-0.49	-1.92	-10.30	-0.12	-2.20	-8.51	0.37	-0.28	1.79	-0.02	-0.01	-0.01
Relative Value	10.21	21.01	72.45	4.52	7.54	27.12	-5.69	-13.47	-45.34	0.20	0.15	0.15
Value Momentum 2	4.62	13.96	63.81	2.46	8.05	28.39	-2.17	-5.90	-35.42	0.12	0.13	0.14
Small Cap	2.19	15.17	59.32	2.05	7.43	24.90	-0.14	-7.73	-34.42	0.09	0.14	0.13
Sector Rotation	3.20	-14.00	-12.00	1.50	-6.60	-7.50	-1.70	7.40	4.60	-	-	-

Equal Weighted US Small Cap Universe 1-Month Return = -0.12%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



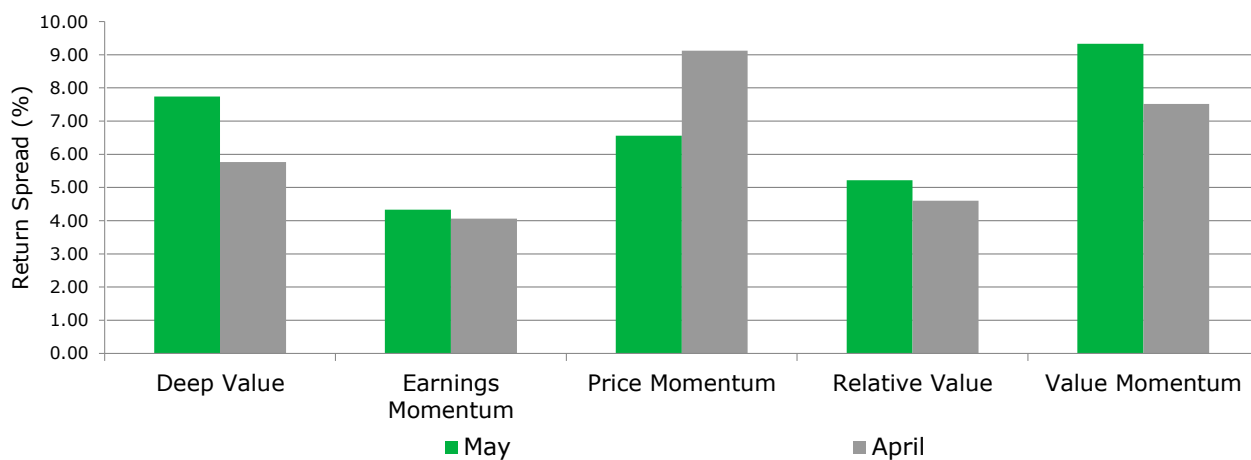
Canada 500⁽¹⁾

The models also performed well over the Canadian universe, our Value Momentum model was the best performing model with one month quintile return spread performance of 9.33%. The Earning Momentum Rank factor within the Value Momentum model had a one month quintile return spread of 6.92% and was the largest contributor to the model's performance in May.

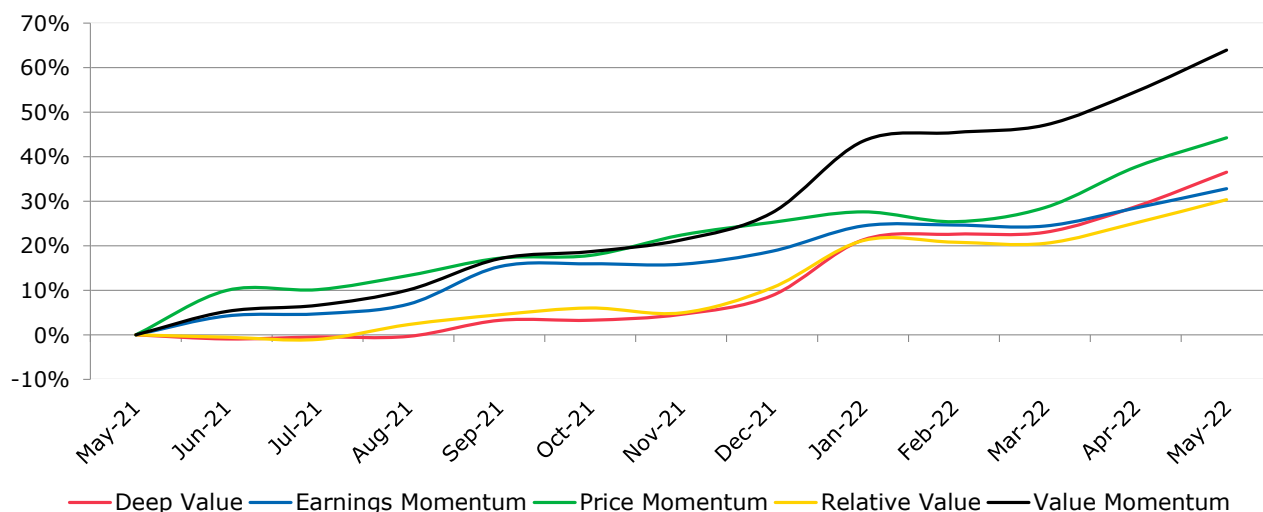
Model ⁽²⁾	Quintile Return Spread ⁽³⁾			Q1 Excess Return ⁽³⁾			Q5 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	7.74	13.93	36.53	5.57	9.95	21.54	-2.17	-3.98	-14.99	0.23	0.17	0.12
Earnings Momentum	4.33	8.16	32.82	2.85	5.37	16.51	-1.48	-2.79	-16.31	0.11	0.08	0.08
Price Momentum	6.56	18.84	44.26	4.93	11.53	19.97	-1.63	-7.31	-24.29	0.16	0.20	0.14
Relative Value	5.22	9.54	30.35	3.30	4.30	13.92	-1.92	-5.24	-16.43	0.18	0.13	0.11
Value Momentum	9.33	18.52	63.95	5.55	10.69	33.89	-3.78	-7.83	-30.06	0.22	0.20	0.18

Equal Weighted Canada 500 Universe 1-Month Return = -0.58%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Japan 2000⁽¹⁾

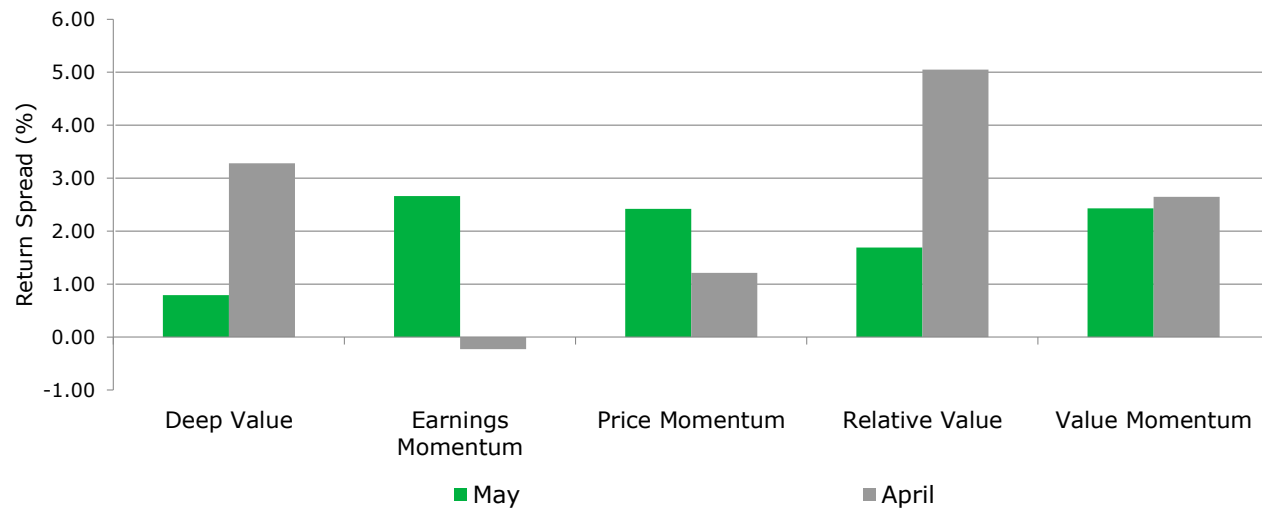
Within the Japan universe, our Earnings Momentum model had the strongest one month decile return spread performance returning 2.66%, while Deep Value lagged.

The 2-Year Ahead EPS Growth factor within the Earnings Momentum model had a one month decile return spread of 1.02% and was the largest contributor to the model's performance in May.

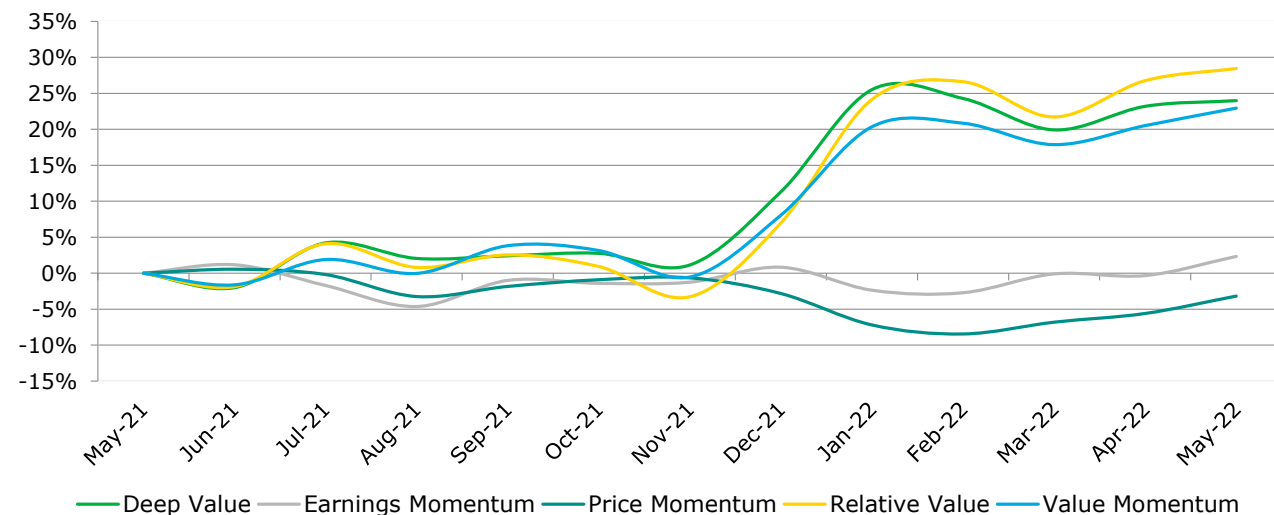
Model ⁽²⁾	Decile Return Spread ⁽³⁾			D1 Excess Return ⁽³⁾			D10 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	0.79	-0.29	24.00	0.14	-0.36	8.45	-0.65	-0.07	-15.54	0.02	-0.01	0.08
Earnings Momentum	2.66	5.05	2.32	1.90	2.95	0.78	-0.76	-2.10	-1.53	0.07	0.04	0.00
Price Momentum	2.42	5.27	-3.19	1.85	3.37	-3.57	-0.58	-1.90	-0.38	0.02	0.05	-0.01
Relative Value	1.69	1.84	28.46	0.13	-0.53	7.03	-1.56	-2.37	-21.43	0.02	-0.01	0.07
Value Momentum	2.43	2.10	22.95	1.69	2.16	7.02	-0.74	0.06	-15.93	0.05	0.02	0.06

Equal Weighted Japan 2000 Universe 1-Month Return = 0.97%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Developed Europe⁽¹⁾

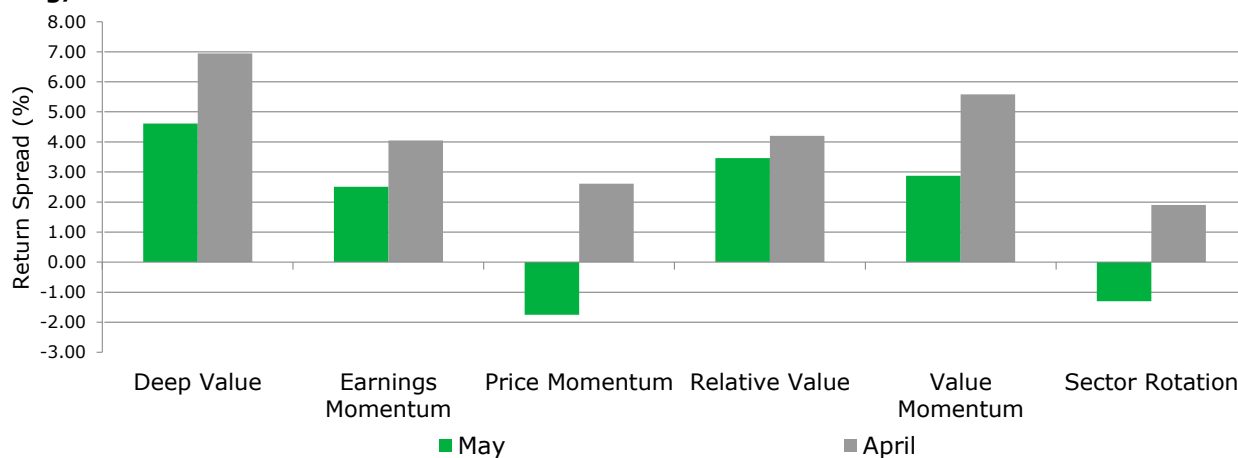
Over the Developed Europe universe, our Deep Value model returned 4.61% on a one month decile return spread basis, while Price Momentum lagged.

The Developed Europe Sector Rotation model struggled during the month. The Basic Materials sector had a favorable ranking and the Financials sector had an unfavorable ranking.

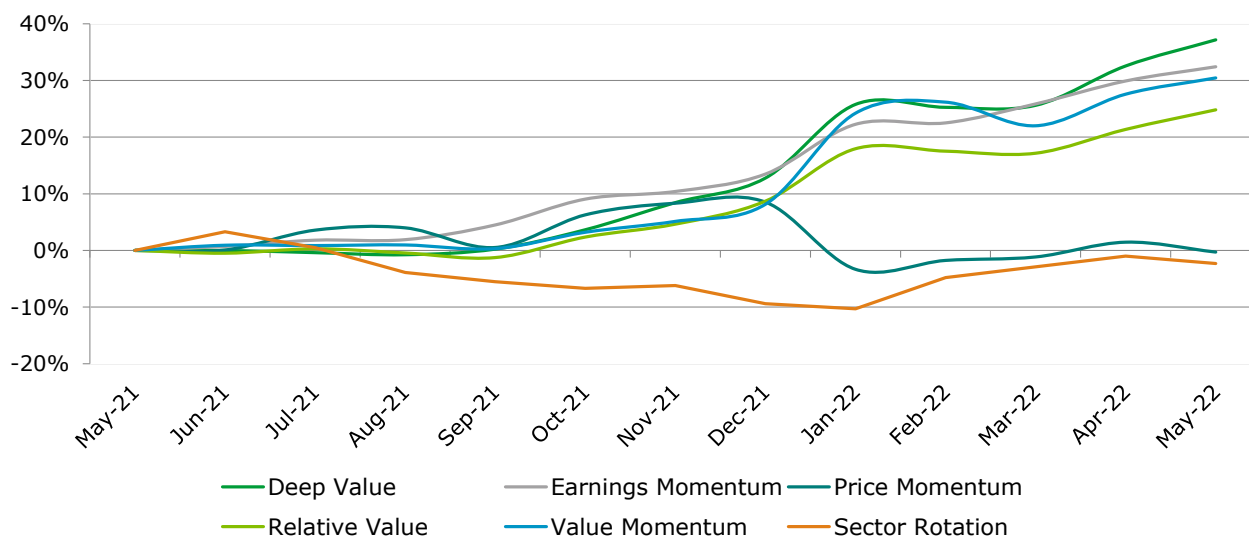
Model ⁽²⁾	Decile Return Spread ⁽³⁾			D1 Excess Return ⁽³⁾			D10 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	4.61	11.92	37.18	2.76	6.66	13.46	-1.85	-5.25	-23.72	0.22	0.11	0.07
Earnings Momentum	2.51	9.91	32.43	2.60	7.77	16.53	0.09	-2.14	-15.90	0.06	0.06	0.07
Price Momentum	-1.75	1.47	-0.30	-0.05	1.24	-1.97	1.69	-0.23	-1.67	-0.10	0.01	0.00
Relative Value	3.46	7.31	24.84	1.70	4.47	9.32	-1.76	-2.83	-15.51	0.17	0.06	0.05
Value Momentum	2.87	4.28	30.44	2.32	4.27	10.47	-0.55	-0.01	-19.97	0.19	0.06	0.07
Sector Rotation	-1.30	5.10	-25.40	-1.30	0.50	-10.60	-0.10	-4.60	14.80	-	-	-

Equal Weighted Europe 1000 Universe 1-Month Return = 0.4%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Australia-New Zealand 250⁽¹⁾

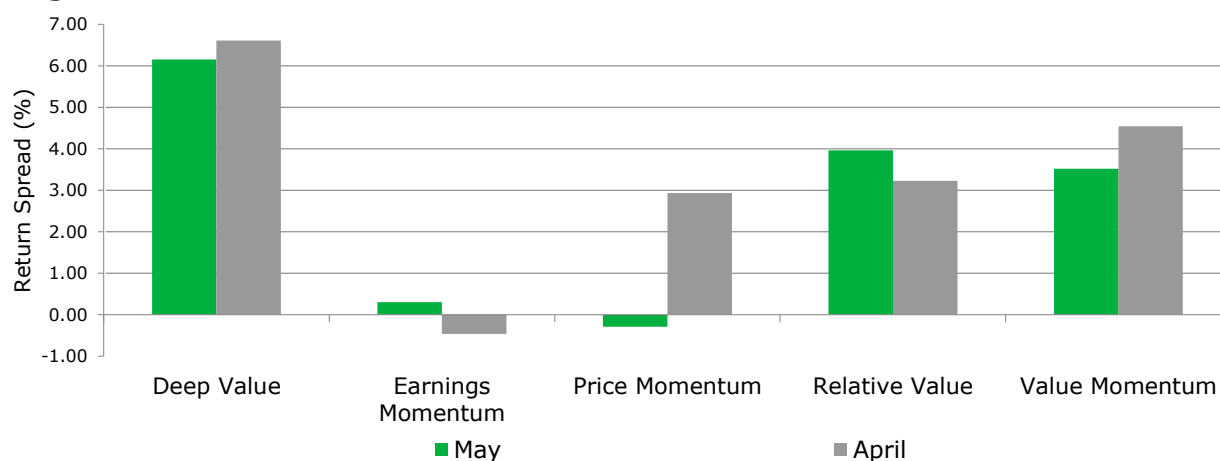
The Deep Value model had the strongest one month quintile return spread performance within the Australia-New Zealand universe returning 6.15%, while Price Momentum lagged.

The Free Cash Flow Return on Invested Capital factor within the Deep Value model had a one month quintile return spread of 5.65% and was the largest contributor to the model's performance in May.

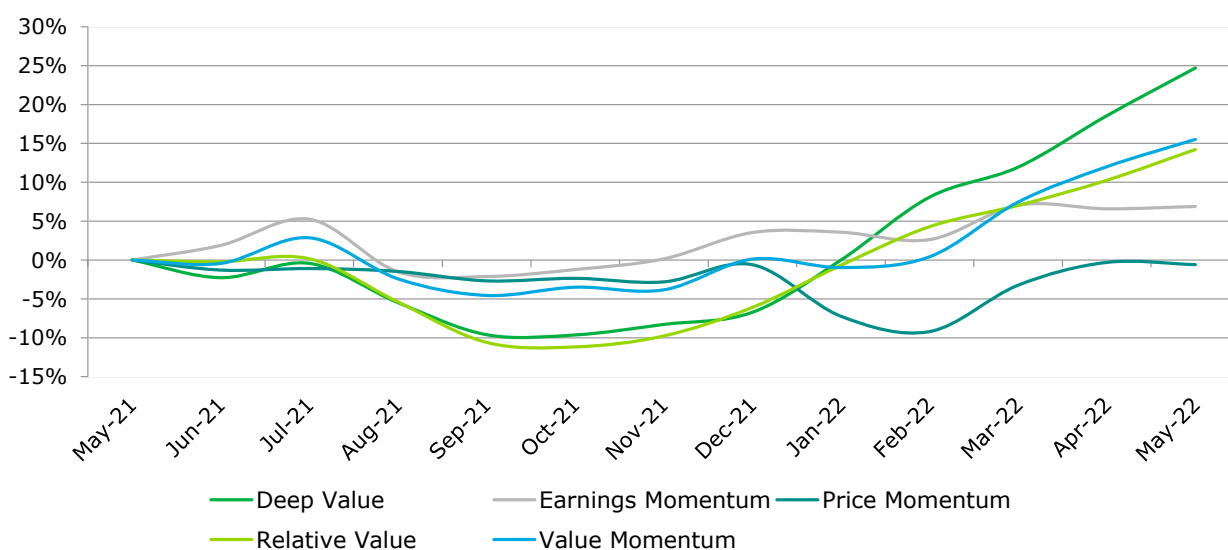
Model ⁽²⁾	Quintile Return Spread ⁽³⁾			Q1 Excess Return ⁽³⁾			Q5 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	6.15	16.63	24.72	2.14	9.26	9.58	-4.01	-7.36	-15.14	0.31	0.23	0.08
Earnings Momentum	0.30	4.25	6.87	-0.16	3.71	6.64	-0.45	-0.54	-0.22	-0.02	0.04	0.01
Price Momentum	-0.29	8.62	-0.57	0.13	6.05	-4.62	0.42	-2.56	-4.05	0.05	0.12	0.01
Relative Value	3.96	9.93	14.23	2.09	6.58	4.39	-1.87	-3.35	-9.84	0.22	0.15	0.04
Value Momentum	3.52	15.10	15.53	2.62	9.65	8.78	-0.89	-5.45	-6.76	0.12	0.18	0.05

Equal Weighted Australia New Zealand 250 Universe 1-Month Return = -4.76%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Developed Pacific⁽¹⁾

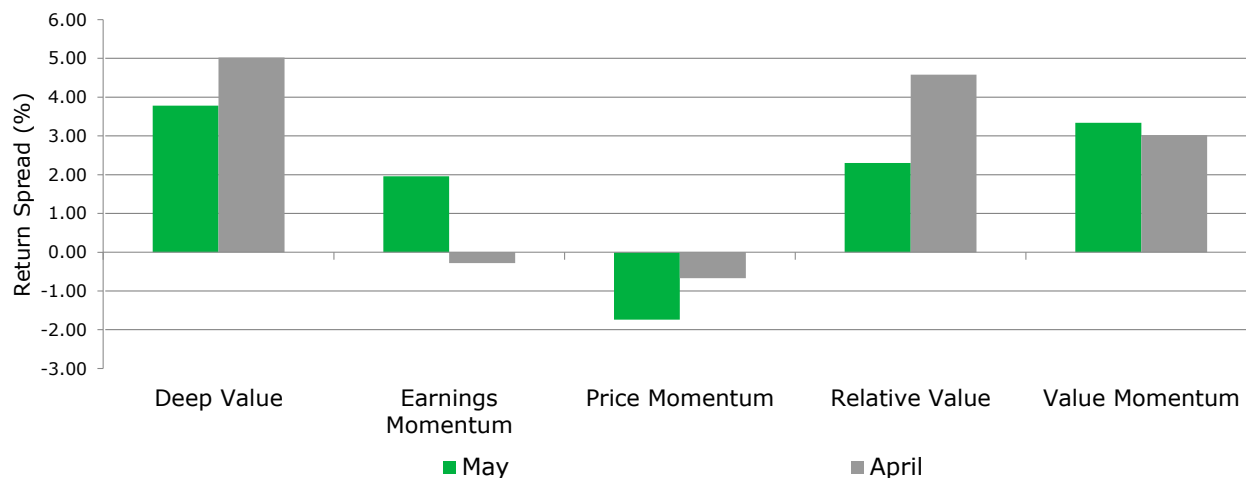
Over the Developed Pacific universe, the Deep Value model had the strongest one month decile return spread performance, returning 3.78%, while the Price Momentum model lagged.

The Value Momentum model's one year cumulative performance is currently 29.81%.

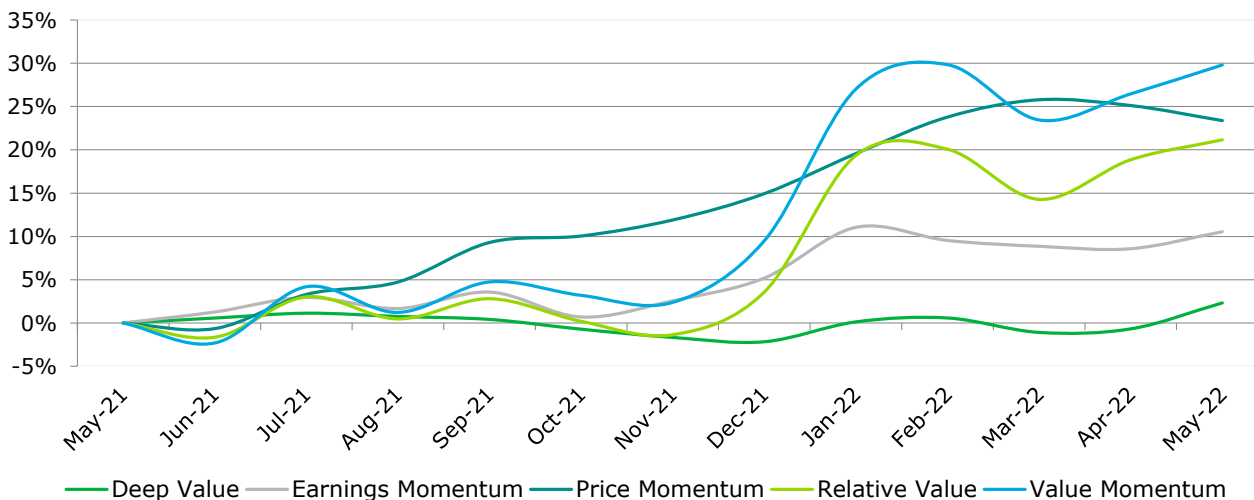
Model ⁽²⁾	Decile Return Spread ⁽³⁾			D1 Excess Return ⁽³⁾			D10 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	3.78	4.19	32.18	2.41	3.88	13.41	-1.37	-0.30	-18.77	0.13	0.05	0.08
Earnings Momentum	1.96	1.02	10.56	1.16	1.92	10.51	-0.80	0.90	-0.05	0.04	-0.01	0.02
Price Momentum	-1.74	-0.41	23.39	-1.40	2.34	11.19	0.34	2.75	-12.20	-0.02	-0.02	0.05
Relative Value	2.30	1.09	21.16	0.59	0.29	5.28	-1.71	-0.80	-15.89	0.09	0.01	0.06
Value Momentum	3.34	-0.02	29.81	1.19	-1.91	5.28	-2.15	-1.88	-24.54	0.12	0.01	0.08

Equal Weighted Developed Pacific Universe 1-Month Return = 0.39%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Developed World Ex North America (EAFE)⁽¹⁾

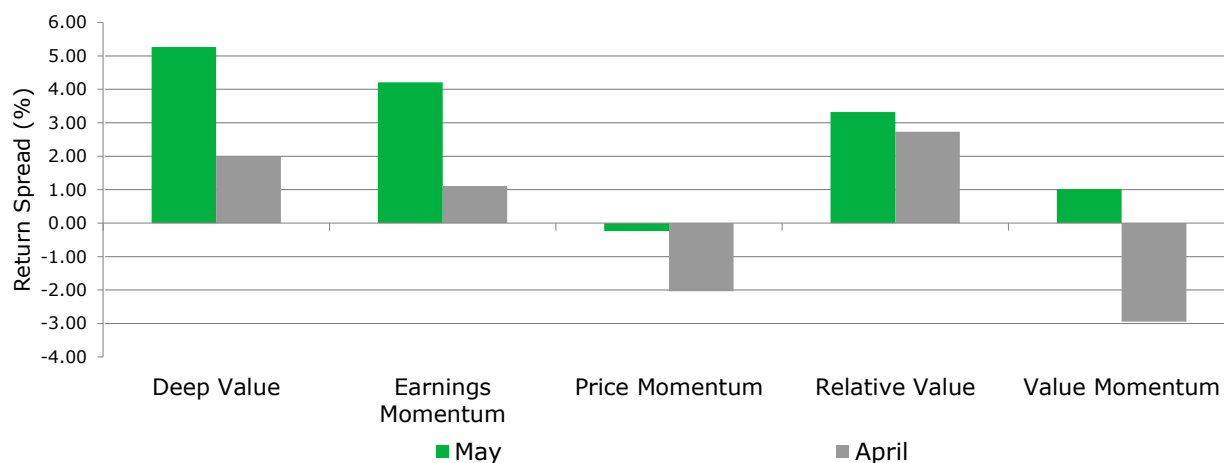
Within the Developed World Ex North America (EAFE) universe, the Deep Value model had the strongest one month decile return spread performance, returning 5.27%, while the Price Momentum model lagged.

The Deep Value model's one year cumulative performance number is the highest at 24.94%.

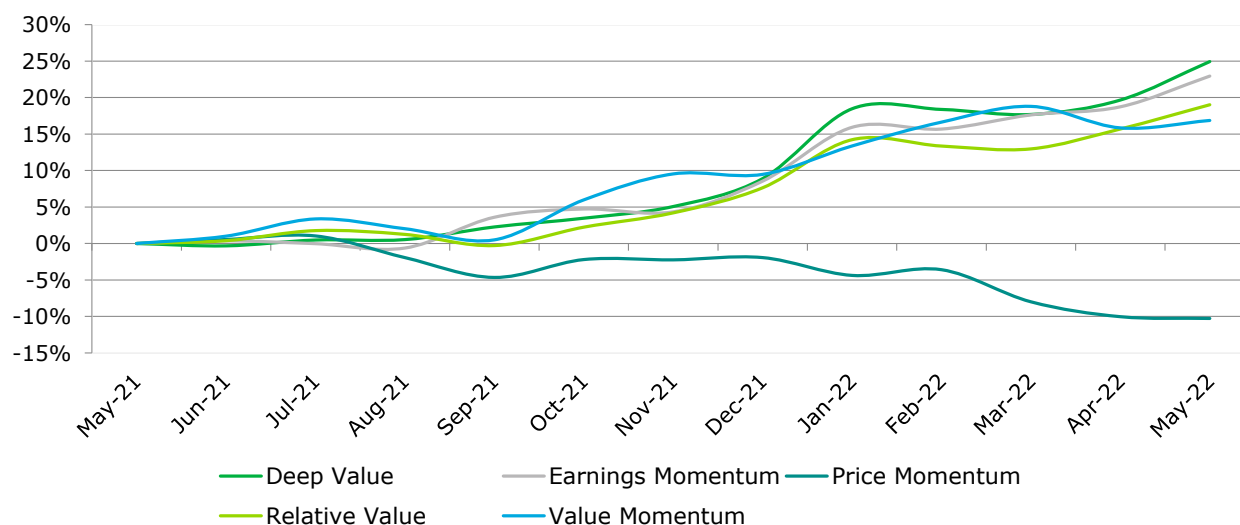
Model ⁽²⁾	Decile Return Spread ⁽³⁾			D1 Excess Return			D10 Excess Return			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	5.27	6.56	24.95	2.87	1.80	6.55	-2.40	-4.76	-18.40	0.23	0.08	0.05
Earnings Momentum	4.21	7.26	22.95	2.61	4.51	12.34	-1.60	-2.75	-10.61	0.10	0.05	0.03
Price Momentum	-0.24	-6.69	-10.28	0.13	-4.54	-8.71	0.38	2.15	1.58	-0.01	-0.05	0.00
Relative Value	3.32	5.67	19.04	1.65	2.80	7.03	-1.68	-2.86	-12.01	0.15	0.07	0.05
Value Momentum	1.02	0.23	16.86	-0.27	-2.34	2.59	-1.29	-2.57	-14.28	0.15	0.03	0.04

Equal Weighted Developed World Ex North America (EAFE) 1-Month Return = 0.38%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Emerging Markets⁽¹⁾

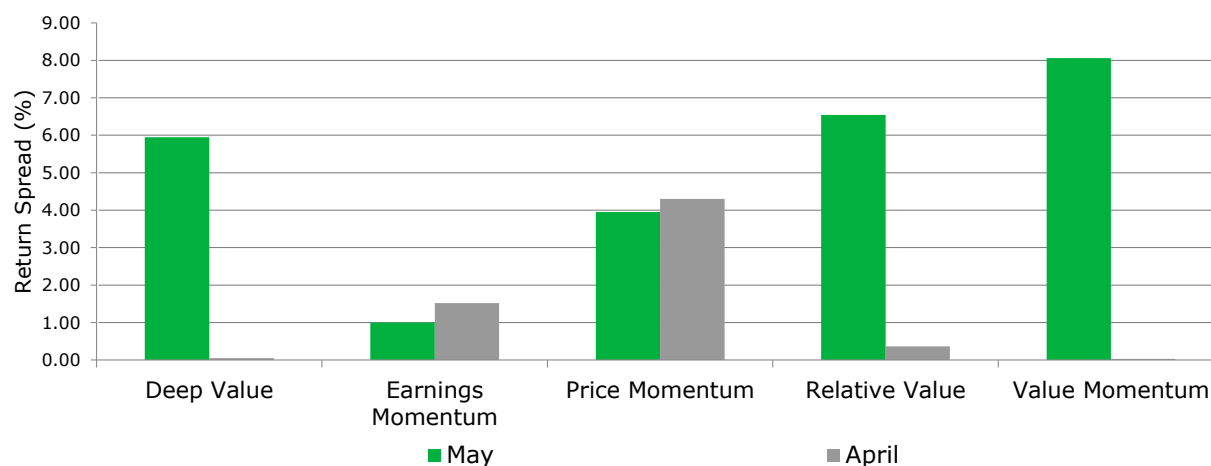
Within the Emerging Markets universe, our Value Momentum model returned 8.06% on one month quintile return spread basis. The rest of the models within the universe had positive returns as well.

The Price Momentum model's one year cumulative performance is still the highest for the EM universe at 25.12%.

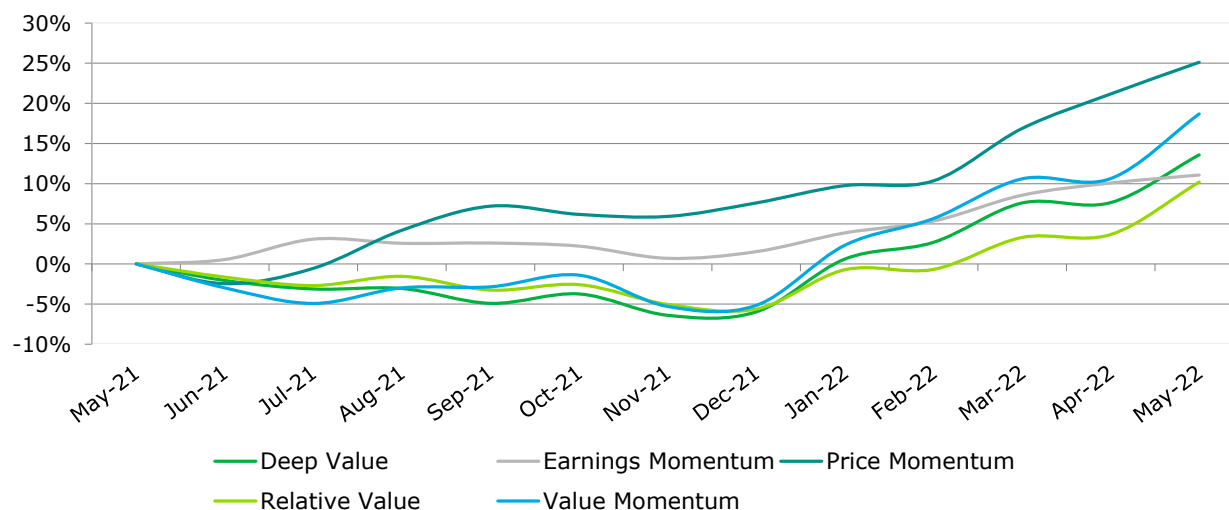
Model ⁽²⁾	Quintile Return Spread ⁽³⁾			Q1 Excess Return ⁽³⁾			Q5 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	5.95	10.90	13.57	2.54	6.75	7.64	-3.41	-4.15	-5.93	0.22	0.08	0.04
Earnings Momentum	1.00	5.74	11.09	1.00	4.80	6.82	0.00	-0.94	-4.27	0.02	0.04	0.02
Price Momentum	3.95	14.77	25.13	1.69	7.83	12.96	-2.25	-6.94	-12.16	0.12	0.14	0.07
Relative Value	6.54	10.88	10.20	3.15	6.20	4.83	-3.39	-4.68	-5.37	0.20	0.08	0.03
Value Momentum	8.06	13.03	18.68	3.58	7.83	10.27	-4.48	-5.20	-8.41	0.25	0.10	0.05

Equal Weighted Emerging Markets Universe 1-Month Return = -0.41%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



Frontier Markets⁽¹⁾

Over the Frontier Market's thematic models, the Price Momentum model had the strongest one month quintile return spread performance, returning 4.94%, while the Earnings Momentum model lagged.

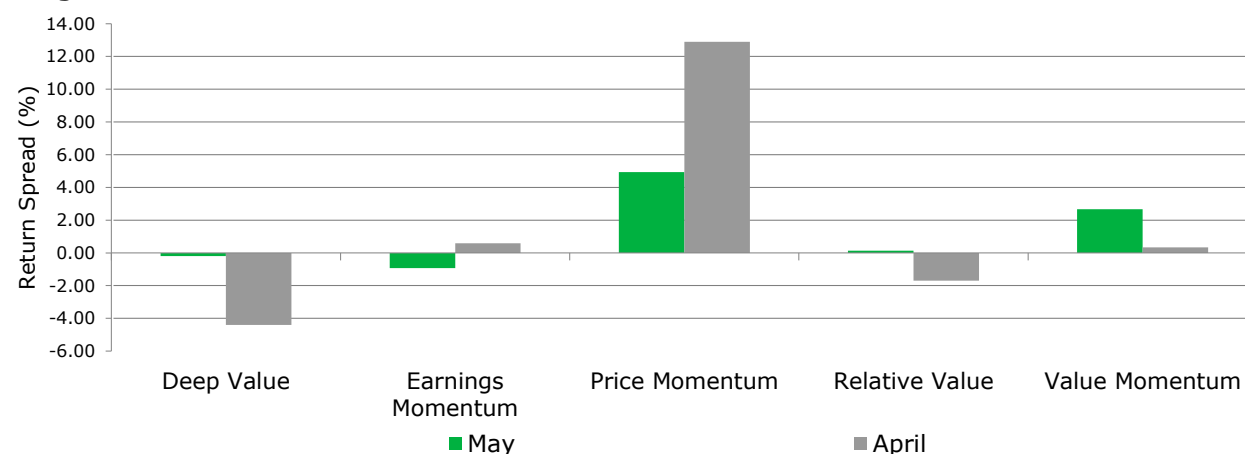
The Price Momentum model's one year cumulative performance has improved to 54.82%.

The Average Trading Volume in Preceding 6-month factor within the Price Momentum model, had a one month quintile return spread of 5.28% and was the largest contributor to the model's performance in May.

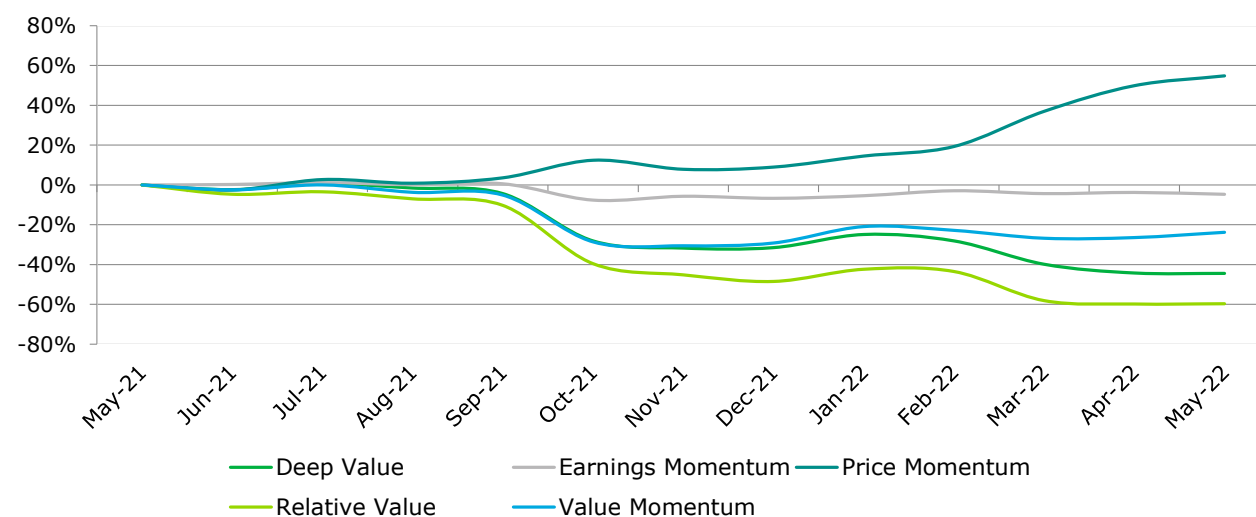
Model ⁽²⁾	Quintile Return Spread ⁽³⁾			Q1 Excess Return ⁽³⁾			Q5 Excess Return ⁽³⁾			Information Coefficient ⁽³⁾		
	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo	1mo	3mo	12mo
Deep Value	-0.20	-16.33	-44.43	-0.35	-12.69	-30.66	-0.15	3.64	13.78	-0.04	-0.08	-0.05
Earnings Momentum	-0.93	-1.78	-4.69	-0.77	-0.22	-5.91	0.16	1.56	-1.22	-0.05	-0.01	0.01
Price Momentum	4.94	35.51	54.81	3.52	18.99	24.74	-1.42	-16.52	-30.06	0.22	0.30	0.14
Relative Value	0.14	-16.18	-59.65	-1.37	-14.62	-41.62	-1.52	1.56	18.03	0.02	-0.04	-0.06
Value Momentum	2.66	-0.98	-23.79	0.77	-2.53	-19.70	-1.88	-1.55	4.09	0.10	0.03	0.00

Equal Weighted Frontier Markets Universe 1-Month Return = -4.77%

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3



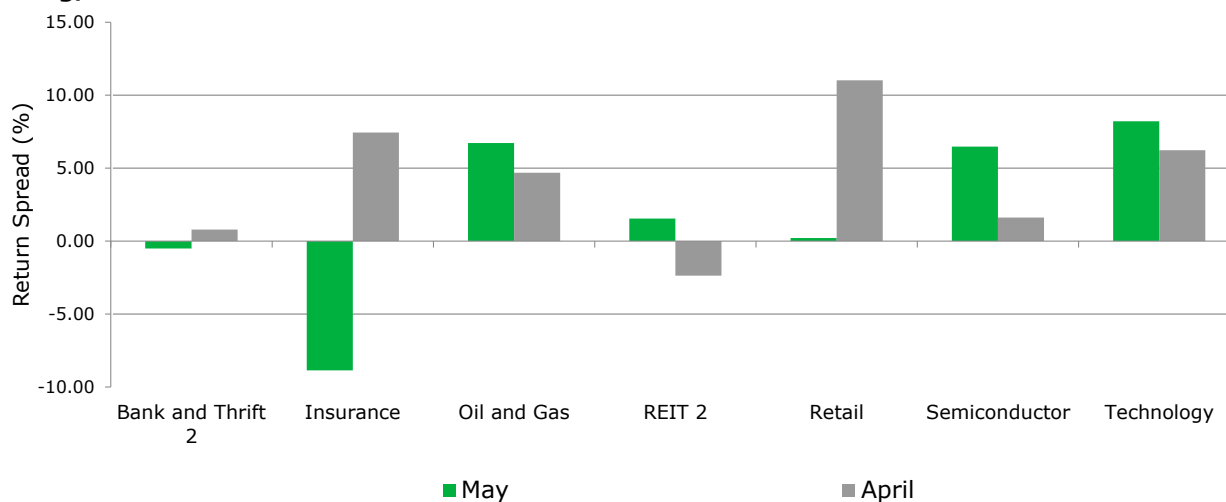
Specialty Models⁽¹⁾

Within our specialty model library the Technology and the Oil and Gas models had the strongest one month quintile return spread performance returning 8.22% and 6.72%, respectively, while the Bank and Thrift 2 and the Insurance models struggled.

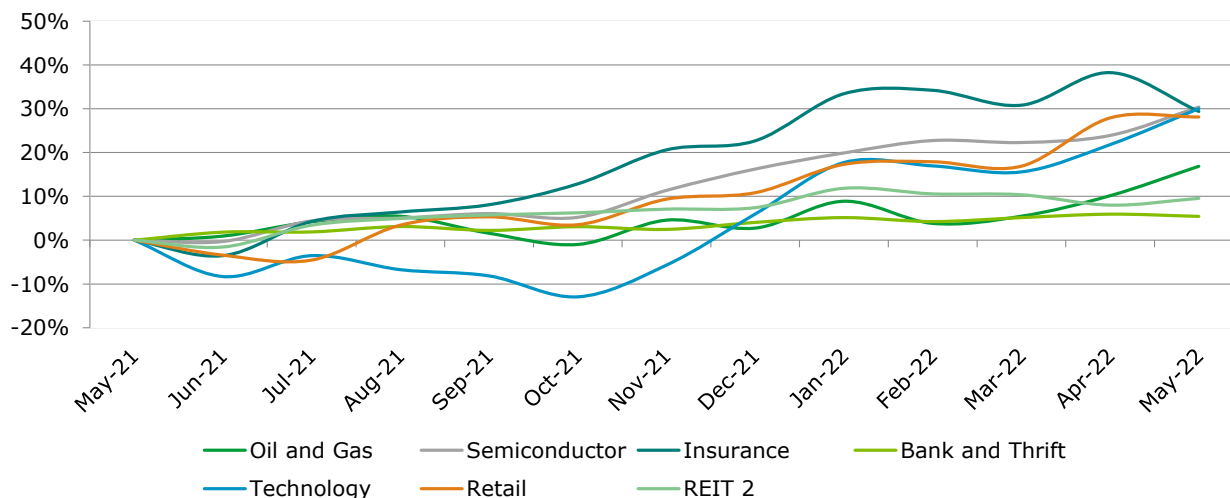
The Semiconductor model's one year cumulative performance is the highest at 30.38% while the Bank and Thrift 2 model's performance is the lowest at 5.43%.

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
Bank and Thrift 2⁽⁴⁾	-0.51	1.18	5.43	-1.98	0.78	4.87	-1.47	-0.40	-0.55	-0.06	-0.02	0.02
Insurance	-8.86	-4.82	29.40	-2.48	-3.75	10.92	6.38	1.06	-18.47	-0.25	-0.03	0.09
Oil and Gas	6.72	13.05	16.88	4.33	6.50	6.16	-2.39	-6.55	-10.72	0.16	0.08	0.06
REIT 2	1.55	-1.02	9.55	0.83	-0.67	2.00	-0.73	0.35	-7.55	-0.07	-0.05	0.02
Retail	0.21	10.23	28.12	-0.64	4.46	17.20	-0.85	-5.77	-10.92	0.04	0.11	0.06
Semiconductor	6.48	7.64	30.38	2.95	3.34	9.64	-3.52	-4.30	-20.74	0.19	0.08	0.08
Technology	8.22	13.09	30.06	2.98	4.07	10.84	-5.25	-9.02	-19.22	0.20	0.13	0.08

Long/Short Return Performance



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



(1) Universe construction methodology in Appendix 1.1

(2) Model descriptions available in Appendix 1.2

(3) Performance metrics calculations available in Appendix 1.3

(4) Deciles are used for the Bank and Thrift 2 universe

APPENDIX

1.1 UNIVERSE DESCRIPTIONS

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 cyclicity and volatility of sub-industries.

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.

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