

ETFDAX - MA / TC

1 TYPE RANK

Table 1: MA Strategy results – ETFDAX

MA Type	Performance					Parameters							Descriptive	
	IR	SR	aRC	aSD	Sigs.	Long-term lag				Band			N	Share (%)
						Min	Max	Mean	Med.	Min	Max	Mean		
Panel A. Filter: IR greater than 0														
MA														
WMA	0.19	0.52	0.110	0.18	4.2	5	30	12	10	0.045	0.075	0.055	5	0.427
EMA	0.16	0.66	0.116	0.15	3.0	5	5	5	5	0.045	0.045	0.045	1	0.085
SMA	0.12	0.57	0.108	0.16	5.0	5	20	10	10	0.045	0.075	0.061	8	0.684
Panel B. Filter: IR greater than Q_3														
MA														
EMA	-0.23	0.28	0.058	0.14	13.5	5	220	96	90	0.005	0.075	0.043	47	4.017
WMA	-0.23	0.27	0.057	0.14	14.7	5	250	115	100	0.005	0.075	0.046	103	8.803
SMA	-0.24	0.27	0.056	0.14	14.5	5	240	132	150	0.005	0.075	0.047	143	12.222
Panel C. Filter: IR smaller than Q_1														
MA														
EMA	-0.66	-0.20	-0.012	0.14	71.4	5	250	102	80	0.000	0.075	0.033	120	10.256
SMA	-0.71	-0.26	-0.021	0.14	101.7	5	250	89	80	0.000	0.070	0.014	79	6.752
WMA	-0.74	-0.30	-0.026	0.14	111.1	5	250	98	90	0.000	0.075	0.014	94	8.034

In this table, we aggregate the standard MA strategy performance and parameter data for ETFDAX across the three MA types. We break down the results into three subgroups: the first representing the data for strategies with positive IR (i.e. beating the BH strategy); the second and third subgroup characterising the top 25% and the bottom 25% of strategies, respectively.

¹ All performance measures use standard formulation defined in Appendix A;

² The performance and parameter statistics are calculated with respect to the subgroup size reported in column «N»;

³ Column «Share (%)» provides a subgroup's share in the whole sample (1170).

2 IR SCORE

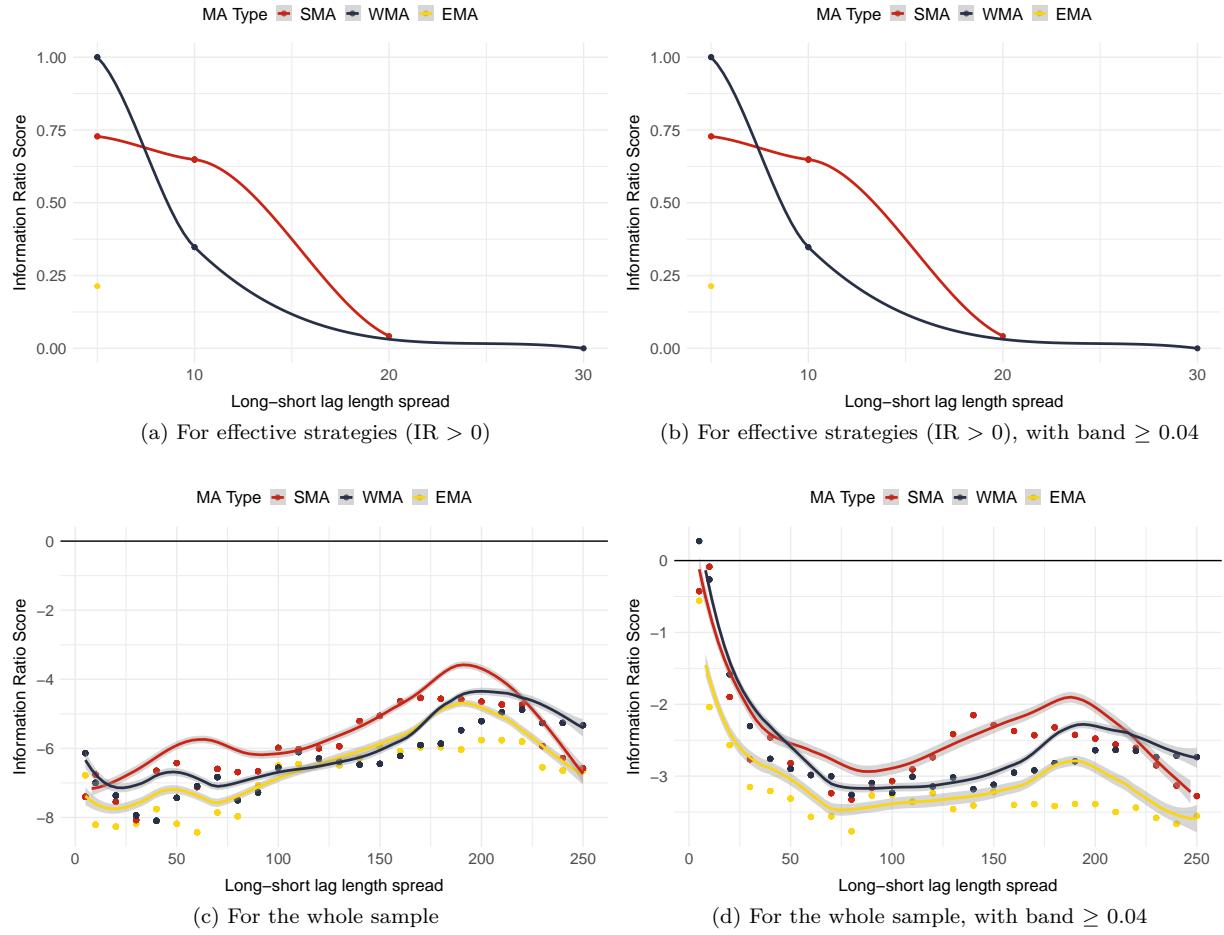


Figure 1: [MA] ETFDAX – IR score by value of the long-term lag.

3 HEATMAPS

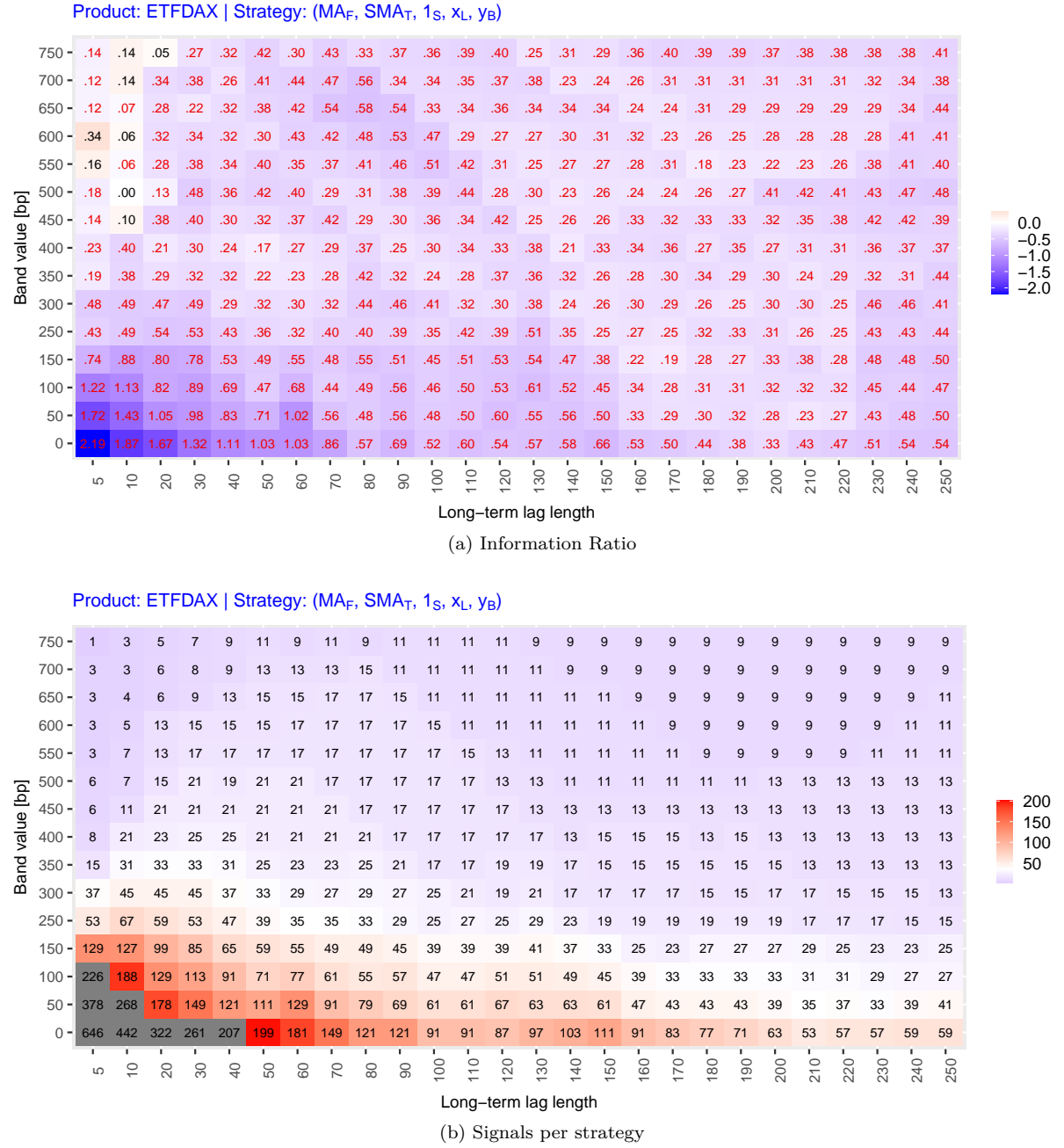


Figure 2: [MA] ETFDAX – IR by lag length and band value.

4 DRAWDOWNS

Table 2: Select strategy results – ETFDAX

ID	Strategy	Performance						Sigs.
		aRC	aSD	IR	SR	MD	MDD	
1	(MA, SMA, 1, 5, 0.06)	0.121	0.19	0.34	0.54	0.23	2.2	3
2	(MA, WMA, 1, 5, 0.045)	0.121	0.19	0.34	0.54	0.23	2.2	3
3	(MA, SMA, 1, 210, 0.015)	0.034	0.14	-0.38	0.11	0.37	6.0	29
4	(MA, EMA, 1, 5, 0)	-0.299	0.15	-2.24	-2.08	0.96	9.3	626
5	(MA, WMA, 1, 5, 0)	-0.320	0.15	-2.33	-2.20	0.97	9.3	720
6	(Buy-and-hold)	0.093	0.21	NA	0.36	0.34	2.2	NA

This table provides a selection of performance measures for the two best, two worst and the middle standard MA strategy on ETFDAX, in comparison with the BH benchmark.

¹ IR values, as per Appendix A, refer to a strategy's result with respect to the BH benchmark;

² SR shows the performance against a risk-free return for each strategy and the BH benchmark;

³ Colours in column «ID» respond to line colours in the following drawdown plot.



Figure 3: [MA] ETFDAX – Drawdowns for two top (blue and orange), two bottom (gray) and the middle (green) strategy, vs drawdowns for the BH benchmark (red).

ETFDAX - MA / **NO** TC

1 TYPE RANK

Table 1: MA Strategy results – ETFDAX

MA Type	Performance					Parameters							Descriptive	
	IR	SR	aRC	aSD	Sigs.	Long-term lag				Band			N	Share (%)
						Min	Max	Mean	Med.	Min	Max	Mean		
Panel A. Filter: IR greater than 0														
MA														
WMA	0.21	0.542	0.113	0.18	4.2	5	30	12	10	0.045	0.075	0.055	5	0.427
EMA	0.17	0.675	0.118	0.15	3.0	5	5	5	5	0.045	0.045	0.045	1	0.085
SMA	0.15	0.594	0.111	0.16	5.0	5	20	10	10	0.045	0.075	0.061	8	0.684
Panel B. Filter: IR greater than Q_3														
MA														
SMA	-0.17	0.352	0.068	0.14	23.0	5	220	118	140	0.000	0.075	0.037	122	10.427
WMA	-0.17	0.346	0.067	0.14	31.4	5	250	117	110	0.000	0.075	0.032	109	9.316
EMA	-0.17	0.350	0.068	0.14	34.6	5	220	118	135	0.000	0.075	0.026	62	5.299
Panel C. Filter: IR smaller than Q_1														
MA														
EMA	-0.46	0.039	0.023	0.14	49.8	5	250	113	90	0.000	0.075	0.046	149	12.735
SMA	-0.46	0.030	0.022	0.14	86.9	5	250	114	80	0.000	0.075	0.030	65	5.556
WMA	-0.46	0.032	0.022	0.14	94.8	5	250	91	80	0.000	0.075	0.034	79	6.752

In this table, we aggregate the standard MA strategy performance and parameter data for ETFDAX across the three MA types. We break down the results into three subgroups: the first representing the data for strategies with positive IR (i.e. beating the BH strategy); the second and third subgroup characterising the top 25% and the bottom 25% of strategies, respectively.

¹ All performance measures use standard formulation defined in Appendix A;

² The performance and parameter statistics are calculated with respect to the subgroup size reported in column «N»;

³ Column «Share (%)» provides a subgroup's share in the whole sample (1170);

⁴ Transaction costs are not included.

2 IR SCORE

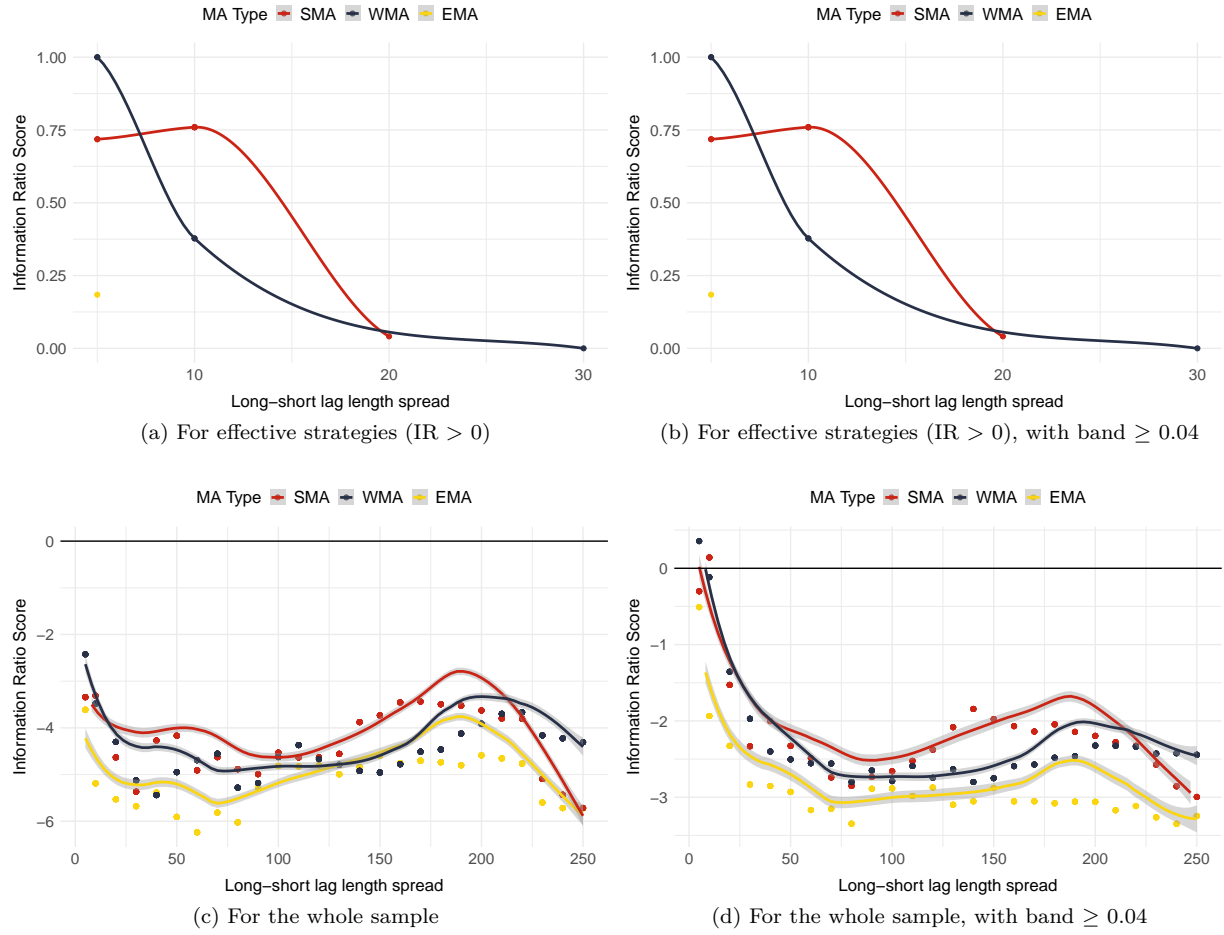


Figure 1: [MA, -tc] ETFDAX – IR score by value of the long-term lag.

3 HEATMAPS

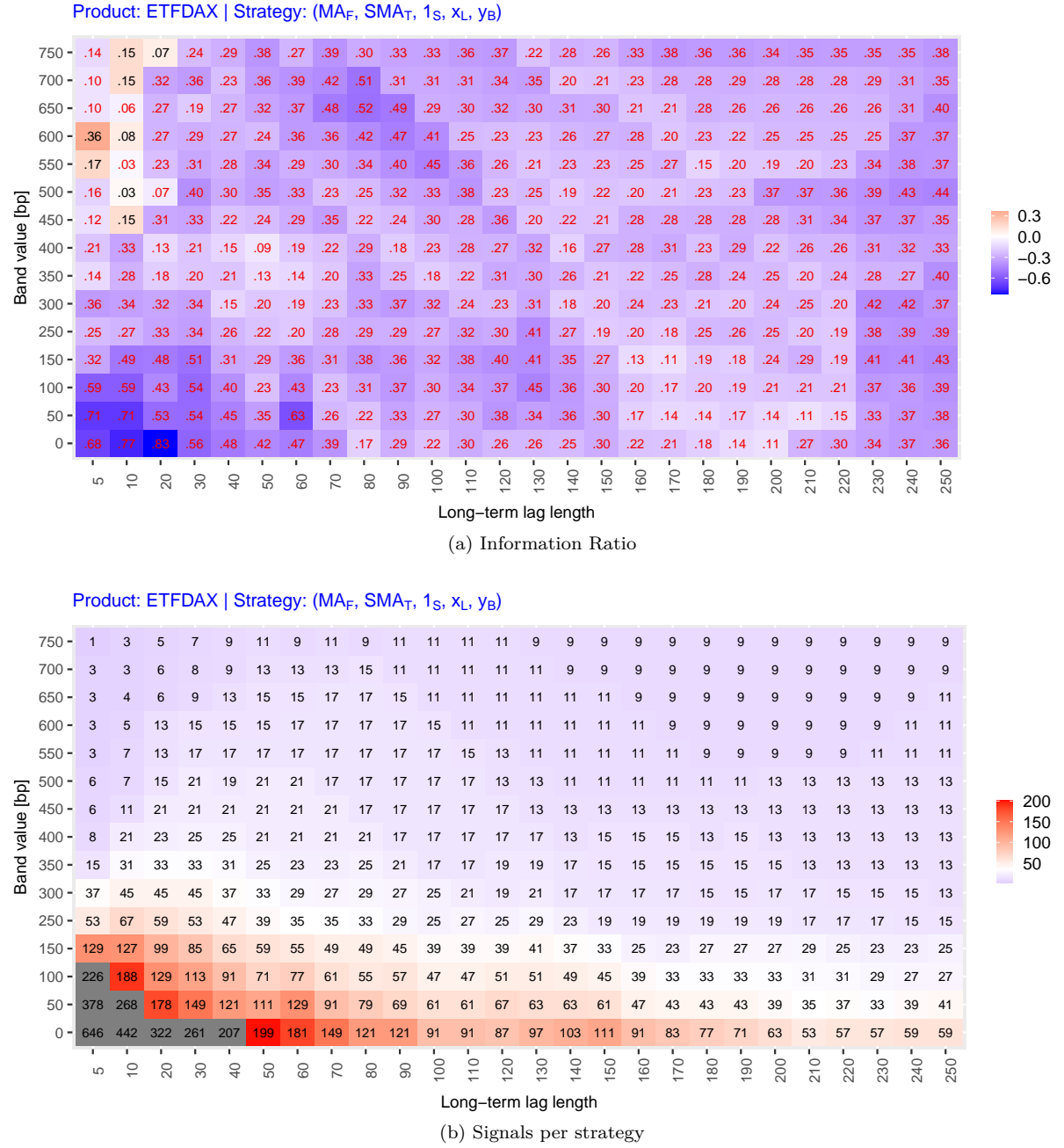


Figure 2: [MA, -tc] ETFDAX – IR by lag length and band value.

4 DRAWDOWNS

Table 2: Select strategy results – ETFDAX

ID	Strategy	Performance						Sigs.
		aRC	aSD	IR	SR	MD	MDD	
1	(MA, SMA, 1, 5, 0.06)	0.123	0.19	0.36	0.55	0.23	2.2	3
2	(MA, WMA, 1, 5, 0.045)	0.123	0.19	0.36	0.55	0.23	2.2	3
3	(MA, SMA, 1, 80, 0.01)	0.047	0.14	-0.31	0.21	0.32	6.0	55
4	(MA, EMA, 1, 5, 0)	-0.031	0.13	-0.79	-0.36	0.36	6.0	626
5	(MA, SMA, 1, 20, 0)	-0.037	0.14	-0.83	-0.40	0.46	6.0	322
6	(Buy-and-hold)	0.094	0.21	NA	0.37	0.34	2.2	NA

This table provides a selection of performance measures for the two best, two worst and the middle standard MA strategy on ETFDAX, in comparison with the BH benchmark.

¹ IR values, as per Appendix A, refer to a strategy's result with respect to the BH benchmark;

² SR shows the performance against a risk-free return for each strategy and the BH benchmark;

³ Colours in column «ID» respond to line colours in the following drawdown plot;

⁴ Transaction costs are not included.

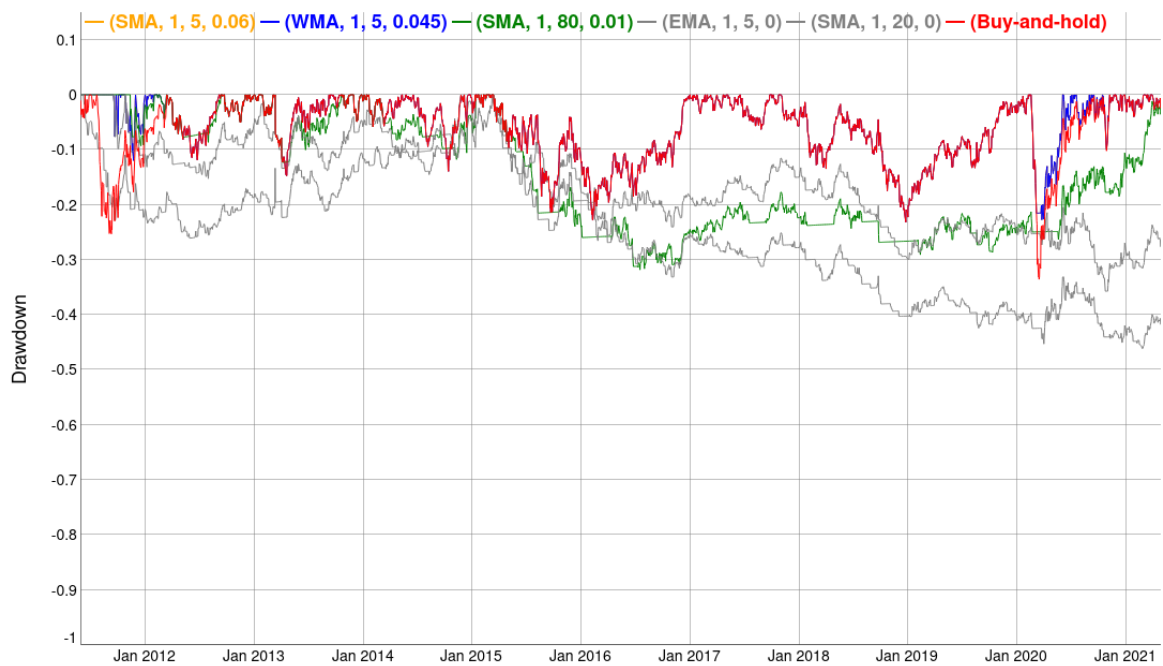


Figure 3: [MA, -tc] ETFDAX – Drawdowns for two top (blue and orange), two bottom (gray) and the middle (green) strategy, vs drawdowns for the BH benchmark (red).

ETFDAX - QUIMA / TC

1 TYPE RANK

Table 1: QUIMA strategy results – ETFDAX

Performance							Parameters							Descriptive	
MA Type	IR	SR	aRC	aSD	Sigs.	Long-term lag				Band			N	Share (%)	
						Min	Max	Mean	Med.	Min	Max	Mean			
Panel A. Filter: IR greater than 0															
MA															
WMA	0.187	0.52	0.110	0.18	4.2	5	30	12.0	10.0	0.045	0.075	0.055	5	0.427	
EMA	0.158	0.66	0.116	0.15	3.0	5	5	5.0	5.0	0.045	0.045	0.045	1	0.085	
SMA	0.123	0.57	0.108	0.16	5.0	5	20	10.0	10.0	0.045	0.075	0.061	8	0.684	
QUIMA															
SMA	0.029	0.45	0.096	0.18	15.0	5	10	7.5	7.5	0.060	0.070	0.065	2	0.171	
WMA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
EMA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Panel B. Filter: IR greater than Q_3															
MA															
EMA	-0.232	0.28	0.058	0.14	13.5	5	220	96.2	90.0	0.005	0.075	0.043	47	4.017	
WMA	-0.233	0.27	0.057	0.14	14.7	5	250	115.1	100.0	0.005	0.075	0.046	103	8.803	
SMA	-0.241	0.27	0.056	0.14	14.5	5	240	131.5	150.0	0.005	0.075	0.047	143	12.222	
QUIMA															
SMA	-0.309	0.18	0.045	0.15	21.1	5	250	151.2	160.0	0.010	0.075	0.052	129	11.026	
WMA	-0.324	0.17	0.043	0.15	20.5	5	250	156.7	170.0	0.015	0.075	0.061	91	7.778	
EMA	-0.334	0.16	0.040	0.14	20.6	5	250	122.7	120.0	0.010	0.075	0.062	73	6.239	
Panel C. Filter: IR smaller than Q_1															
MA															
EMA	-0.665	-0.20	-0.012	0.14	71.4	5	250	102.4	80.0	0.000	0.075	0.033	120	10.256	
SMA	-0.713	-0.26	-0.021	0.14	101.7	5	250	89.2	80.0	0.000	0.070	0.014	79	6.752	
WMA	-0.739	-0.30	-0.026	0.14	111.1	5	250	98.2	90.0	0.000	0.075	0.014	94	8.034	
QUIMA															
SMA	-1.220	-0.78	-0.121	0.18	192.8	5	250	71.6	60.0	0.000	0.055	0.014	85	7.265	
EMA	-1.245	-0.80	-0.127	0.18	199.2	5	250	74.3	60.0	0.000	0.060	0.016	99	8.462	
WMA	-1.247	-0.82	-0.129	0.18	205.5	5	250	83.9	70.0	0.000	0.050	0.017	109	9.316	

In this table, we aggregate the QUIMA strategy performance and parameter data for ETFDAX across the three MA types. We break down the results into three subgroups: the first representing the data for strategies with positive IR (i.e. beating the BH strategy); the second and third subgroup characterising the top 25% and the bottom 25% of strategies, respectively.

¹ All performance measures use standard formulation defined in Appendix A;

² The performance and parameter statistics are calculated with respect to the subgroup size reported in column «N»;

³ Column «Share (%)» provides a subgroup's share in the whole sample (1170).

2 IR SCORE

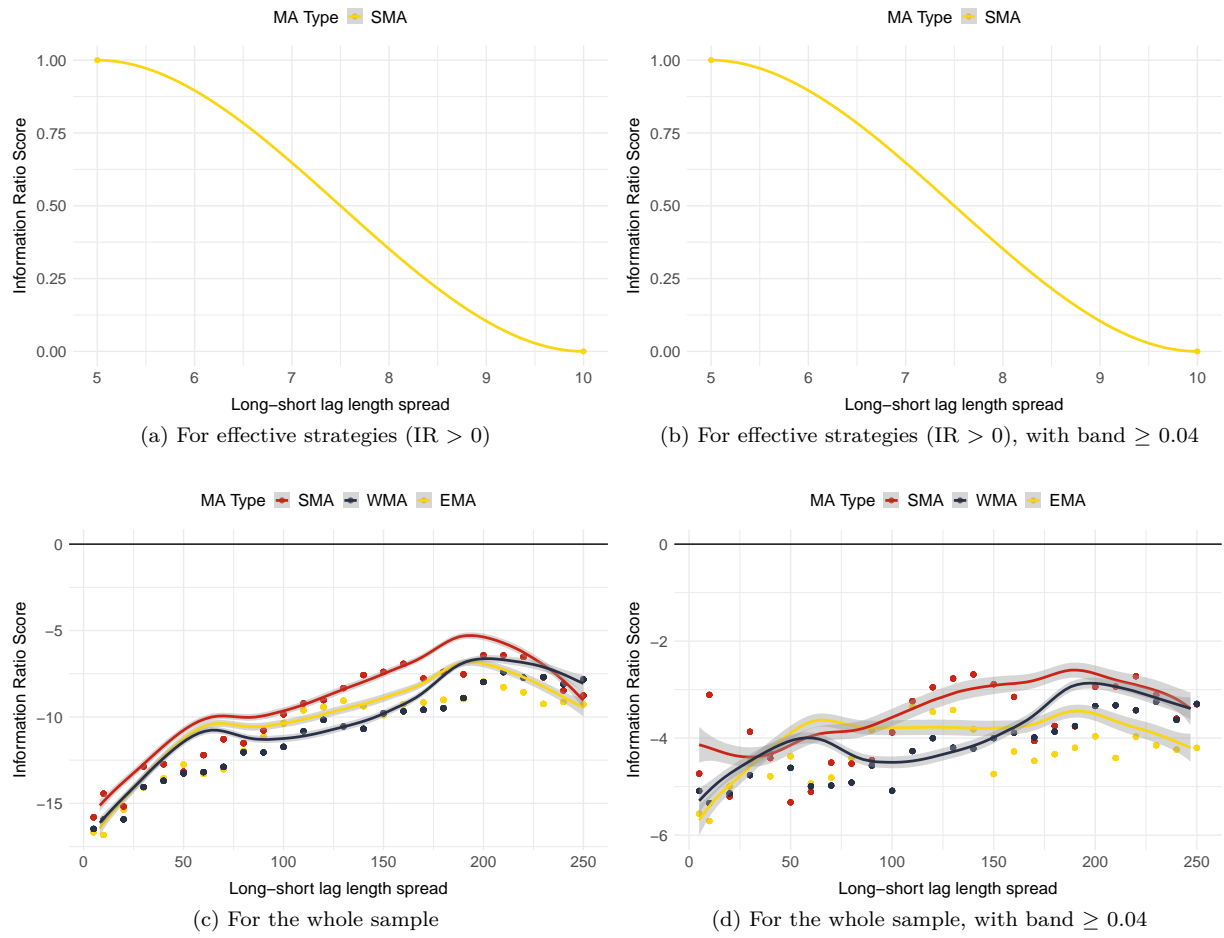


Figure 1: [QUIMA] ETFDAX – IR score by value of the long-term lag.

3 HEATMAPS

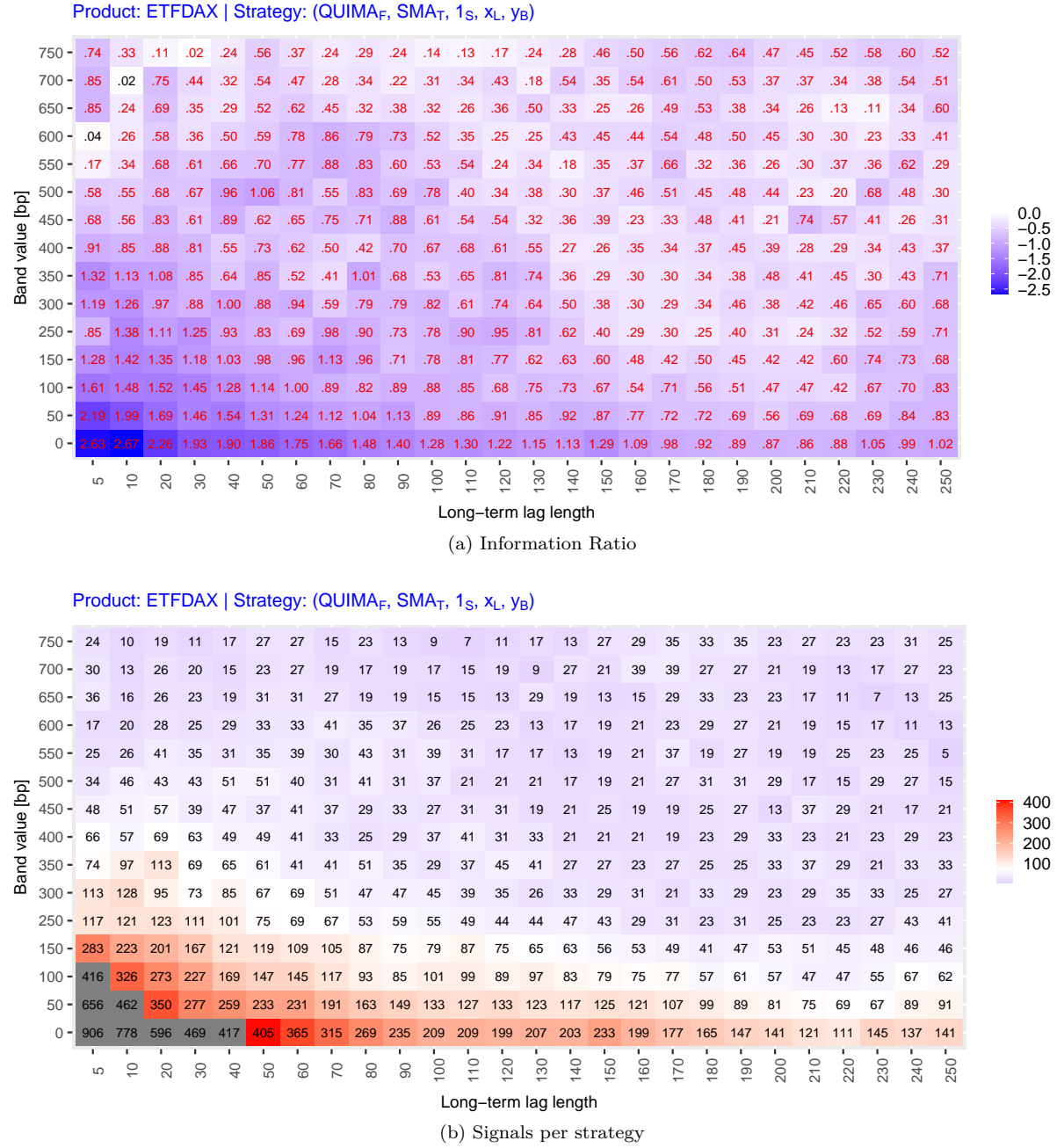


Figure 2: [QUIMA] IR by lag length and band value.

4 DRAWDOWNS

Table 2: Select strategy results – ETFDAX

ID	Strategy	Performance						Sigs.
		aRC	aSD	IR	SR	MD	MDD	
1	(QUIMA, SMA, 1, 5, 0.06)	0.096	0.20	0.037	0.40	0.31	5.2	17
2	(QUIMA, SMA, 1, 10, 0.07)	0.096	0.16	0.021	0.50	0.24	5.1	13
3	(QUIMA, SMA, 1, 240, 0.055)	-0.022	0.11	-0.624	-0.36	0.50	6.0	25
4	(QUIMA, EMA, 1, 5, 0)	-0.529	0.19	-2.965	-2.86	1.00	9.3	1184
5	(QUIMA, WMA, 1, 5, 0)	-0.530	0.20	-3.009	-2.80	1.00	9.3	1170
6	(Buy-and-hold)	0.093	0.21	NA	0.36	0.34	2.2	NA

This table provides a selection of performance measures for the two best, two worst and the middle QUIMA strategy on ETFDAX, in comparison with the BH benchmark.

¹ IR values, as per Appendix A, refer to a strategy's result with respect to the BH benchmark;

² SR shows the performance against a risk-free return for each strategy and the BH benchmark;

³ Colours in column «ID» respond to line colours in the following drawdown plot.



Figure 3: [QUIMA] Drawdowns for two top (blue and orange), two bottom (gray) and the middle (green) strategy, vs drawdowns for the BH benchmark (red).

ETFDAX - QUIMA / NO TC

1 TYPE RANK

Table 1: QUIMA strategy results – ETFDAX

MA Type	Performance					Parameters							Descriptive	
	IR	SR	aRC	aSD	Sigs.	Long-term lag				Band			N	Share (%)
						Min	Max	Mean	Med.	Min	Max	Mean		
Panel A. Filter: IR greater than 0														
MA														
WMA	0.214	0.542	0.113	0.18	4.2	5	30	12	10	0.045	0.075	0.055	5	0.427
EMA	0.171	0.675	0.118	0.15	3.0	5	5	5	5	0.045	0.045	0.045	1	0.085
SMA	0.146	0.594	0.111	0.16	5.0	5	20	10	10	0.045	0.075	0.061	8	0.684
QUIMA														
SMA	0.081	0.524	0.103	0.16	13.7	5	30	15	10	0.060	0.075	0.068	3	0.256
WMA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EMA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Panel B. Filter: IR greater than Q_3														
MA														
SMA	-0.166	0.352	0.068	0.14	23.0	5	220	118	140	0.000	0.075	0.037	122	10.427
WMA	-0.169	0.346	0.067	0.14	31.4	5	250	117	110	0.000	0.075	0.032	109	9.316
EMA	-0.172	0.350	0.068	0.14	34.6	5	220	118	135	0.000	0.075	0.026	62	5.299
QUIMA														
SMA	-0.238	0.261	0.056	0.15	23.3	5	250	154	160	0.005	0.075	0.050	132	11.282
WMA	-0.249	0.256	0.055	0.15	23.1	5	250	157	175	0.005	0.075	0.059	88	7.521
EMA	-0.263	0.243	0.053	0.14	26.0	5	250	127	120	0.005	0.075	0.055	73	6.239
Panel C. Filter: IR smaller than Q_1														
MA														
EMA	-0.457	0.039	0.023	0.14	49.8	5	250	113	90	0.000	0.075	0.046	149	12.735
SMA	-0.461	0.030	0.022	0.14	86.9	5	250	114	80	0.000	0.075	0.030	65	5.556
WMA	-0.462	0.032	0.022	0.14	94.8	5	250	91	80	0.000	0.075	0.034	79	6.752
QUIMA														
SMA	-0.818	-0.338	-0.037	0.17	168.2	5	250	62	50	0.000	0.075	0.024	81	6.923
WMA	-0.818	-0.367	-0.041	0.17	175.9	5	190	74	60	0.000	0.075	0.025	110	9.402
EMA	-0.824	-0.356	-0.039	0.17	162.0	5	220	63	60	0.000	0.075	0.027	102	8.718

In this table, we aggregate the QUIMA strategy performance and parameter data for ETFDAX across the three MA types. We break down the results into three subgroups: the first representing the data for strategies with positive IR (i.e. beating the BH strategy); the second and third subgroup characterising the top 25% and the bottom 25% of strategies, respectively.

¹ All performance measures use standard formulation defined in Appendix A;

² The performance and parameter statistics are calculated with respect to the subgroup size reported in column «N»;

³ Column «Share (%)» provides a subgroup's share in the whole sample (1170);

⁴ Transaction costs are not included.

2 IR SCORE

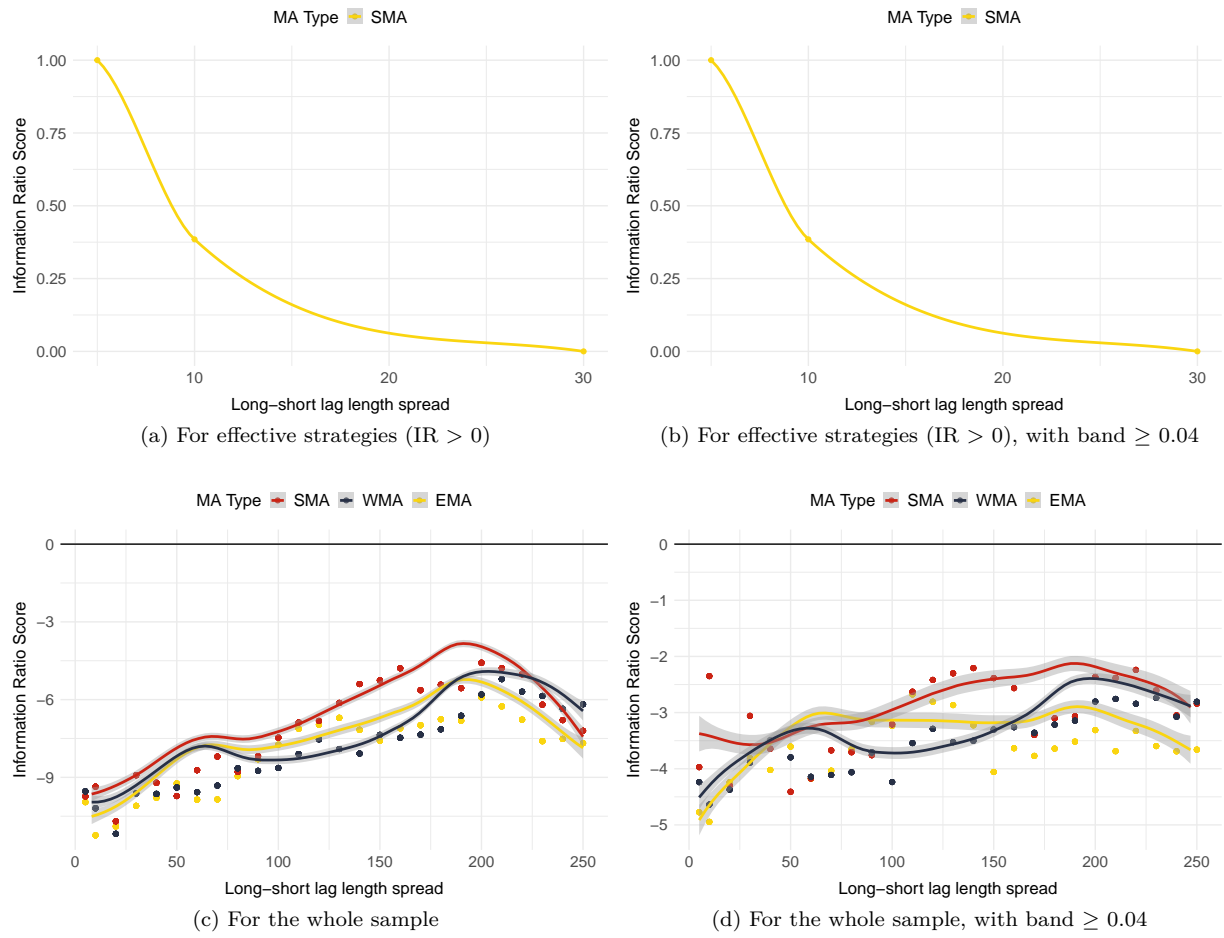


Figure 1: [QUIMA, -tc] ETFDAX – IR score by value of the long-term lag.

3 HEATMAPS

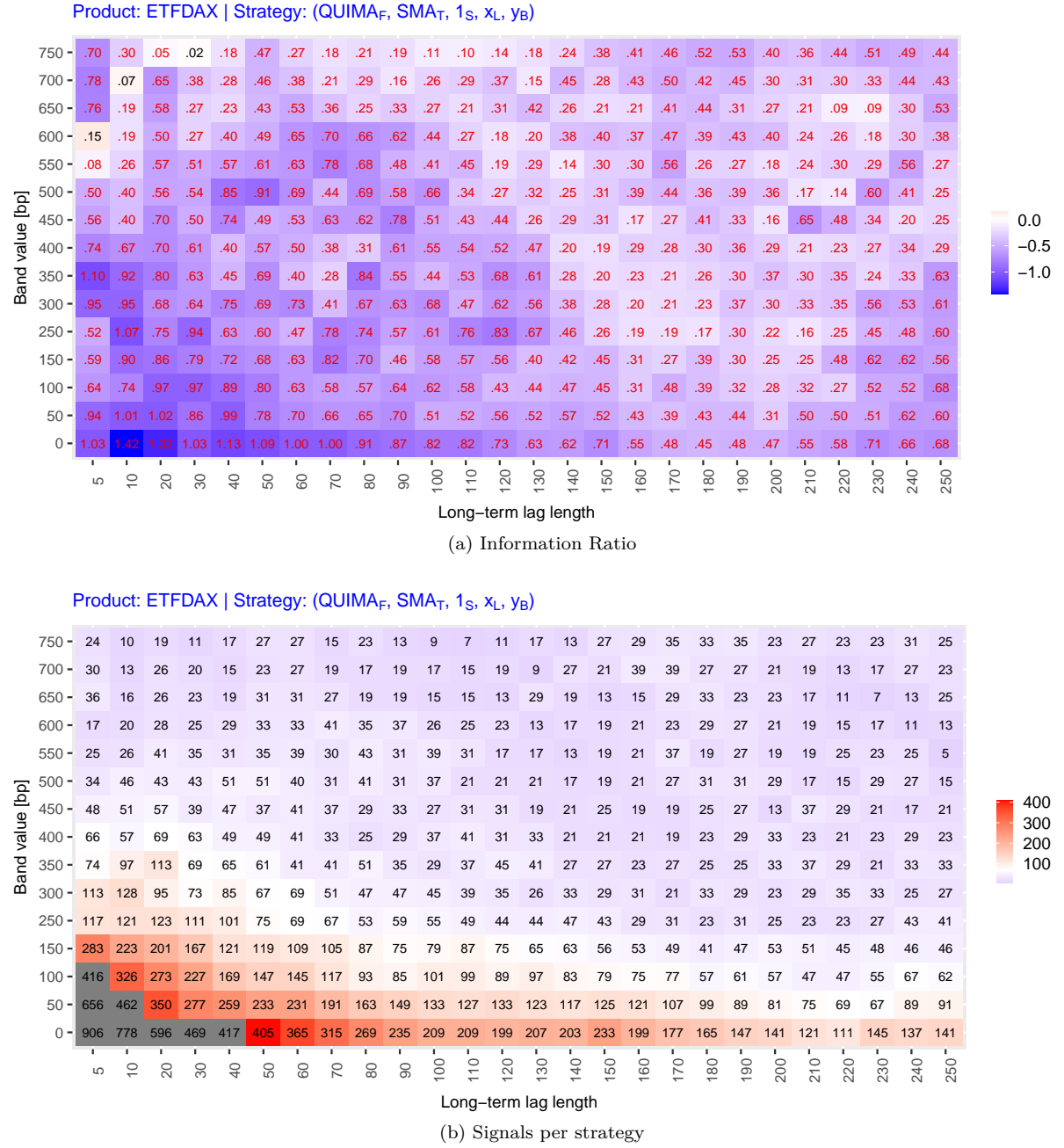


Figure 2: [QUIMA, -tc] IR by lag length and band value.

4 DRAWDOWNS

Table 2: Select strategy results – ETFDAX

ID	Strategy	Performance						Sigs.
		aRC	aSD	IR	SR	MD	MDD	
1	(QUIMA, SMA, 1, 5, 0.06)	0.107	0.20	0.152	0.4558	0.29	5.1	17
2	(QUIMA, SMA, 1, 10, 0.07)	0.104	0.15	0.071	0.5576	0.22	5.1	13
3	(QUIMA, EMA, 1, 130, 0.07)	0.018	0.14	-0.493	-0.0014	0.47	6.0	21
4	(QUIMA, SMA, 1, 20, 0)	-0.159	0.17	-1.318	-1.0579	0.82	9.2	596
5	(QUIMA, SMA, 1, 10, 0)	-0.157	0.17	-1.422	-1.0288	0.81	9.2	778
6	(Buy-and-hold)	0.094	0.21	NA	0.3651	0.34	2.2	NA

This table provides a selection of performance measures for the two best, two worst and the middle QUIMA strategy on ETFDAX, in comparison with the BH benchmark.

¹ IR values, as per Appendix A, refer to a strategy's result with respect to the BH benchmark;

² SR shows the performance against a risk-free return for each strategy and the BH benchmark;

³ Colours in column «ID» respond to line colours in the following drawdown plot;

⁴ Transaction costs are not included.



Figure 3: [QUIMA, -tc] Drawdowns for two top (blue and orange), two bottom (gray) and the middle (green) strategy, vs drawdowns for the BH benchmark (red).