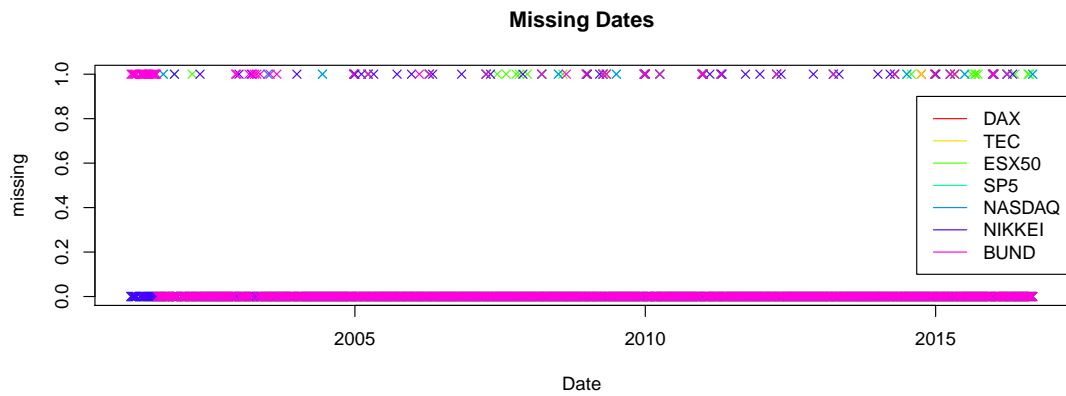
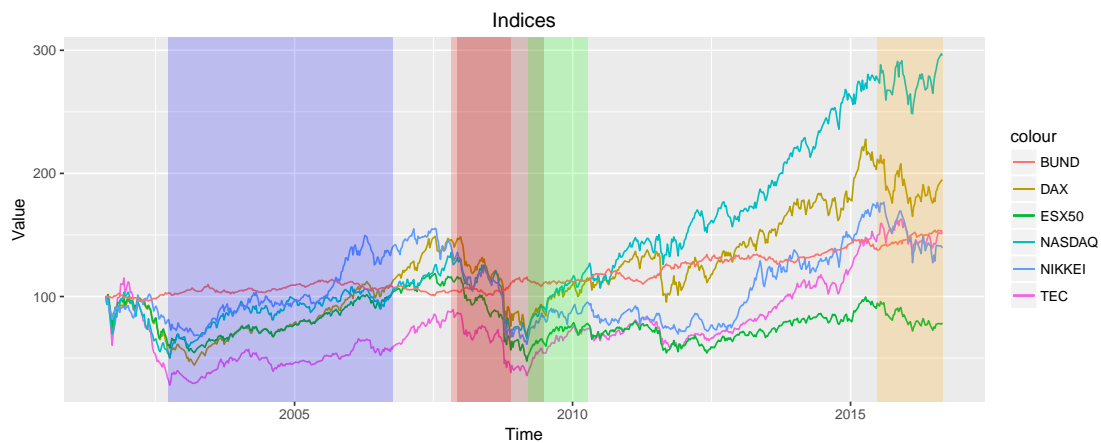


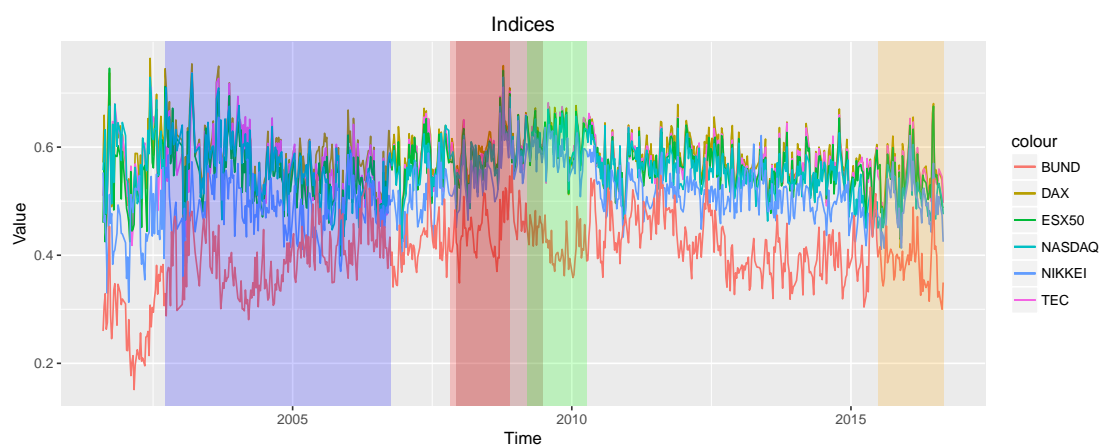
1 Data Import Preparation



2 Data Visualization

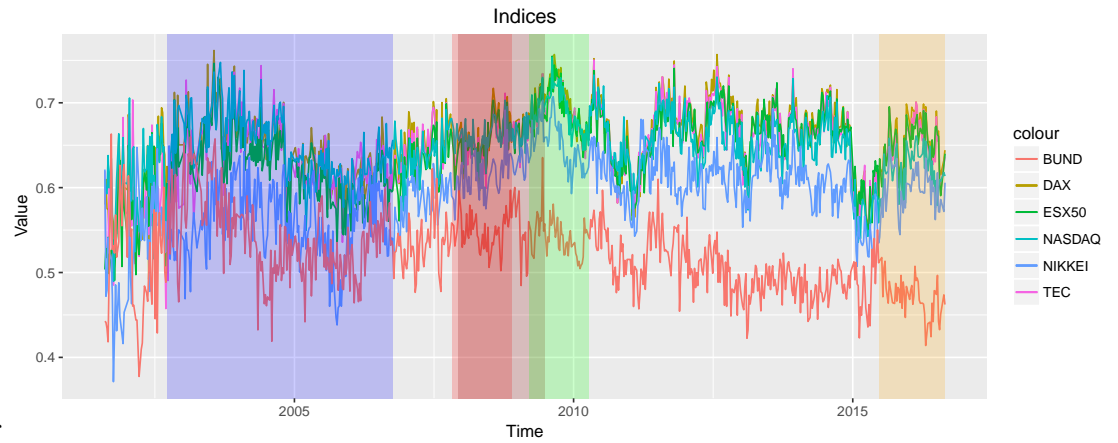


2.0.1 Dispersion



P1.pdf

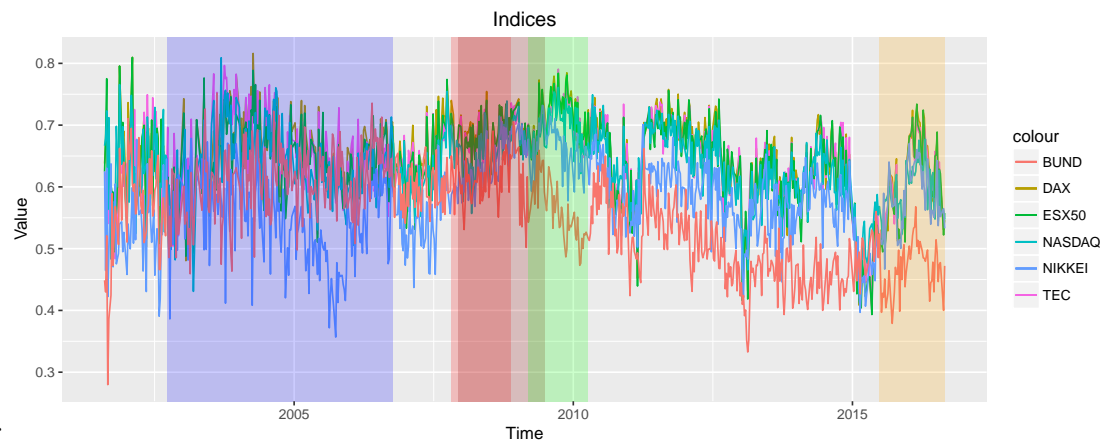
2 Data Visualization



P6.pdf



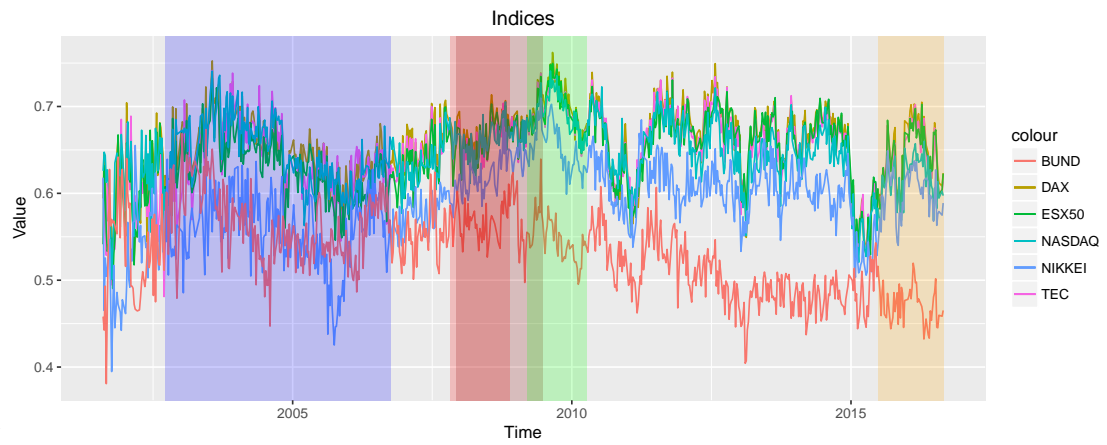
I1.pdf



I6.pdf

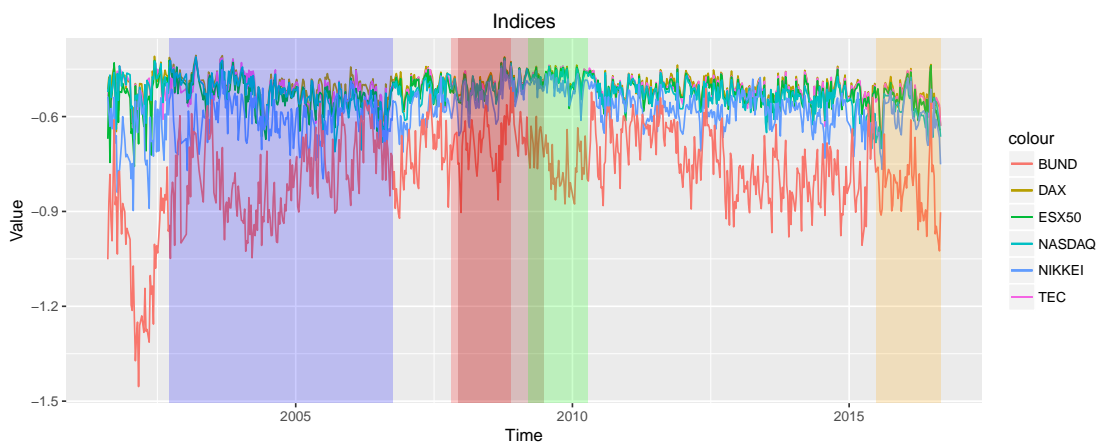


G1.pdf



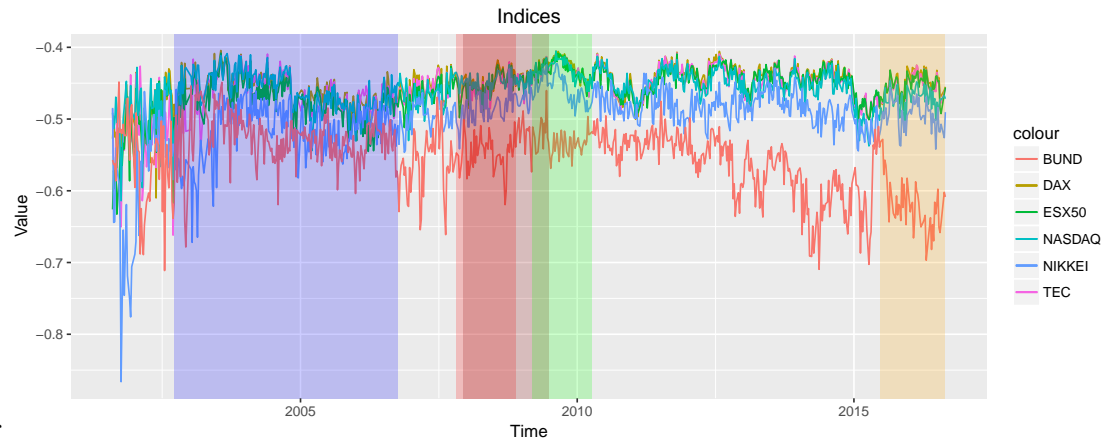
G6.pdf

2.0.2 Herfindahl

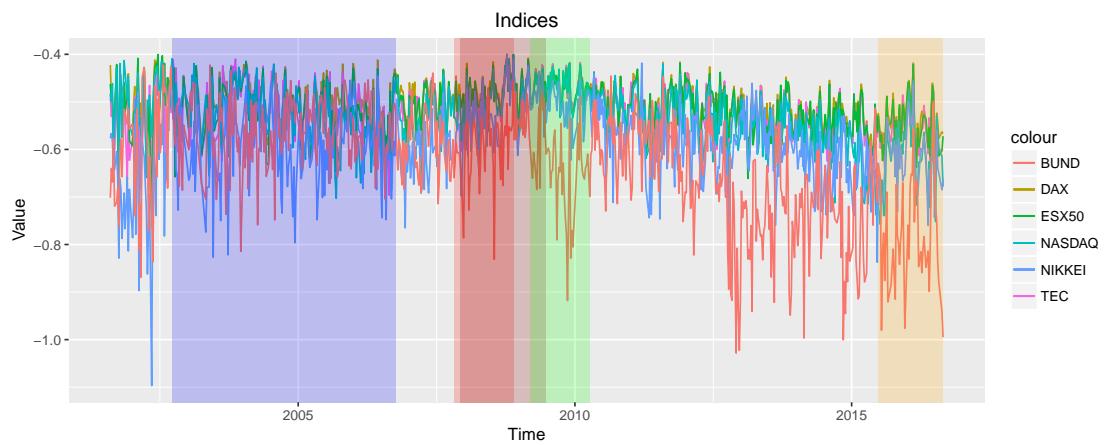


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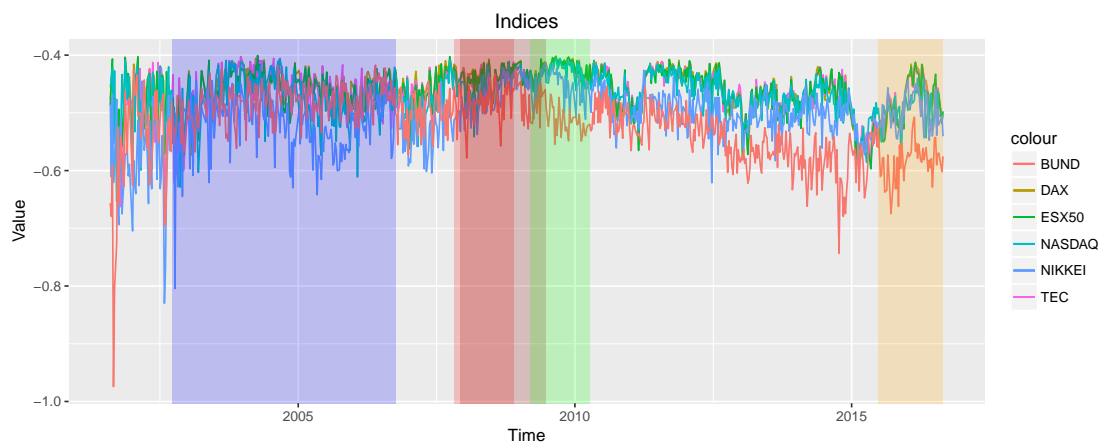
2 Data Visualization



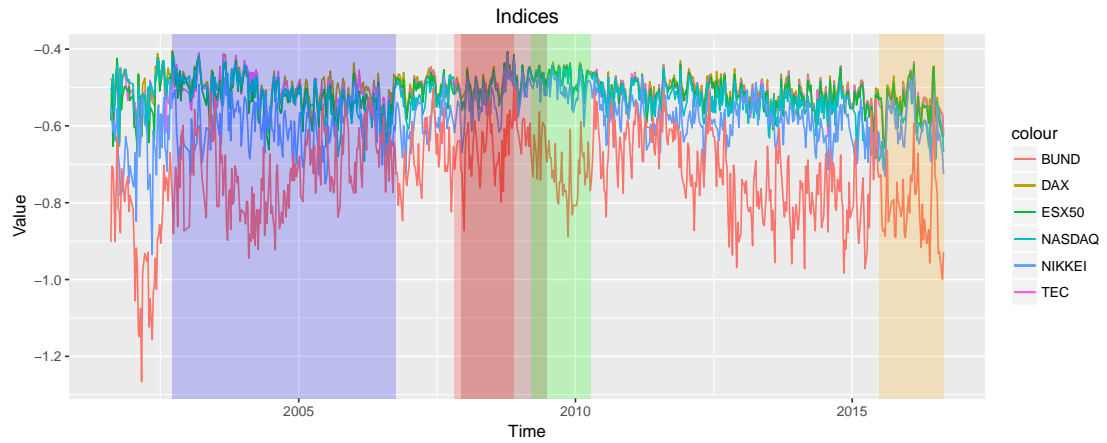
P6.pdf



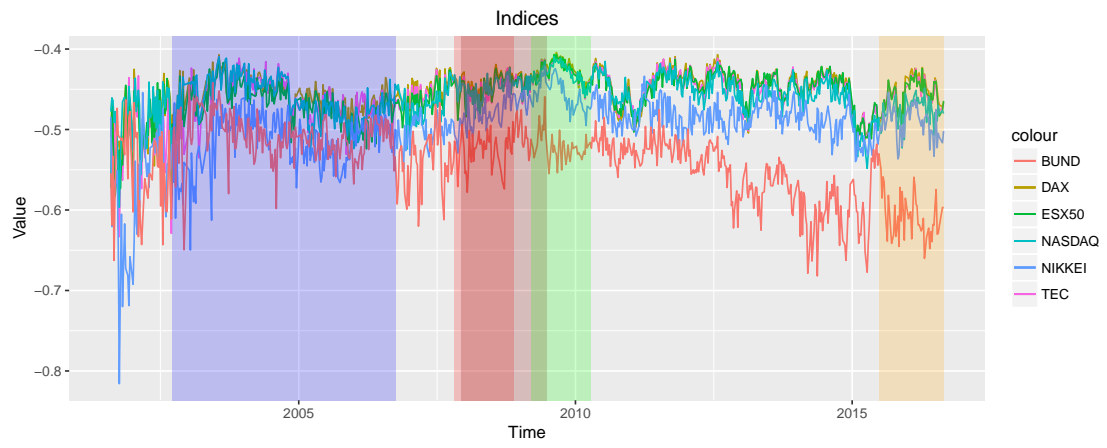
I1.pdf



I6.pdf



G1.pdf



G6.pdf

3 Analysis

3.0.3 Dispersion

P1

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.018	DAX	-0.005	DAX	-0.002
2		TEC	0	TEC	-0.01	TEC	-0.01
3		ESX50	0.012	ESX50	-0.009	ESX50	-0.009
4		SP5	0.001	SP5	-0.005	SP5	-0.002
5		NASDAQ	0.002	NASDAQ	-0.005	NASDAQ	-0.002
6		NIKKEI	0.005	NIKKEI	-0.008	NIKKEI	-0.009
7		BUND	0	BUND	-0.002	BUND	-0.002
8							
9	3	DAX	0.007	DAX	-0.007	DAX	-0.002
10		TEC	-0.031	TEC	-0.021	TEC	-0.001
11		ESX50	0.001	ESX50	-0.023	ESX50	-0.001
12		SP5	-0.01	SP5	-0.005	SP5	-0.001
13		NASDAQ	-0.002	NASDAQ	-0.007	NASDAQ	0
14		NIKKEI	-0.002	NIKKEI	-0.007	NIKKEI	-0.007
15		BUND	-0.002	BUND	-0.004	BUND	-0.005
16							
17	6	DAX	0.001	DAX	0	DAX	0.011
18		TEC	-0.034	TEC	0.006	TEC	0.026
19		ESX50	-0.01	ESX50	-0.009	ESX50	0
20		SP5	-0.01	SP5	0.002	SP5	-0.002
21		NASDAQ	0	NASDAQ	0.004	NASDAQ	0.004
22		NIKKEI	0	NIKKEI	0.002	NIKKEI	0
23		BUND	-0.006	BUND	-0.008	BUND	-0.006
24							

P6

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.001	DAX	-0.002	DAX	0.005
2		TEC	-0.002	TEC	-0.003	TEC	-0.009
3		ESX50	-0.004	ESX50	-0.003	ESX50	0.005
4		SP5	-0.001	SP5	-0.006	SP5	-0.002
5		NASDAQ	-0.003	NASDAQ	-0.003	NASDAQ	-0.005
6		NIKKEI	0.014	NIKKEI	0	NIKKEI	0.005
7		BUND	0.001	BUND	0.001	BUND	0.001
8							
9	3	DAX	0	DAX	0.004	DAX	0.002
10		TEC	-0.008	TEC	-0.021	TEC	0
11		ESX50	-0.012	ESX50	-0.001	ESX50	0.004
12		SP5	-0.016	SP5	-0.016	SP5	-0.01
13		NASDAQ	-0.013	NASDAQ	-0.022	NASDAQ	-0.002
14		NIKKEI	0.02	NIKKEI	0.002	NIKKEI	0.019
15		BUND	0.001	BUND	0	BUND	0.001
16							
17	6	DAX	0	DAX	0	DAX	-0.001
18		TEC	-0.027	TEC	-0.022	TEC	-0.007
19		ESX50	-0.01	ESX50	-0.013	ESX50	-0.003
20		SP5	-0.03	SP5	-0.03	SP5	-0.027
21		NASDAQ	-0.03	NASDAQ	-0.031	NASDAQ	-0.024
22		NIKKEI	0.026	NIKKEI	0.016	NIKKEI	0.032
23		BUND	0.001	BUND	0.003	BUND	0.004
24							

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.034	DAX	-0.008	DAX	-0.007
2		TEC	0.018	TEC	-0.007	TEC	-0.019
3		ESX50	0.029	ESX50	-0.003	ESX50	-0.008
4		SP5	0.017	SP5	-0.003	SP5	-0.002
5		NASDAQ	0.018	NASDAQ	-0.005	NASDAQ	-0.006
6		NIKKEI	0.021	NIKKEI	-0.003	NIKKEI	-0.003
7		BUND	-0.001	BUND	0	BUND	0
8							
9	3	DAX	0.028	DAX	-0.025	DAX	-0.004
10		TEC	0.013	TEC	-0.028	TEC	-0.012
11		ESX50	0.025	ESX50	-0.02	ESX50	-0.003
12		SP5	0.014	SP5	-0.007	SP5	-0.008
13		NASDAQ	0.019	NASDAQ	-0.027	NASDAQ	-0.002
14		NIKKEI	0.022	NIKKEI	0	NIKKEI	-0.003
15		BUND	0.001	BUND	0.001	BUND	0
16							
17	6	DAX	0.01	DAX	-0.009	DAX	0.002
18		TEC	-0.008	TEC	-0.011	TEC	-0.005
19		ESX50	0.003	ESX50	-0.012	ESX50	-0.006
20		SP5	0.002	SP5	-0.004	SP5	-0.006
21		NASDAQ	-0.002	NASDAQ	-0.016	NASDAQ	0.004
22		NIKKEI	0.021	NIKKEI	0.001	NIKKEI	-0.011
23		BUND	0.001	BUND	0.002	BUND	0.002
24							

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	-0.004	DAX	0	DAX	-0.005
2		TEC	0.011	TEC	0.012	TEC	0.005
3		ESX50	0	ESX50	-0.004	ESX50	-0.004
4		SP5	0.004	SP5	0.001	SP5	0.001
5		NASDAQ	0.003	NASDAQ	0.003	NASDAQ	0.002
6		NIKKEI	0.019	NIKKEI	0.003	NIKKEI	0.008
7		BUND	0.003	BUND	0.001	BUND	0.001
8							
9	3	DAX	0.008	DAX	-0.012	DAX	-0.01
10		TEC	0.037	TEC	0.031	TEC	0.013
11		ESX50	0	ESX50	-0.001	ESX50	-0.01
12		SP5	0.004	SP5	0.001	SP5	0.008
13		NASDAQ	0.018	NASDAQ	0.011	NASDAQ	0.007
14		NIKKEI	0.031	NIKKEI	0.02	NIKKEI	0.025
15		BUND	0.002	BUND	0.003	BUND	0.005
16							
17	6	DAX	-0.012	DAX	-0.016	DAX	-0.017
18		TEC	0.066	TEC	0.043	TEC	0.015
19		ESX50	0.004	ESX50	-0.009	ESX50	-0.017
20		SP5	0.009	SP5	0.003	SP5	0.002
21		NASDAQ	0.038	NASDAQ	0.008	NASDAQ	0.002
22		NIKKEI	0.059	NIKKEI	0.045	NIKKEI	0.033
23		BUND	0.006	BUND	0.008	BUND	0.003
24							

G1

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.027	DAX	-0.013	DAX	-0.01
2		TEC	0.006	TEC	-0.011	TEC	-0.019
3		ESX50	0.023	ESX50	-0.017	ESX50	-0.01
4		SP5	0.011	SP5	-0.007	SP5	-0.001
5		NASDAQ	0.011	NASDAQ	-0.009	NASDAQ	-0.004
6		NIKKEI	0.013	NIKKEI	-0.003	NIKKEI	-0.005
7		BUND	0	BUND	-0.003	BUND	0
8							
9	3	DAX	0.006	DAX	-0.024	DAX	-0.005
10		TEC	-0.018	TEC	-0.028	TEC	-0.017
11		ESX50	-0.001	ESX50	-0.032	ESX50	-0.004
12		SP5	0.001	SP5	-0.01	SP5	-0.01
13		NASDAQ	0.006	NASDAQ	-0.014	NASDAQ	-0.011
14		NIKKEI	0.008	NIKKEI	-0.002	NIKKEI	-0.008
15		BUND	-0.002	BUND	-0.003	BUND	-0.003
16							
17	6	DAX	-0.004	DAX	-0.008	DAX	0.01
18		TEC	-0.034	TEC	-0.005	TEC	0.015
19		ESX50	-0.015	ESX50	-0.023	ESX50	-0.006
20		SP5	-0.007	SP5	-0.014	SP5	-0.011
21		NASDAQ	0.001	NASDAQ	-0.009	NASDAQ	-0.005
22		NIKKEI	0.004	NIKKEI	-0.004	NIKKEI	-0.007
23		BUND	-0.004	BUND	-0.005	BUND	-0.002
24							

G6

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.001	DAX	0.001	DAX	-0.001
2		TEC	0.007	TEC	-0.005	TEC	-0.006
3		ESX50	-0.001	ESX50	-0.002	ESX50	0.003
4		SP5	-0.001	SP5	-0.004	SP5	-0.005
5		NASDAQ	0.002	NASDAQ	0.004	NASDAQ	-0.001
6		NIKKEI	0.02	NIKKEI	0.002	NIKKEI	0.002
7		BUND	0.001	BUND	0.001	BUND	0.002
8							
9	3	DAX	0.004	DAX	0.004	DAX	-0.005
10		TEC	0.003	TEC	-0.009	TEC	0.003
11		ESX50	-0.005	ESX50	0.007	ESX50	0.004
12		SP5	-0.009	SP5	-0.017	SP5	-0.012
13		NASDAQ	0.002	NASDAQ	-0.005	NASDAQ	-0.011
14		NIKKEI	0.035	NIKKEI	0.011	NIKKEI	0.016
15		BUND	0.001	BUND	0.002	BUND	0.002
16							
17	6	DAX	0.001	DAX	-0.004	DAX	-0.016
18		TEC	0.001	TEC	-0.004	TEC	0.012
19		ESX50	0.006	ESX50	0.001	ESX50	-0.007
20		SP5	-0.025	SP5	-0.029	SP5	-0.029
21		NASDAQ	-0.014	NASDAQ	-0.021	NASDAQ	-0.026
22		NIKKEI	0.051	NIKKEI	0.026	NIKKEI	0.021
23		BUND	0.002	BUND	0.004	BUND	0.005
24							

3.0.4 Herfindahl

P1

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.019	DAX	-0.007	DAX	-0.008
2		TEC	-0.001	TEC	-0.011	TEC	-0.01
3		ESX50	0.009	ESX50	-0.009	ESX50	-0.005
4		SP5	0.004	SP5	-0.008	SP5	-0.005
5		NASDAQ	0.002	NASDAQ	-0.003	NASDAQ	-0.004
6		NIKKEI	0.005	NIKKEI	-0.005	NIKKEI	-0.008
7		BUND	0.001	BUND	-0.002	BUND	0
8							
9	3	DAX	0.005	DAX	-0.032	DAX	0.006
10		TEC	-0.025	TEC	-0.027	TEC	-0.007
11		ESX50	0	ESX50	-0.021	ESX50	0.007
12		SP5	-0.009	SP5	-0.021	SP5	0
13		NASDAQ	-0.002	NASDAQ	-0.011	NASDAQ	-0.008
14		NIKKEI	-0.001	NIKKEI	-0.006	NIKKEI	-0.001
15		BUND	-0.001	BUND	-0.003	BUND	-0.001
16							
17	6	DAX	-0.014	DAX	-0.014	DAX	0.011
18		TEC	-0.035	TEC	-0.006	TEC	0.024
19		ESX50	-0.005	ESX50	-0.013	ESX50	0.001
20		SP5	-0.017	SP5	-0.017	SP5	-0.003
21		NASDAQ	-0.007	NASDAQ	-0.012	NASDAQ	-0.016
22		NIKKEI	-0.003	NIKKEI	0.001	NIKKEI	0.002
23		BUND	-0.003	BUND	-0.004	BUND	-0.001
24							

P6

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	-0.005	DAX	-0.006	DAX	0.001
2		TEC	-0.005	TEC	-0.01	TEC	-0.01
3		ESX50	-0.006	ESX50	-0.004	ESX50	0.006
4		SP5	-0.005	SP5	-0.01	SP5	0
5		NASDAQ	-0.008	NASDAQ	-0.005	NASDAQ	-0.004
6		NIKKEI	0.01	NIKKEI	0.001	NIKKEI	0.004
7		BUND	0.002	BUND	0.001	BUND	0
8							
9	3	DAX	-0.016	DAX	-0.005	DAX	-0.007
10		TEC	-0.026	TEC	-0.03	TEC	-0.015
11		ESX50	-0.018	ESX50	-0.001	ESX50	0.001
12		SP5	-0.025	SP5	-0.016	SP5	-0.006
13		NASDAQ	-0.021	NASDAQ	-0.02	NASDAQ	0.002
14		NIKKEI	0.009	NIKKEI	0.002	NIKKEI	0.012
15		BUND	0.003	BUND	0.001	BUND	-0.003
16							
17	6	DAX	-0.019	DAX	-0.019	DAX	-0.019
18		TEC	-0.048	TEC	-0.046	TEC	-0.035
19		ESX50	-0.015	ESX50	-0.018	ESX50	-0.015
20		SP5	-0.035	SP5	-0.028	SP5	-0.018
21		NASDAQ	-0.037	NASDAQ	-0.025	NASDAQ	-0.016
22		NIKKEI	0.012	NIKKEI	0.011	NIKKEI	0.02
23		BUND	0.002	BUND	-0.002	BUND	0
24							

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.024	DAX	-0.008	DAX	-0.002
2		TEC	0.01	TEC	-0.007	TEC	-0.009
3		ESX50	0.02	ESX50	-0.004	ESX50	-0.005
4		SP5	0.016	SP5	-0.005	SP5	-0.002
5		NASDAQ	0.012	NASDAQ	-0.006	NASDAQ	-0.004
6		NIKKEI	0.009	NIKKEI	0.001	NIKKEI	-0.001
7		BUND	0	BUND	0	BUND	0
8							
9	3	DAX	0.022	DAX	-0.027	DAX	-0.008
10		TEC	0.003	TEC	-0.022	TEC	-0.014
11		ESX50	0.015	ESX50	-0.022	ESX50	-0.006
12		SP5	0.011	SP5	-0.013	SP5	-0.007
13		NASDAQ	0.011	NASDAQ	-0.024	NASDAQ	0.002
14		NIKKEI	0.017	NIKKEI	0.006	NIKKEI	0.001
15		BUND	0.002	BUND	0	BUND	0.001
16							
17	6	DAX	-0.005	DAX	-0.027	DAX	-0.007
18		TEC	-0.022	TEC	-0.018	TEC	-0.014
19		ESX50	-0.006	ESX50	-0.022	ESX50	-0.004
20		SP5	-0.003	SP5	-0.016	SP5	-0.012
21		NASDAQ	-0.007	NASDAQ	-0.01	NASDAQ	0.011
22		NIKKEI	0.018	NIKKEI	0.004	NIKKEI	0.004
23		BUND	0.002	BUND	0.001	BUND	0.003
24							

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.005	DAX	-0.005	DAX	-0.003
2		TEC	0.009	TEC	0.008	TEC	0.009
3		ESX50	0.005	ESX50	-0.003	ESX50	-0.003
4		SP5	0.006	SP5	0.002	SP5	0.003
5		NASDAQ	0.001	NASDAQ	0.004	NASDAQ	0.002
6		NIKKEI	0.009	NIKKEI	-0.002	NIKKEI	0.01
7		BUND	0.002	BUND	0	BUND	0.002
8							
9	3	DAX	0.013	DAX	-0.014	DAX	-0.012
10		TEC	0.032	TEC	0.031	TEC	0.018
11		ESX50	0.006	ESX50	0.002	ESX50	-0.006
12		SP5	0.009	SP5	0.004	SP5	0.004
13		NASDAQ	0.013	NASDAQ	0.014	NASDAQ	0.011
14		NIKKEI	0.017	NIKKEI	0.019	NIKKEI	0.019
15		BUND	0.002	BUND	0.003	BUND	0.004
16							
17	6	DAX	0.003	DAX	-0.023	DAX	-0.011
18		TEC	0.069	TEC	0.041	TEC	0.012
19		ESX50	0.01	ESX50	-0.004	ESX50	-0.007
20		SP5	0.011	SP5	0.001	SP5	-0.003
21		NASDAQ	0.035	NASDAQ	0.022	NASDAQ	0.015
22		NIKKEI	0.046	NIKKEI	0.028	NIKKEI	0.011
23		BUND	0.006	BUND	0.005	BUND	0.001
24							

G1

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.018	DAX	-0.013	DAX	-0.011
2		TEC	0.013	TEC	-0.011	TEC	-0.016
3		ESX50	0.011	ESX50	-0.021	ESX50	-0.008
4		SP5	0.007	SP5	-0.011	SP5	-0.003
5		NASDAQ	0.008	NASDAQ	-0.006	NASDAQ	-0.004
6		NIKKEI	0.008	NIKKEI	-0.004	NIKKEI	-0.005
7		BUND	0.002	BUND	-0.002	BUND	0
8							
9	3	DAX	-0.001	DAX	-0.029	DAX	-0.003
10		TEC	-0.009	TEC	-0.034	TEC	-0.014
11		ESX50	-0.009	ESX50	-0.034	ESX50	0.002
12		SP5	-0.008	SP5	-0.018	SP5	-0.005
13		NASDAQ	0.006	NASDAQ	-0.015	NASDAQ	-0.01
14		NIKKEI	0.006	NIKKEI	0.001	NIKKEI	-0.002
15		BUND	0.002	BUND	-0.003	BUND	0.002
16							
17	6	DAX	-0.016	DAX	-0.018	DAX	0.006
18		TEC	-0.028	TEC	-0.019	TEC	0.002
19		ESX50	-0.022	ESX50	-0.029	ESX50	0.001
20		SP5	-0.016	SP5	-0.019	SP5	-0.008
21		NASDAQ	-0.005	NASDAQ	-0.016	NASDAQ	-0.011
22		NIKKEI	0.013	NIKKEI	0.003	NIKKEI	0
23		BUND	0.003	BUND	-0.001	BUND	0.002
24							

G6

	Row	Lag 0	V1	Lag 2	V1	Lag 4	V1
1	1	DAX	0.003	DAX	-0.001	DAX	0.004
2		TEC	-0.003	TEC	-0.006	TEC	-0.008
3		ESX50	-0.004	ESX50	-0.009	ESX50	0.007
4		SP5	-0.003	SP5	-0.005	SP5	-0.001
5		NASDAQ	-0.005	NASDAQ	0.003	NASDAQ	-0.002
6		NIKKEI	0.01	NIKKEI	-0.001	NIKKEI	0.001
7		BUND	0.003	BUND	0.001	BUND	0.001
8							
9	3	DAX	0.004	DAX	0.006	DAX	-0.003
10		TEC	-0.012	TEC	-0.017	TEC	-0.007
11		ESX50	-0.019	ESX50	-0.003	ESX50	0.007
12		SP5	-0.013	SP5	-0.016	SP5	-0.005
13		NASDAQ	-0.006	NASDAQ	-0.007	NASDAQ	-0.003
14		NIKKEI	0.018	NIKKEI	0.001	NIKKEI	0.016
15		BUND	0.003	BUND	0.003	BUND	-0.001
16							
17	6	DAX	0.001	DAX	-0.003	DAX	-0.012
18		TEC	-0.02	TEC	-0.022	TEC	-0.005
19		ESX50	-0.014	ESX50	-0.014	ESX50	-0.009
20		SP5	-0.026	SP5	-0.026	SP5	-0.021
21		NASDAQ	-0.017	NASDAQ	-0.014	NASDAQ	-0.016
22		NIKKEI	0.027	NIKKEI	0.009	NIKKEI	0.016
23		BUND	0.005	BUND	0.002	BUND	0.002
24							

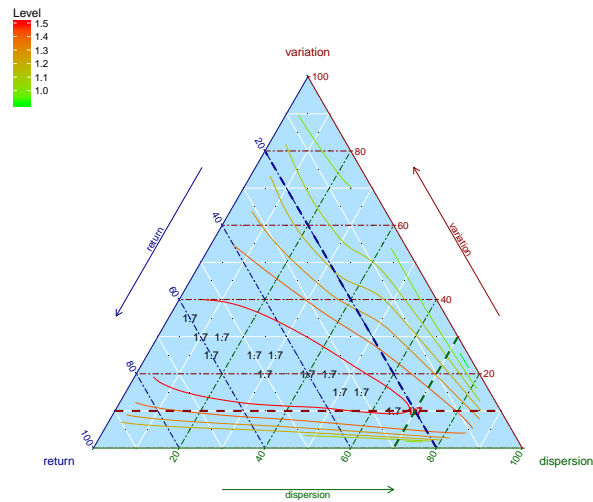
4 Results

4.1 Ternary

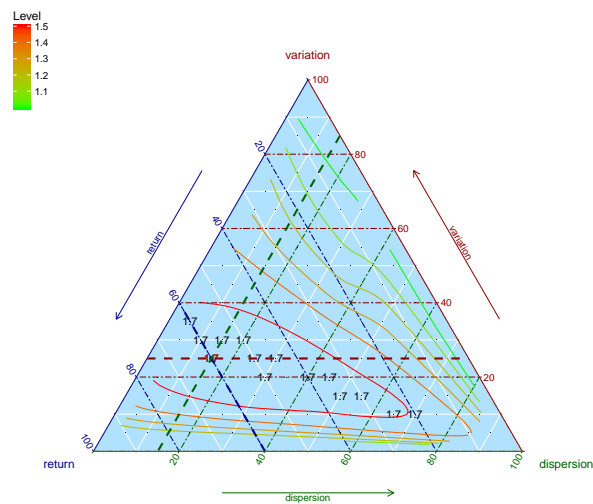
4 Results

4.1.1 Ternary-Dispersion

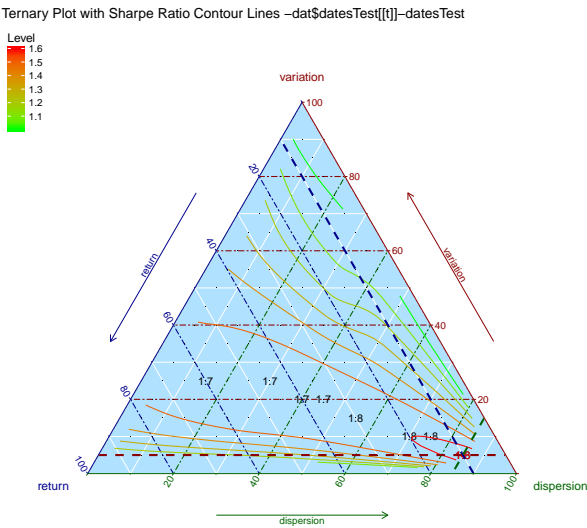
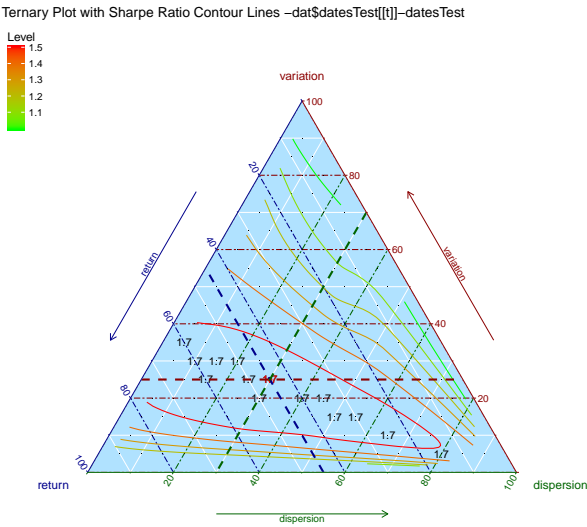
Ternary Plot with Sharpe Ratio Contour Lines –dat\$datesTest[[1]]–datesTest



Ternary Plot with Sharpe Ratio Contour Lines –dat\$datesTest[[1]]–datesTest

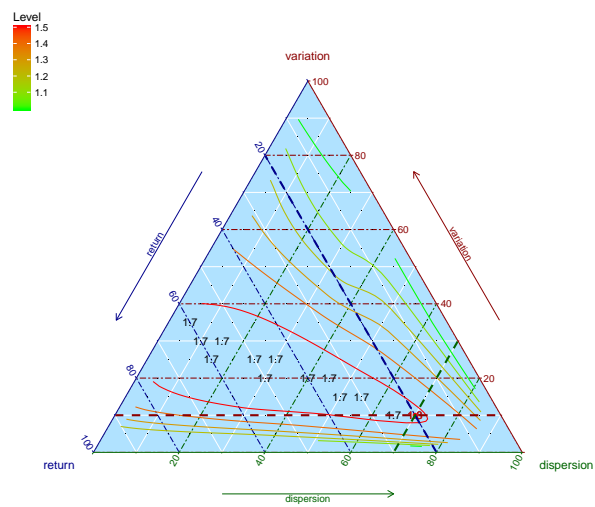


4.1 Ternary

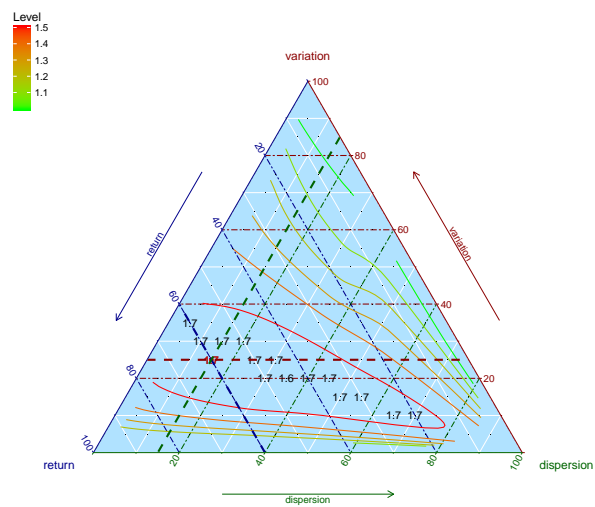


4 Results

Ternary Plot with Sharpe Ratio Contour Lines –dat\$datesTest[[1]]–datesTest

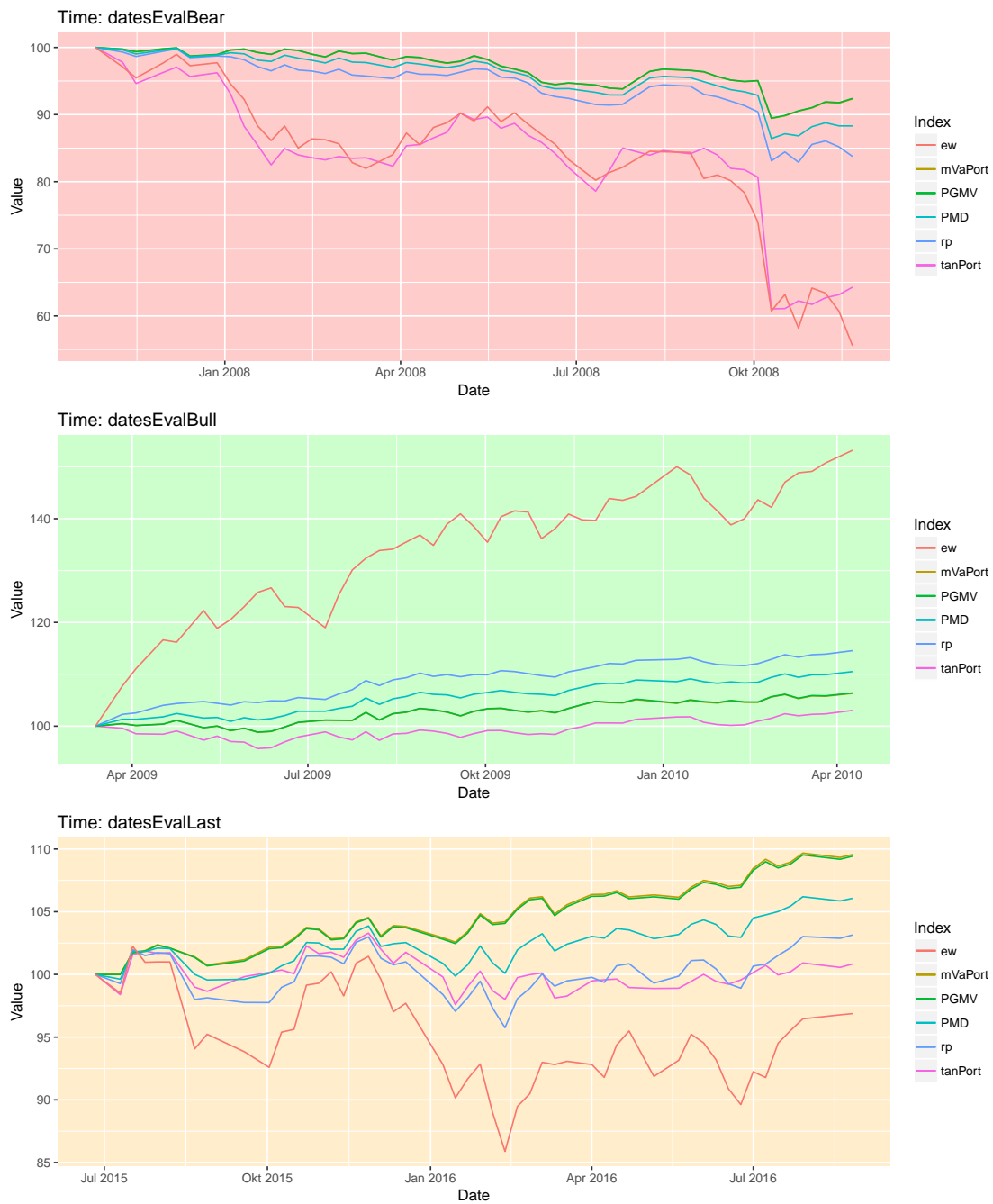


Ternary Plot with Sharpe Ratio Contour Lines –dat\$datesTest[[1]]–datesTest

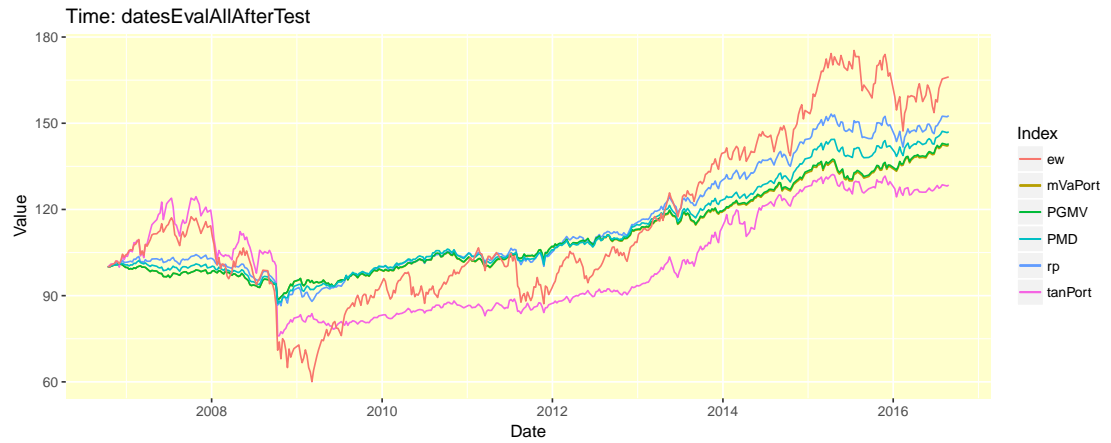


4.2 Performance

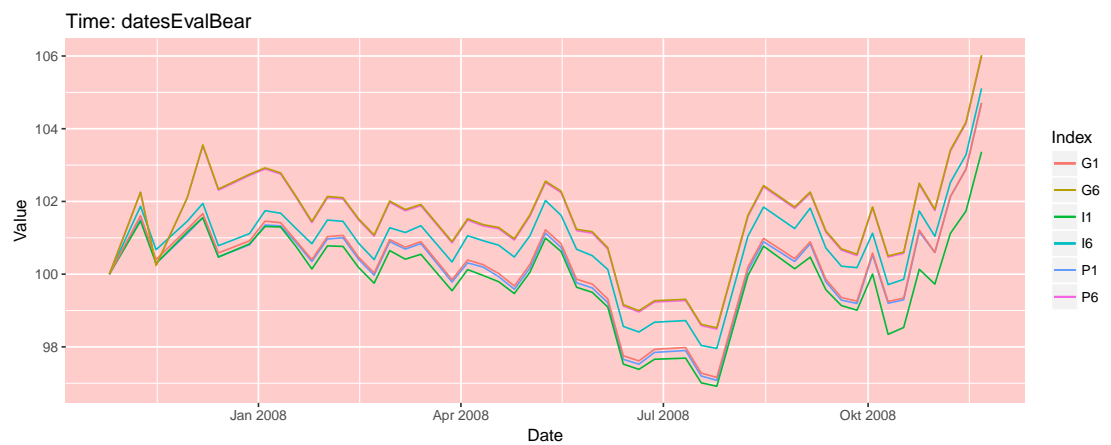
4.2.1 classic - constant weights



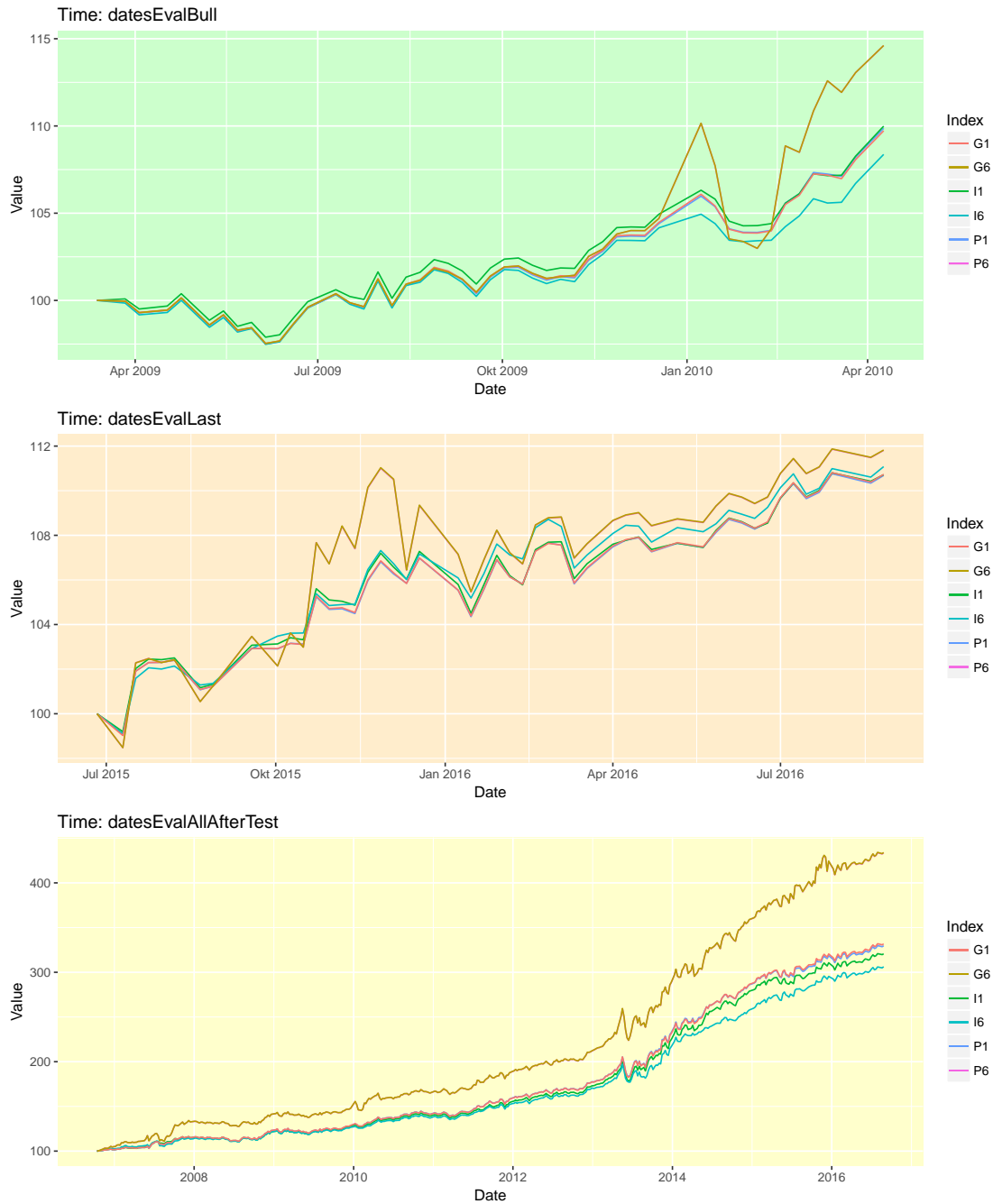
4 Results



4.2.2 Performance-Sentix-Dispersion

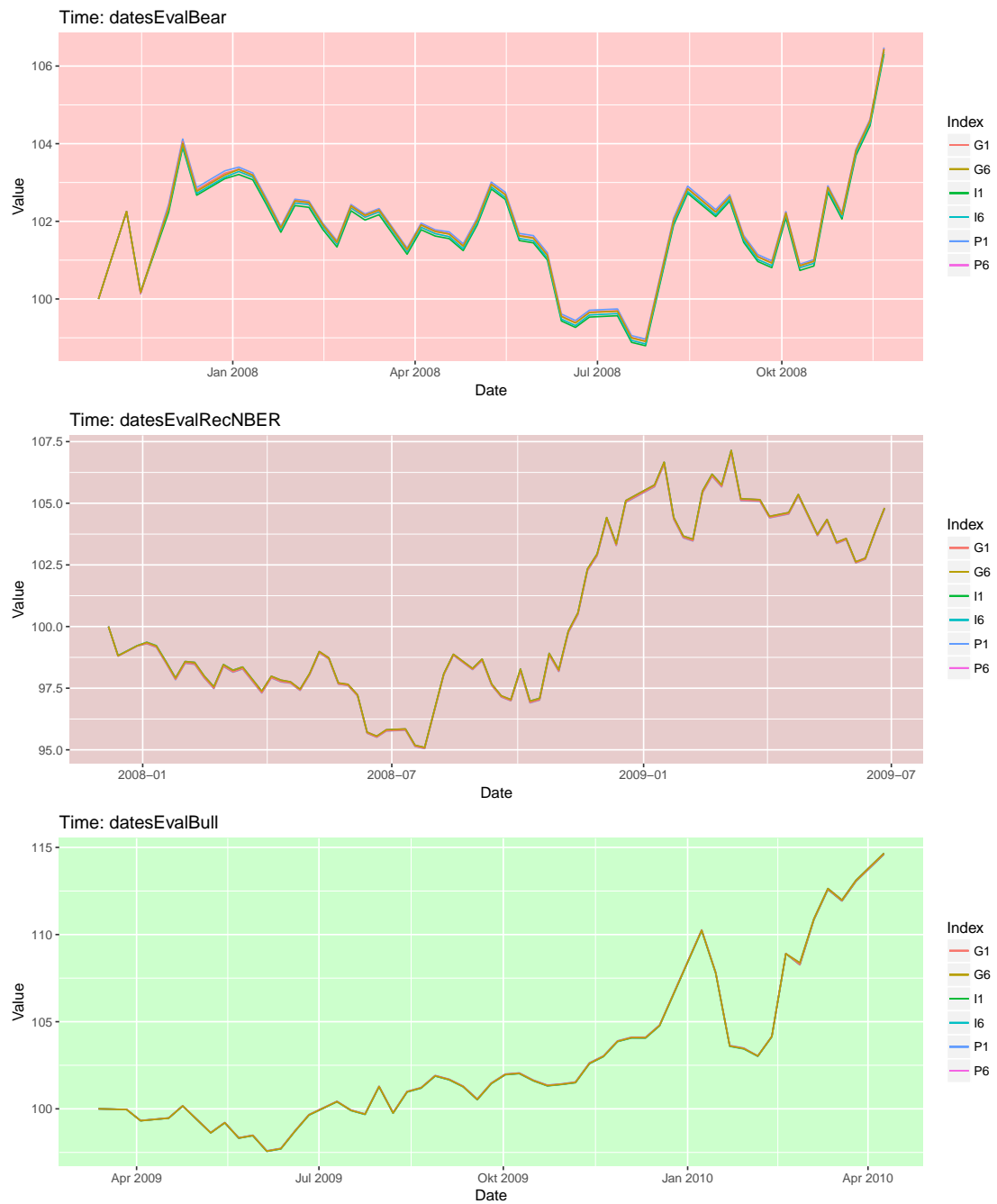


4.2 Performance

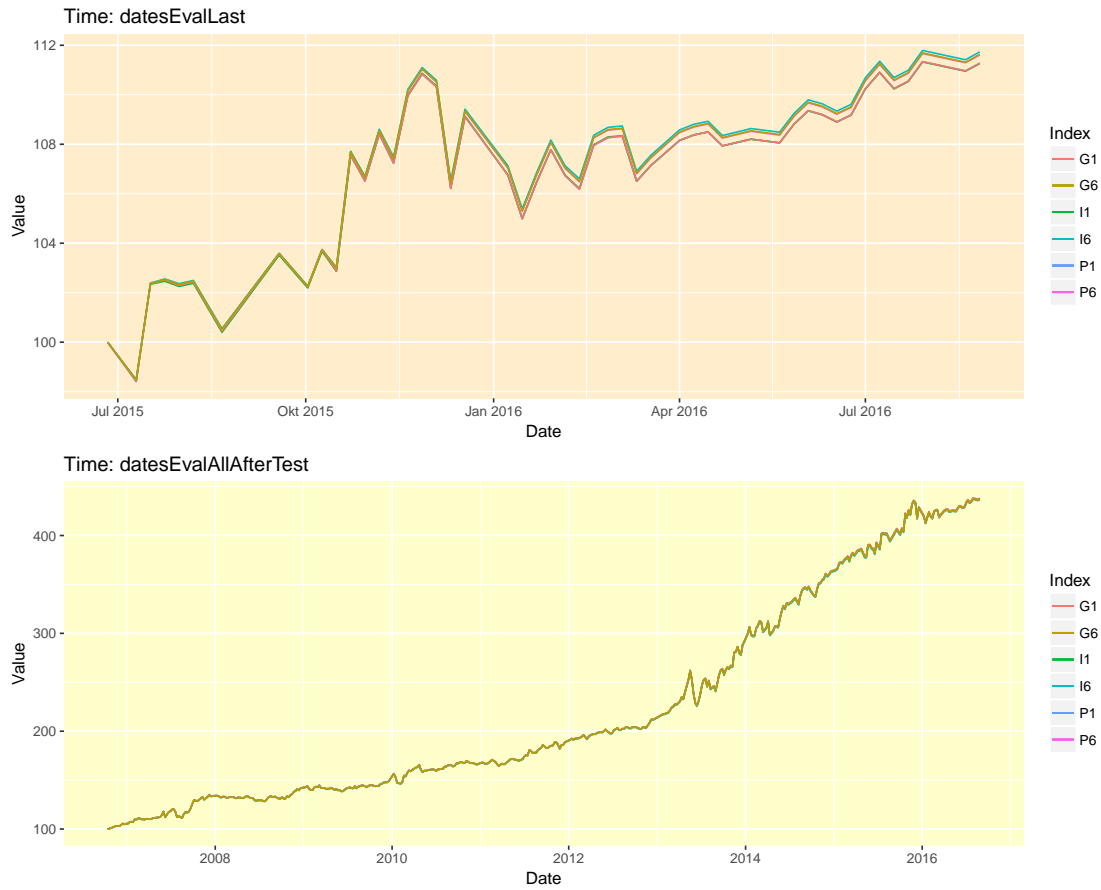


4 Results

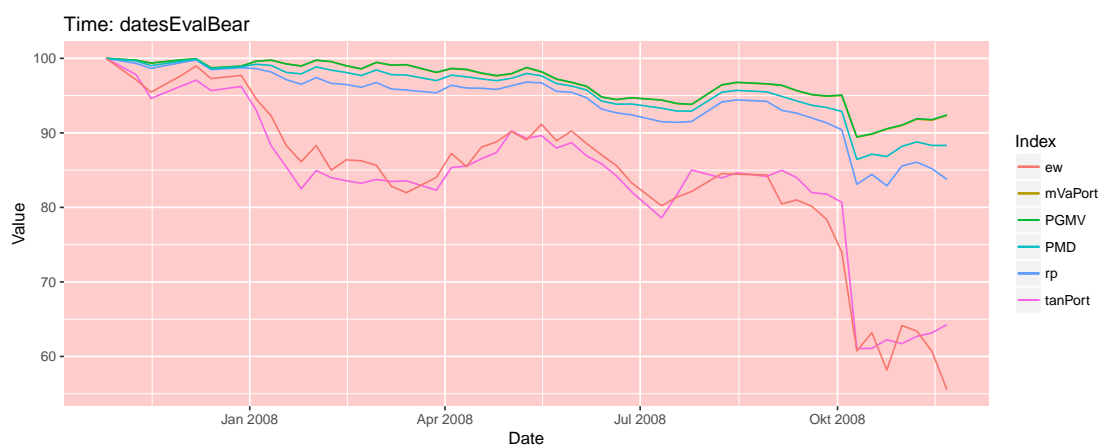
4.2.3 Performance-Sentix-Herfindahl



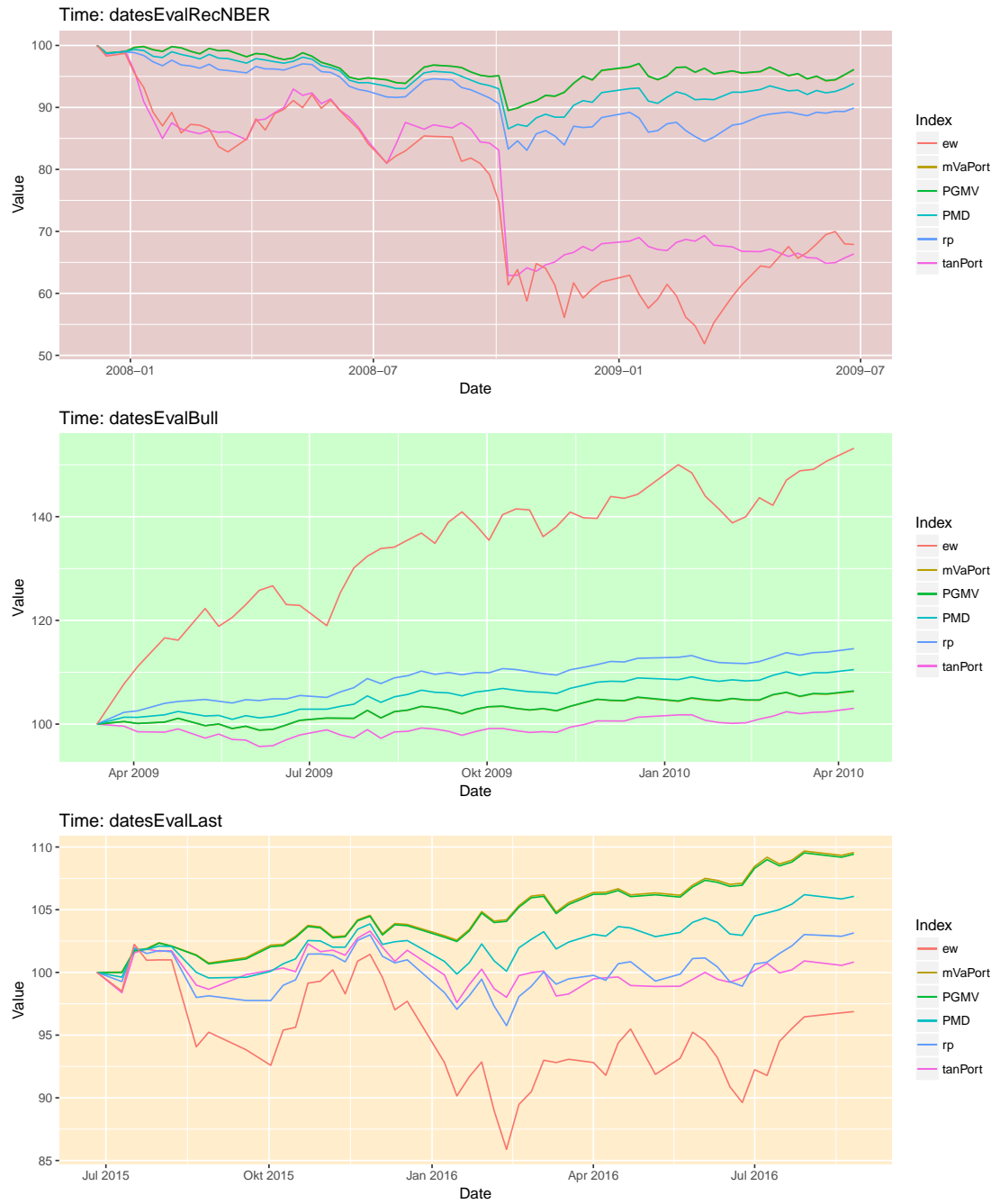
4.2 Performance



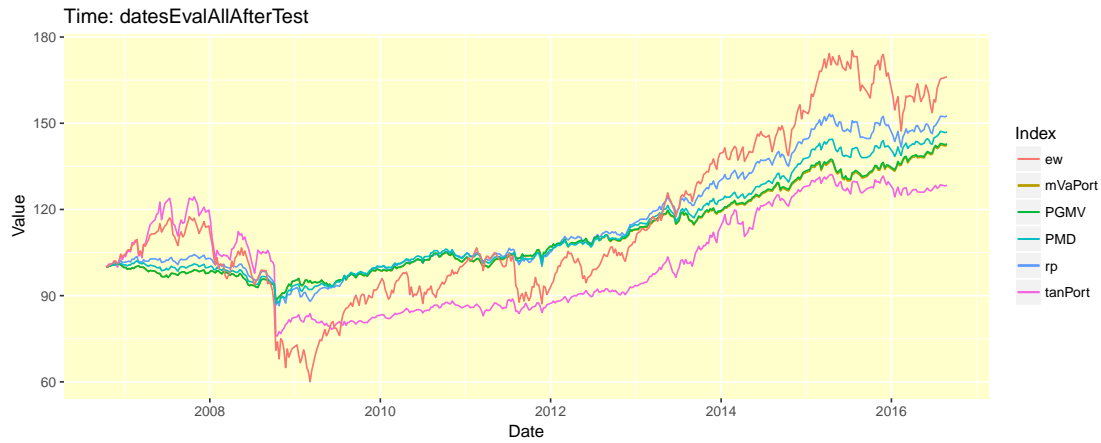
4.2.4 Performance-Classic



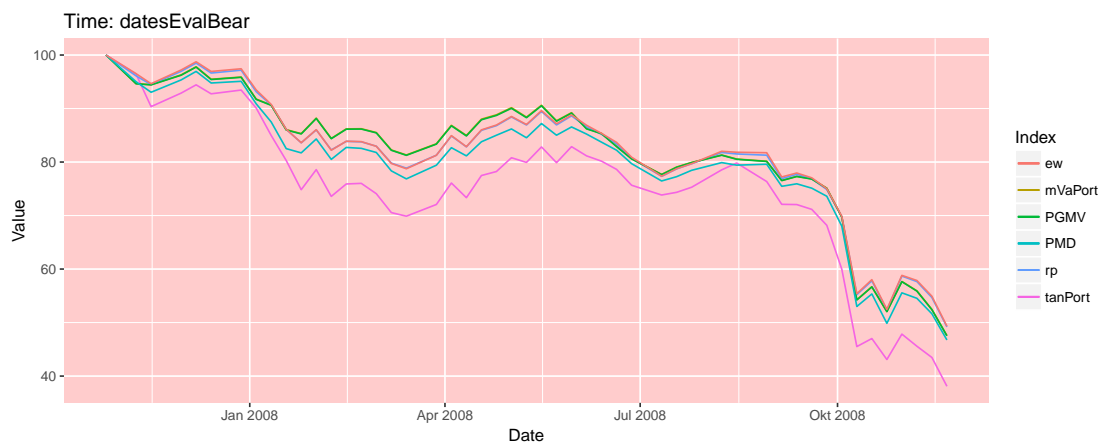
4 Results



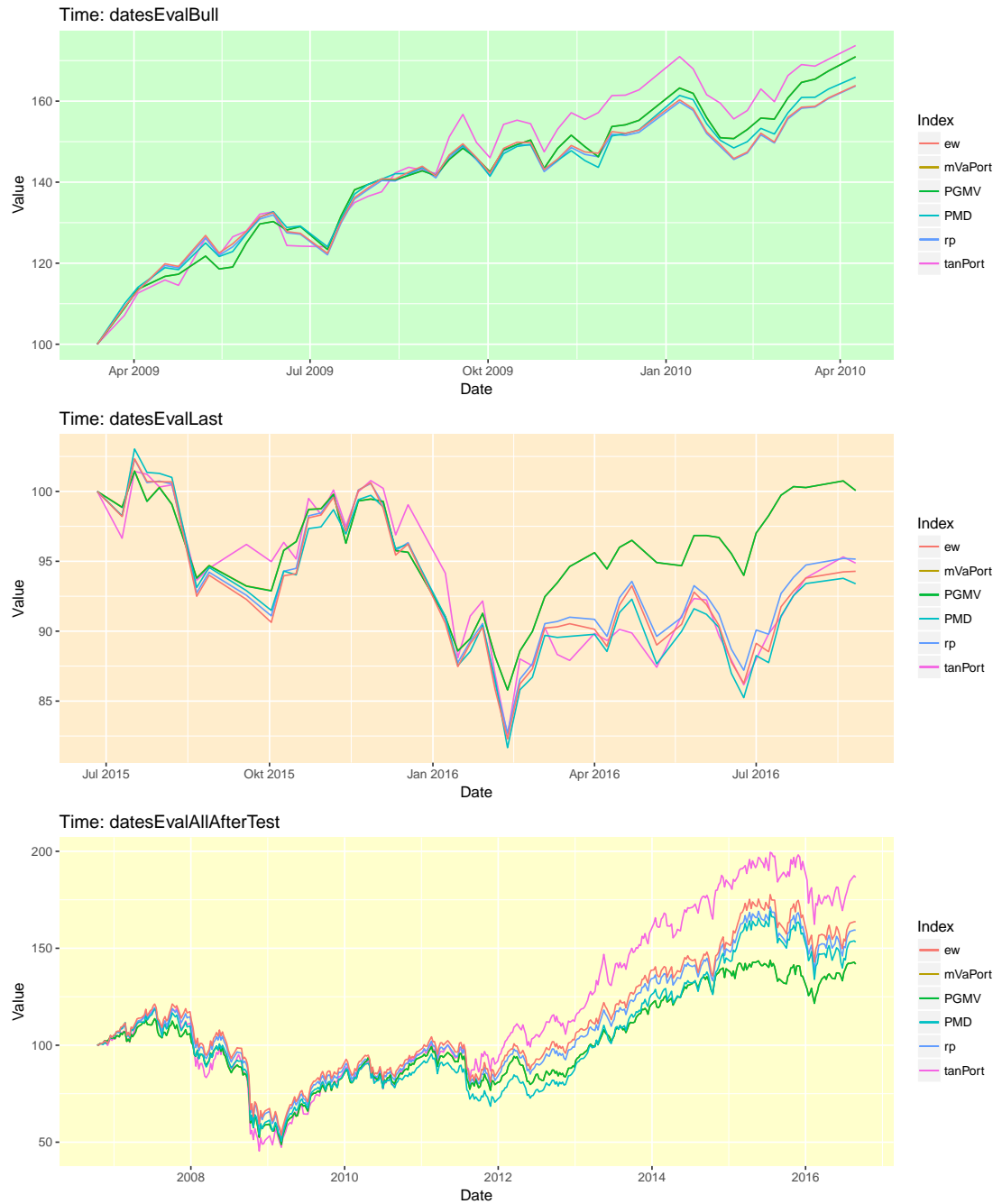
4.2 Performance



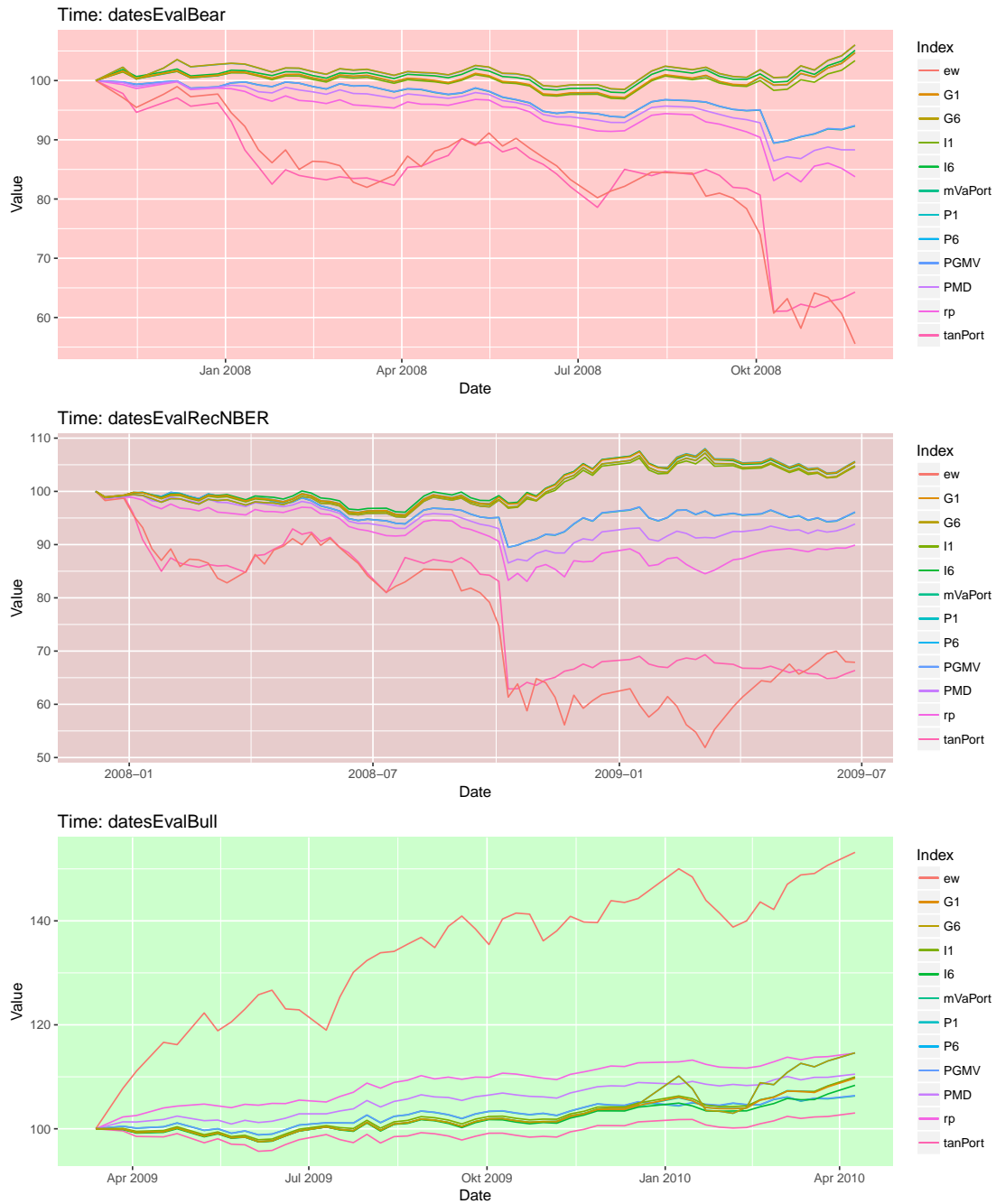
4.2.5 Performance-Classic-No-Risk-Free



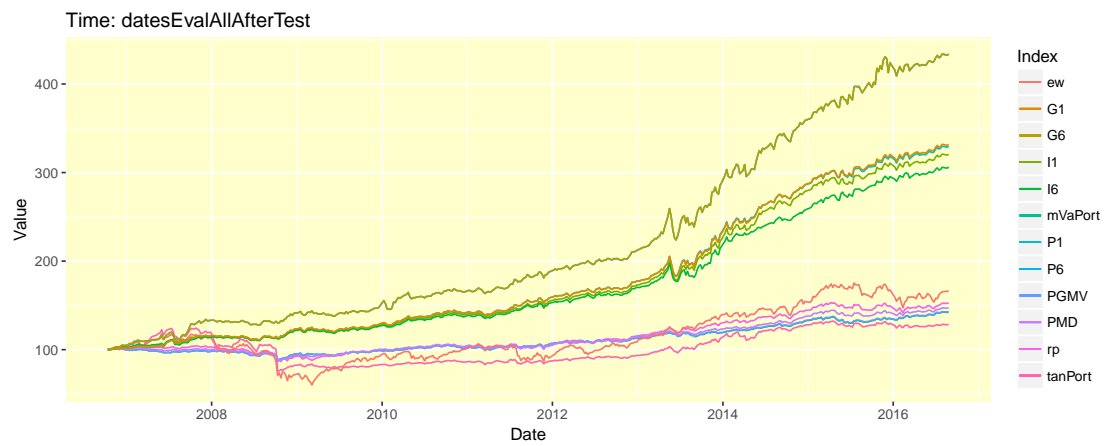
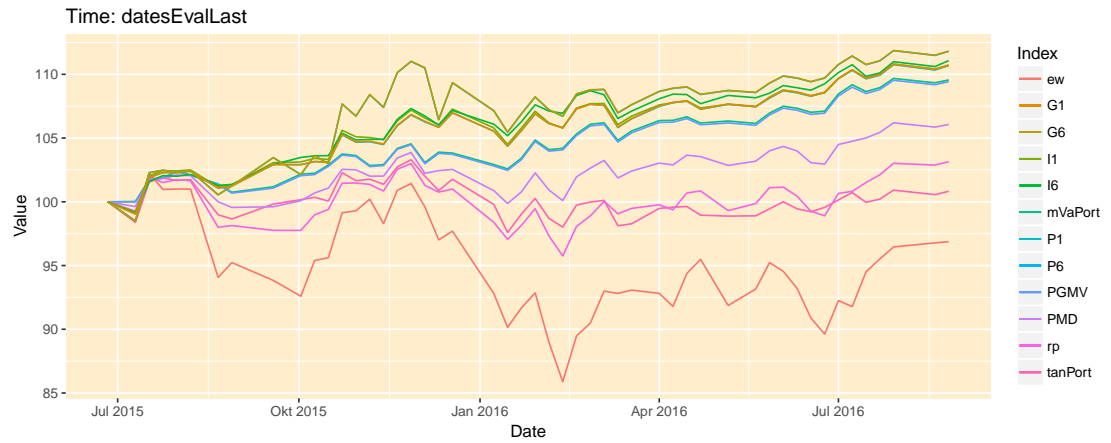
4 Results



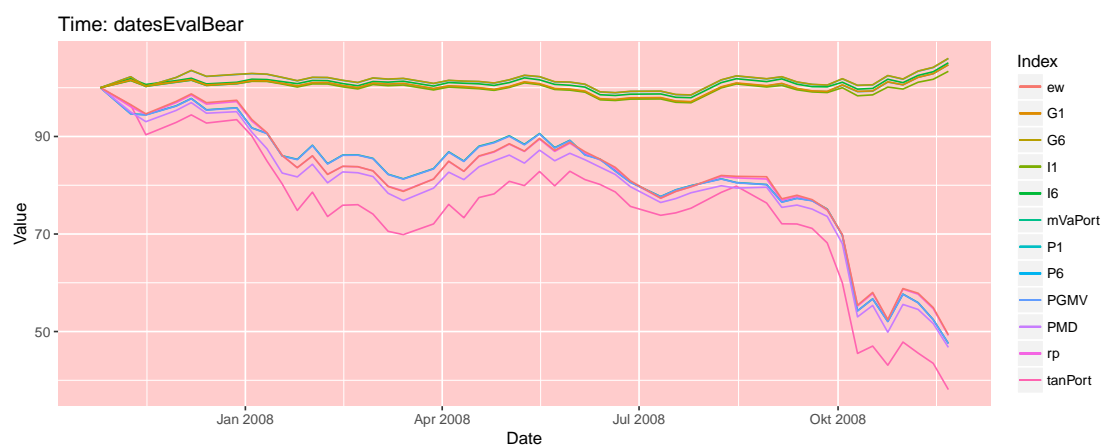
4.2.6 Performance-All-classicWithRiskFree



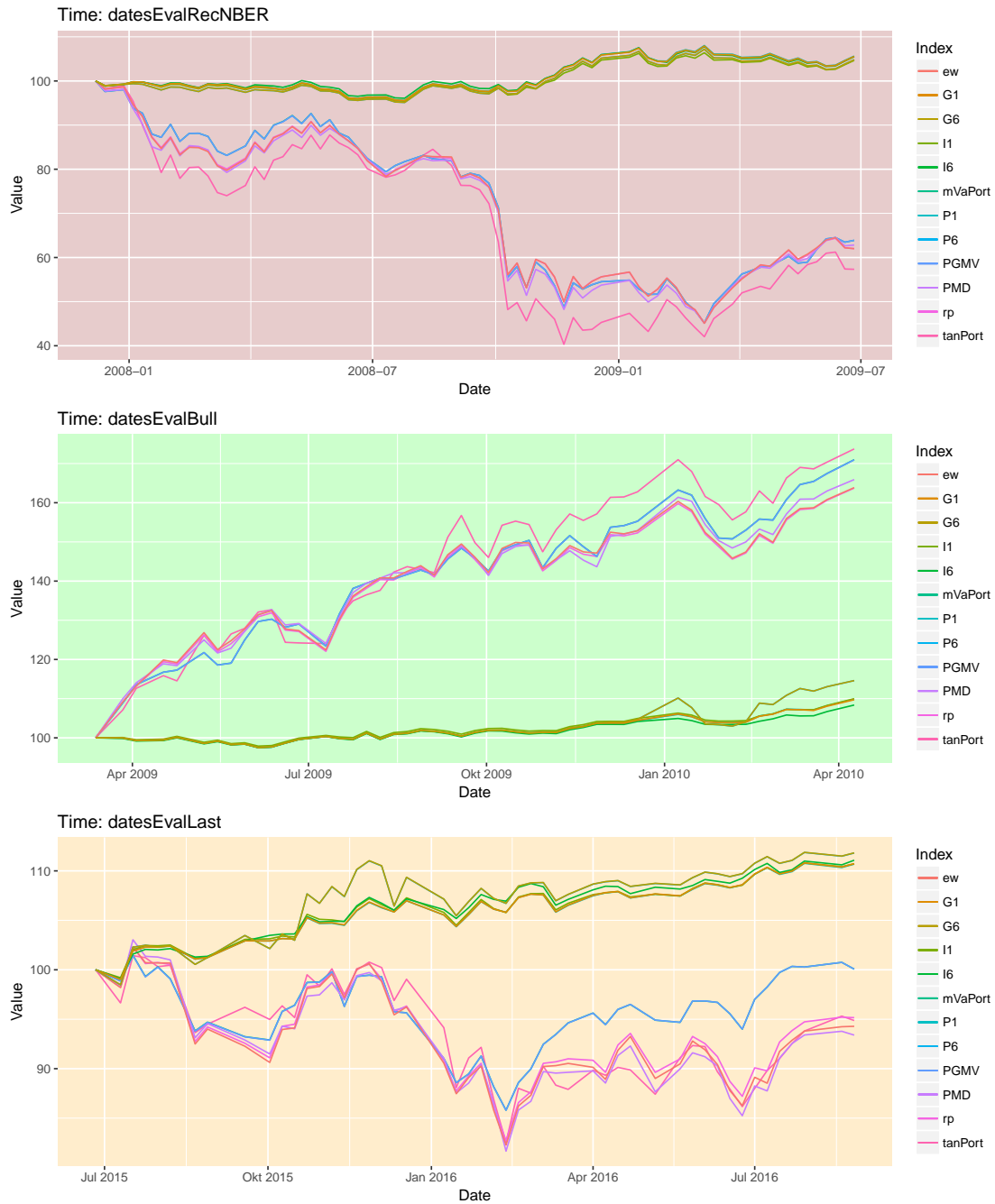
4 Results



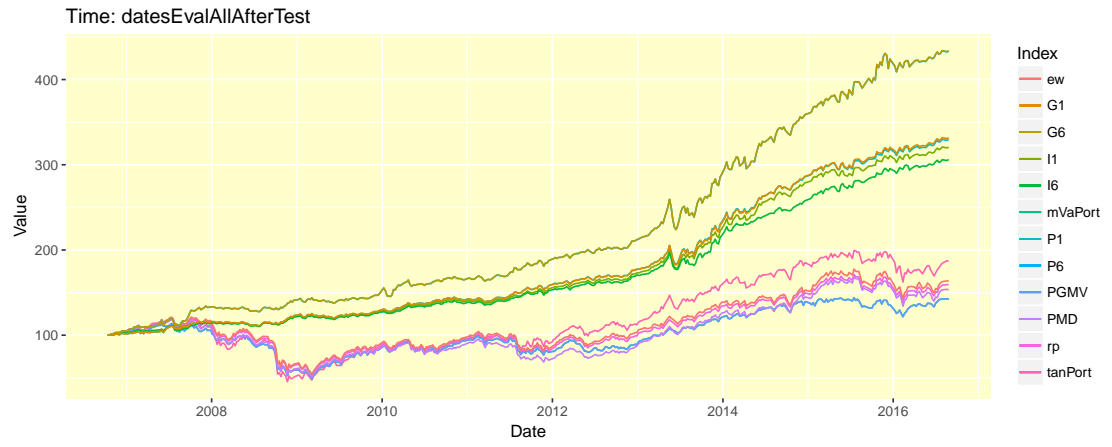
4.2.7 Performance-All-classicNoRiskFree



4.2 Performance



4 Results



4.3 Analysis

4.3.1 Summary-Sentix-Dispersion

datesEvalBear

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.05	0.07	0.04	0.06	0.05	0.07
Volatility (an)	0.07	0.07	0.06	0.07	0.07	0.07
Sharpe Ratio (an)	0.79	0.89	0.59	0.84	0.78	0.90

datesEvalRecNBER

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.04	0.04	0.04	0.04	0.04	0.04
Volatility (an)	0.07	0.07	0.07	0.07	0.07	0.07
Sharpe Ratio (an)	0.63	0.53	0.54	0.61	0.62	0.53

datesEvalBull

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.11	0.16	0.11	0.09	0.11	0.16
Volatility (an)	0.06	0.10	0.05	0.05	0.06	0.10
Sharpe Ratio (an)	1.89	1.59	2.01	1.71	1.85	1.59

datesEvalLast

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.12	0.13	0.12	0.12	0.12	0.13
Volatility (an)	0.06	0.11	0.06	0.06	0.06	0.11
Sharpe Ratio (an)	1.84	1.25	1.81	2.06	1.83	1.25

datesEvalAllAfterTest

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.15	0.19	0.14	0.14	0.15	0.19
Volatility (an)	0.08	0.10	0.08	0.07	0.08	0.10
Sharpe Ratio (an)	1.92	1.81	1.91	1.85	1.92	1.81

4.3.2 Summary-Sentix-Herfindahl**datesEvalBear**

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.07	0.07	0.07	0.07	0.07	0.07
Volatility (an)	0.08	0.08	0.08	0.08	0.08	0.08
Sharpe Ratio (an)	0.94	0.94	0.93	0.93	0.94	0.94

datesEvalRecNBER

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.04	0.04	0.04	0.04	0.04	0.04
Volatility (an)	0.07	0.07	0.07	0.07	0.07	0.07
Sharpe Ratio (an)	0.53	0.54	0.53	0.53	0.53	0.54

datesEvalBull

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.16	0.16	0.16	0.16	0.16	0.16
Volatility (an)	0.10	0.10	0.10	0.10	0.10	0.10
Sharpe Ratio (an)	1.58	1.59	1.58	1.59	1.58	1.59

datesEvalLast

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.13	0.13	0.13	0.13	0.13	0.13
Volatility (an)	0.11	0.11	0.11	0.11	0.11	0.11
Sharpe Ratio (an)	1.17	1.21	1.17	1.23	1.17	1.22

datesEvalAllAfterTest

	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.19	0.19	0.19	0.19	0.19	0.19
Volatility (an)	0.10	0.10	0.10	0.10	0.10	0.10
Sharpe Ratio (an)	1.81	1.82	1.81	1.81	1.81	1.81

4.3.3 Summary-Classic

datesEvalBear

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	-0.34	-0.08	-0.17	-0.08	-0.12	-0.44
Volatility (an)	0.29	0.08	0.11	0.08	0.09	0.29
Sharpe Ratio (an)	-1.19	-1.00	-1.54	-0.99	-1.37	-1.51

datesEvalRecNBER

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	-0.23	-0.03	-0.07	-0.03	-0.04	-0.21
Volatility (an)	0.24	0.08	0.11	0.08	0.08	0.31
Sharpe Ratio (an)	-0.96	-0.34	-0.66	-0.33	-0.50	-0.68

datesEvalBull

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	0.03	0.07	0.16	0.07	0.11	0.60
Volatility (an)	0.06	0.05	0.04	0.05	0.04	0.18
Sharpe Ratio (an)	0.61	1.48	3.50	1.51	2.75	3.35

datesEvalLast

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	0.01	0.10	0.04	0.10	0.07	-0.02
Volatility (an)	0.08	0.05	0.09	0.05	0.06	0.17
Sharpe Ratio (an)	0.15	2.10	0.42	2.07	1.04	-0.11

datesEvalAllAfterTest

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	0.04	0.04	0.05	0.04	0.05	0.08
Volatility (an)	0.13	0.05	0.07	0.05	0.06	0.18
Sharpe Ratio (an)	0.29	0.78	0.72	0.79	0.79	0.43

4.3.4 Summary-Classic-No-Risk-Free**datesEvalBear**

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	-0.61	-0.52	-0.50	-0.52	-0.52	-0.50
Volatility (an)	0.41	0.34	0.34	0.34	0.35	0.34
Sharpe Ratio (an)	-1.50	-1.52	-1.45	-1.52	-1.50	-1.44

datesEvalRecNBER

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	-0.27	-0.23	-0.25	-0.23	-0.24	-0.25
Volatility (an)	0.43	0.35	0.36	0.35	0.36	0.36
Sharpe Ratio (an)	-0.62	-0.66	-0.68	-0.66	-0.67	-0.68

datesEvalBull

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	0.84	0.80	0.72	0.80	0.75	0.73
Volatility (an)	0.23	0.20	0.21	0.20	0.21	0.21
Sharpe Ratio (an)	3.60	3.94	3.41	3.93	3.56	3.38

datesEvalLast

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	-0.03	0.01	-0.03	0.01	-0.05	-0.04
Volatility (an)	0.21	0.15	0.19	0.15	0.20	0.20
Sharpe Ratio (an)	-0.16	0.08	-0.17	0.08	-0.25	-0.20

datesEvalAllAfterTest

	tanPort	mVaPort	rp	PGMV	PMD	ew
Mean Return (an)	0.11	0.06	0.08	0.06	0.07	0.08
Volatility (an)	0.24	0.20	0.21	0.20	0.21	0.21
Sharpe Ratio (an)	0.44	0.31	0.37	0.31	0.35	0.39

4.3.5 SummaryAll-classicWithRiskFree

datesEvalBear

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6	G1	G6
Mean Return (an)	-0.34	-0.08	-0.17	-0.08	-0.12	-0.44	0.05	0.07	0.04	0.06	0.05	0.07
Volatility (an)	0.29	0.08	0.11	0.08	0.09	0.29	0.07	0.07	0.06	0.07	0.07	0.07
Sharpe Ratio (an)	-1.19	-1.00	-1.54	-0.99	-1.37	-1.51	0.79	0.89	0.59	0.84	0.78	0.90

datesEvalRecNBER

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6	G1	G6
Mean Return (an)	-0.23	-0.03	-0.07	-0.03	-0.04	-0.21	0.04	0.04	0.04	0.04	0.04	0.04
Volatility (an)	0.24	0.08	0.11	0.08	0.08	0.31	0.07	0.07	0.07	0.07	0.07	0.07
Sharpe Ratio (an)	-0.96	-0.34	-0.66	-0.33	-0.50	-0.68	0.63	0.53	0.54	0.61	0.62	0.53

datesEvalBull

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.03	0.07	0.16	0.07	0.11	0.60	0.11	0.16	0.11	0.09	0.11	0.16
Volatility (an)	0.06	0.05	0.04	0.05	0.04	0.18	0.06	0.10	0.05	0.05	0.06	0.10
Sharpe Ratio (an)	0.61	1.48	3.50	1.51	2.75	3.35	1.89	1.59	2.01	1.71	1.85	1.59

datesEvalLast

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.01	0.10	0.04	0.10	0.07	-0.02	0.12	0.13	0.12	0.12	0.12	0.13
Volatility (an)	0.08	0.05	0.09	0.05	0.06	0.17	0.06	0.11	0.06	0.06	0.06	0.11
Sharpe Ratio (an)	0.15	2.10	0.42	2.07	1.04	-0.11	1.84	1.25	1.81	2.06	1.83	1.25

datesEvalAllAfterTest

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6	G1	G6
Mean Return (an)	0.04	0.04	0.05	0.04	0.05	0.08	0.15	0.19	0.14	0.14	0.15	0.19
Volatility (an)	0.13	0.05	0.07	0.05	0.06	0.18	0.08	0.10	0.08	0.07	0.08	0.10
Sharpe Ratio (an)	0.29	0.78	0.72	0.79	0.79	0.43	1.92	1.81	1.91	1.85	1.92	1.81

4.3.6 SummaryAll-classicNoRiskFree**datesEvalBear**

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6
Mean Return (an)	-0.61	-0.52	-0.50	-0.52	-0.52	-0.50	0.05	0.07	0.04	0.06
Volatility (an)	0.41	0.34	0.34	0.34	0.35	0.34	0.07	0.07	0.06	0.07
Sharpe Ratio (an)	-1.50	-1.52	-1.45	-1.52	-1.50	-1.44	0.79	0.89	0.59	0.84

datesEvalRecNBER

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6
Mean Return (an)	-0.27	-0.23	-0.25	-0.23	-0.24	-0.25	0.04	0.04	0.04	0.04
Volatility (an)	0.43	0.35	0.36	0.35	0.36	0.36	0.07	0.07	0.07	0.07
Sharpe Ratio (an)	-0.62	-0.66	-0.68	-0.66	-0.67	-0.68	0.63	0.53	0.54	0.61

datesEvalBull

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6
Mean Return (an)	0.84	0.80	0.72	0.80	0.75	0.73	0.11	0.16	0.11	0.09
Volatility (an)	0.23	0.20	0.21	0.20	0.21	0.21	0.06	0.10	0.05	0.05
Sharpe Ratio (an)	3.60	3.94	3.41	3.93	3.56	3.38	1.89	1.59	2.01	1.71

datesEvalLast

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6
Mean Return (an)	-0.03	0.01	-0.03	0.01	-0.05	-0.04	0.12	0.13	0.12	0.12
Volatility (an)	0.21	0.15	0.19	0.15	0.20	0.20	0.06	0.11	0.06	0.06
Sharpe Ratio (an)	-0.16	0.08	-0.17	0.08	-0.25	-0.20	1.84	1.25	1.81	2.06

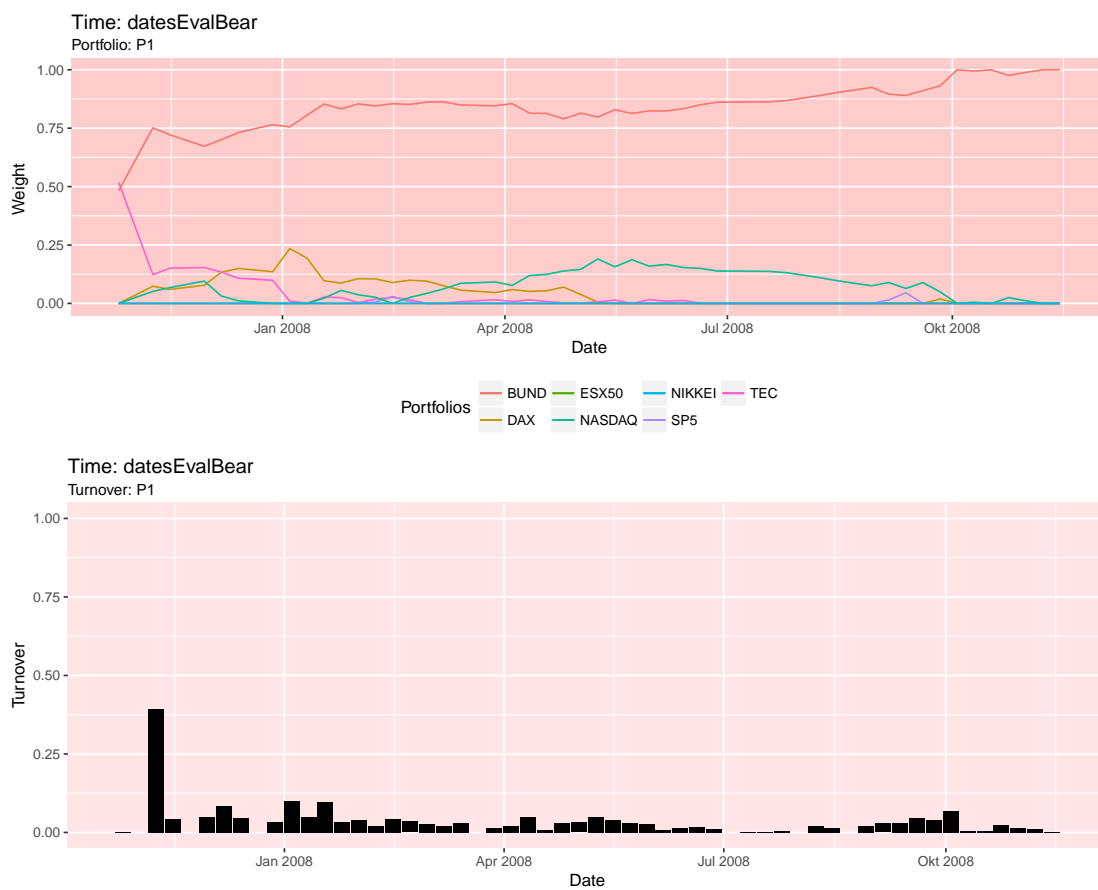
datesEvalAllAfterTest

	tanPort	mVaPort	rp	PGMV	PMD	ew	P1	P6	I1	I6
Mean Return (an)	0.11	0.06	0.08	0.06	0.07	0.08	0.15	0.19	0.14	0.14
Volatility (an)	0.24	0.20	0.21	0.20	0.21	0.21	0.08	0.10	0.08	0.07
Sharpe Ratio (an)	0.44	0.31	0.37	0.31	0.35	0.39	1.92	1.81	1.91	1.85

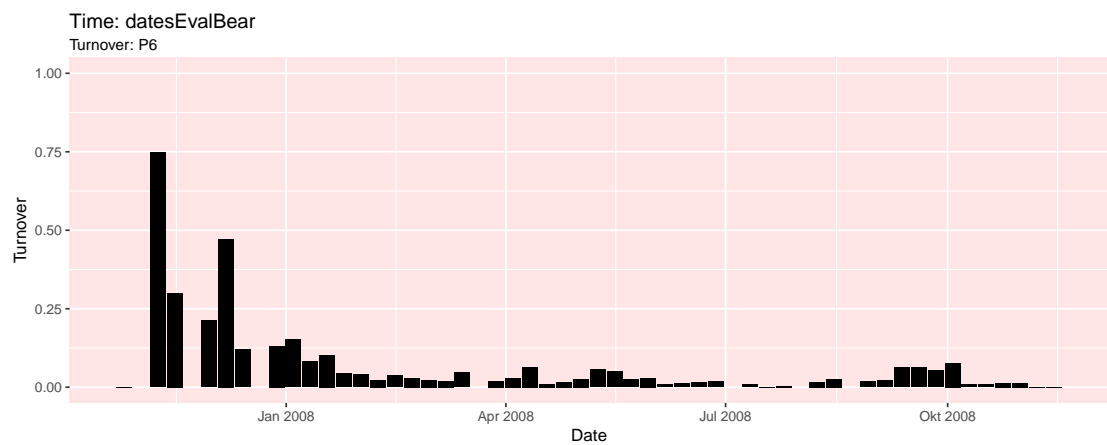
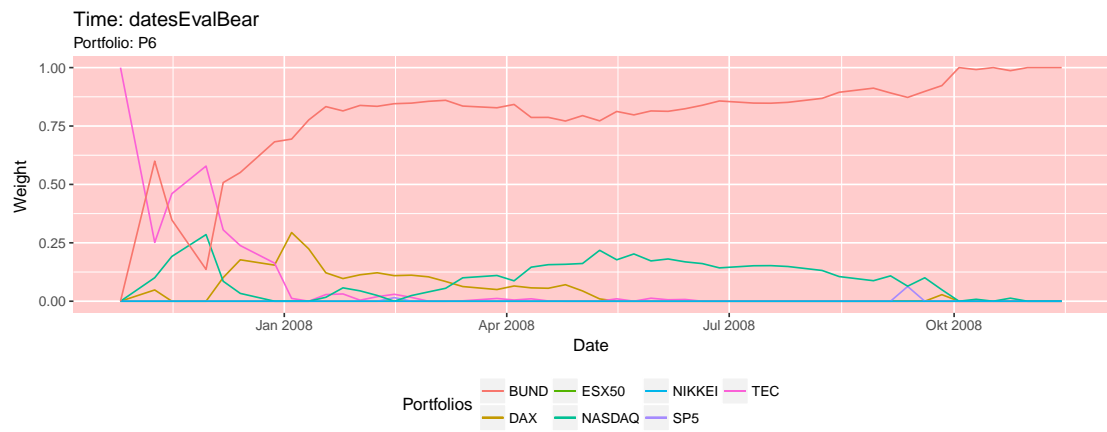
4.4 Weights

4.4.1 Weights-Sentix-Dispersion

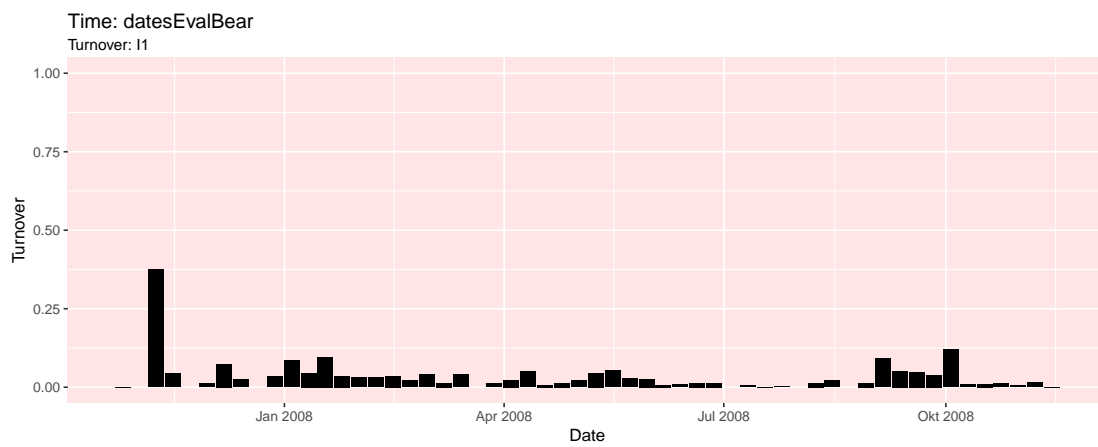
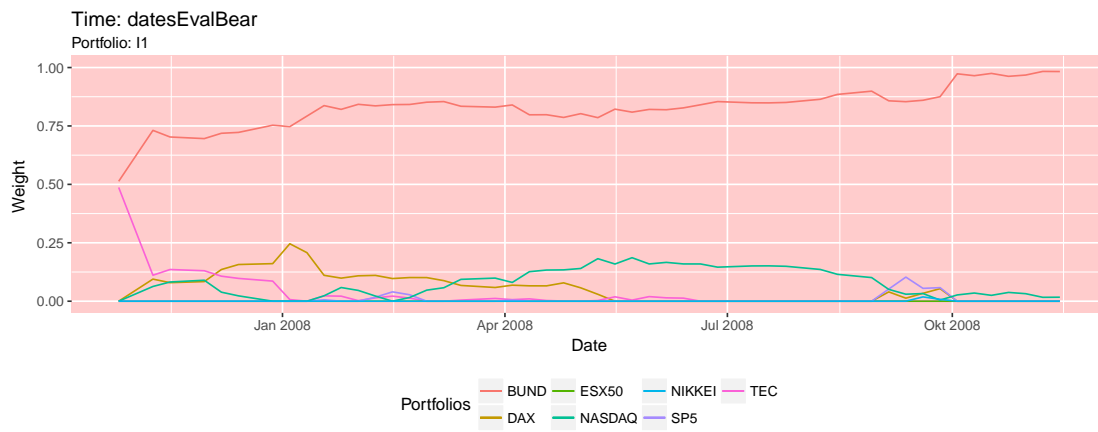
Weights-Sentix-Dispersion - datesEvalBear



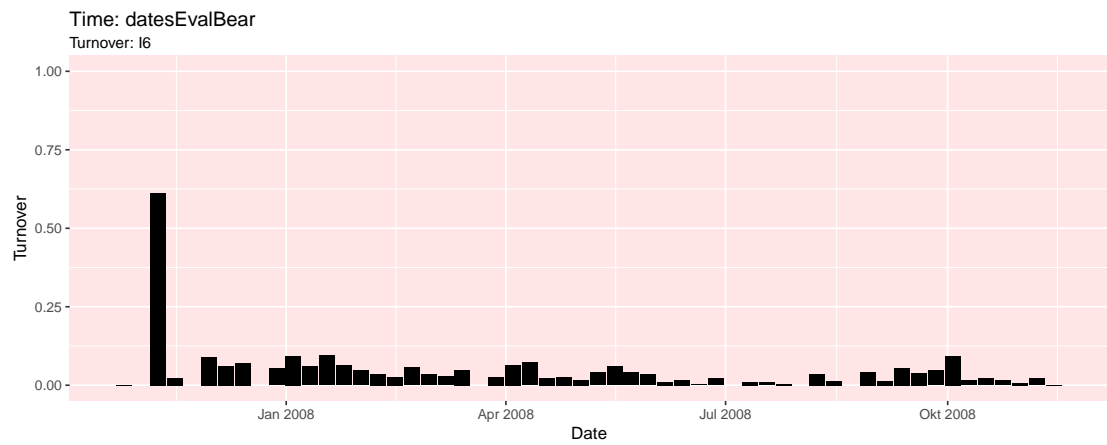
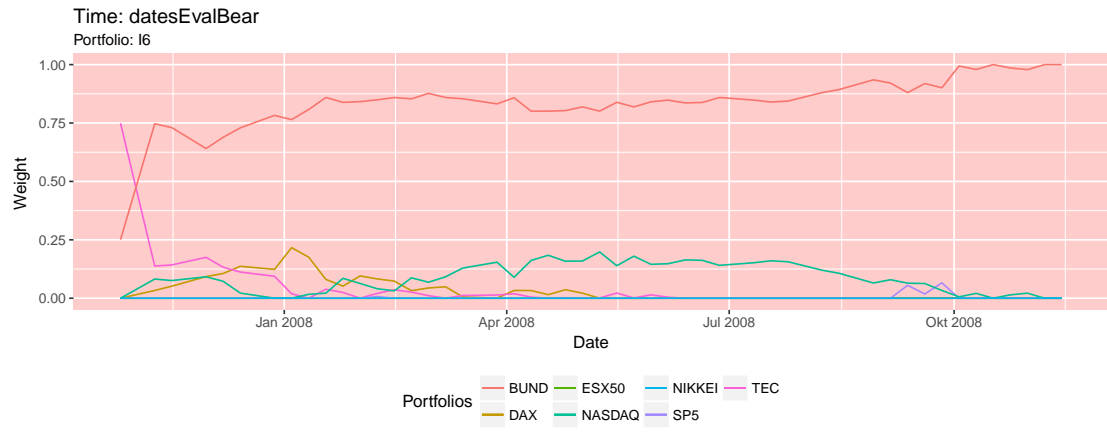
4 Results



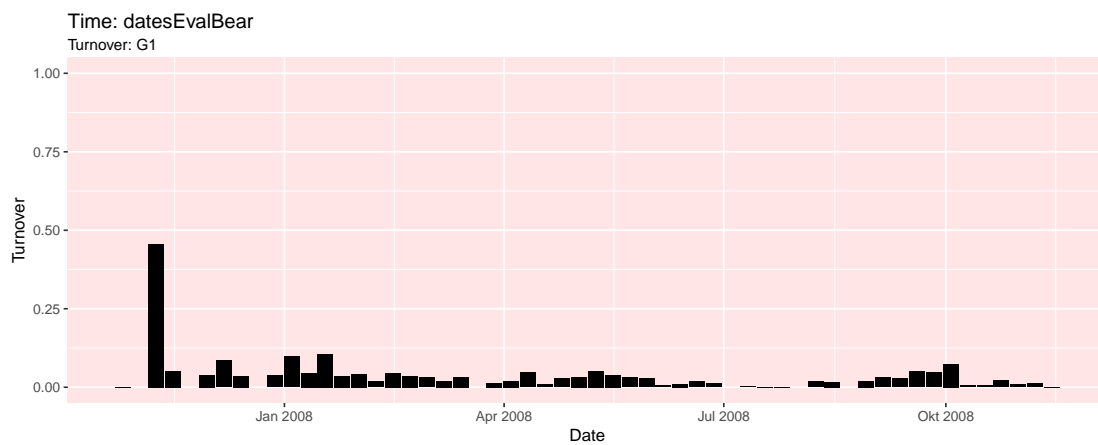
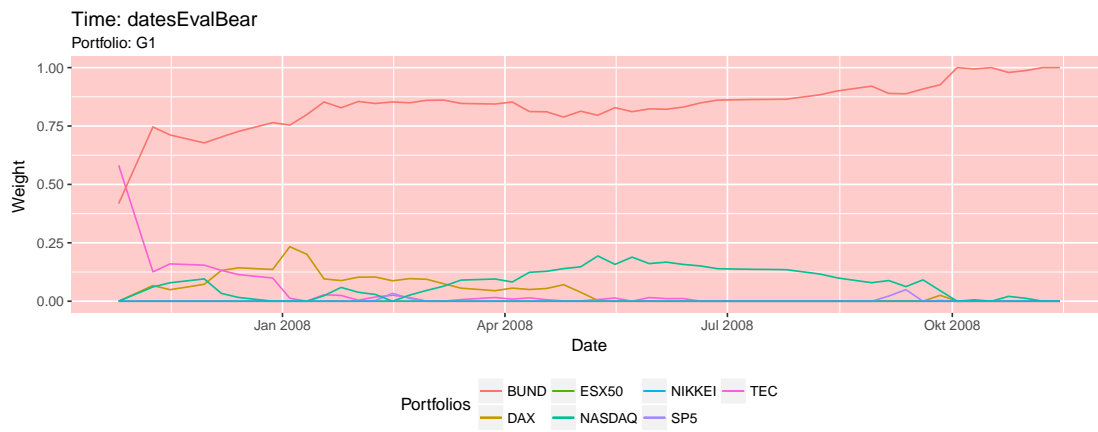
4.4 Weights



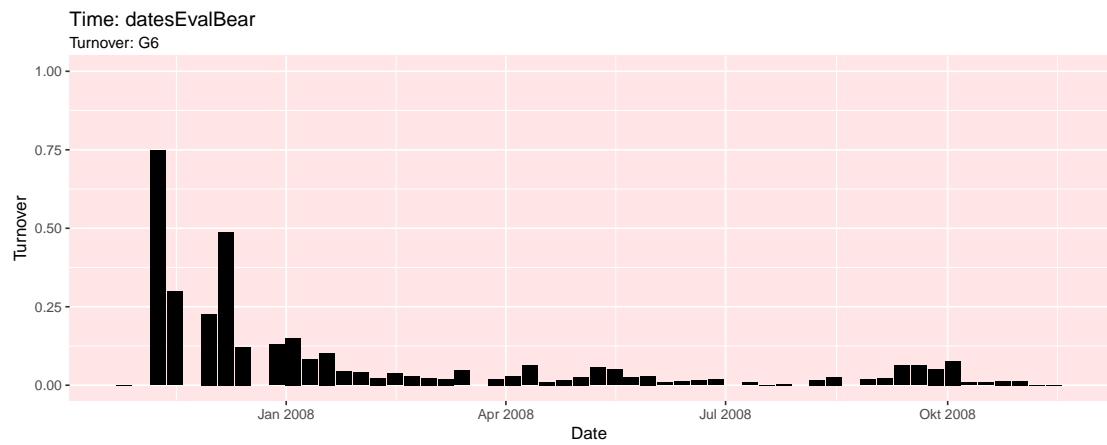
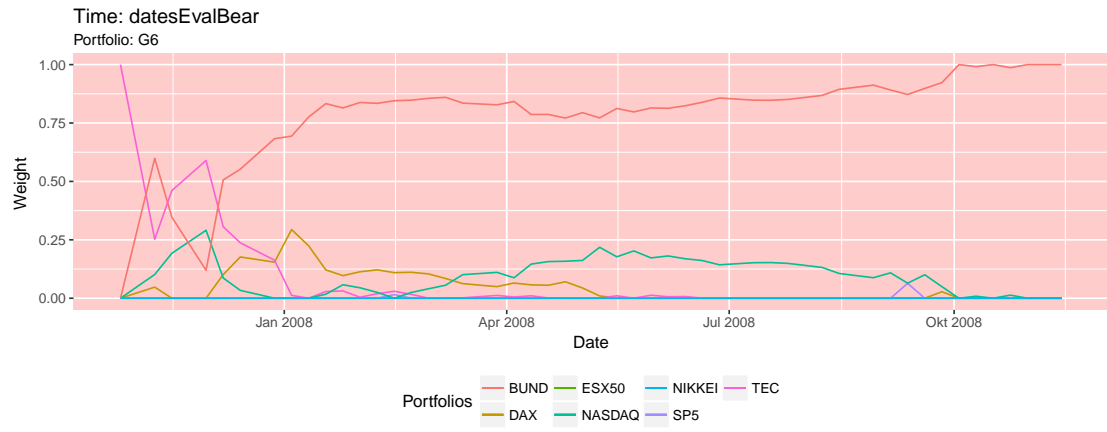
4 Results



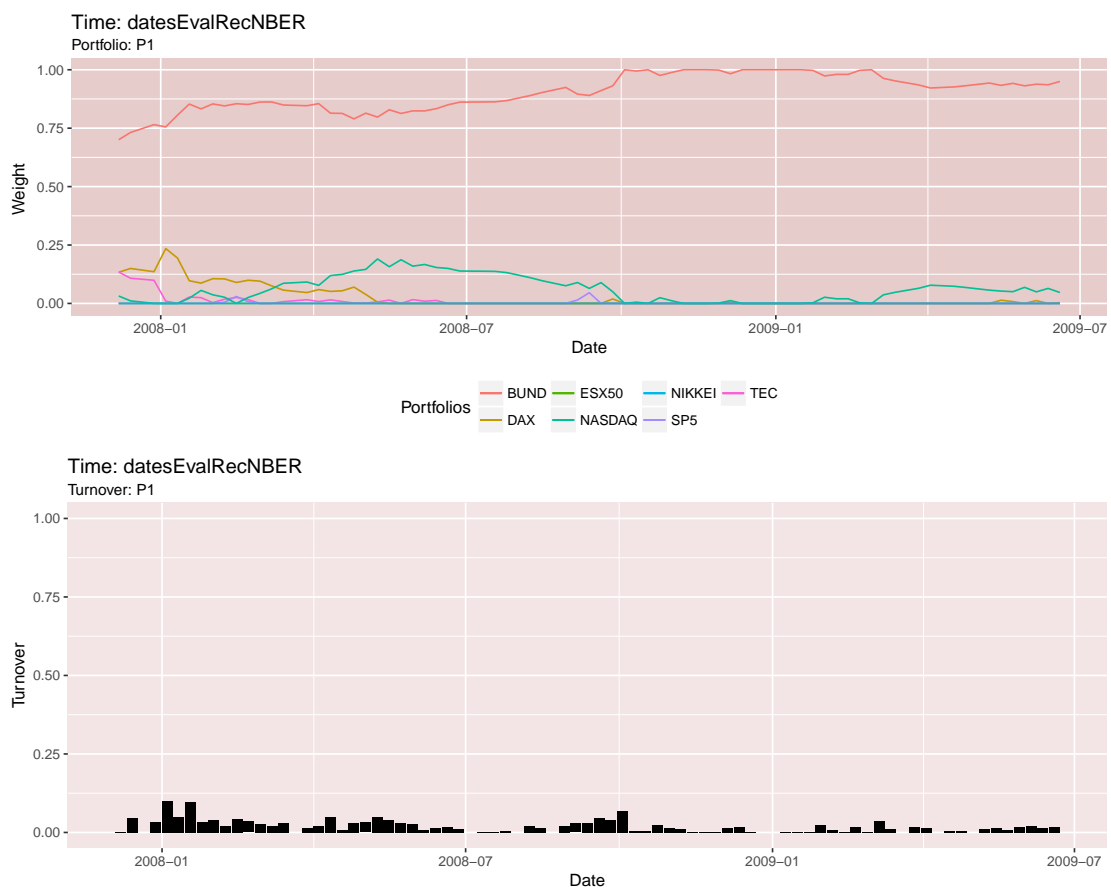
4.4 Weights



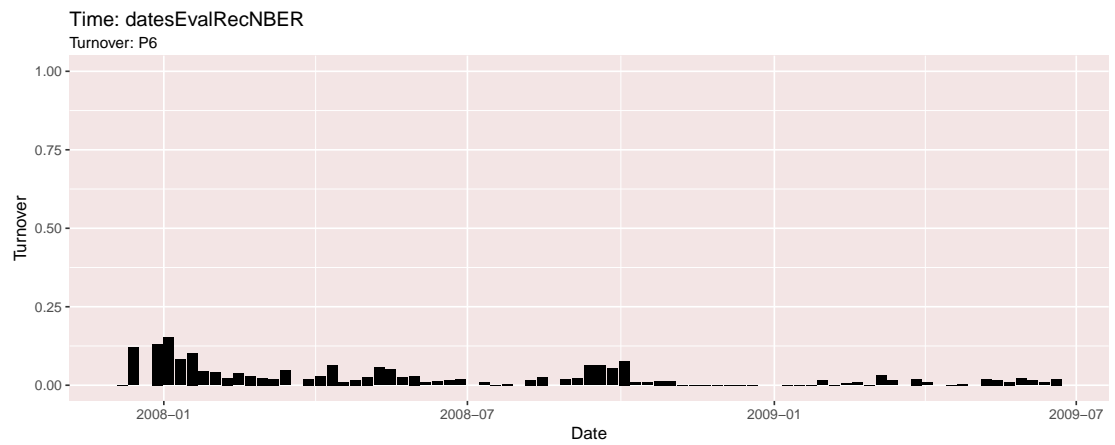
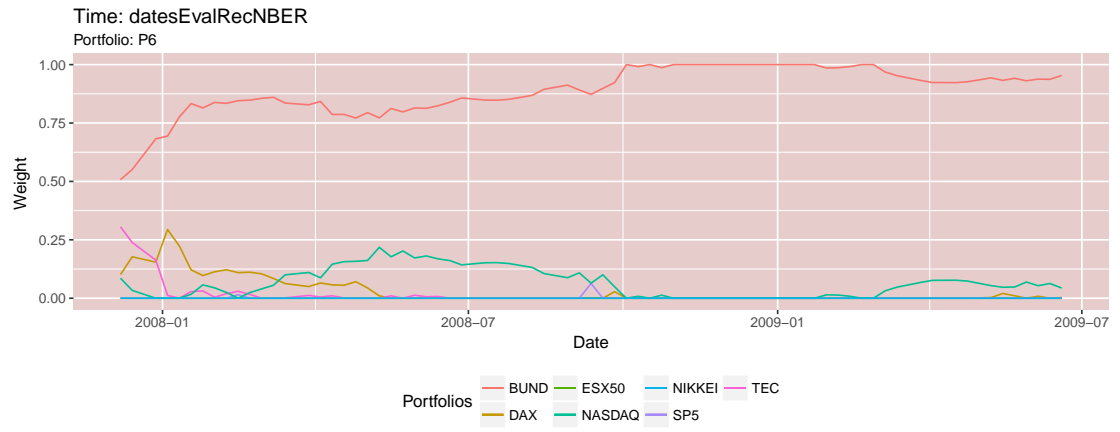
4 Results



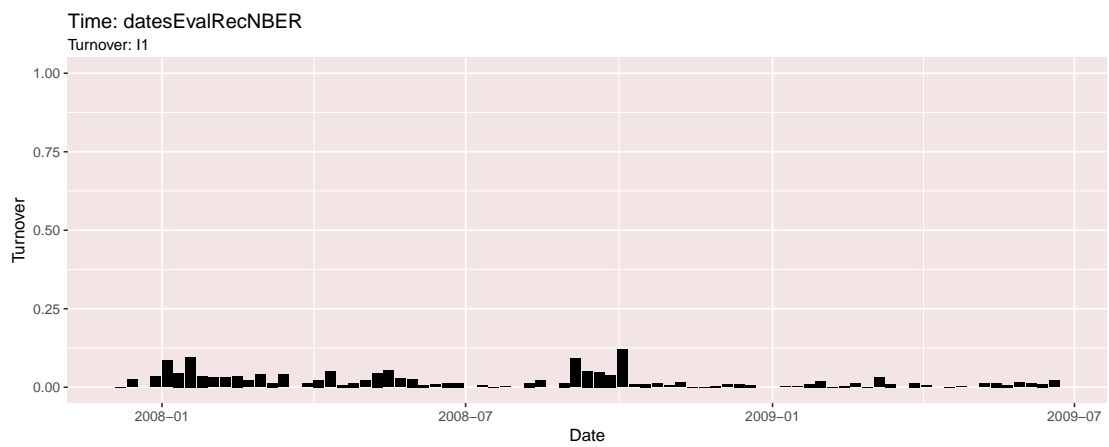
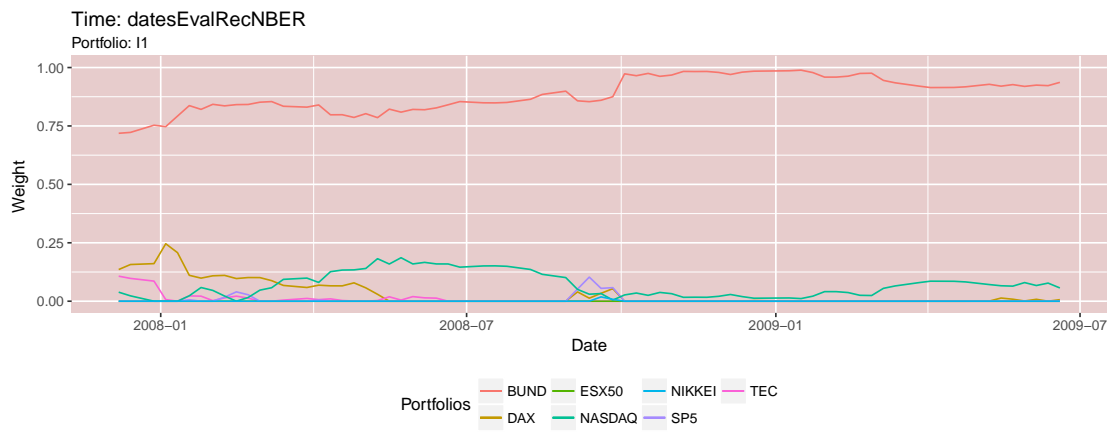
Weights-Sentix-Dispersion - datesEvalRecNBER



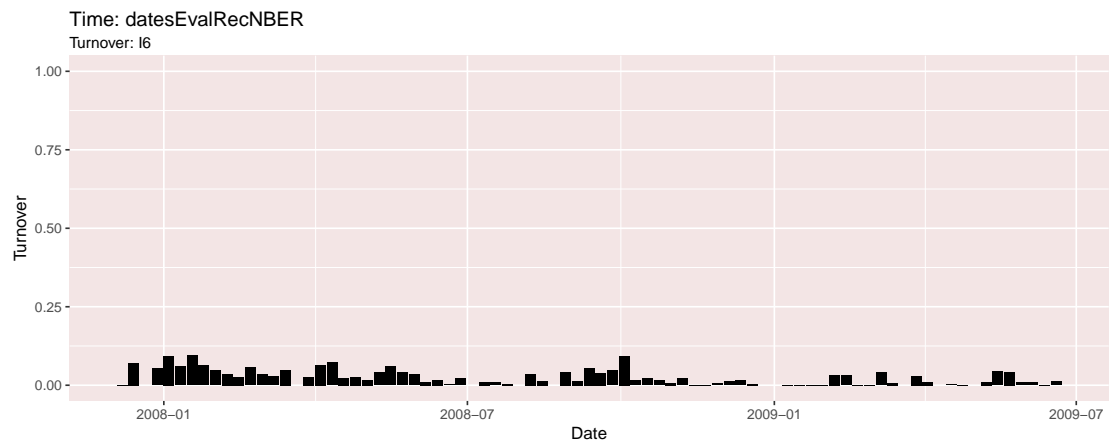
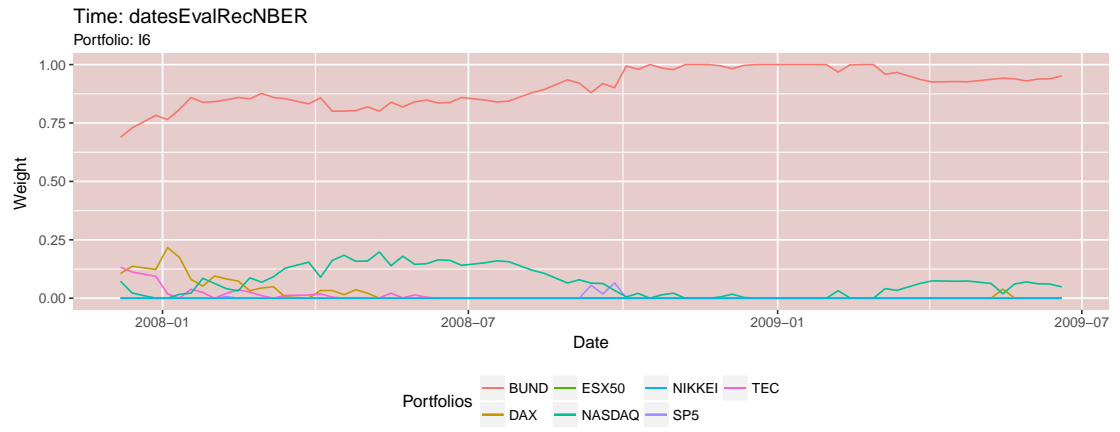
4 Results



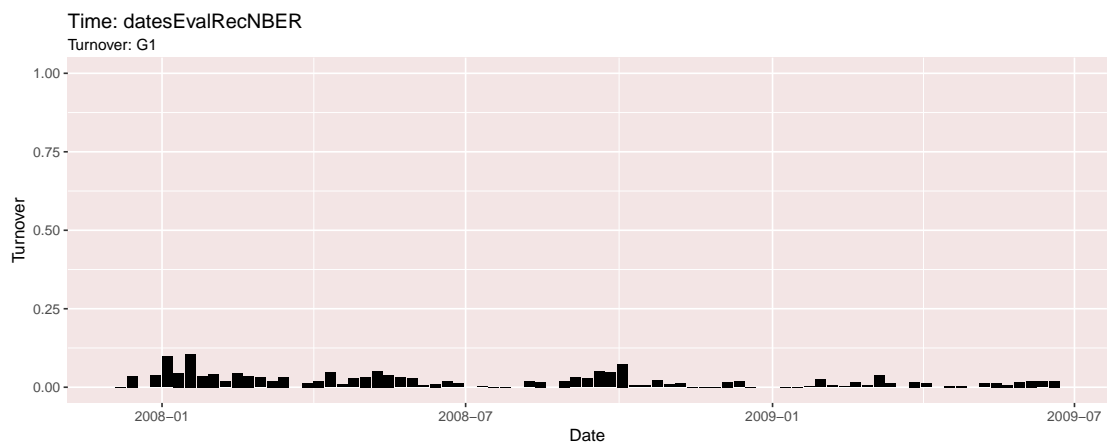
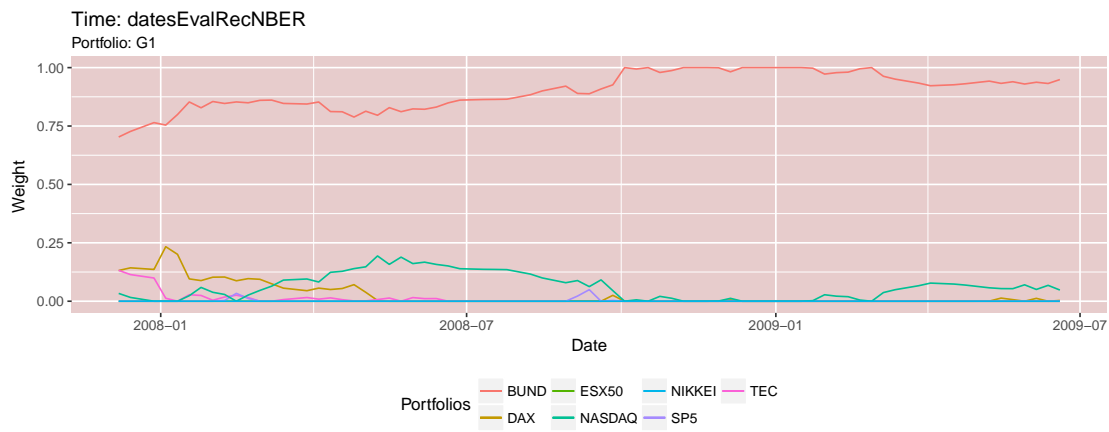
4.4 Weights



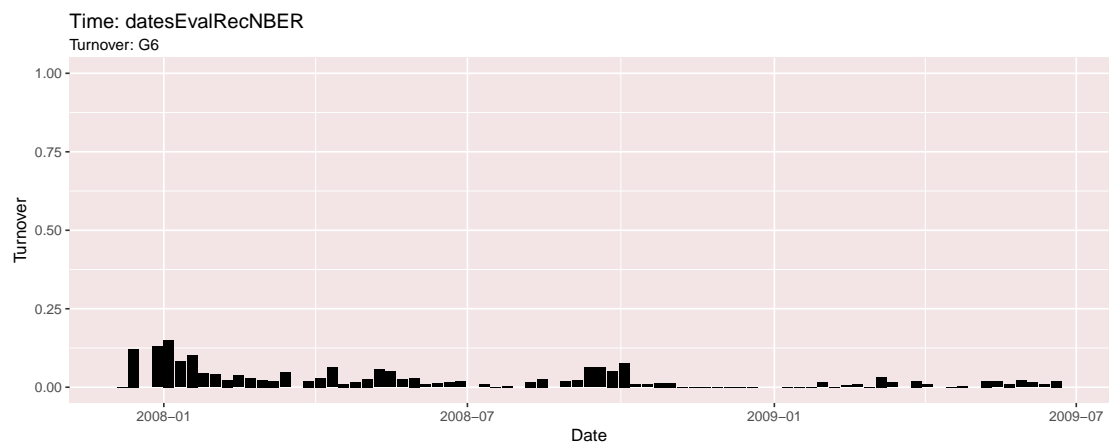
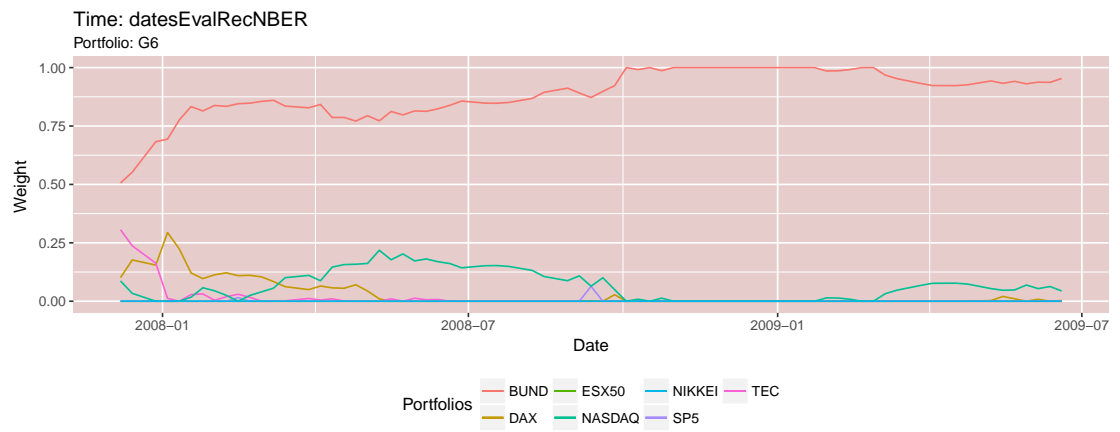
4 Results



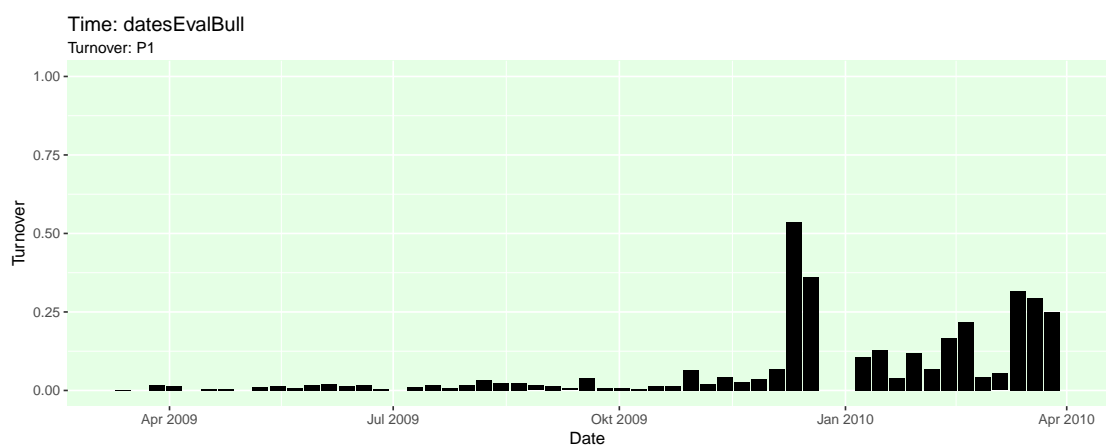
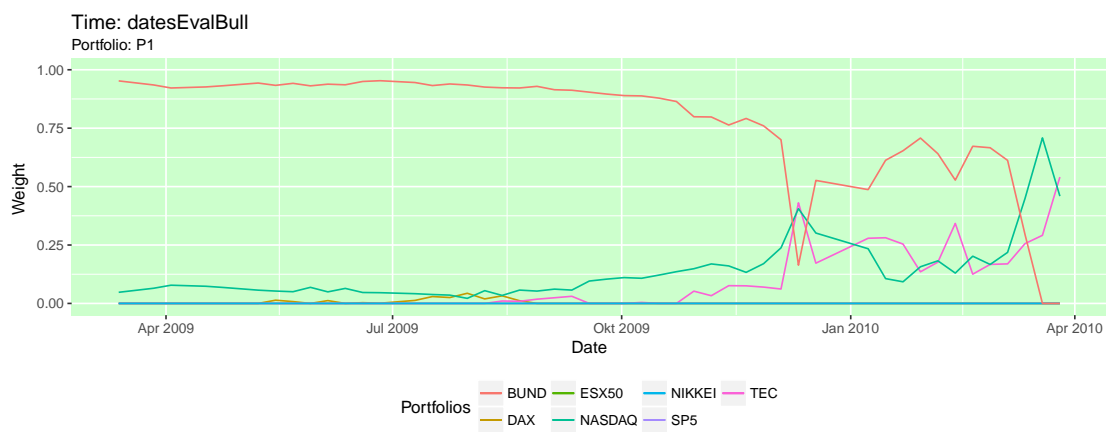
4.4 Weights



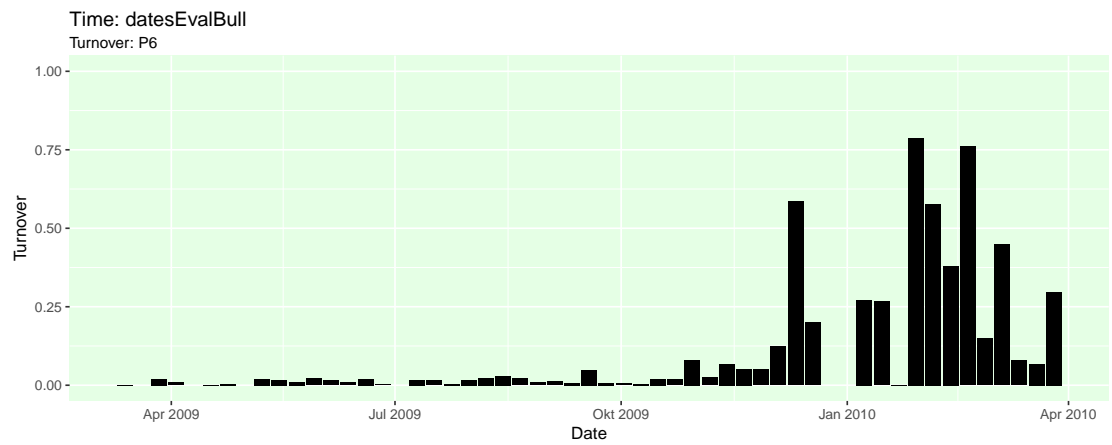
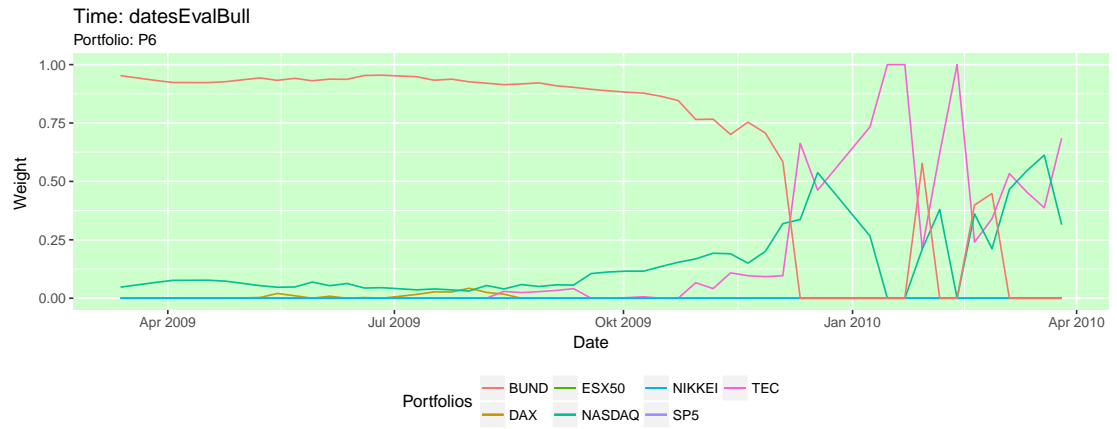
4 Results



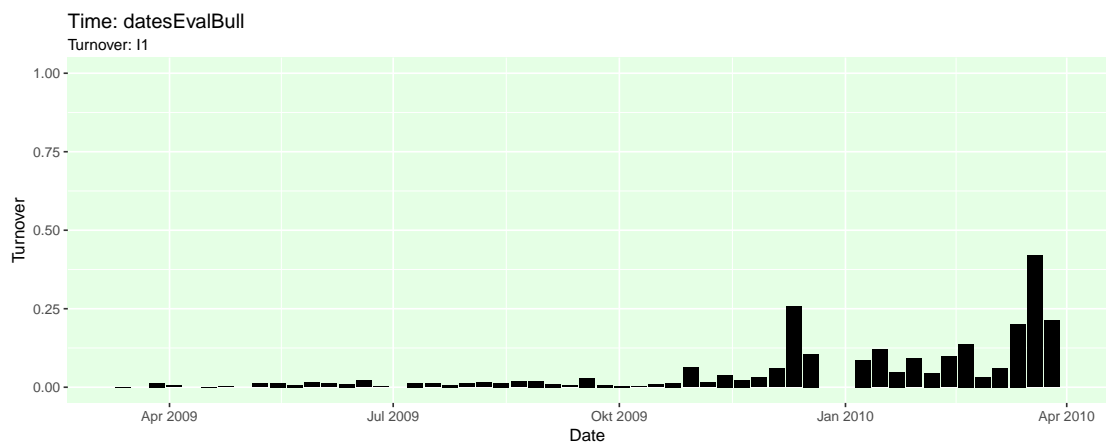
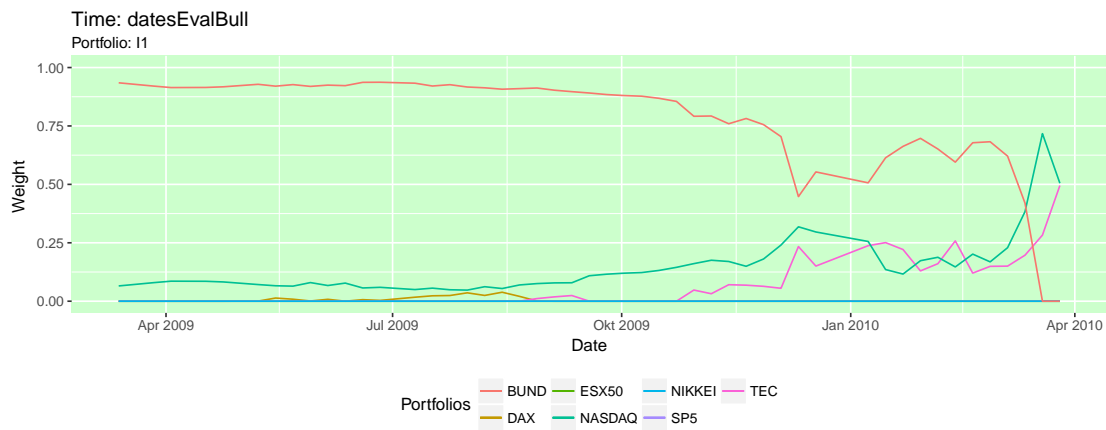
Weights-Sentix-Dispersion - datesEvalBull



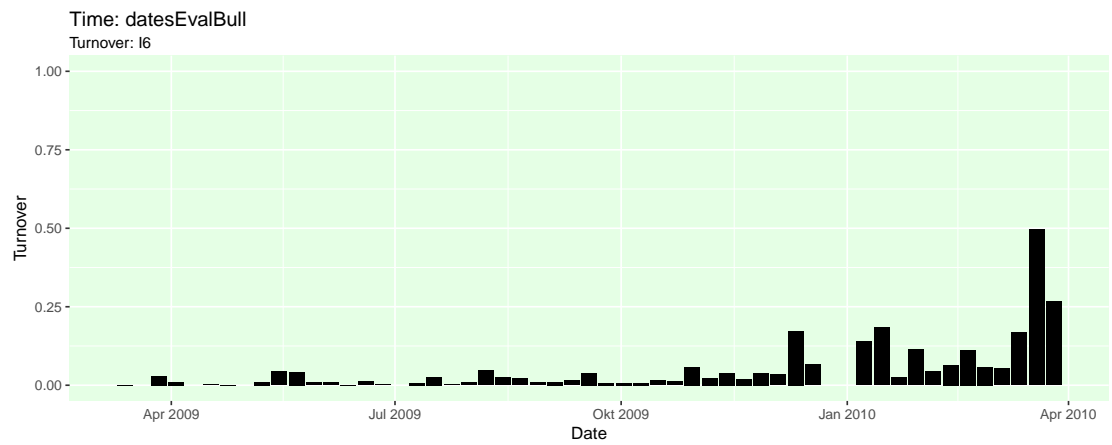
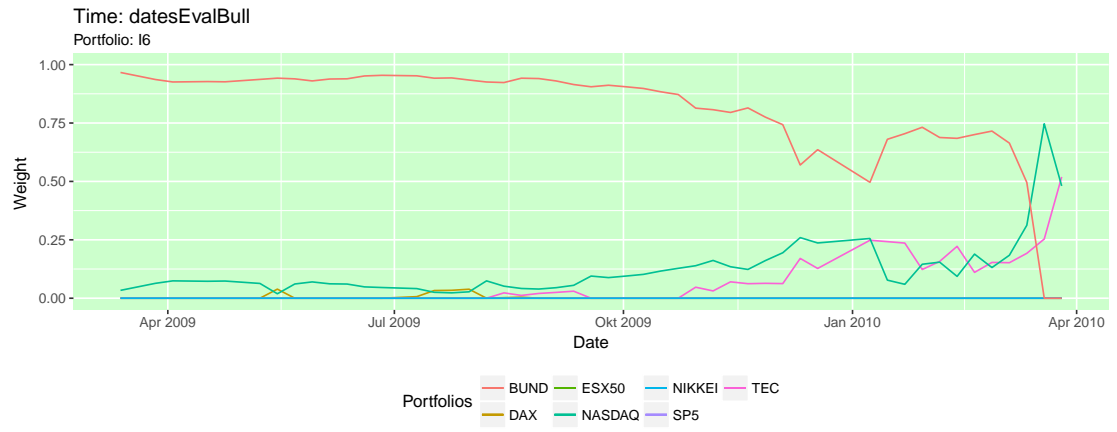
4 Results



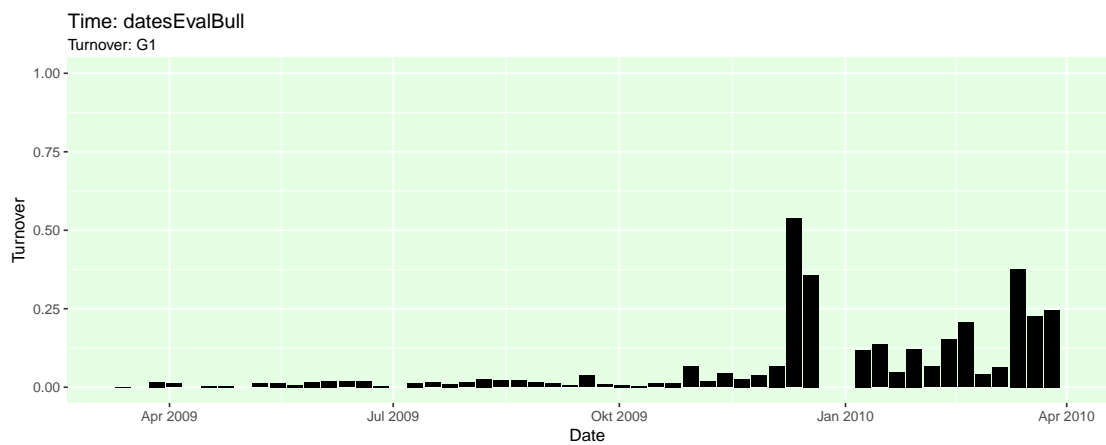
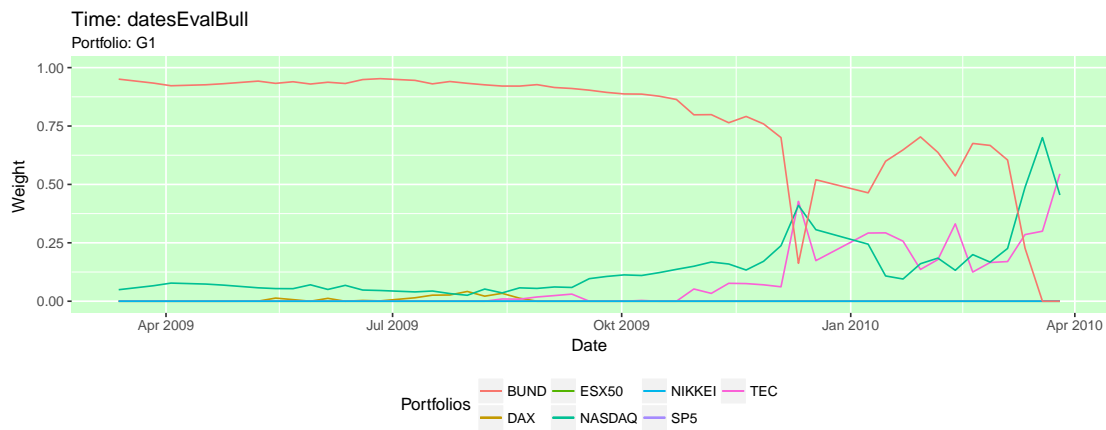
4.4 Weights



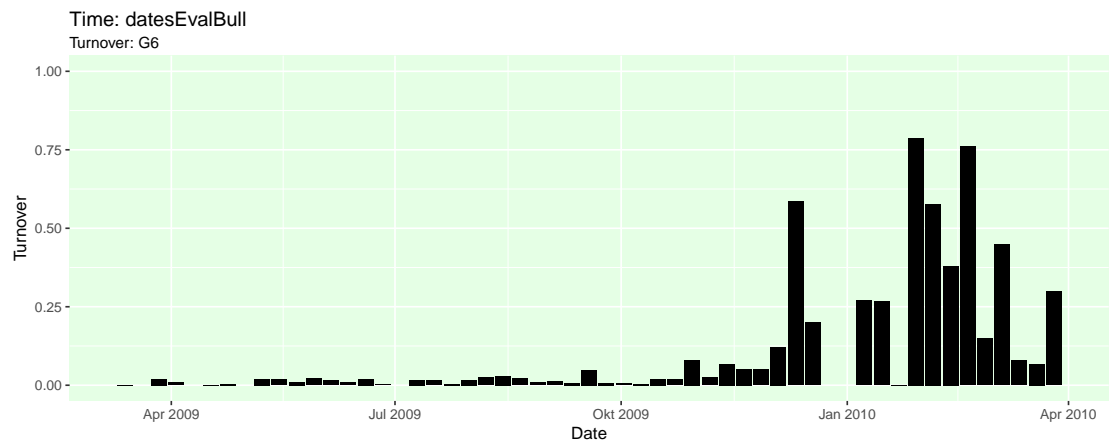
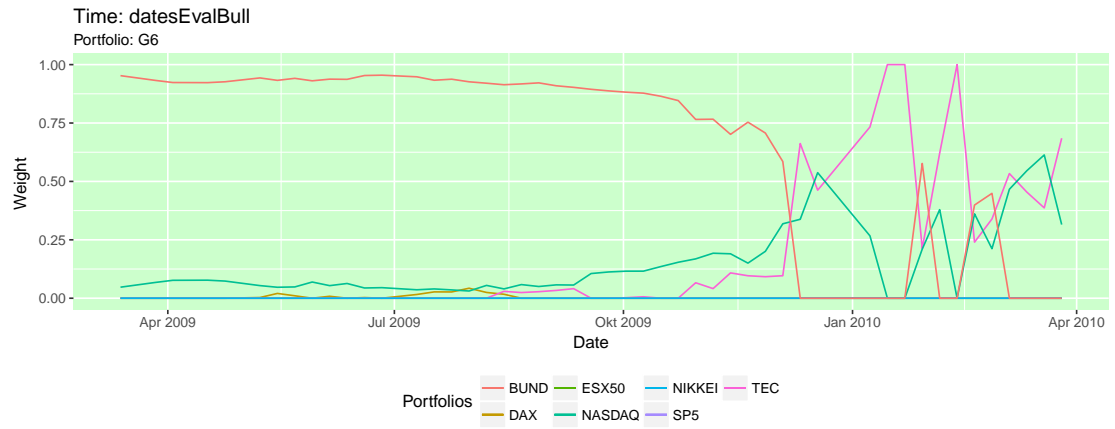
4 Results



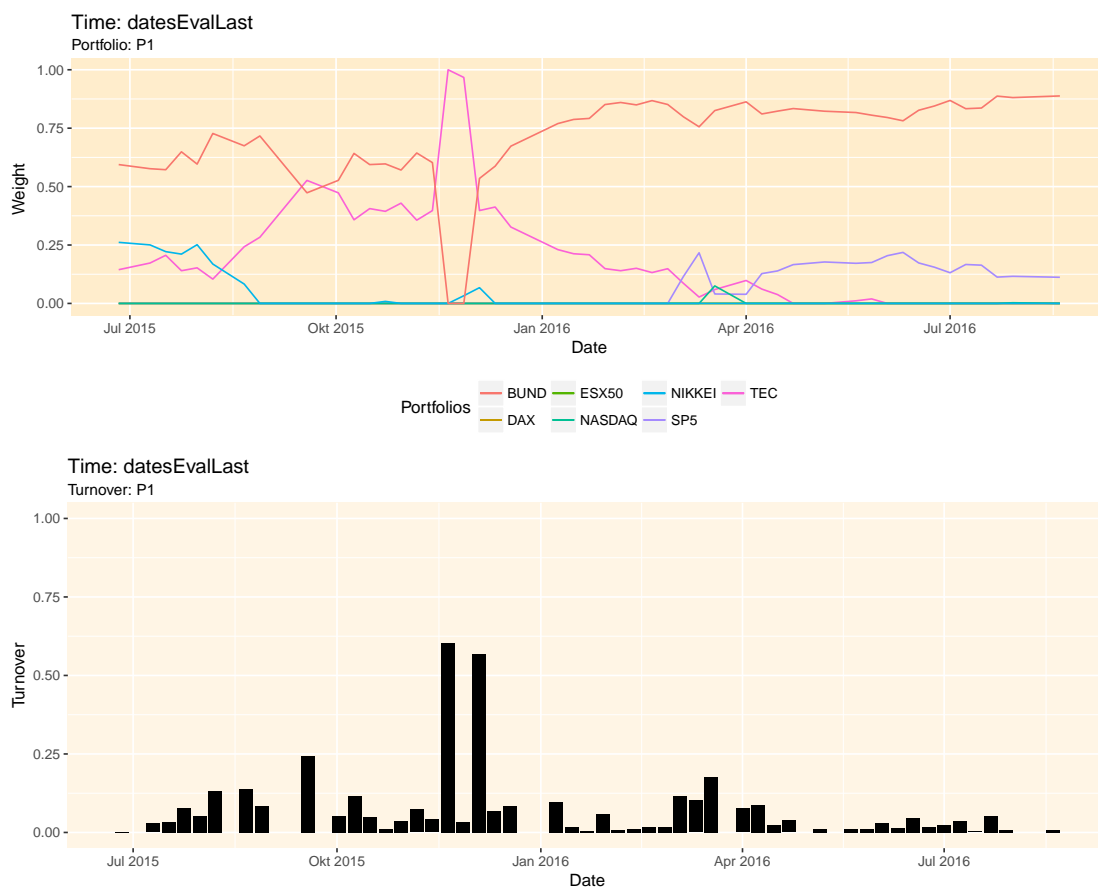
4.4 Weights



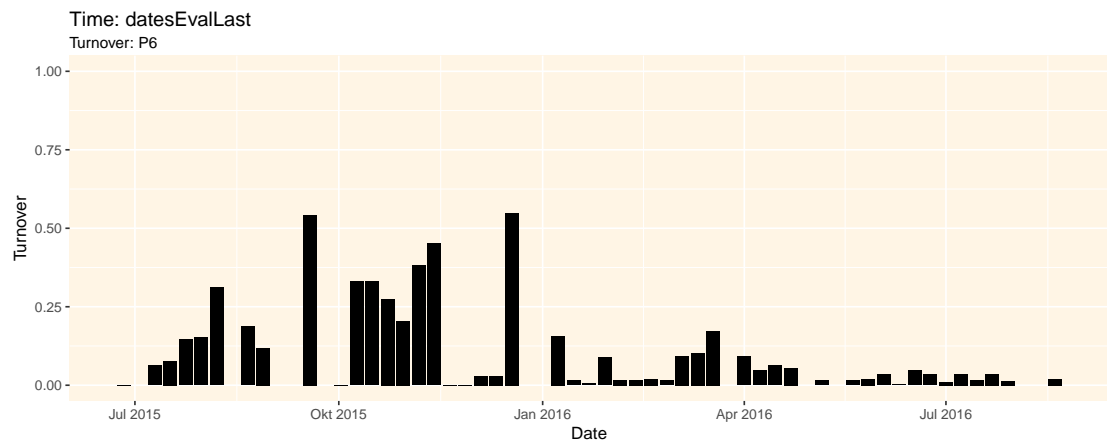
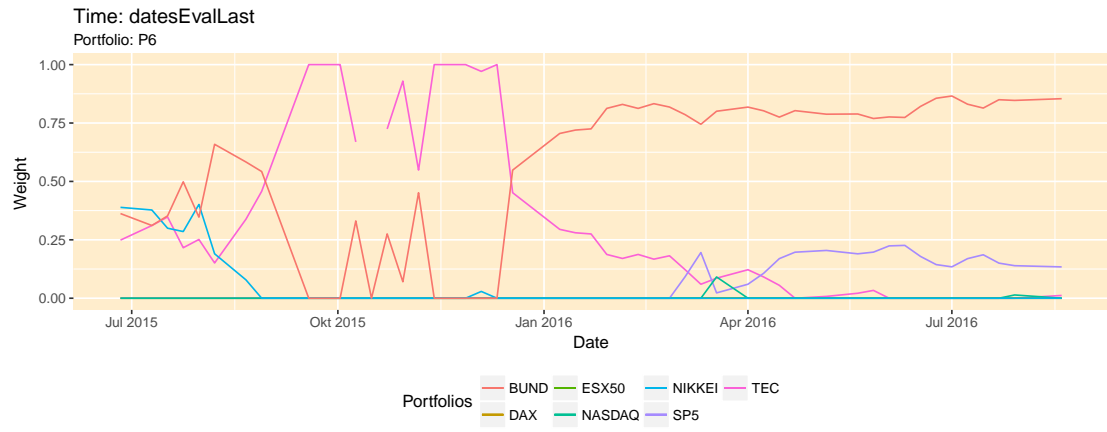
4 Results



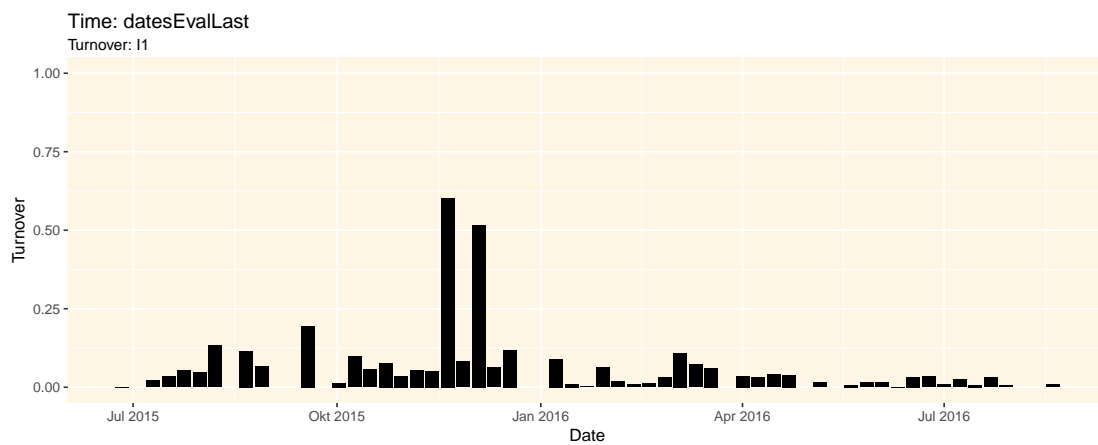
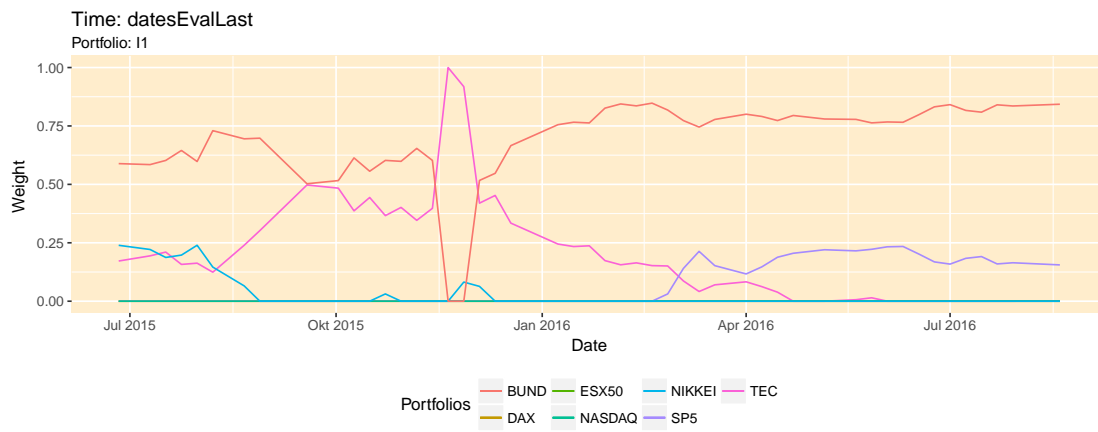
Weights-Sentix-Dispersion - datesEvalLast



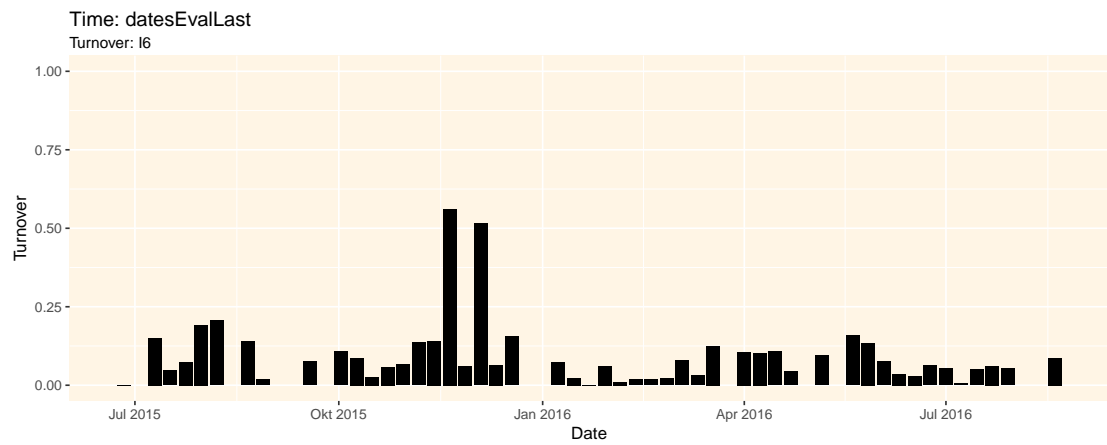
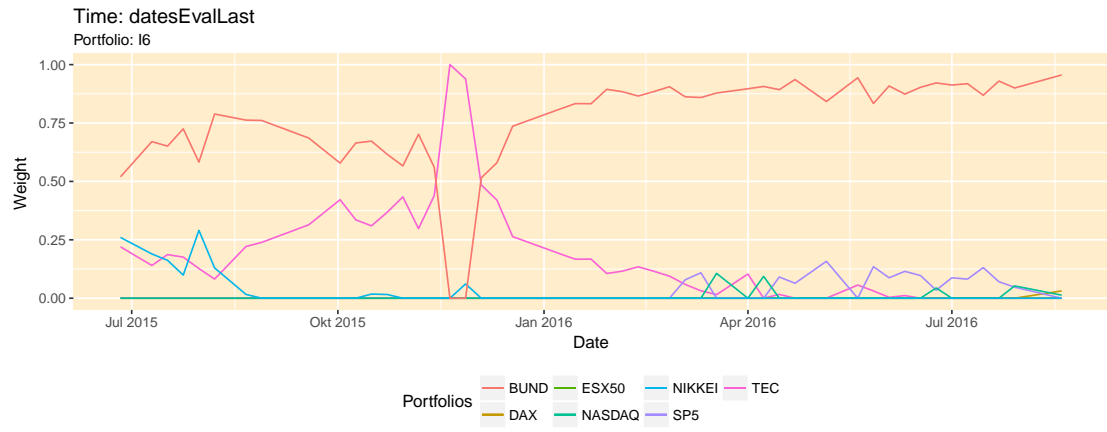
4 Results



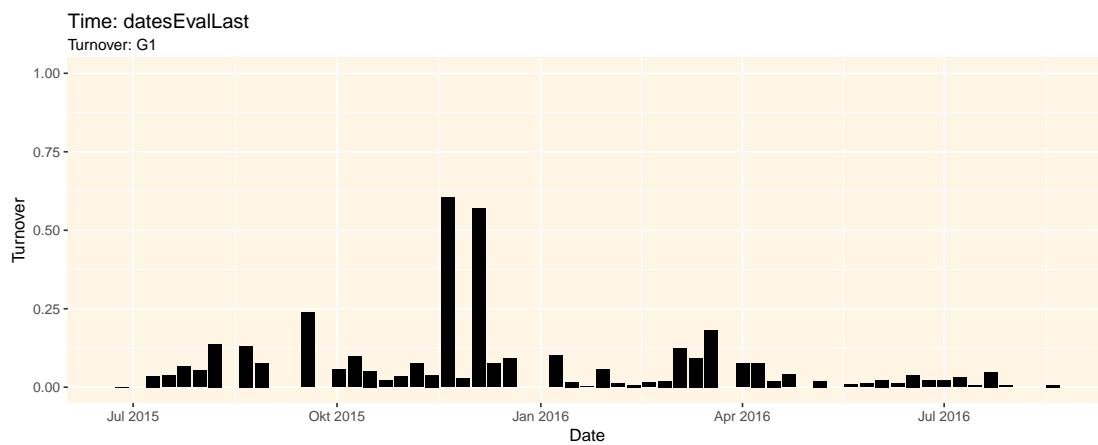
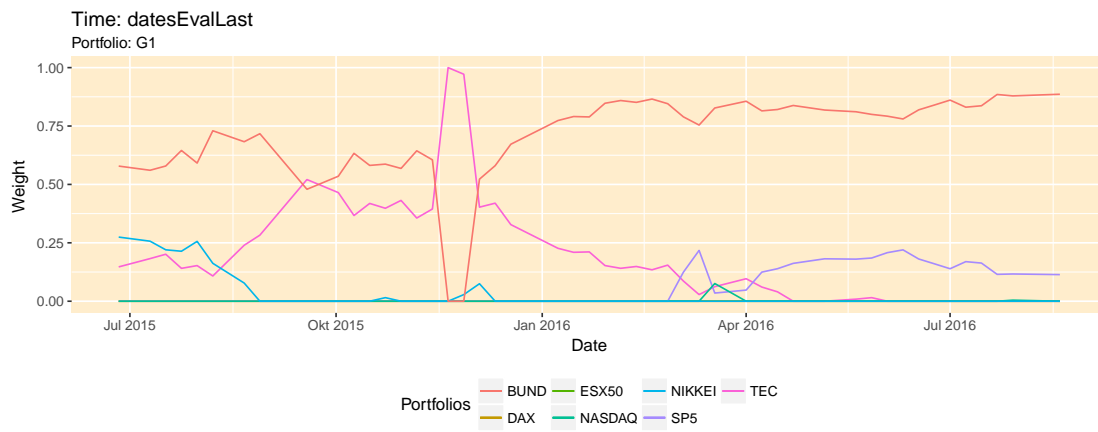
4.4 Weights



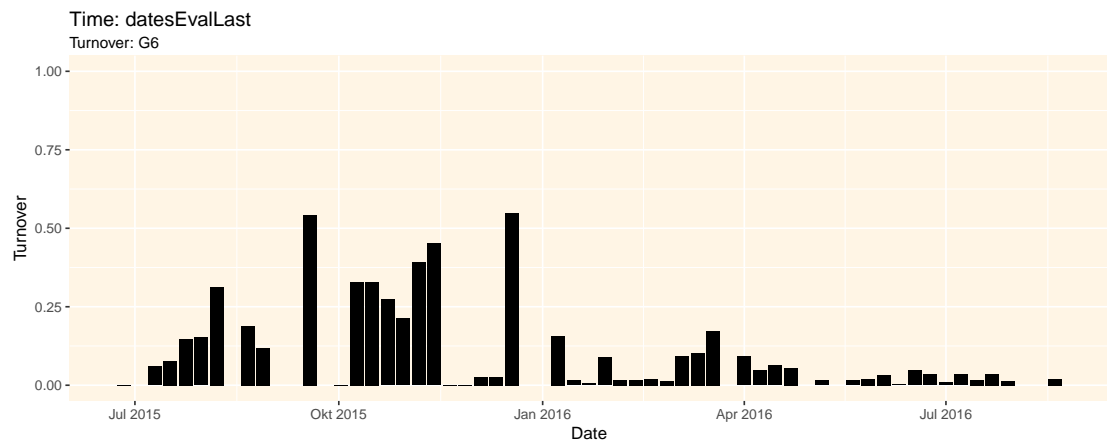
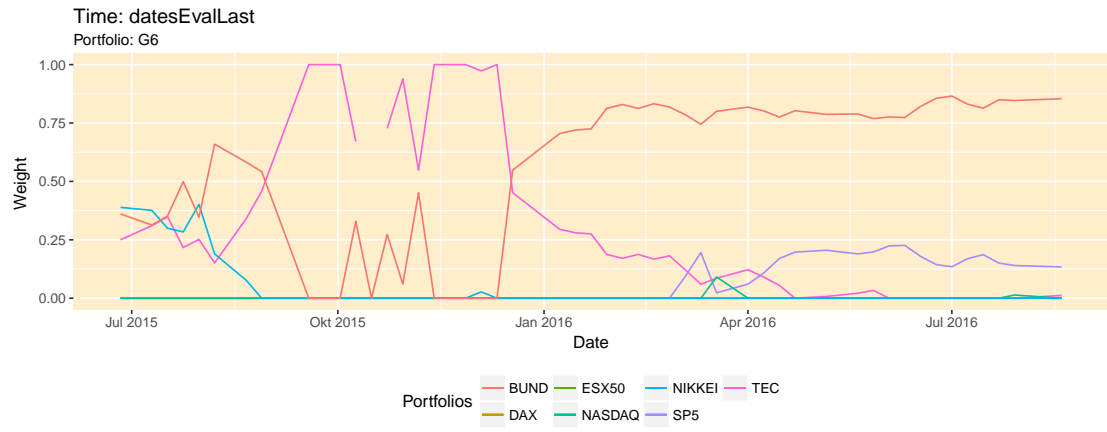
4 Results



4.4 Weights



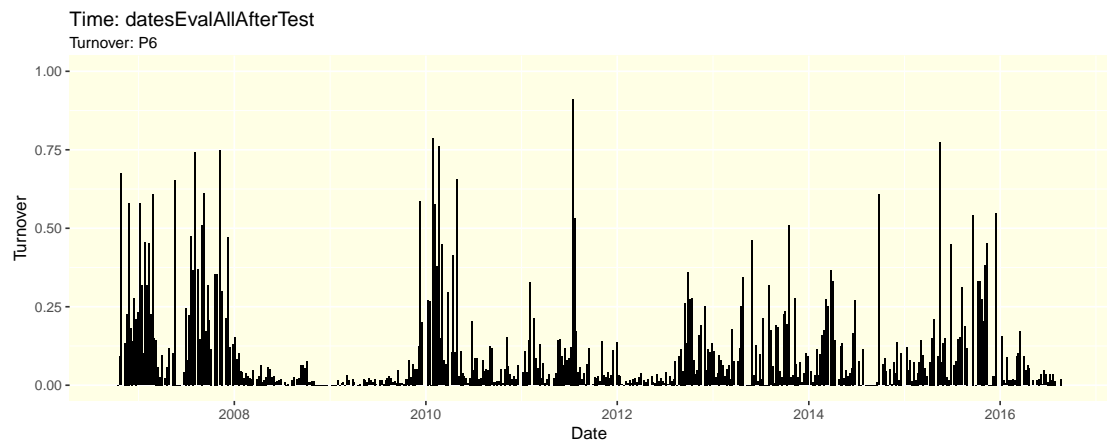
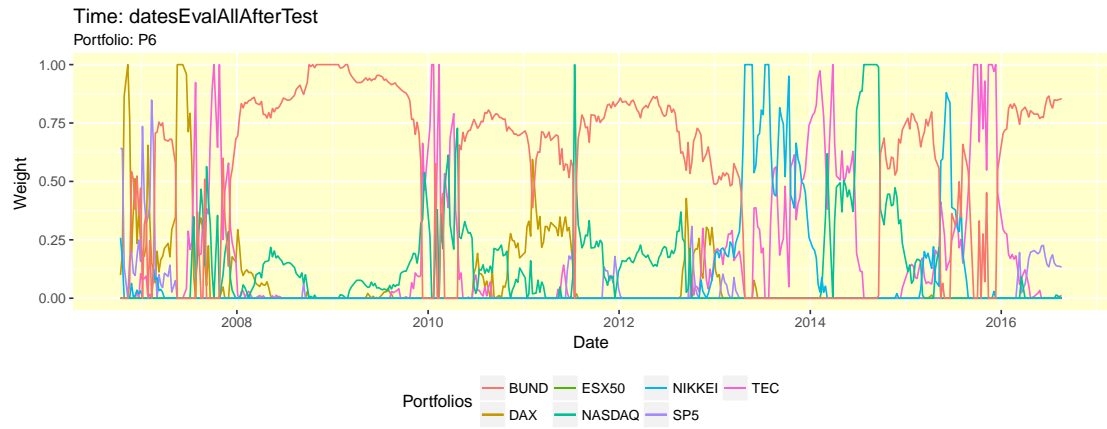
4 Results



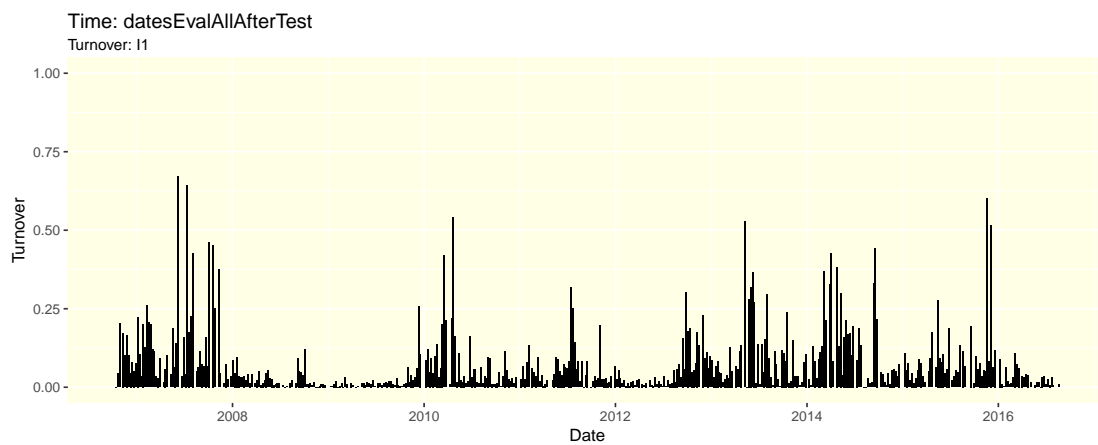
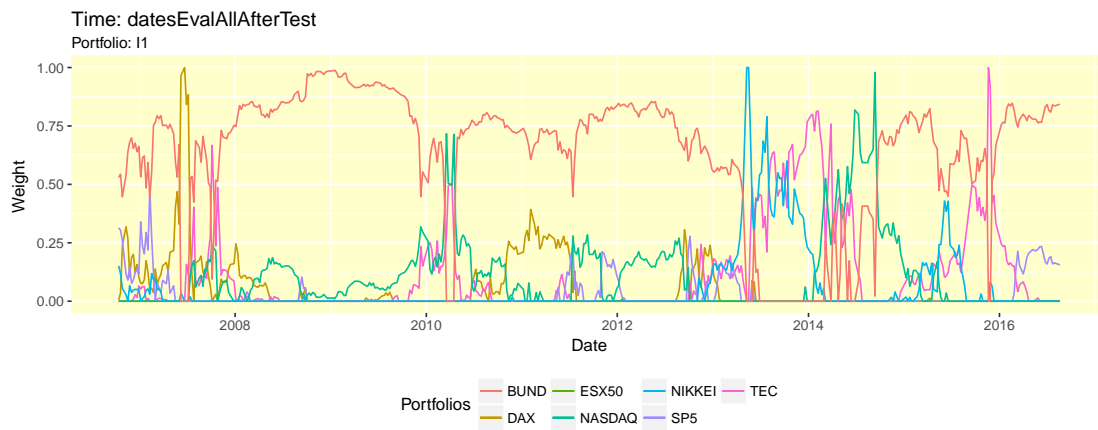
Weights-Sentix-Dispersion - datesEvalAllAfterTest



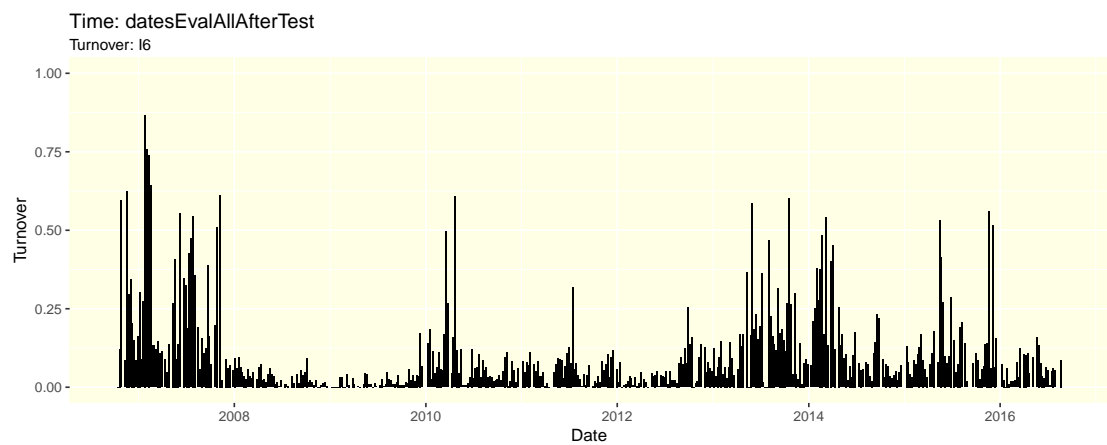
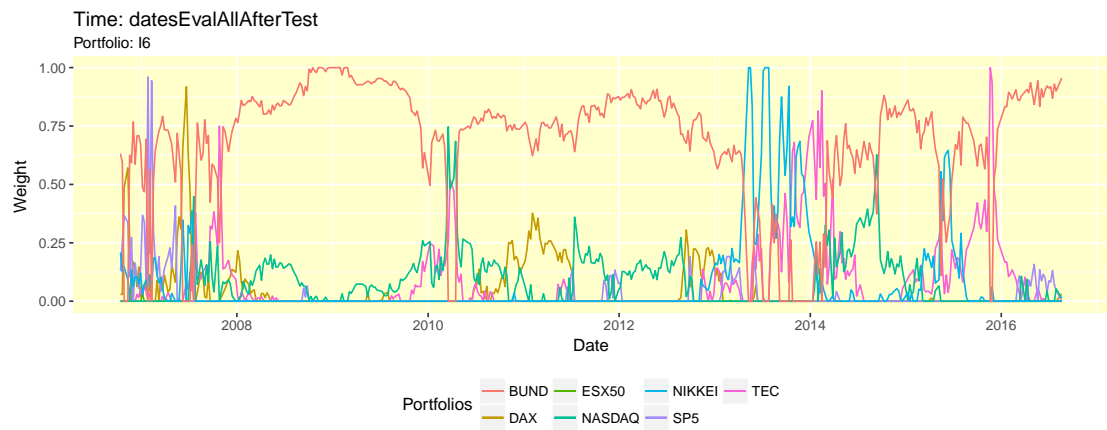
4 Results



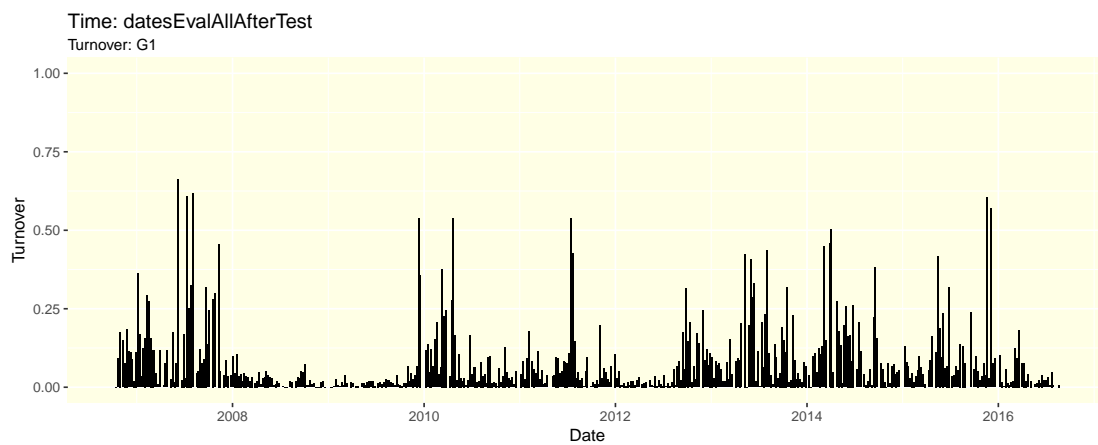
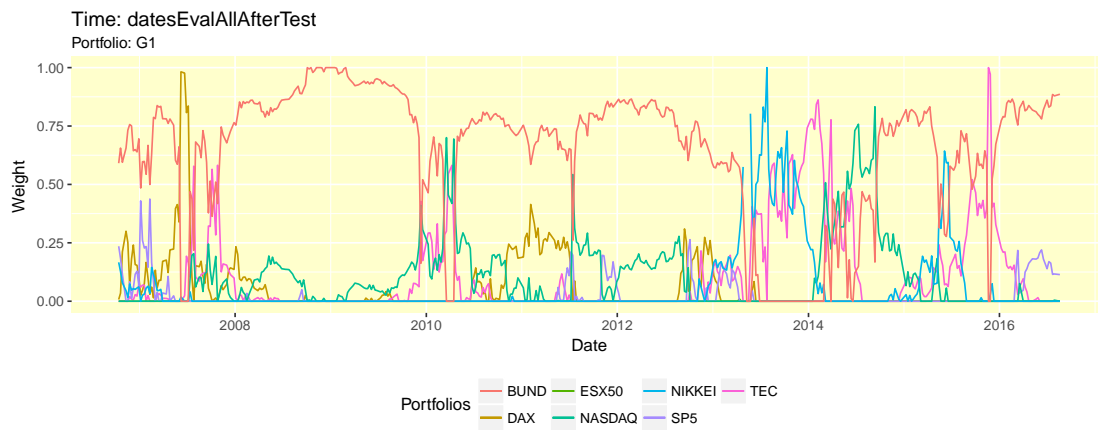
4.4 Weights



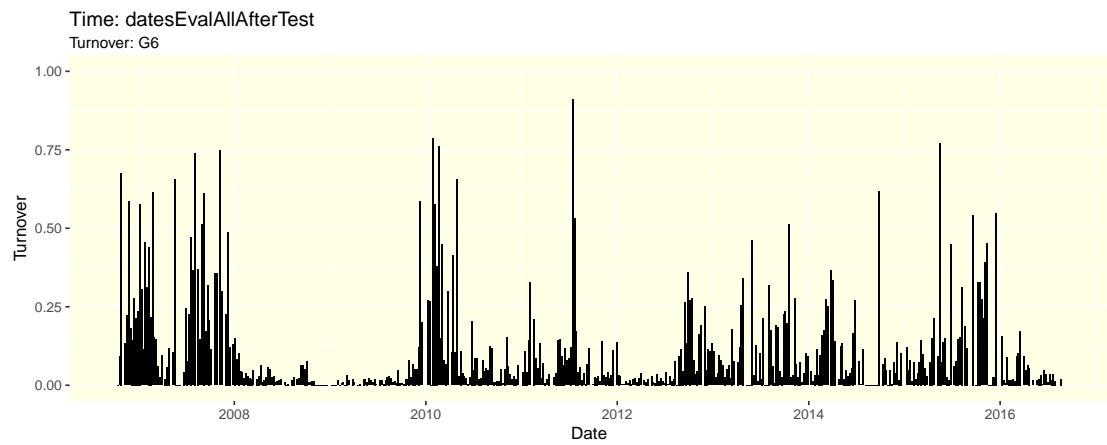
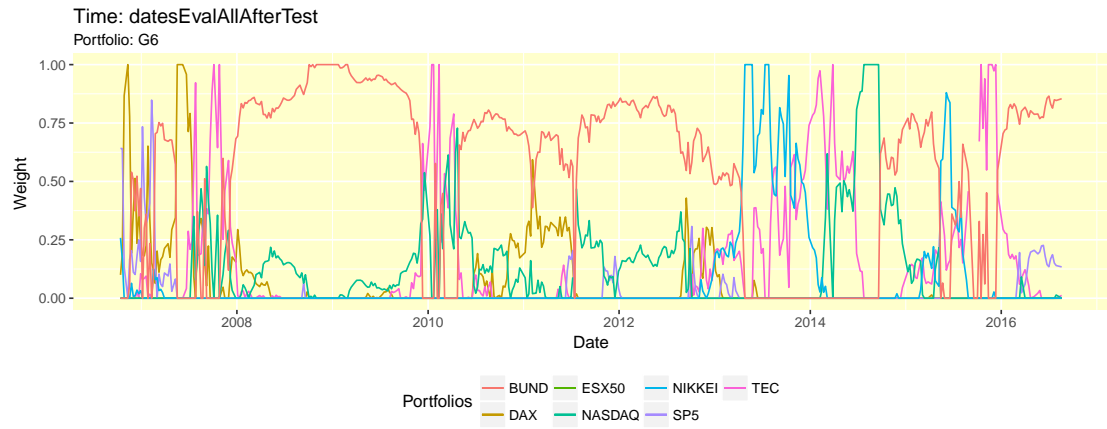
4 Results



4.4 Weights

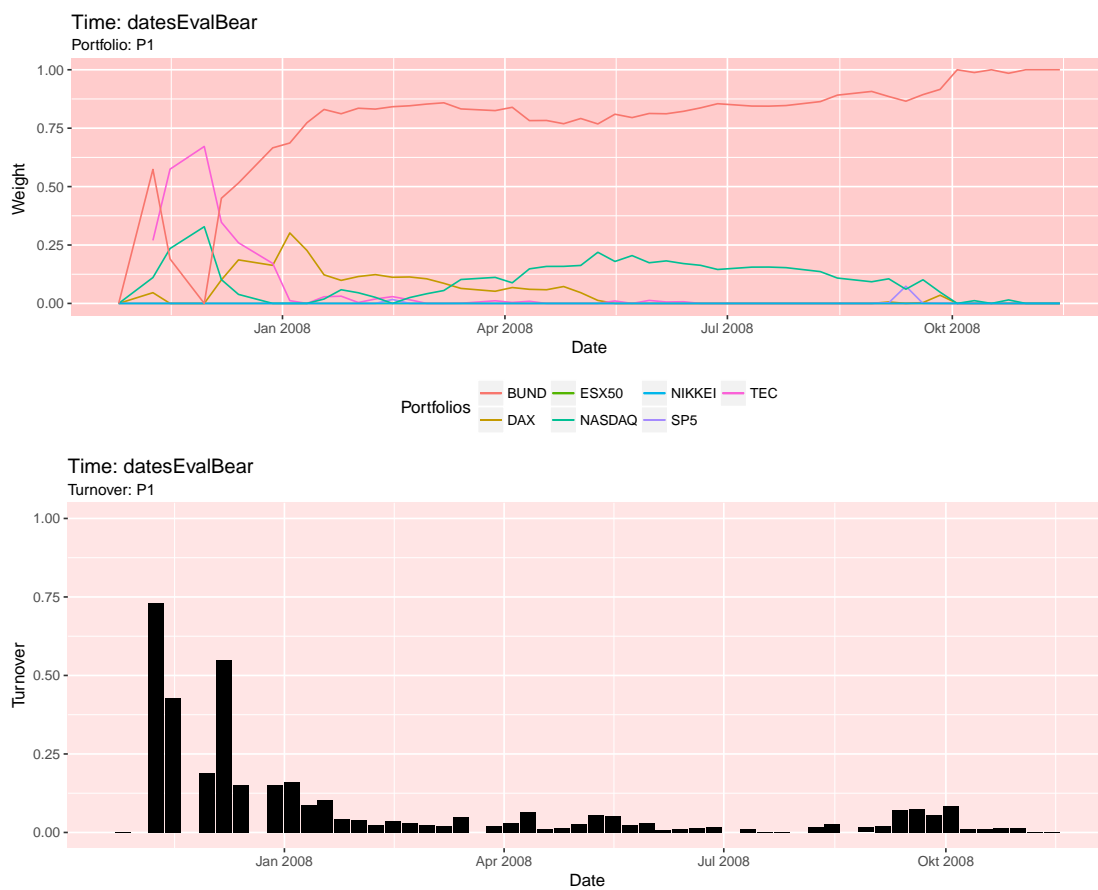


4 Results

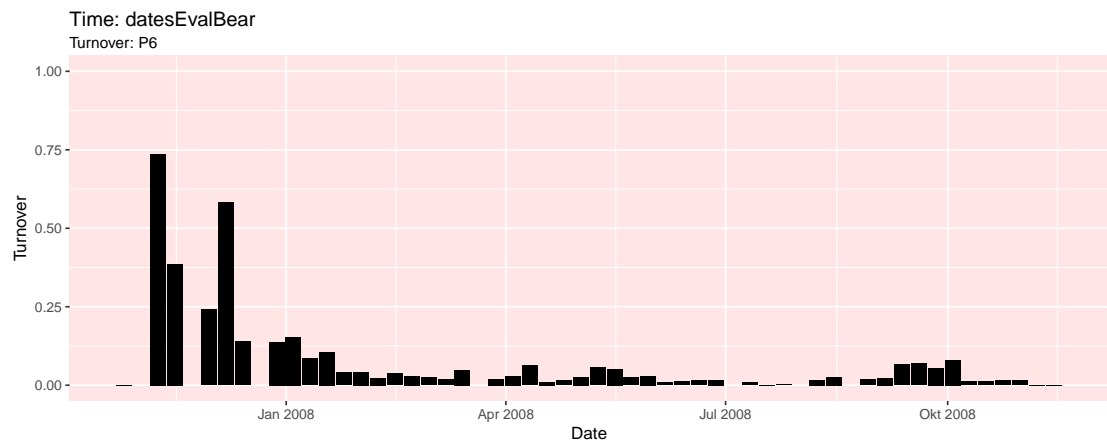
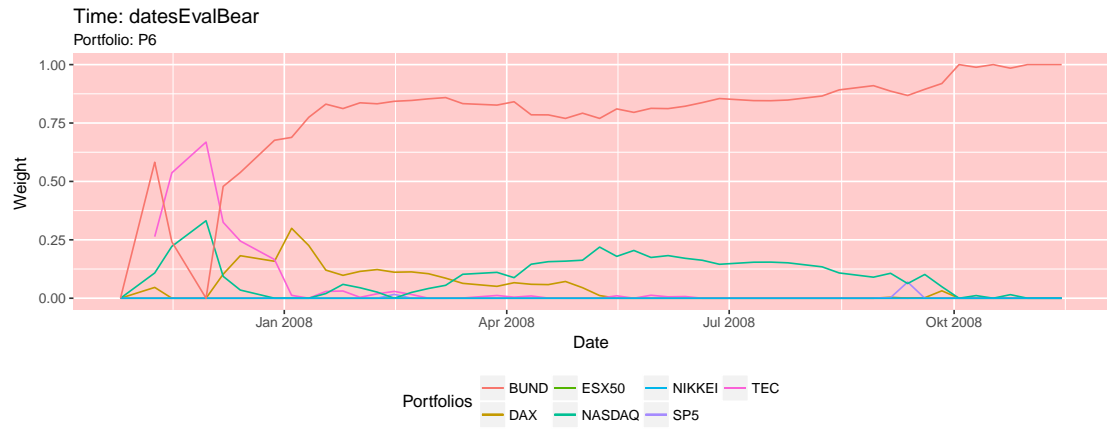


4.4.2 Weights-Sentix-Herfindahl

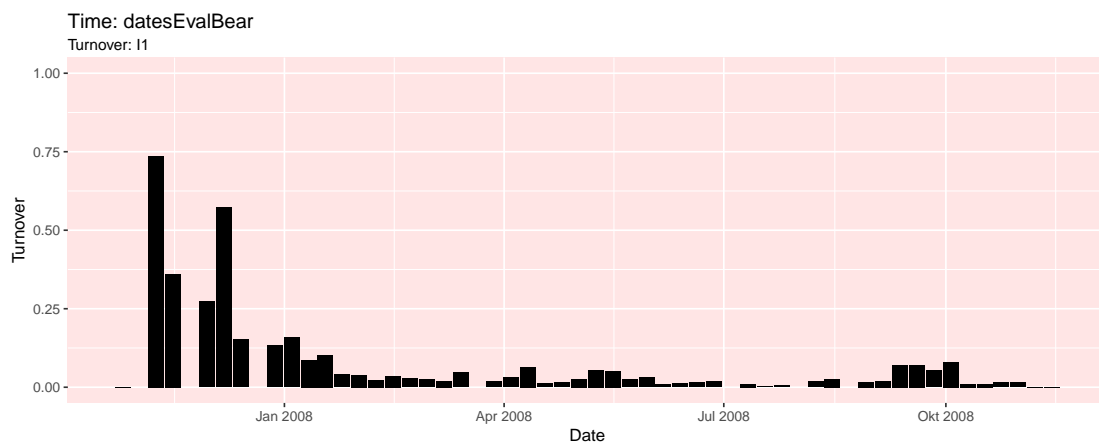
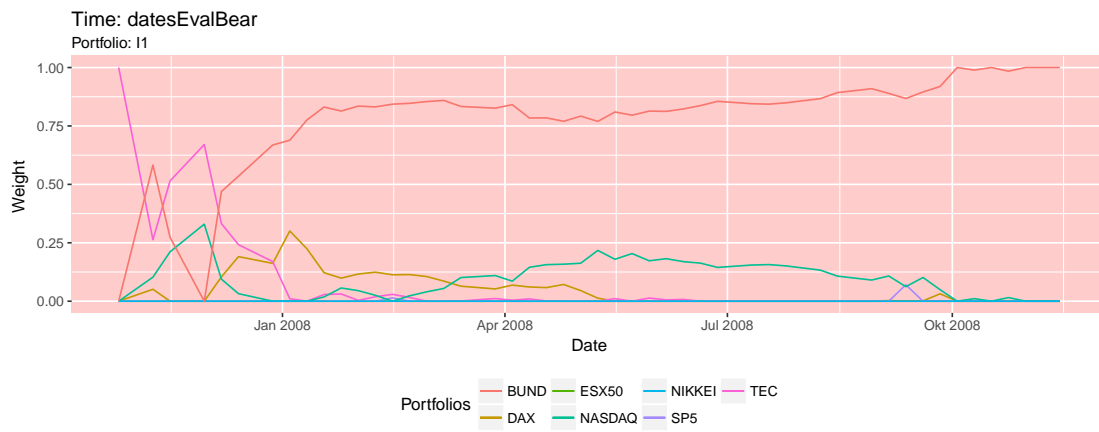
Weights-Sentix-Herfindahl - datesEvalBear



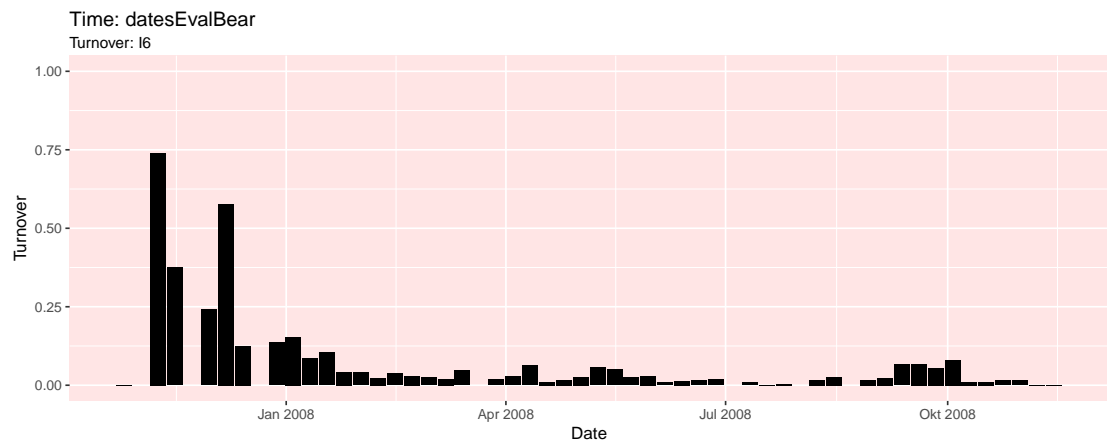
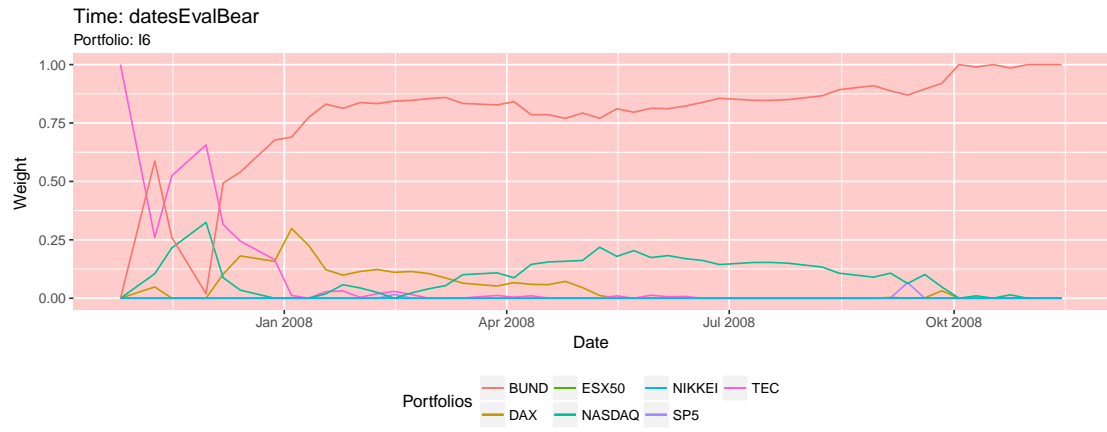
4 Results



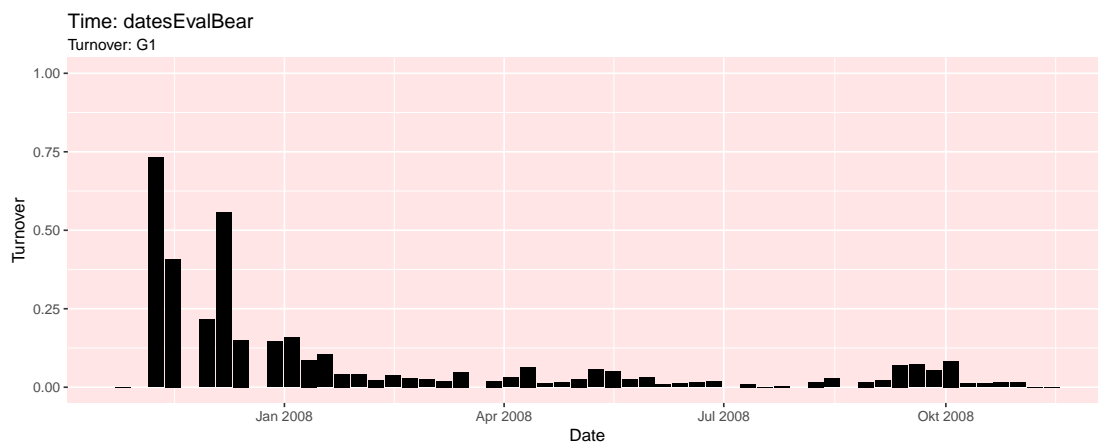
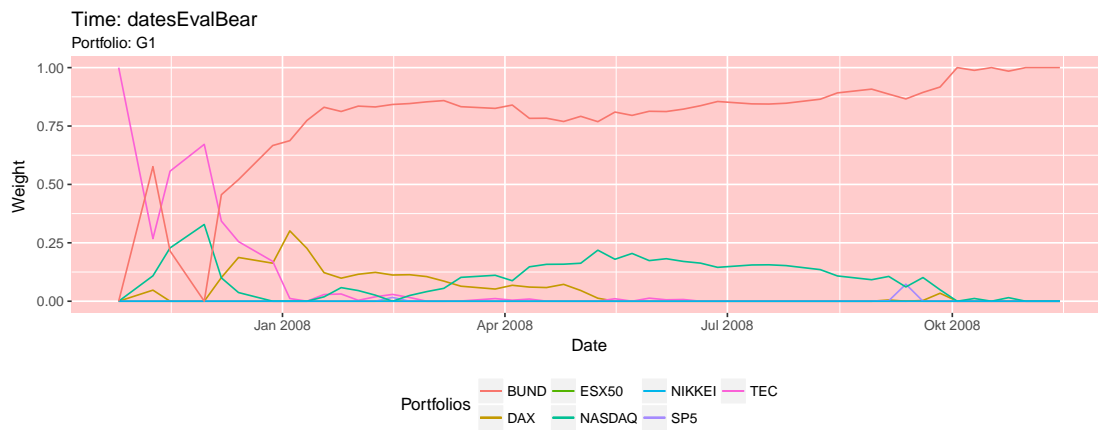
4.4 Weights



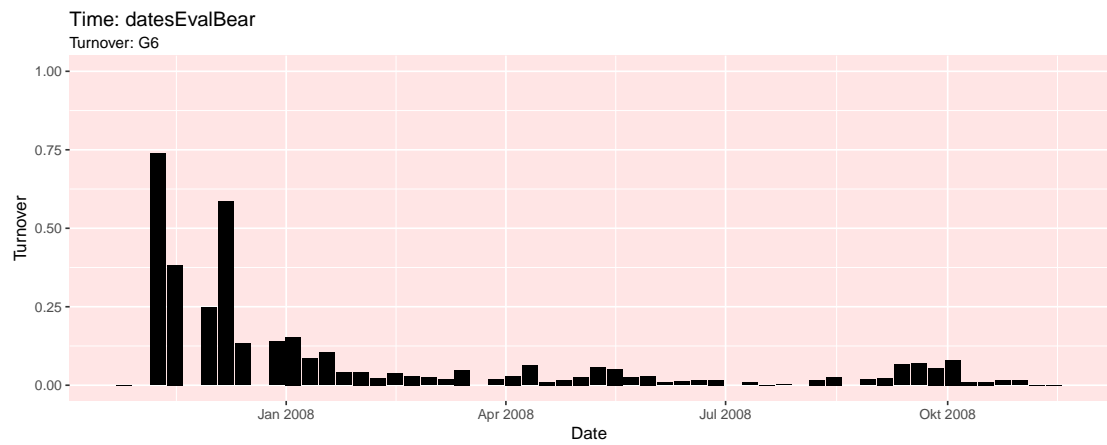
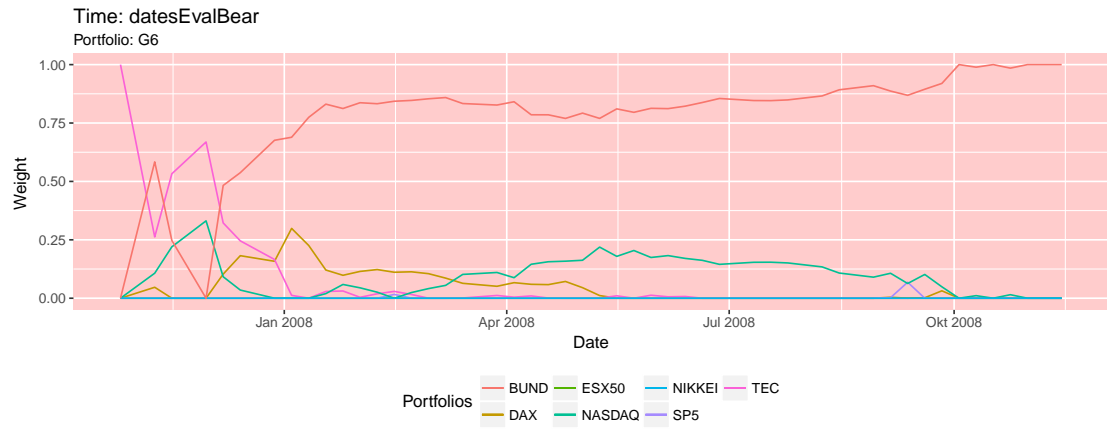
4 Results



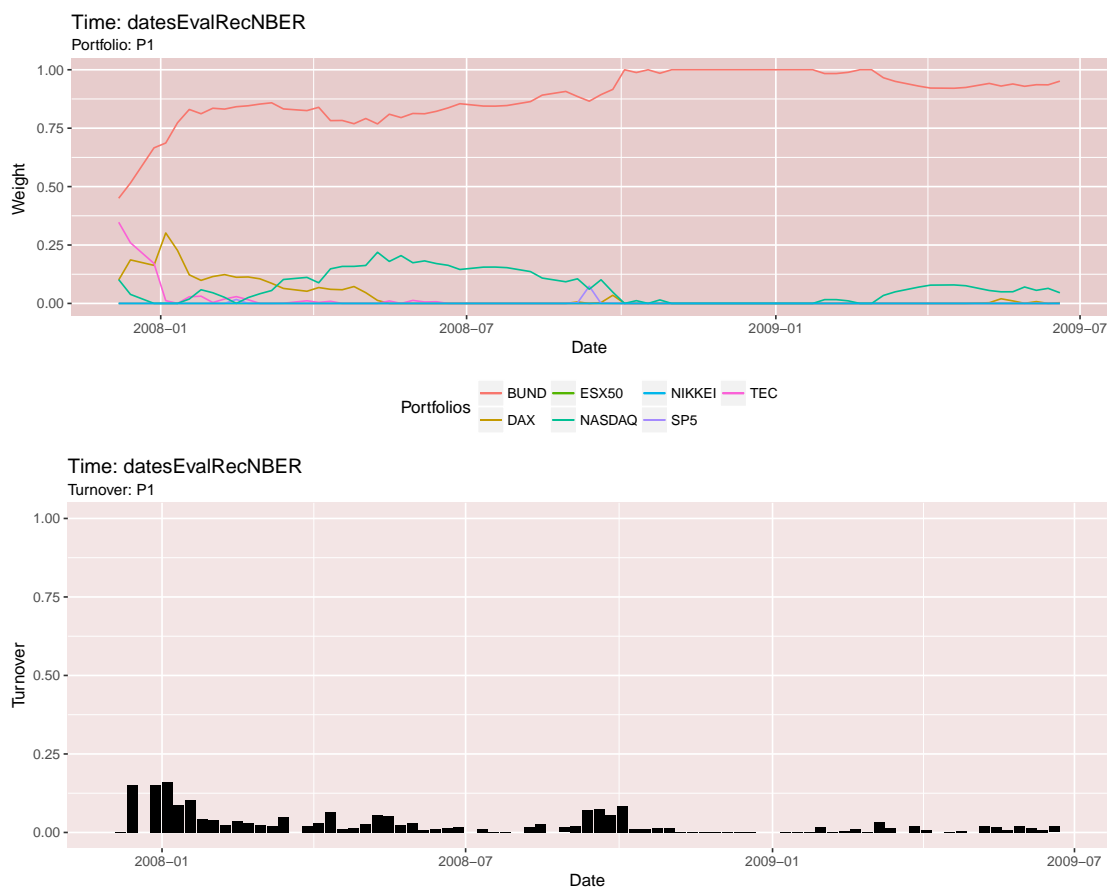
4.4 Weights



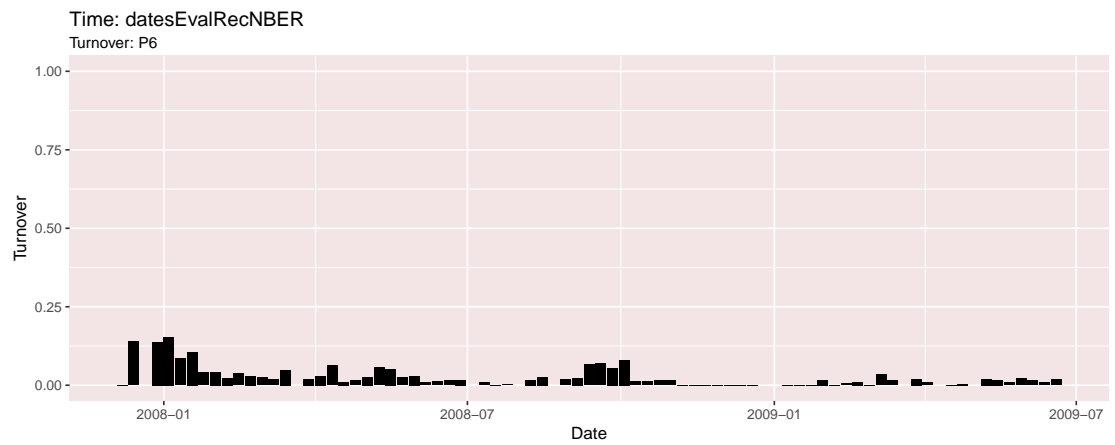
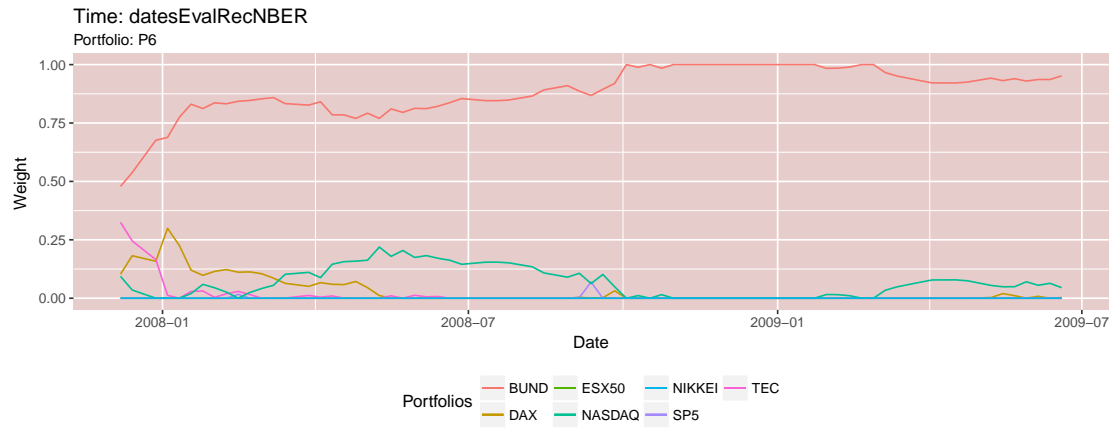
4 Results



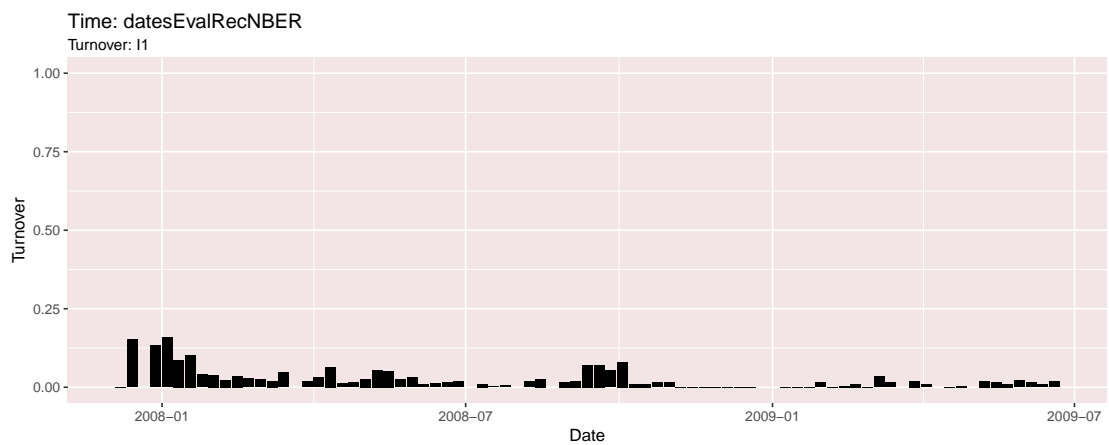
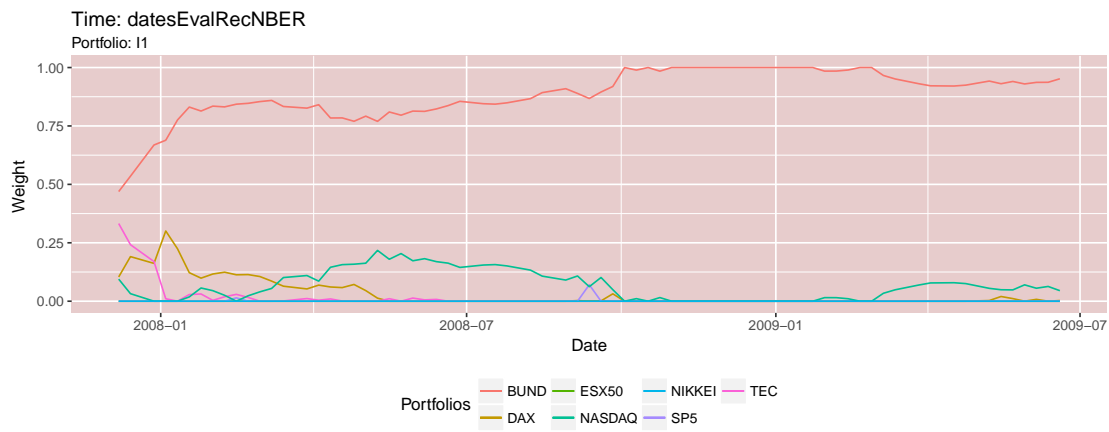
Weights-Sentix-Herfindahl - datesEvalRecNBER



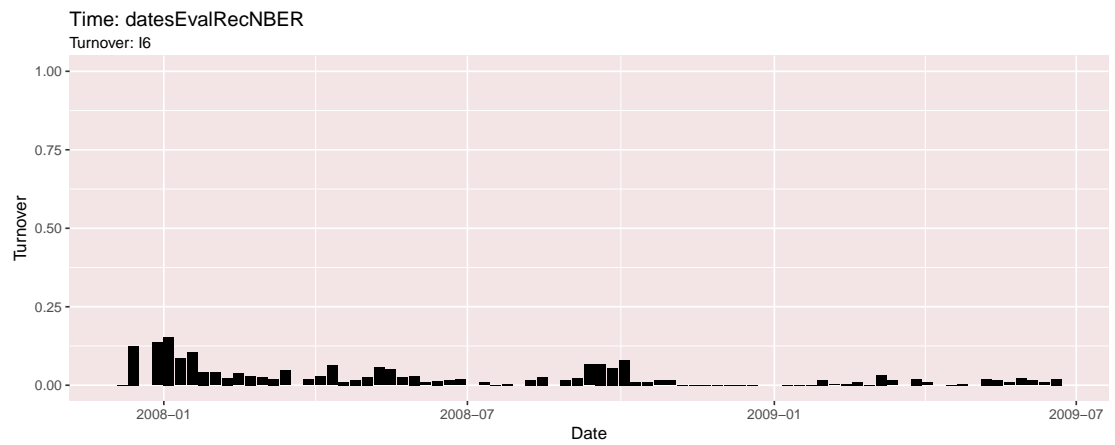
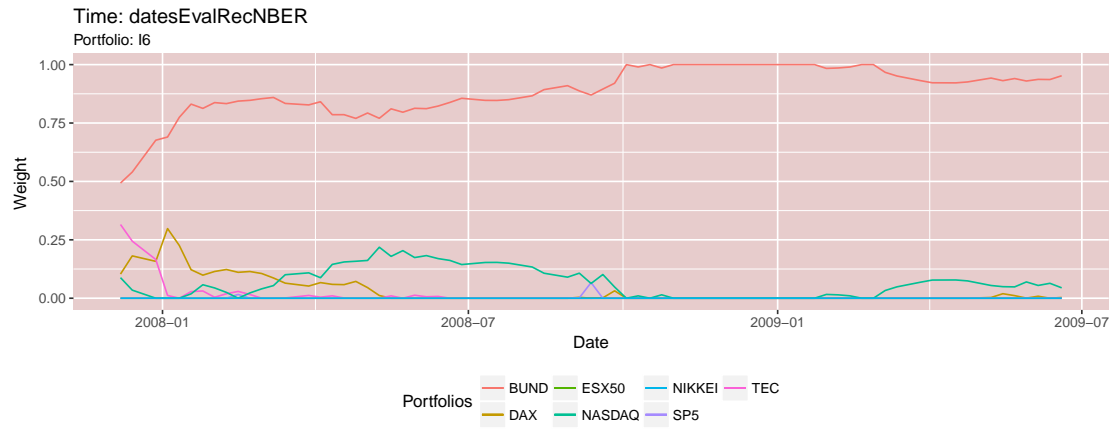
4 Results



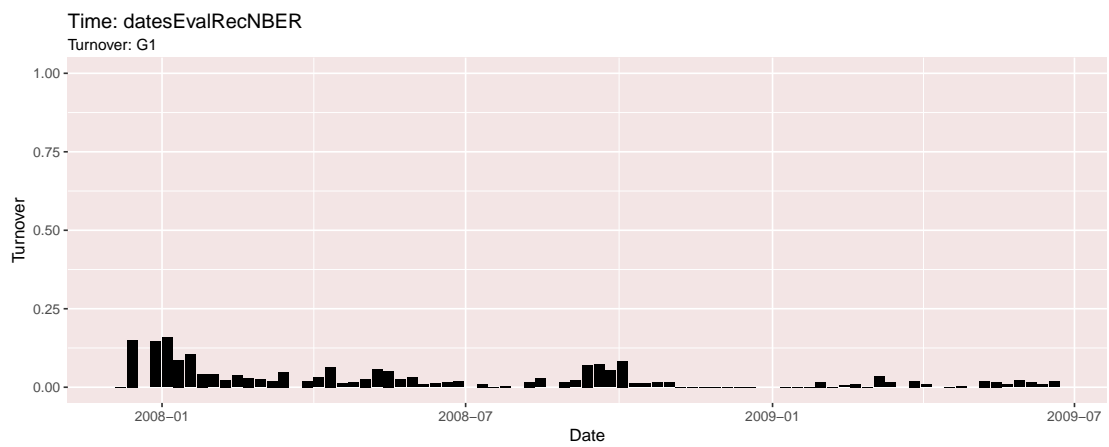
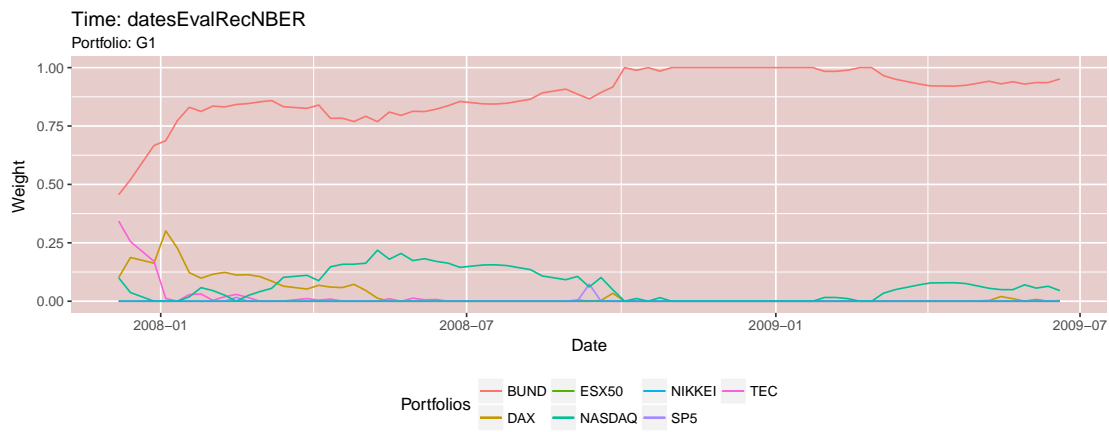
4.4 Weights



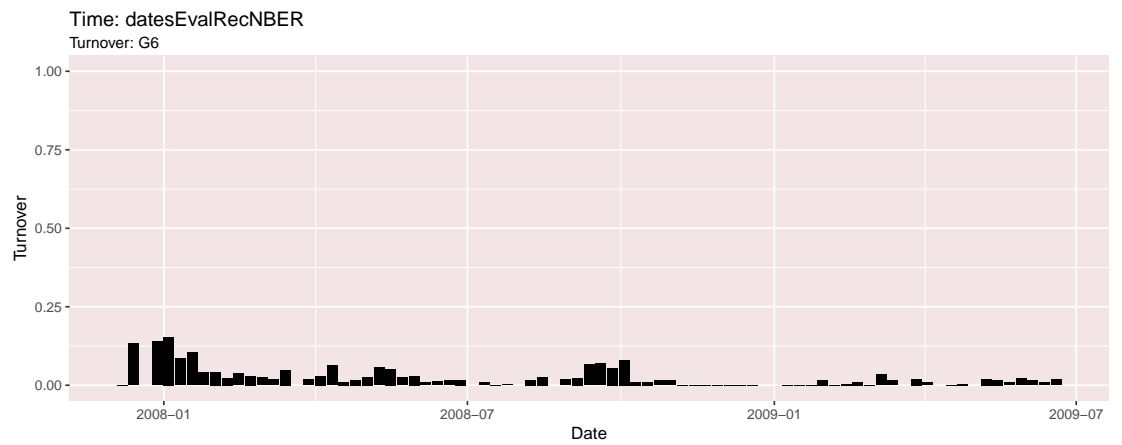
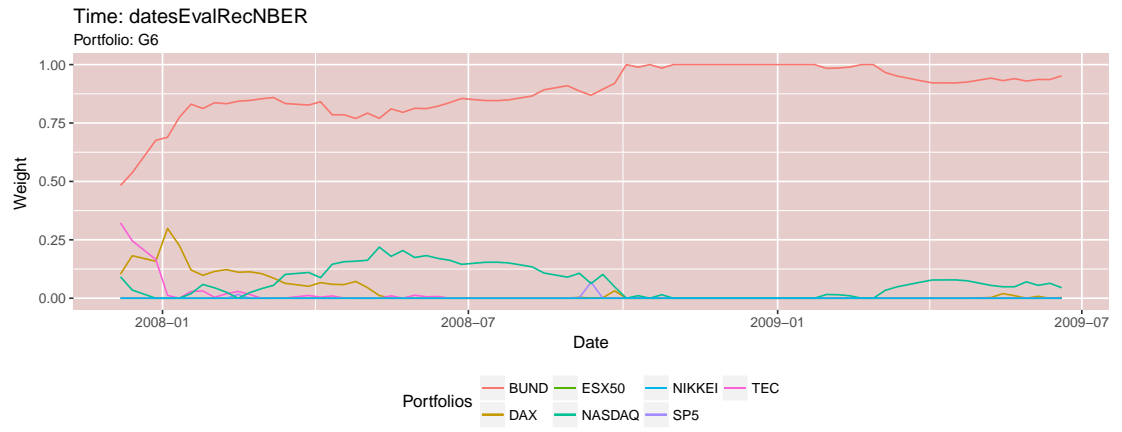
4 Results



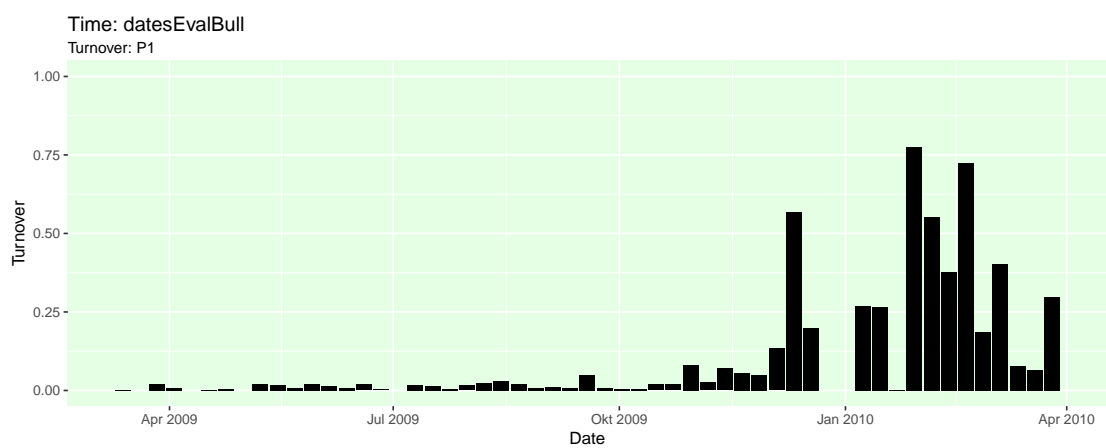
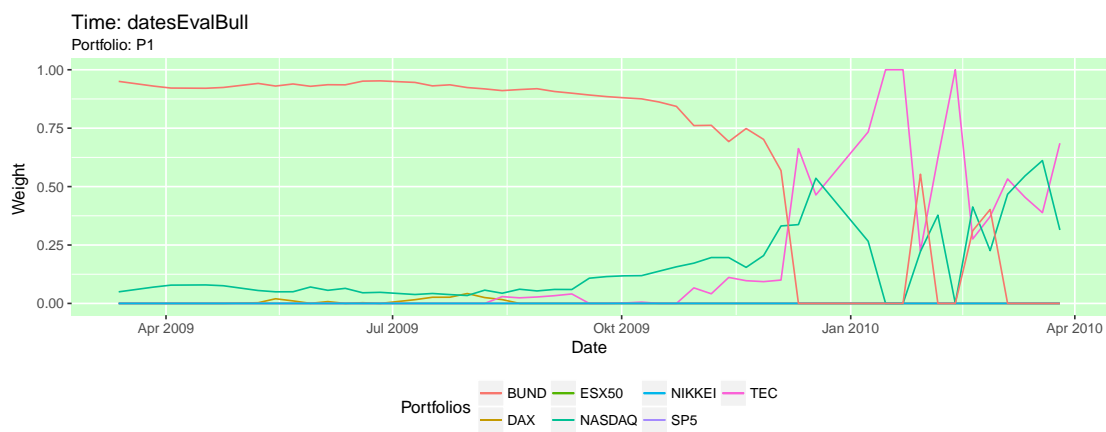
4.4 Weights



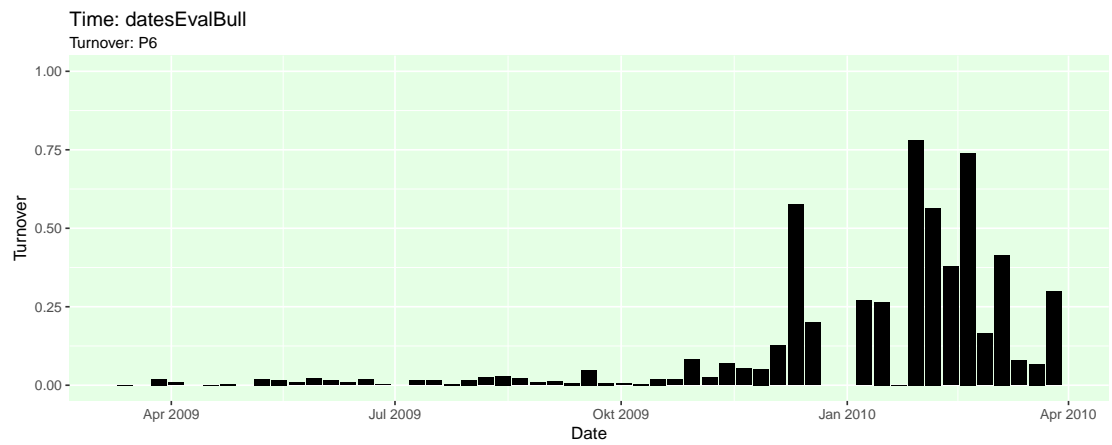
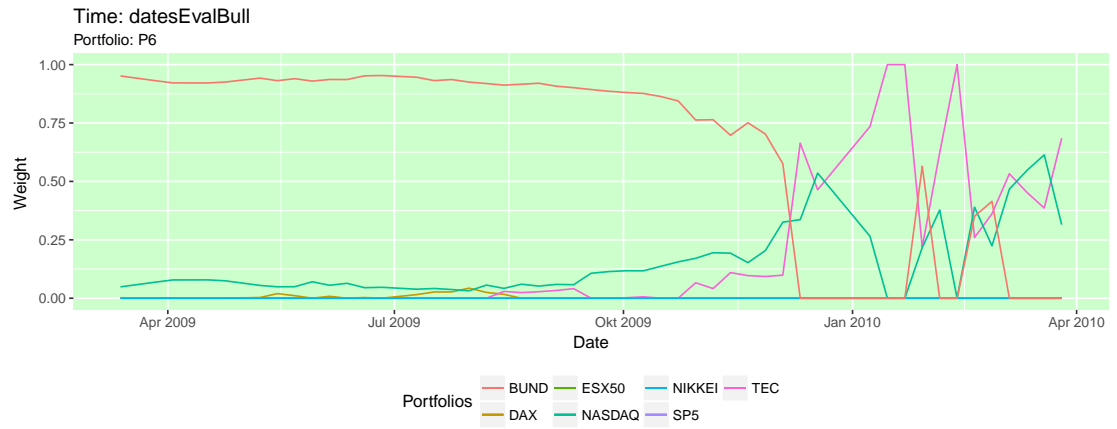
4 Results



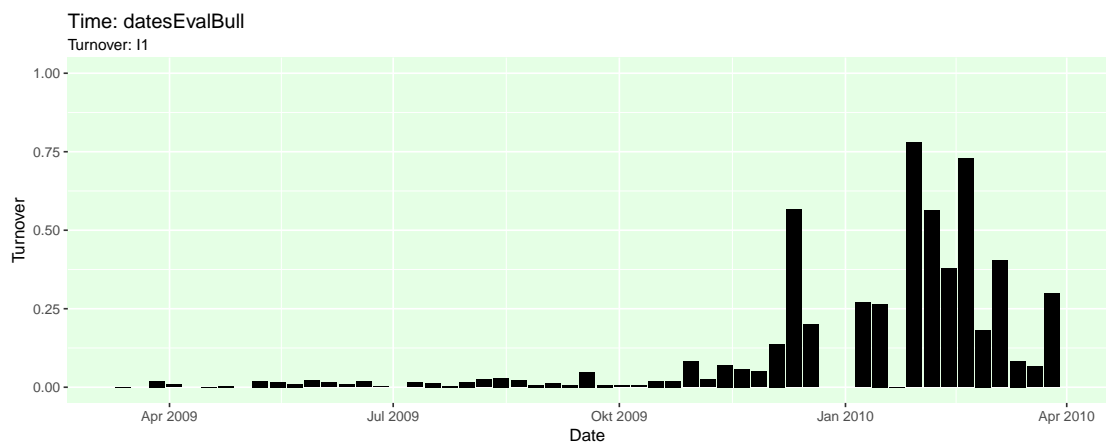
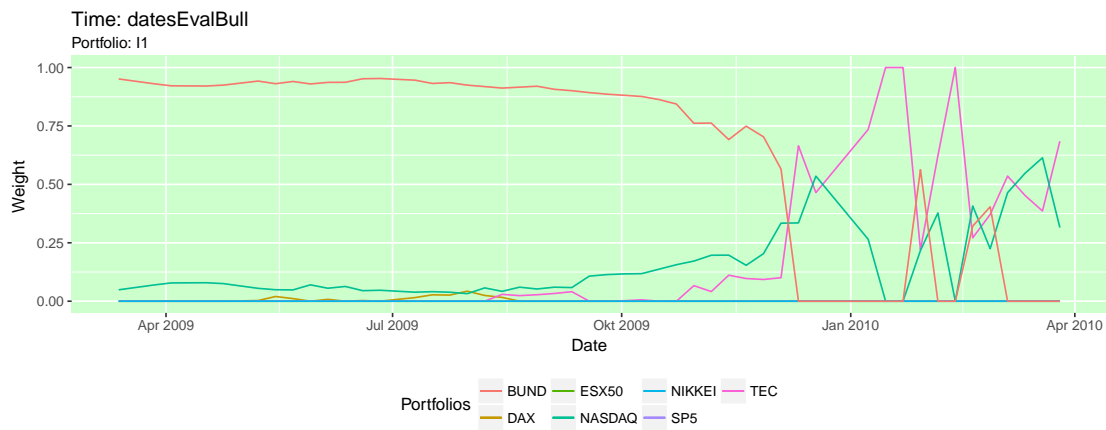
Weights-Sentix-Herfindahl - datesEvalBull



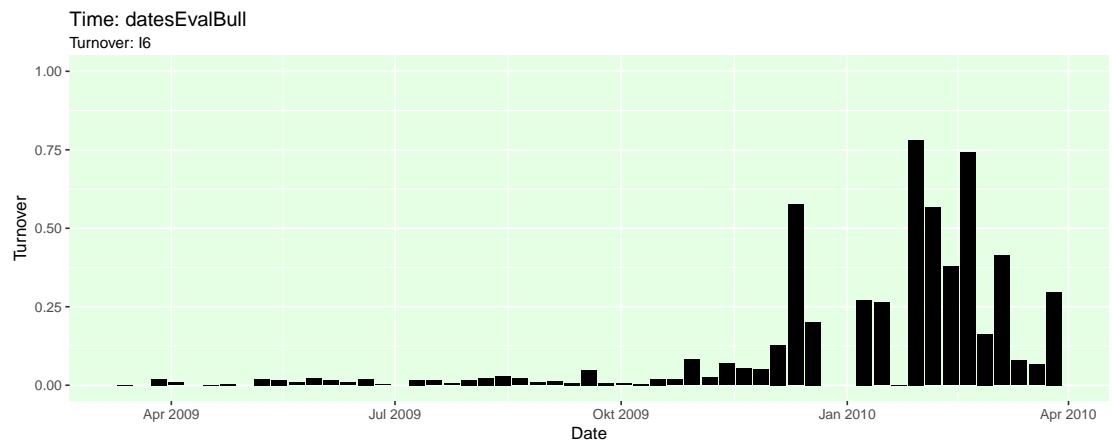
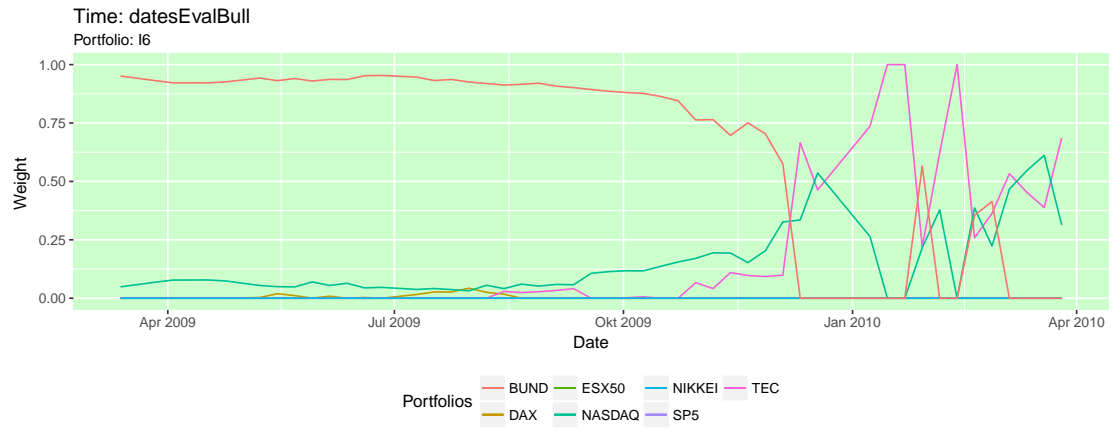
4 Results



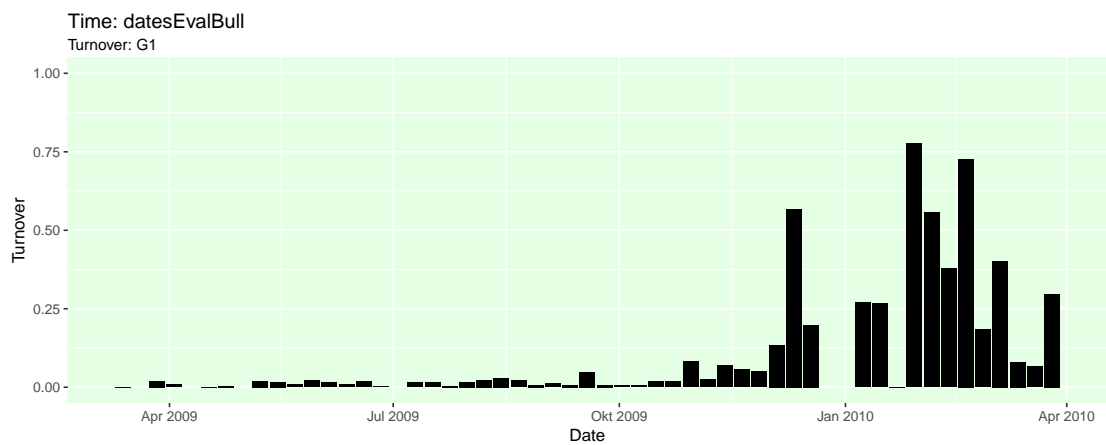
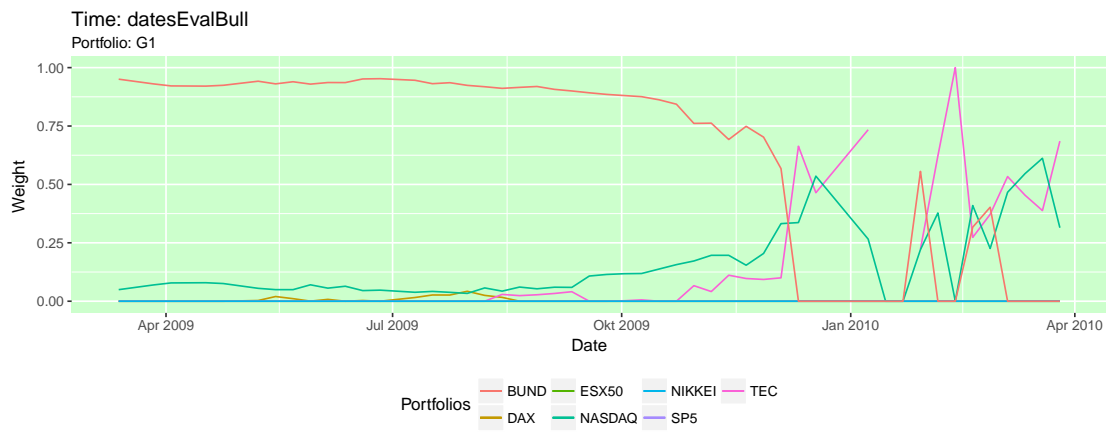
4.4 Weights



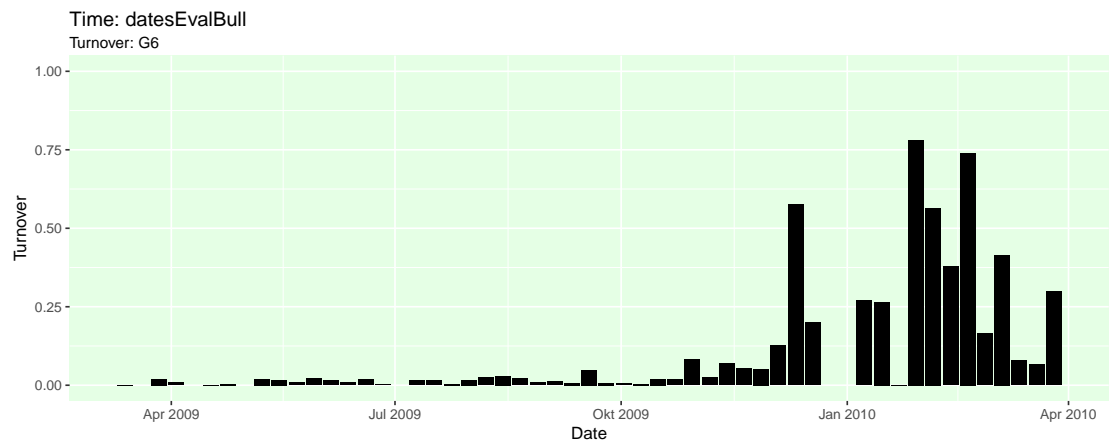
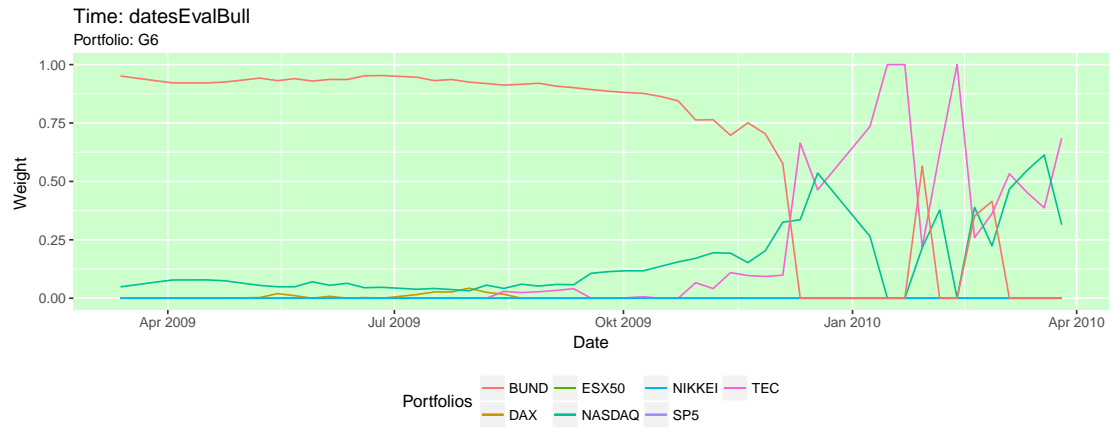
4 Results



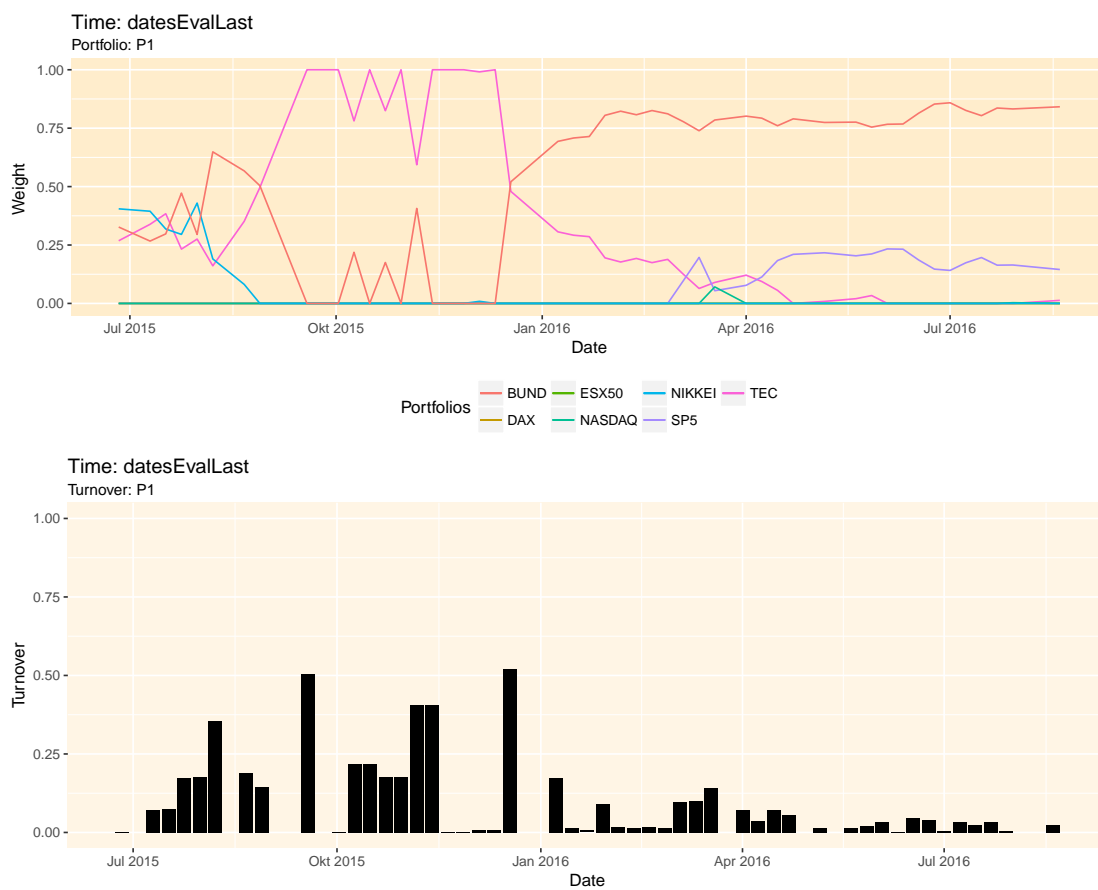
4.4 Weights



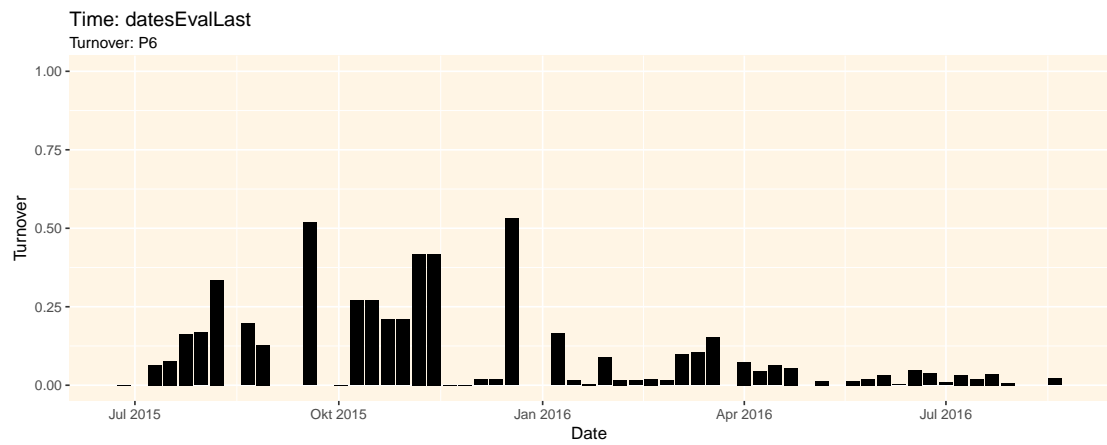
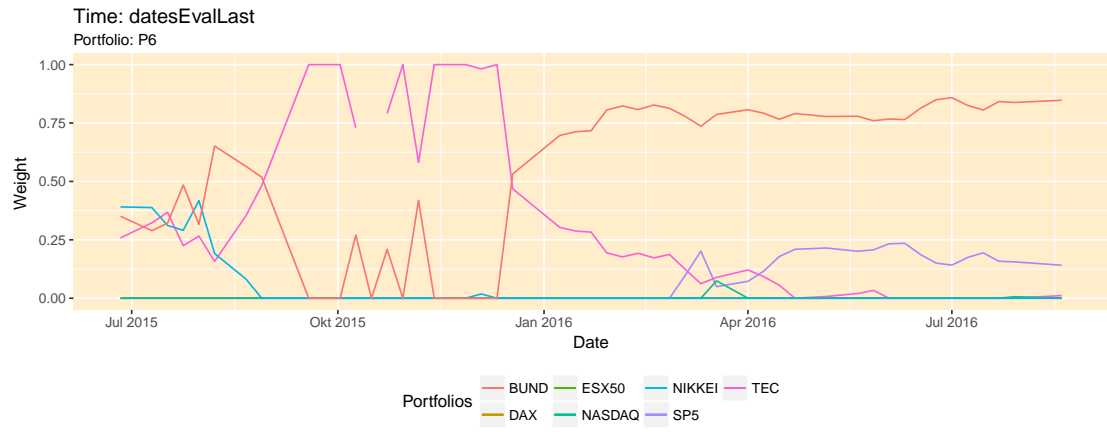
4 Results



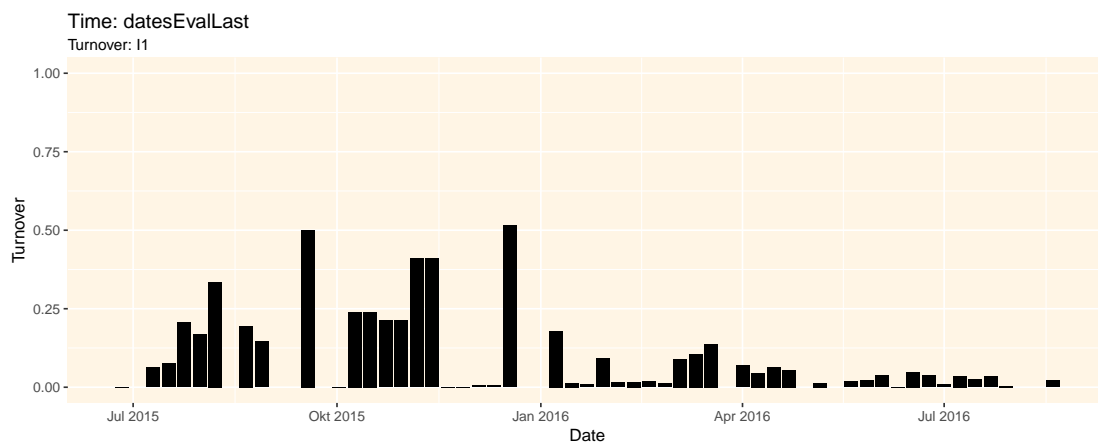
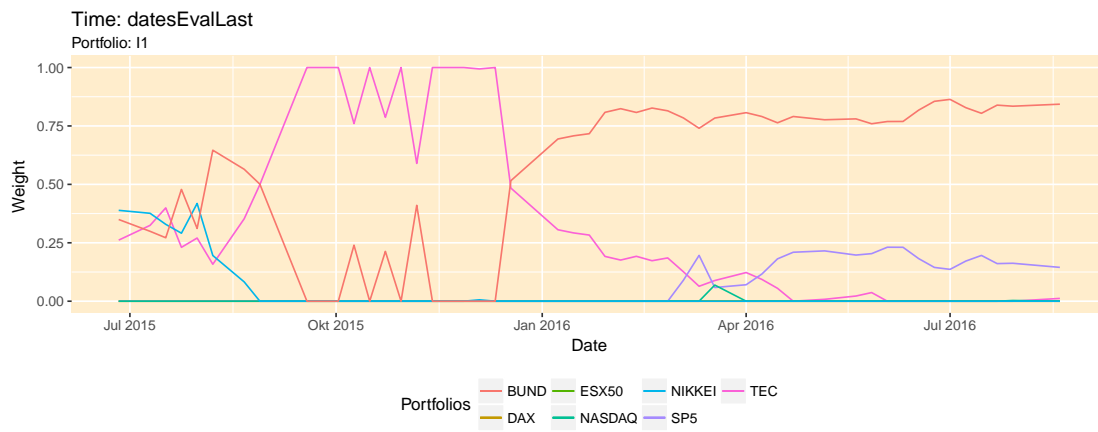
Weights-Sentix-Herfindahl - datesEvalLast



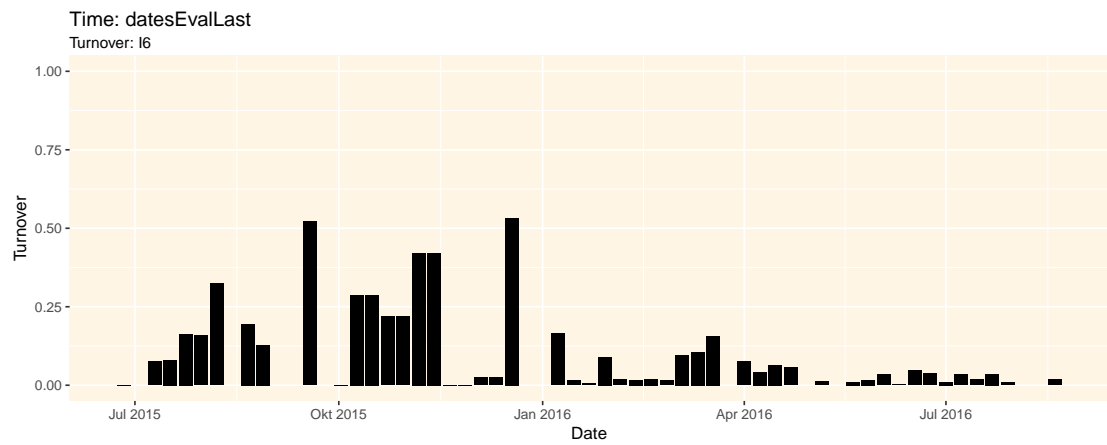
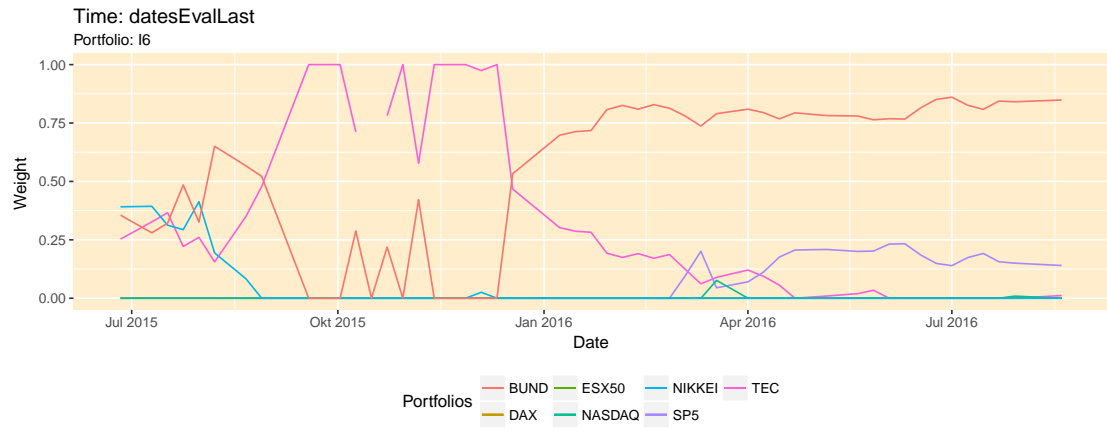
4 Results



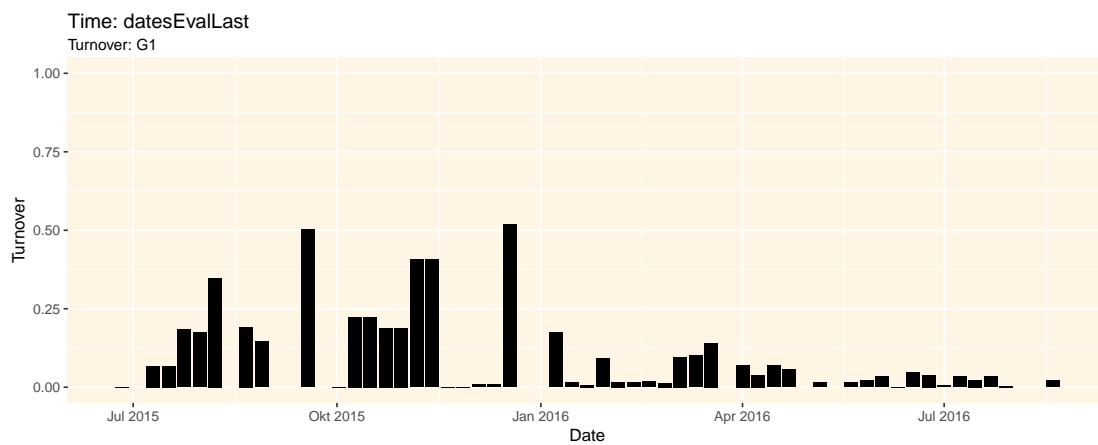
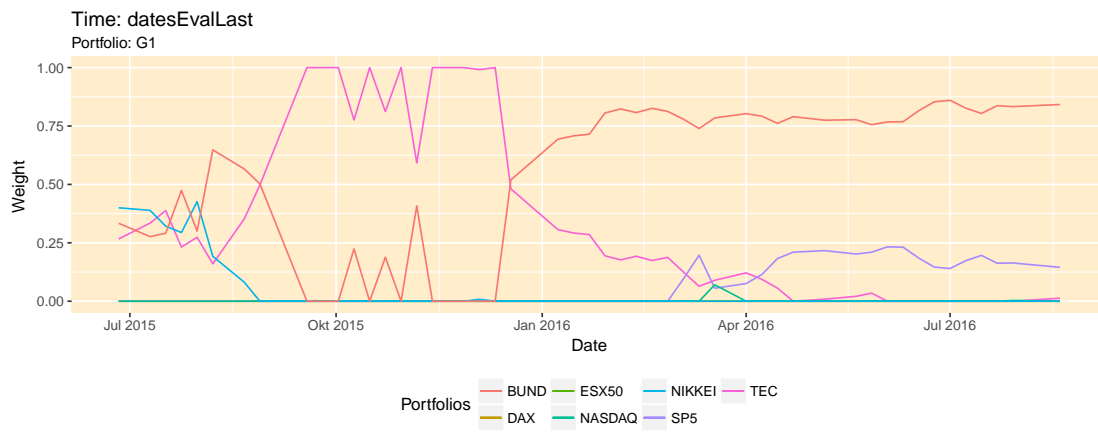
4.4 Weights



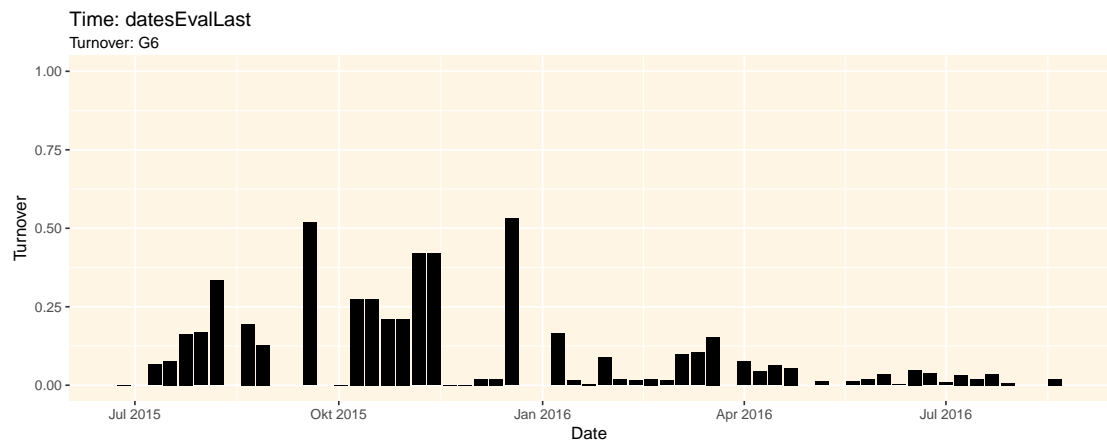
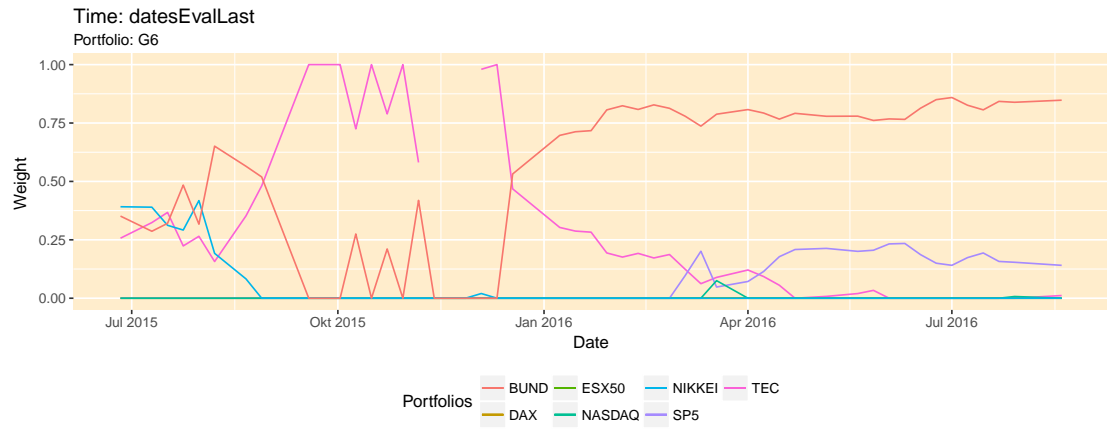
4 Results



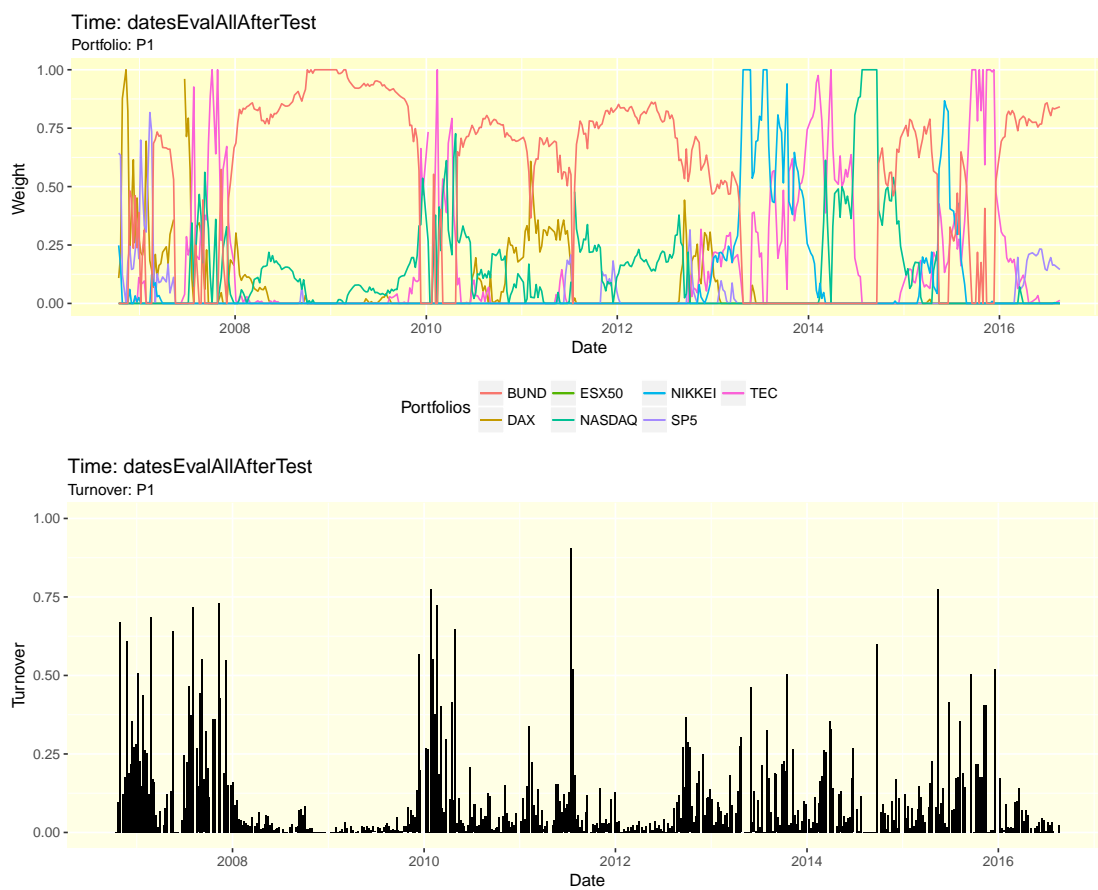
4.4 Weights



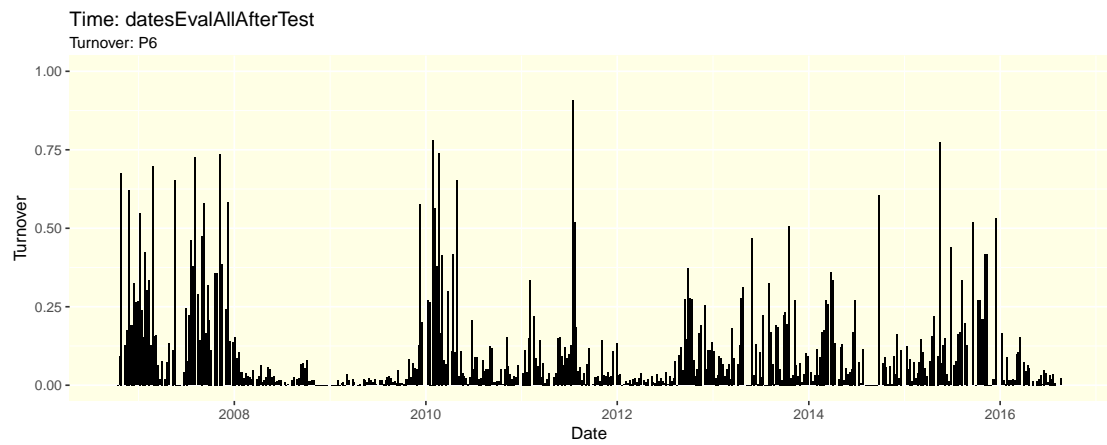
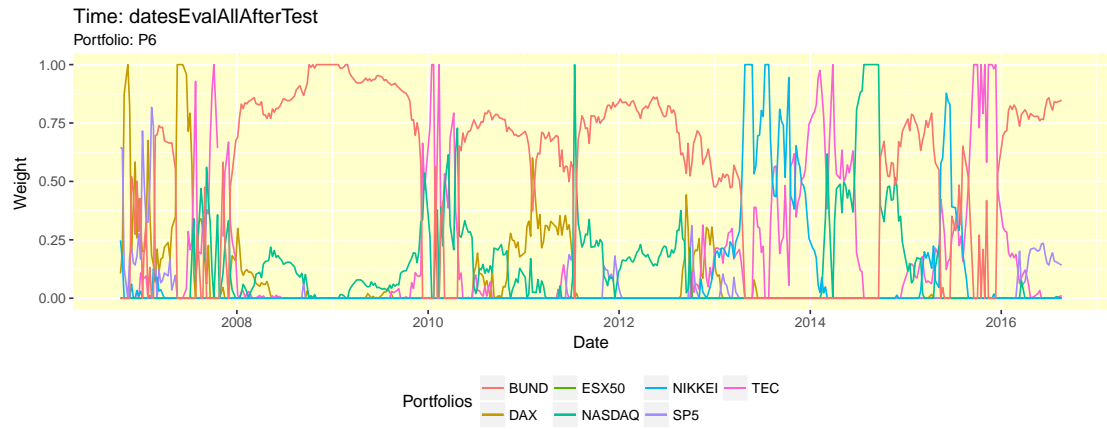
4 Results



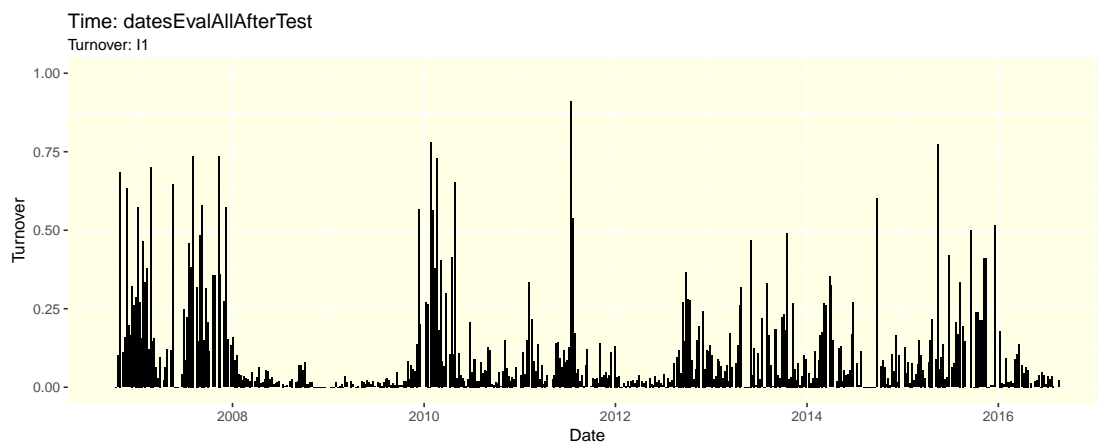
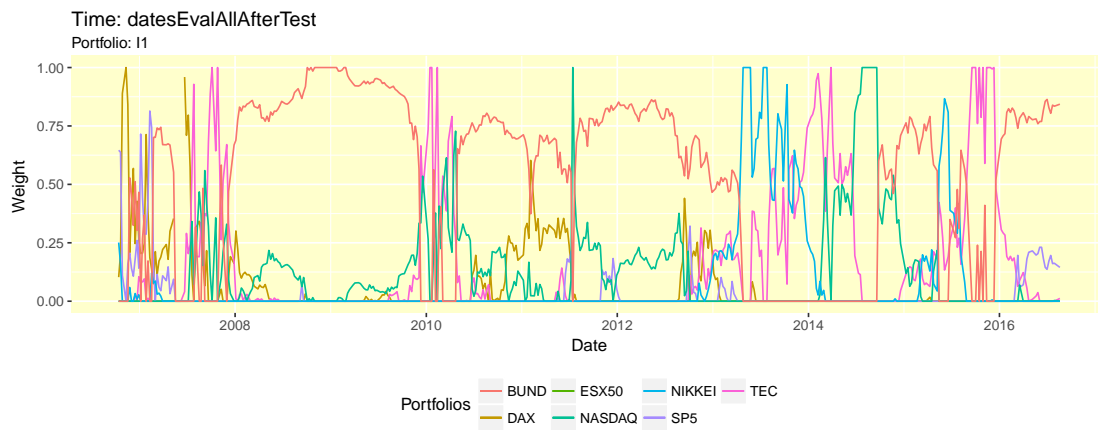
Weights-Sentix-Herfindahl - datesEvalAllAfterTest



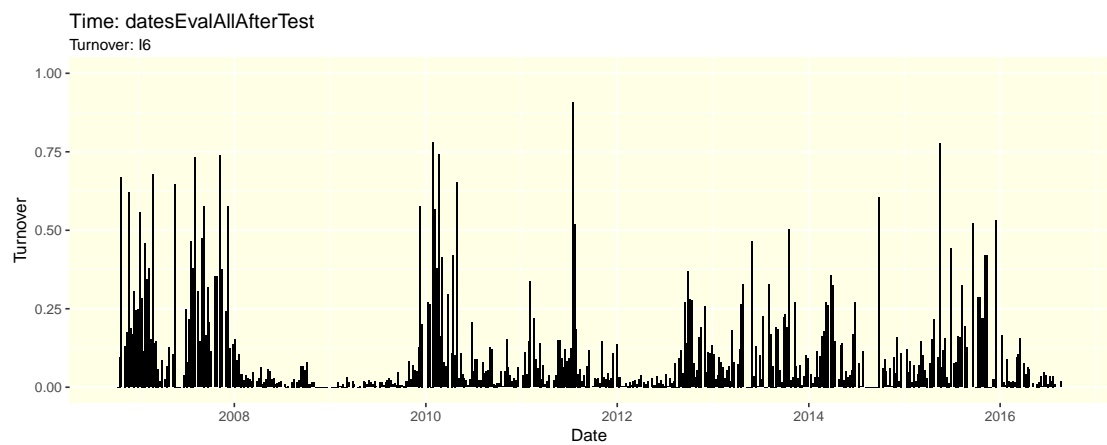
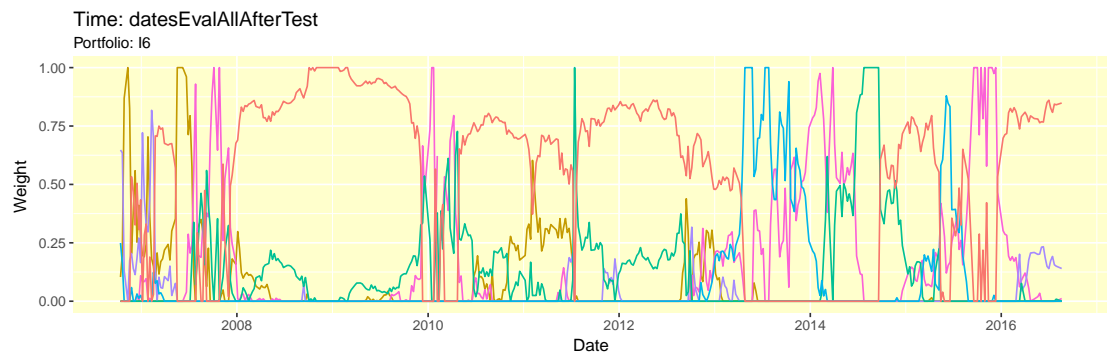
4 Results



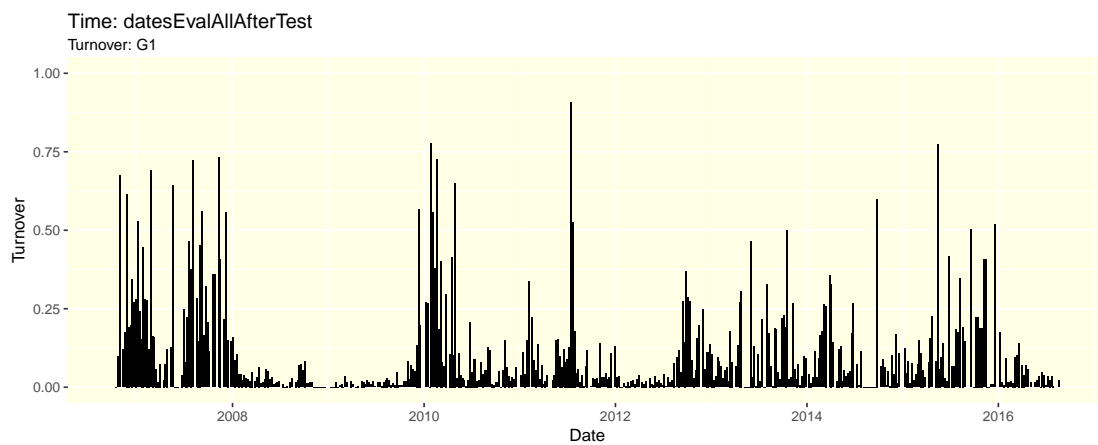
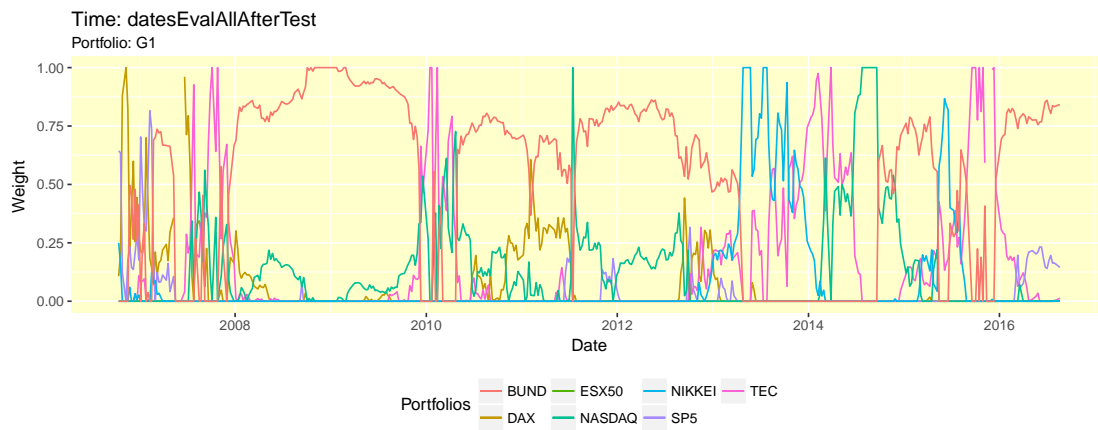
4.4 Weights



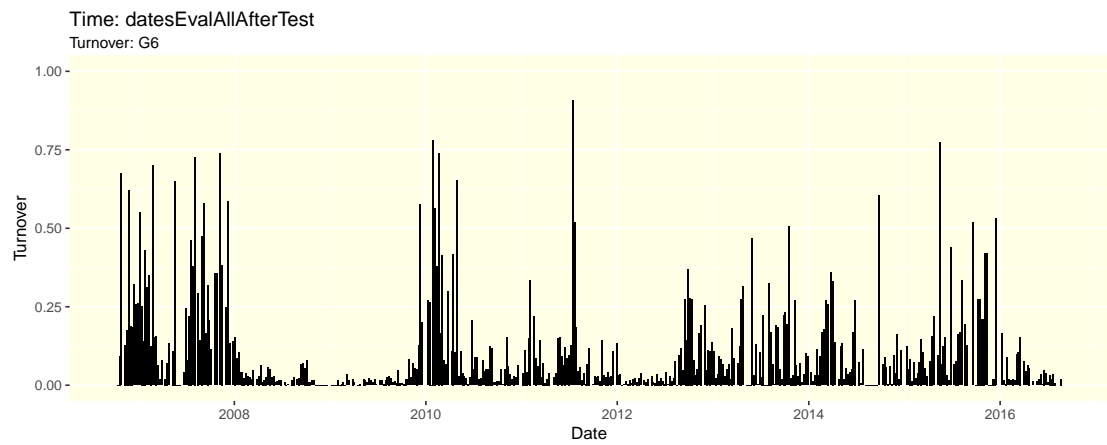
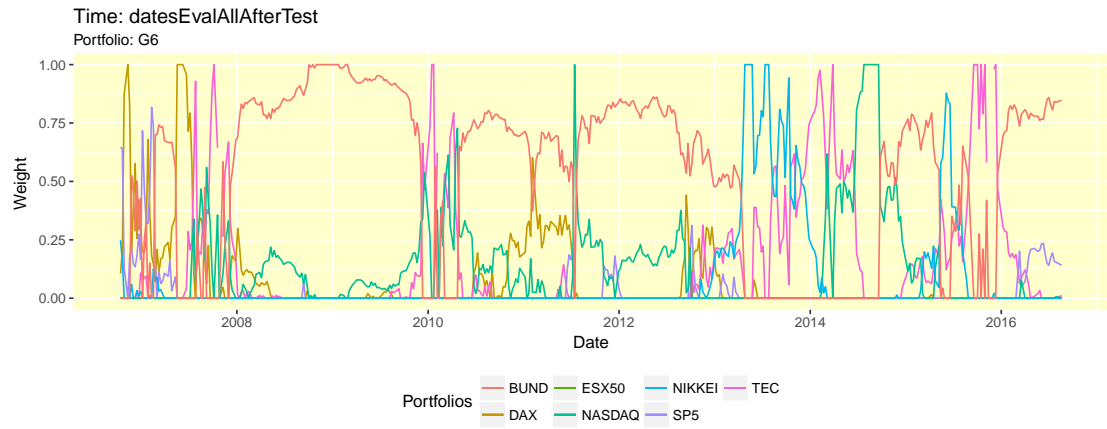
4 Results



4.4 Weights

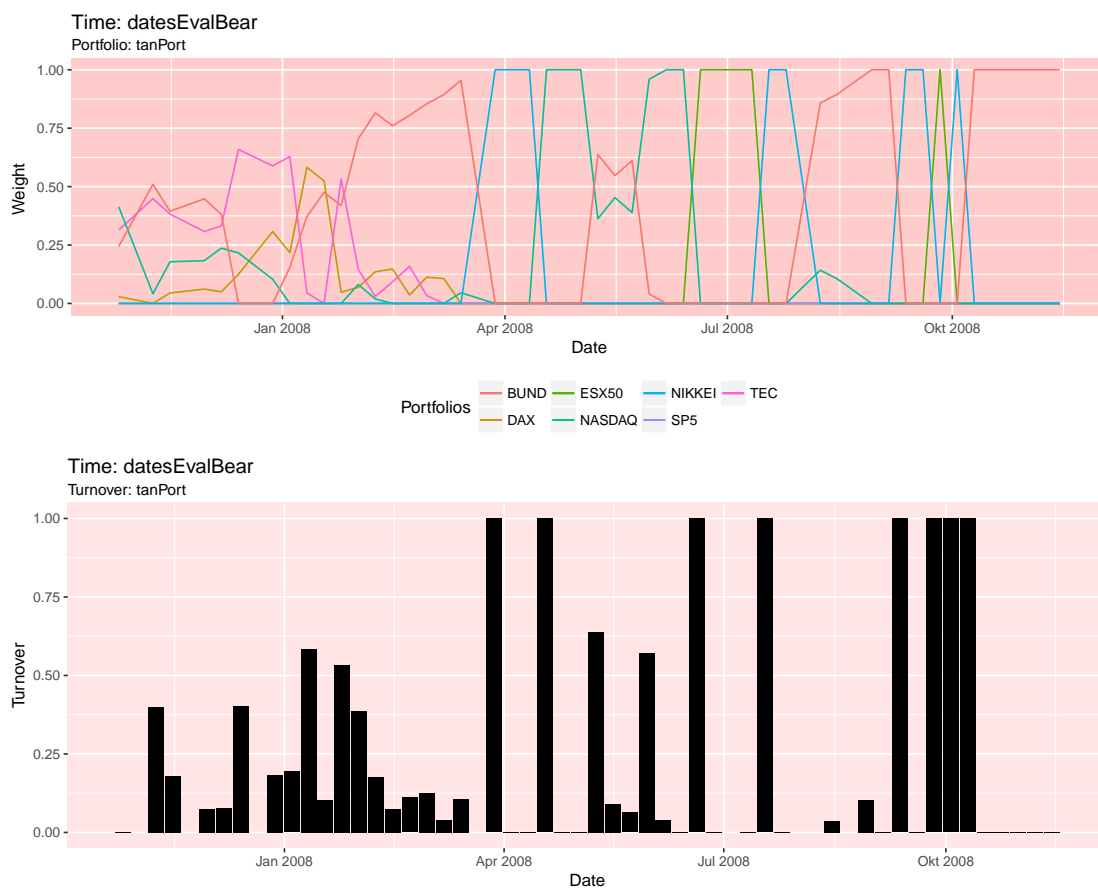


4 Results

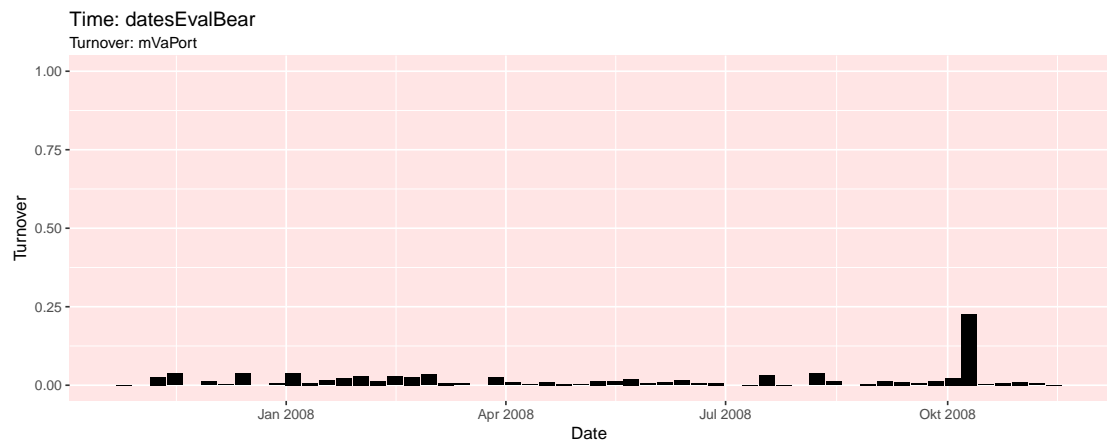
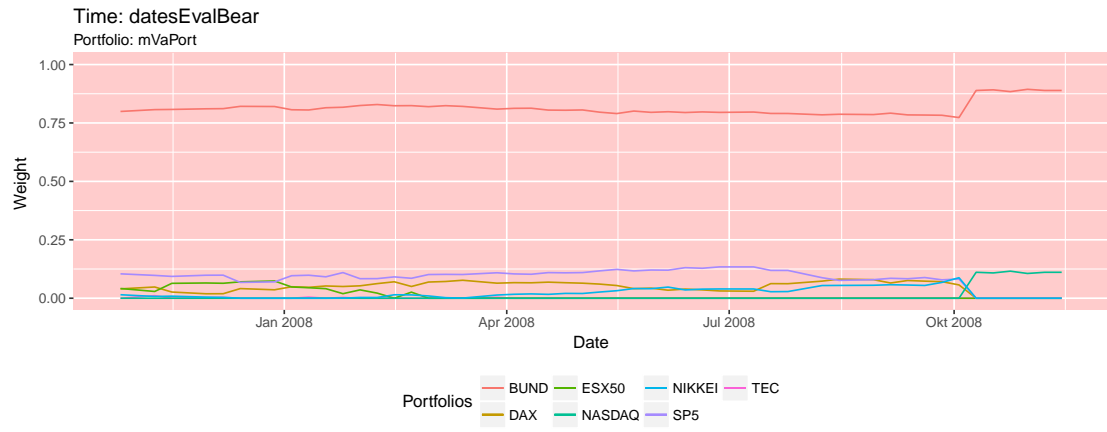


4.4.3 Weights-Classic

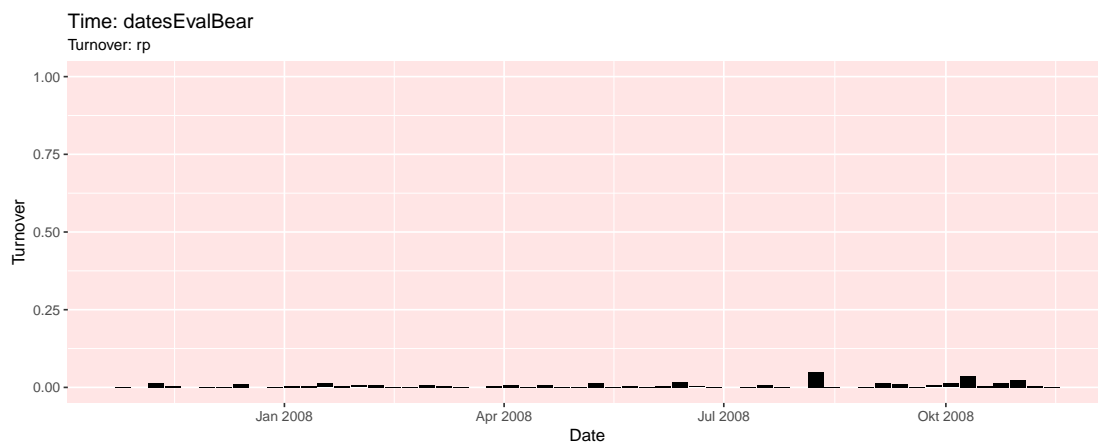
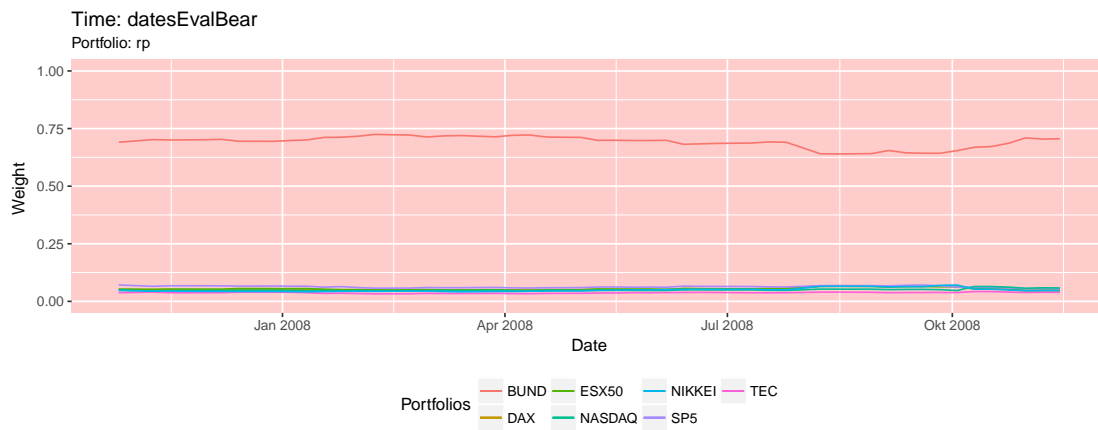
Weights-Classic - datesEvalBear



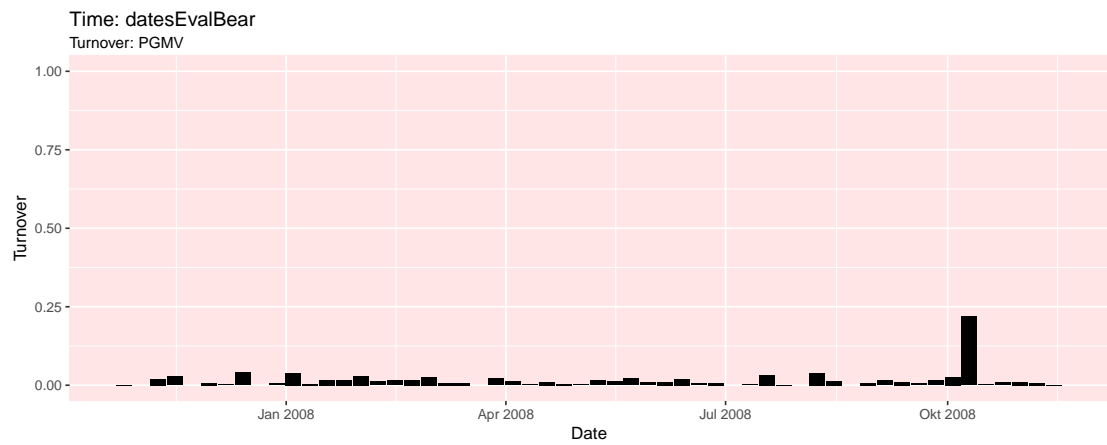
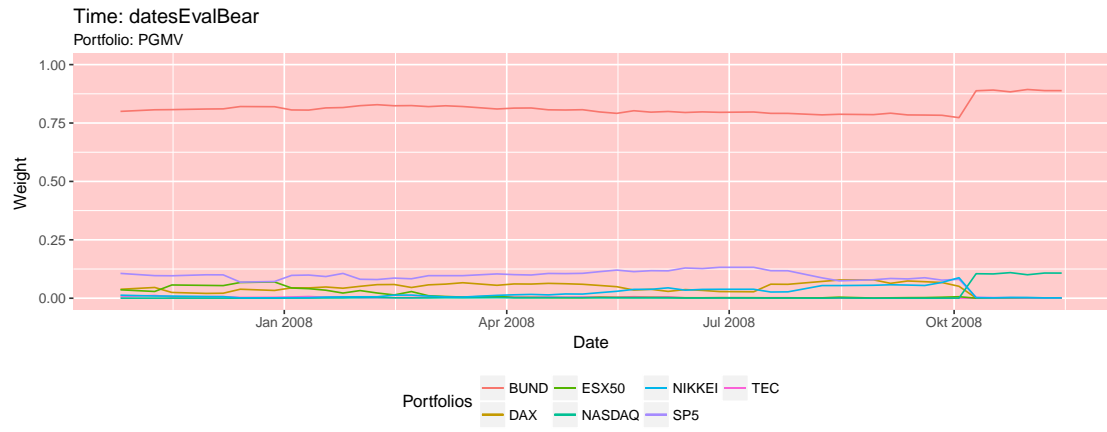
4 Results



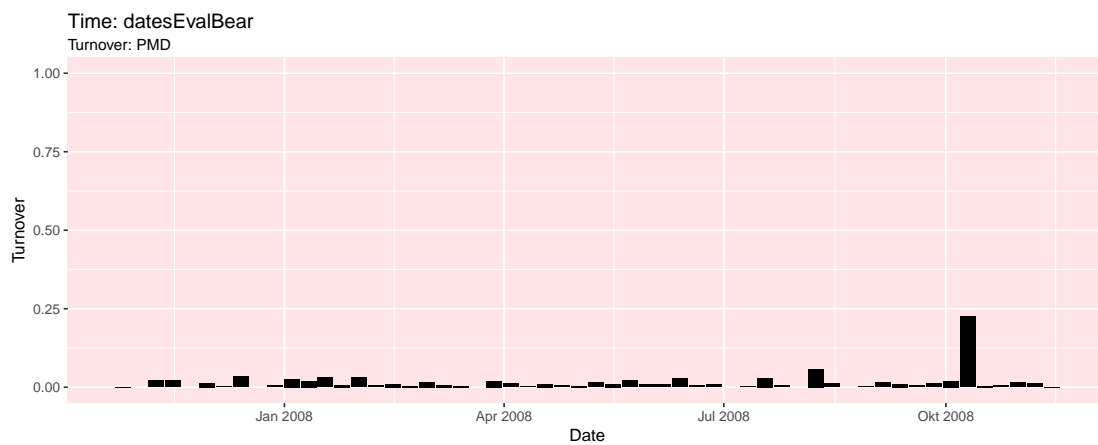
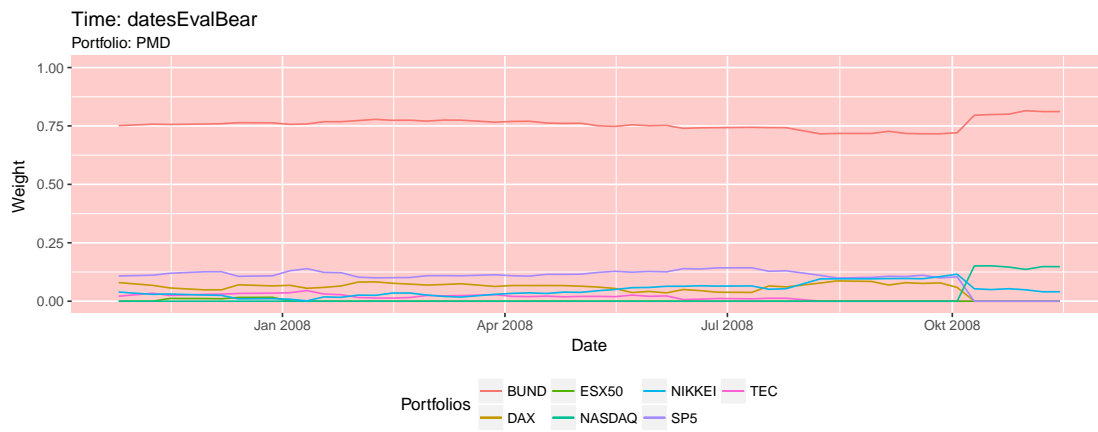
4.4 Weights



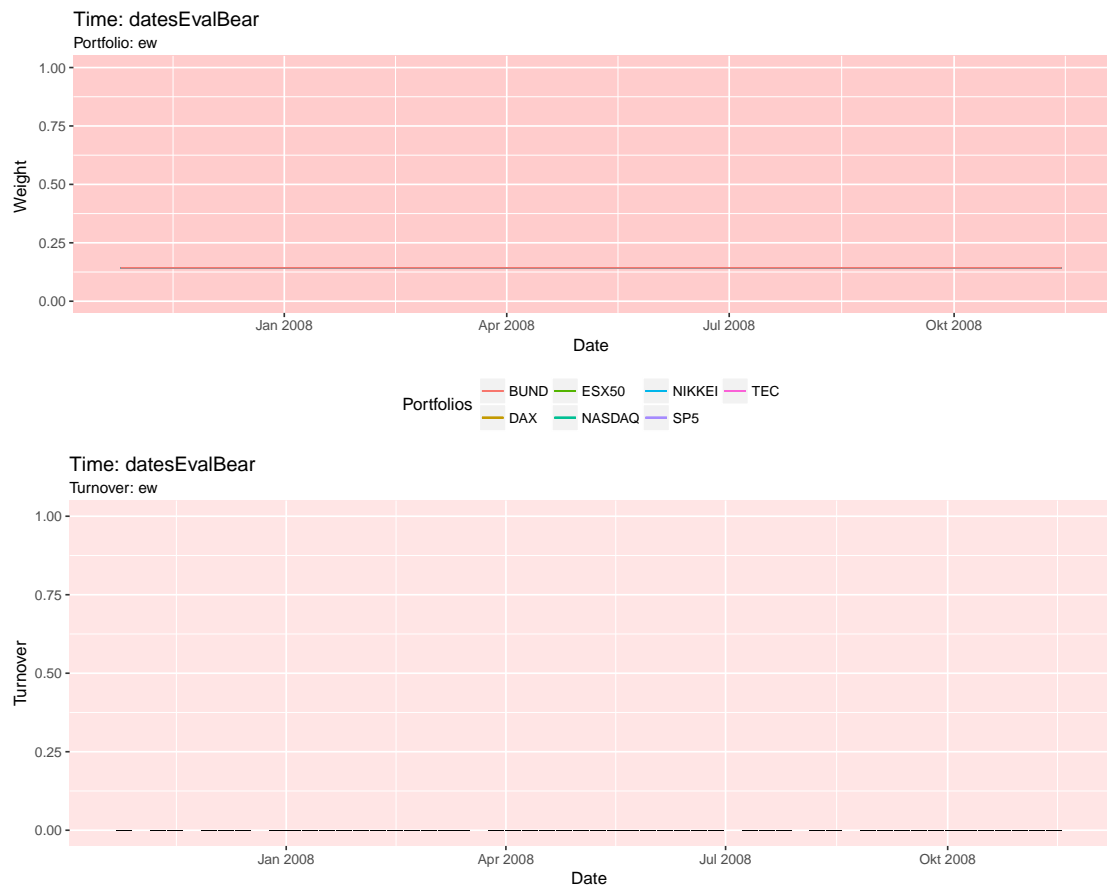
4 Results



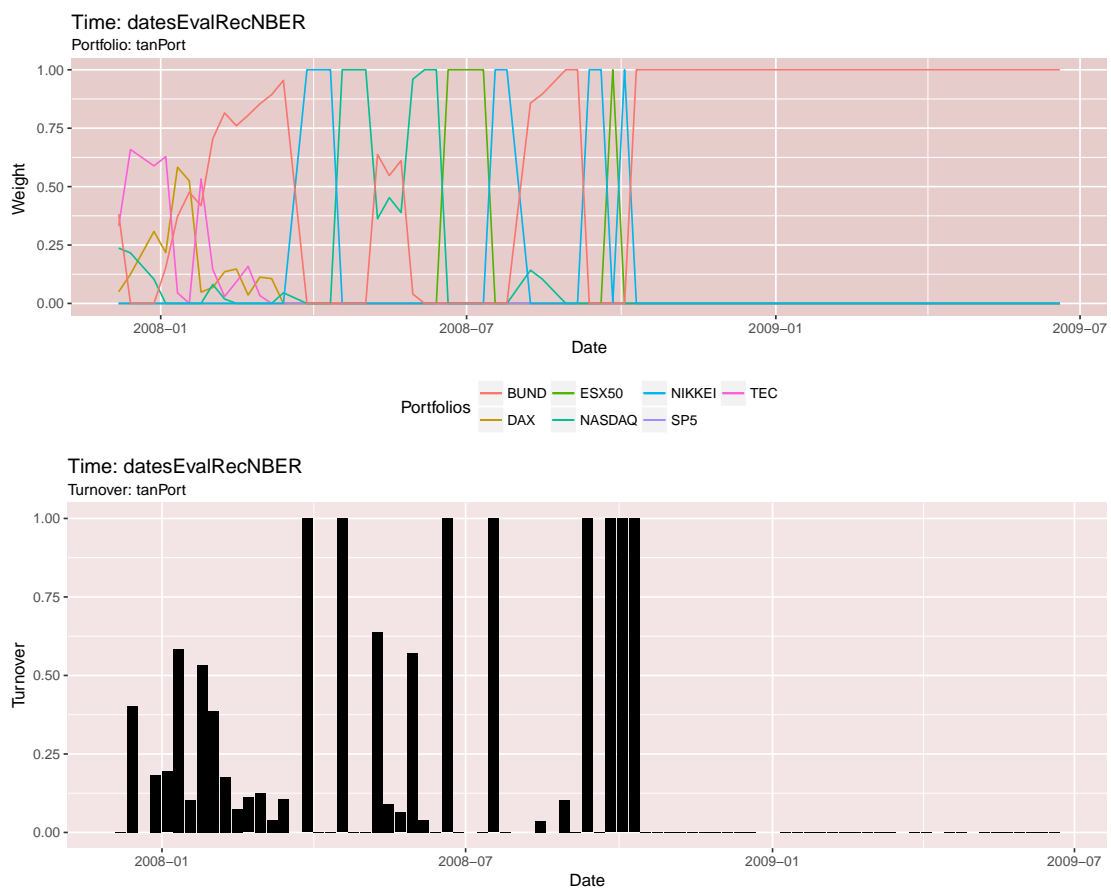
4.4 Weights



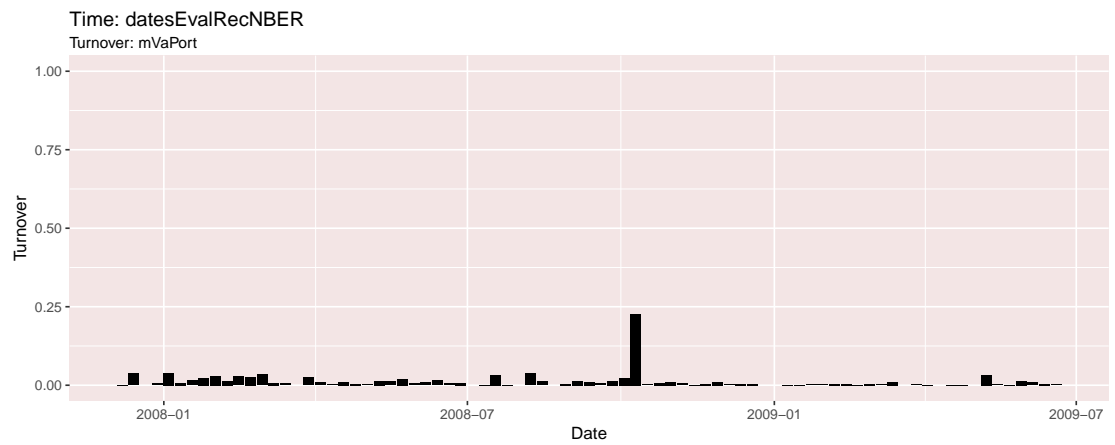
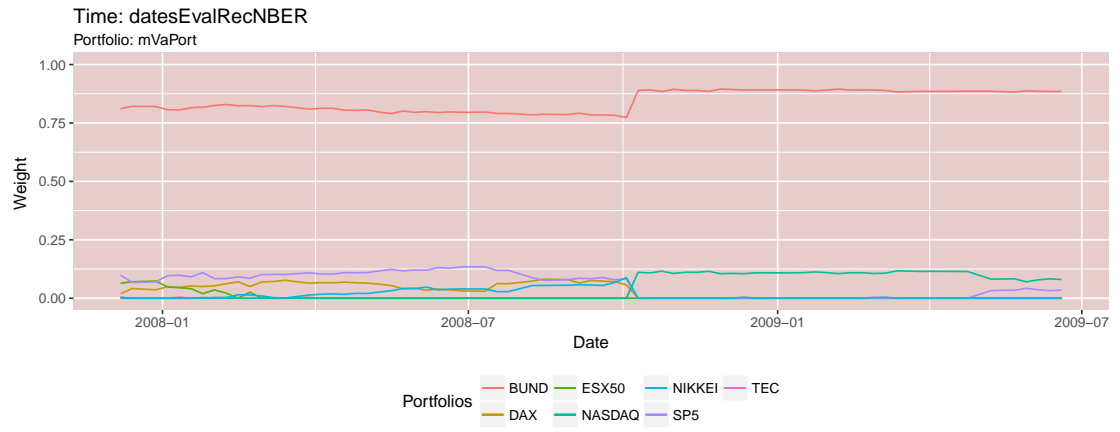
4 Results



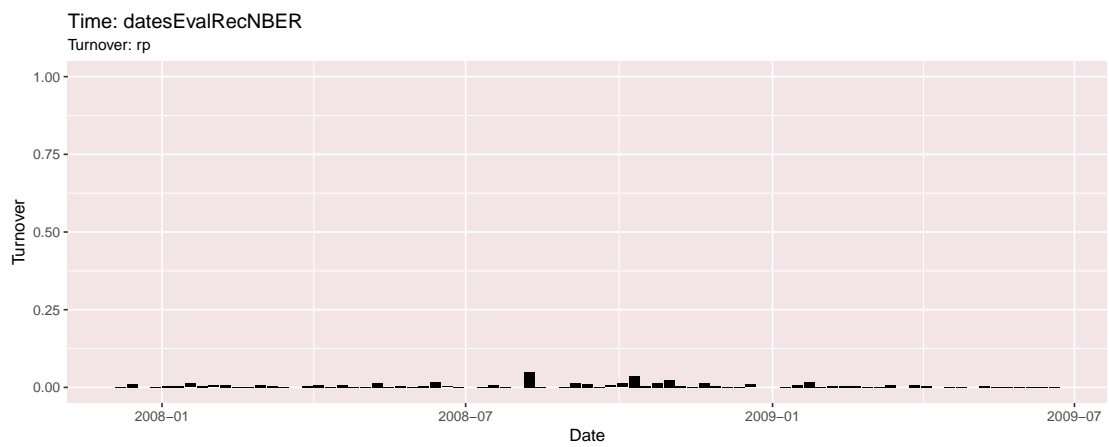
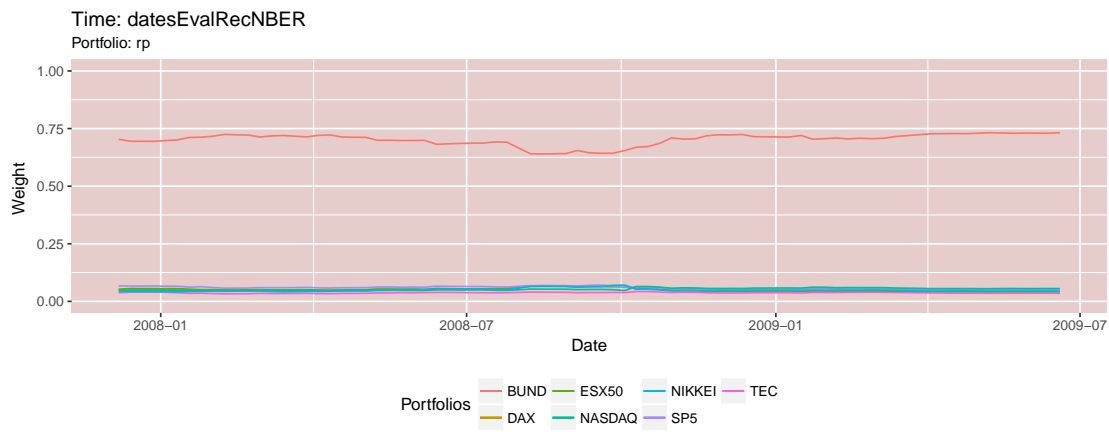
Weights-Classic - datesEvalRecNBER



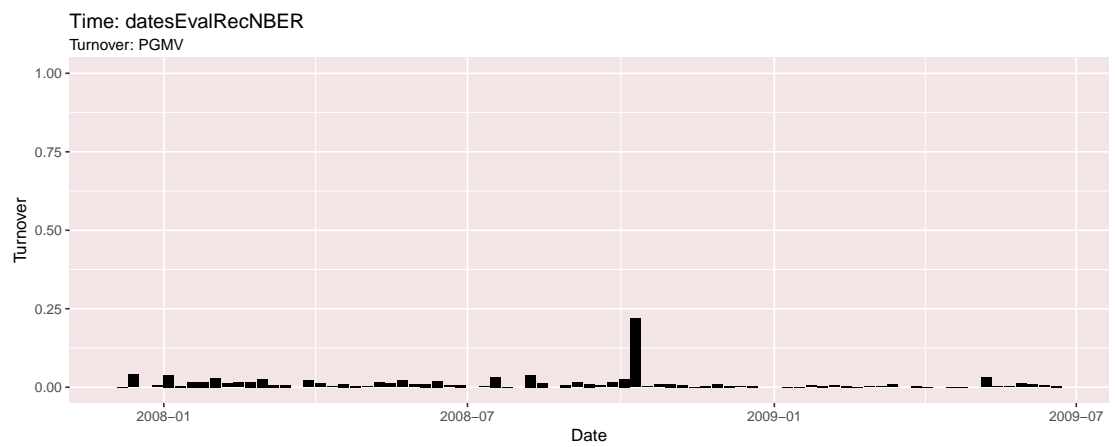
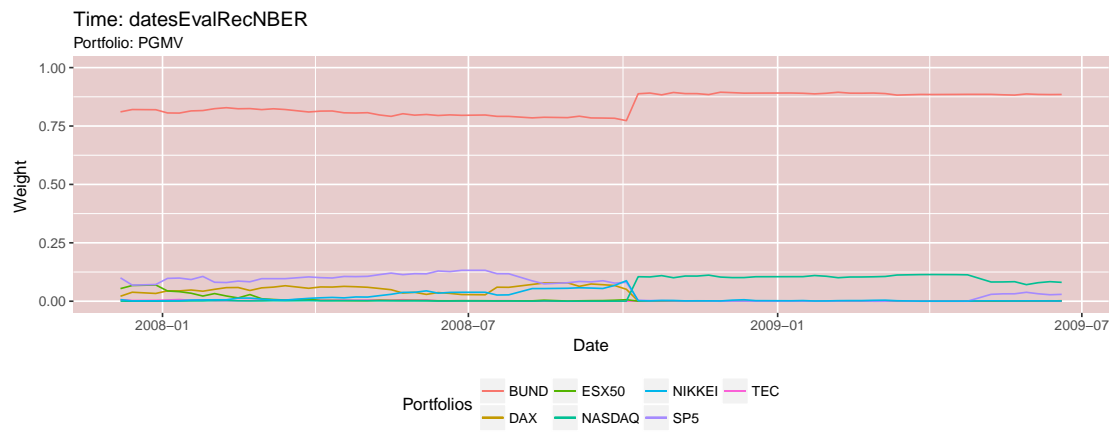
4 Results



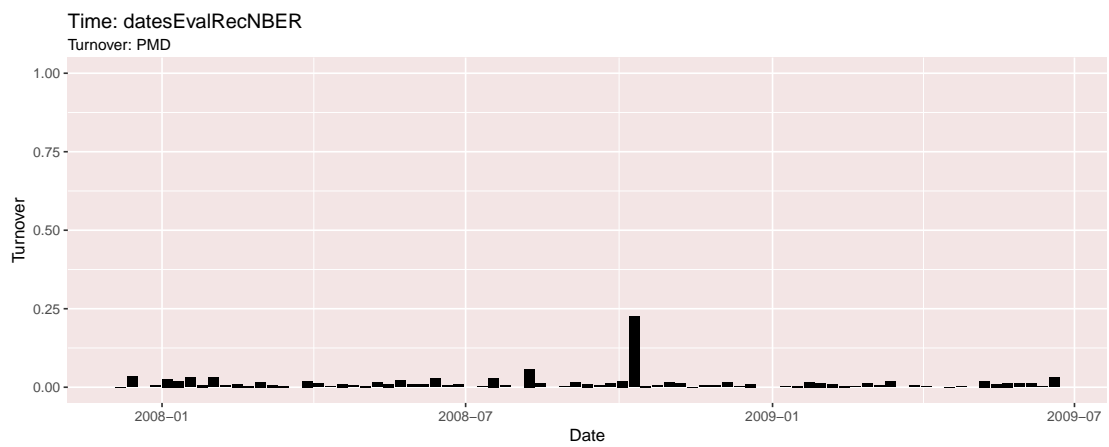
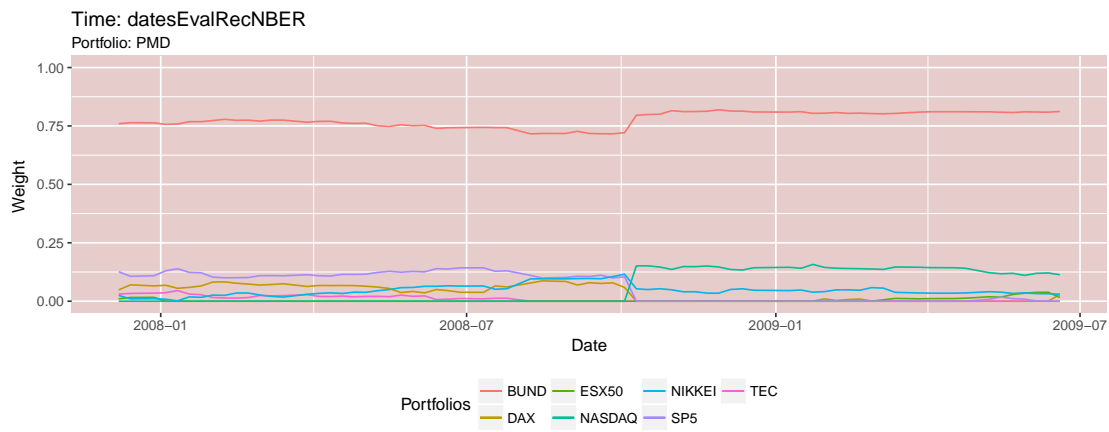
4.4 Weights



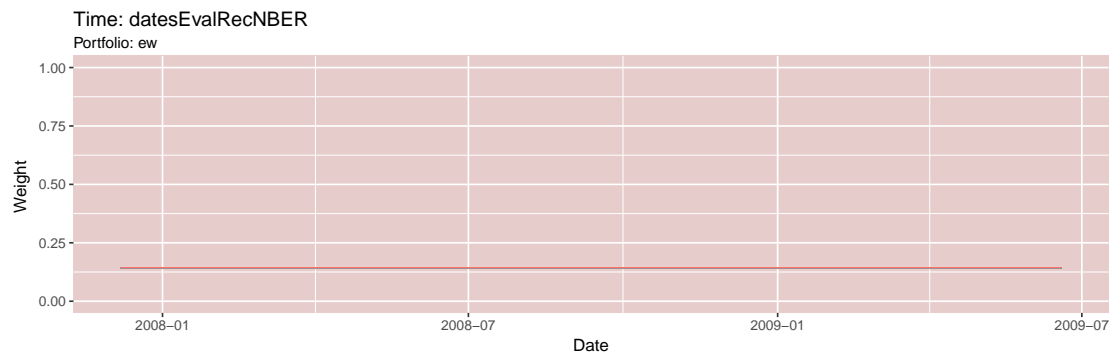
4 Results



4.4 Weights

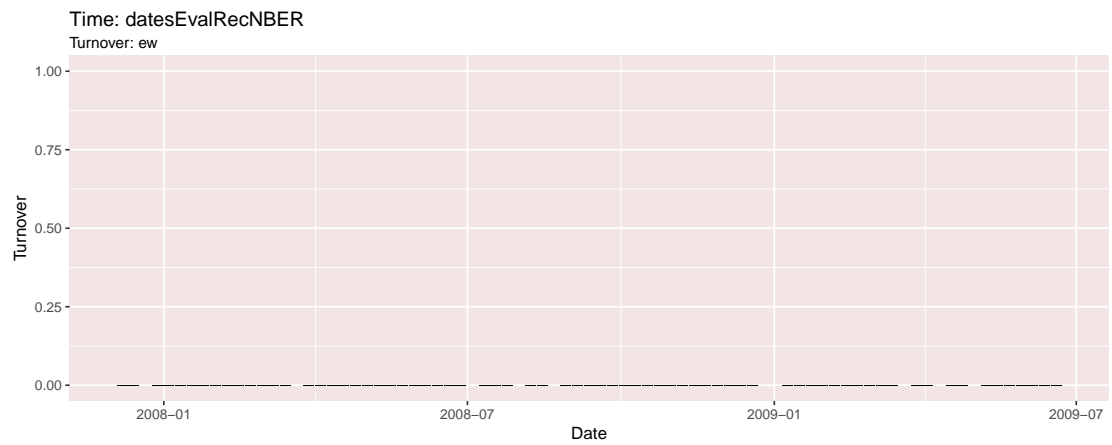


4 Results

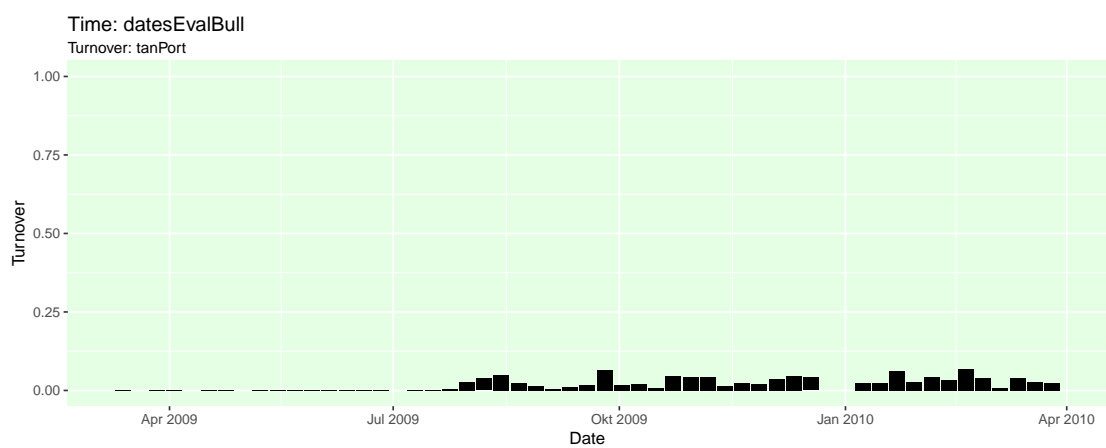
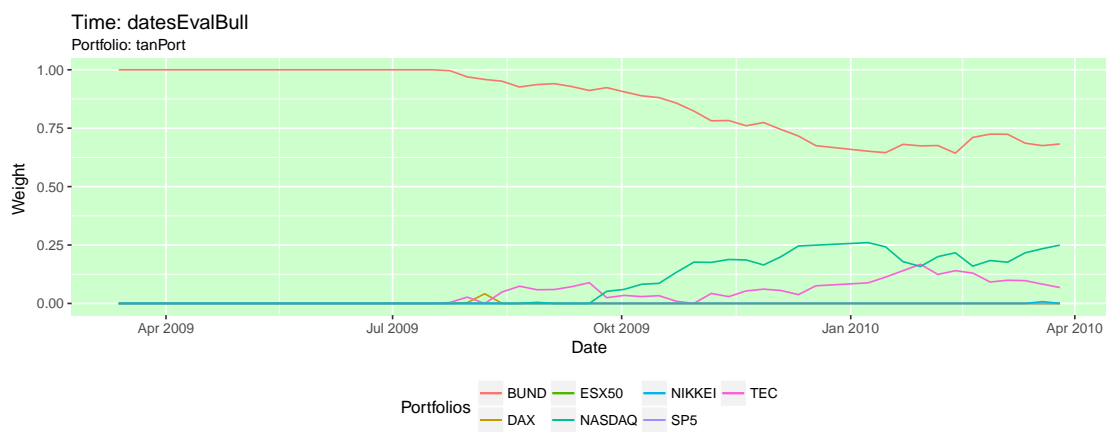


Portfolios

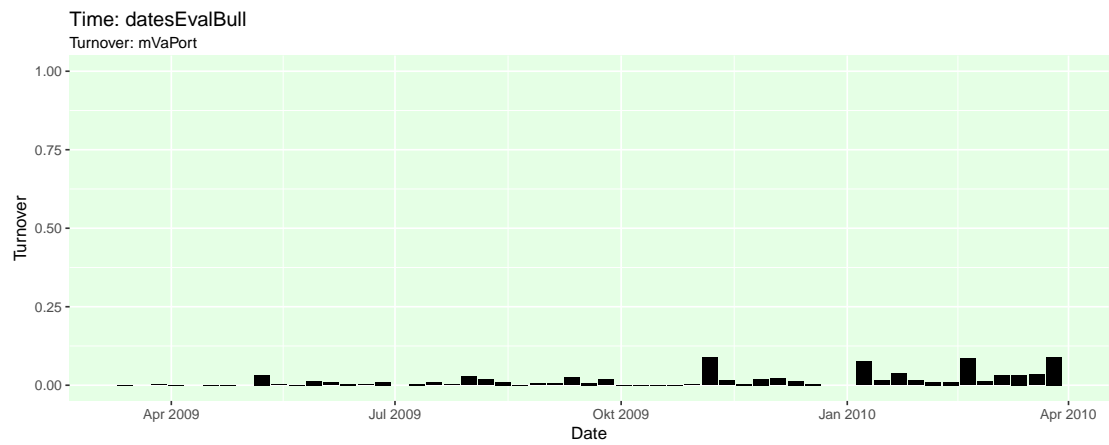
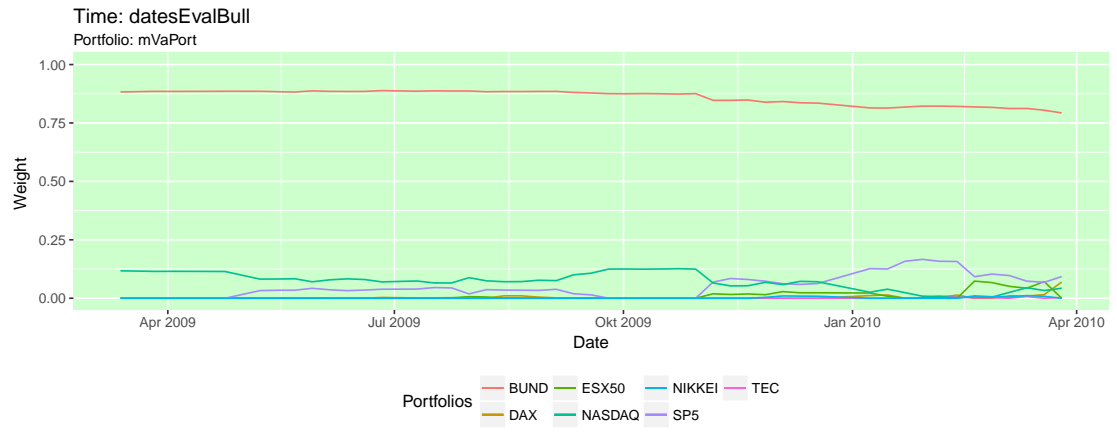
BUND	ESX50	NIKKEI	TEC
DAX	NASDAQ	SP5	



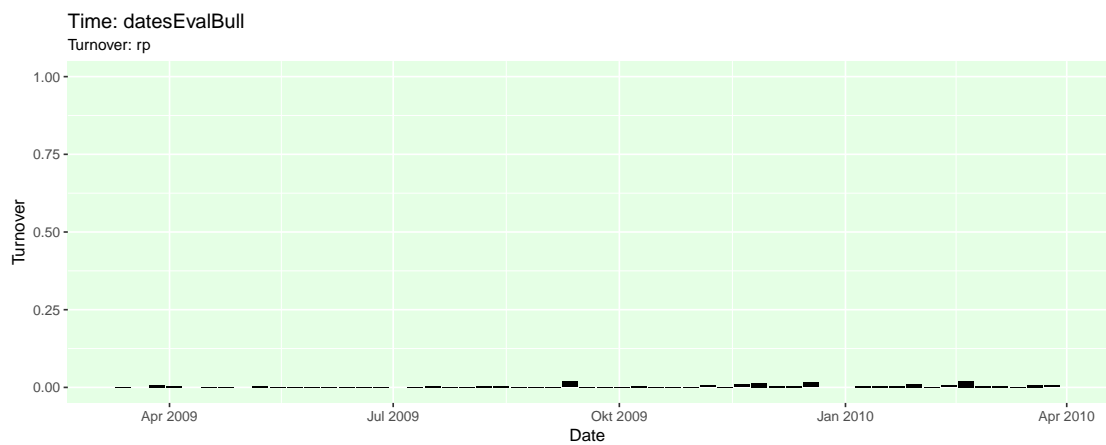
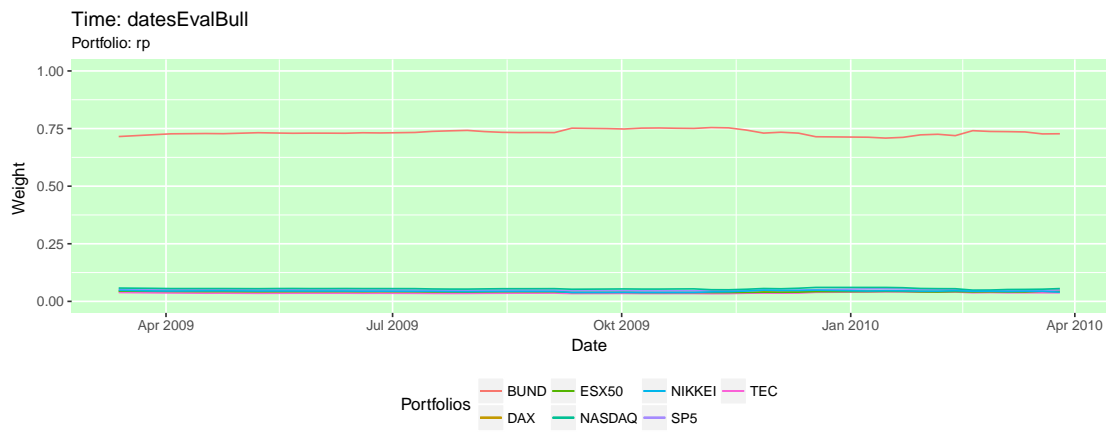
Weights-Classic - datesEvalBull



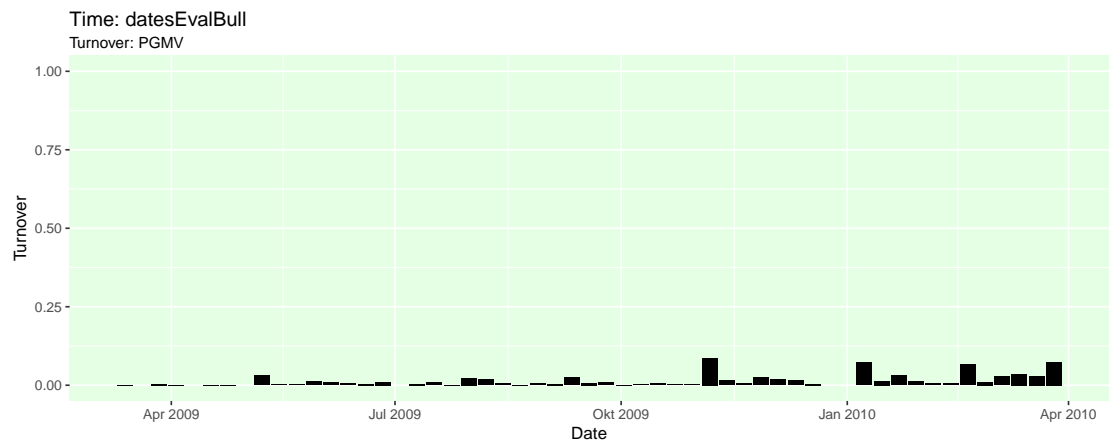
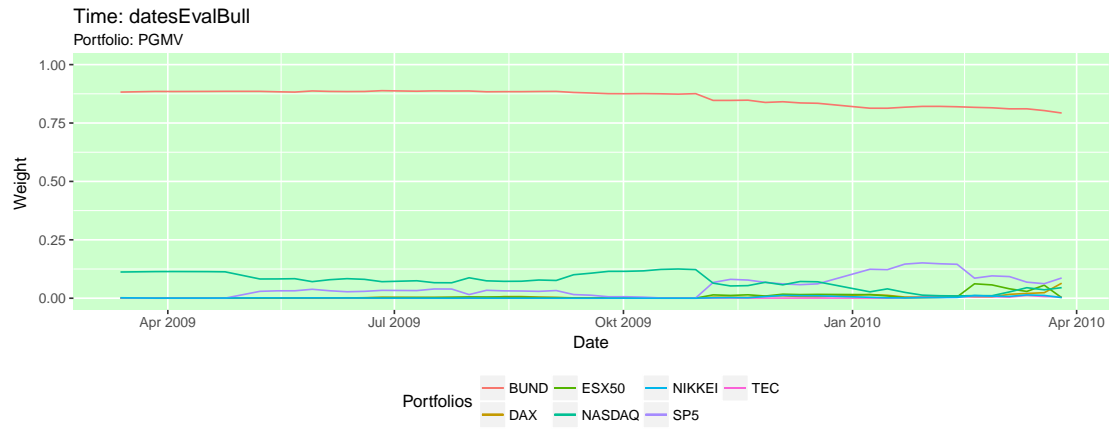
4 Results



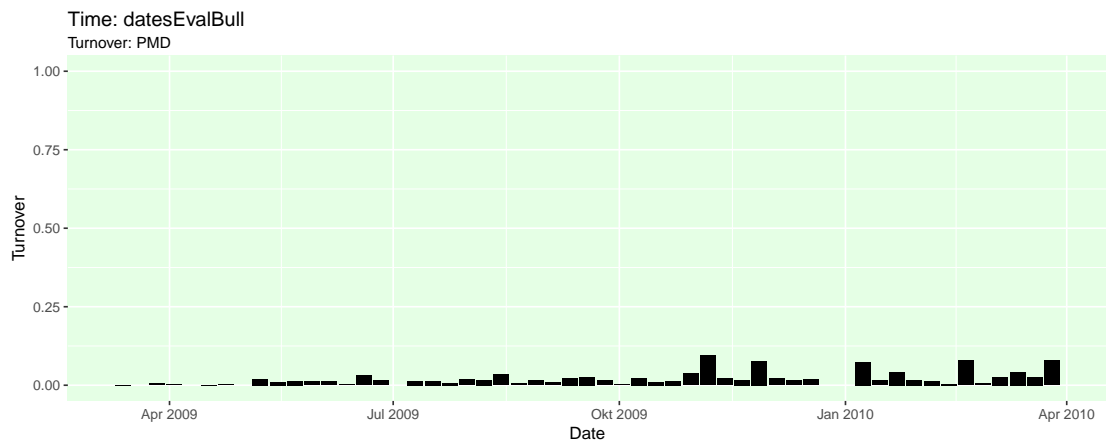
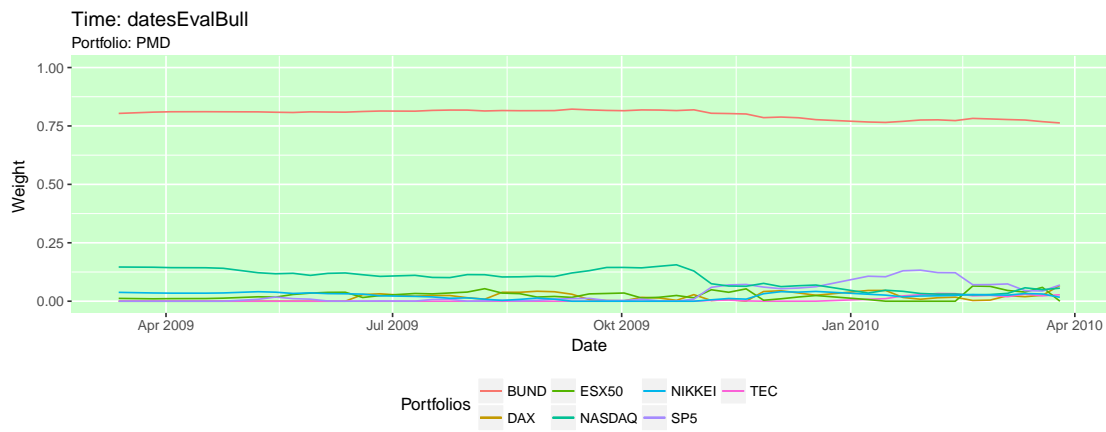
4.4 Weights



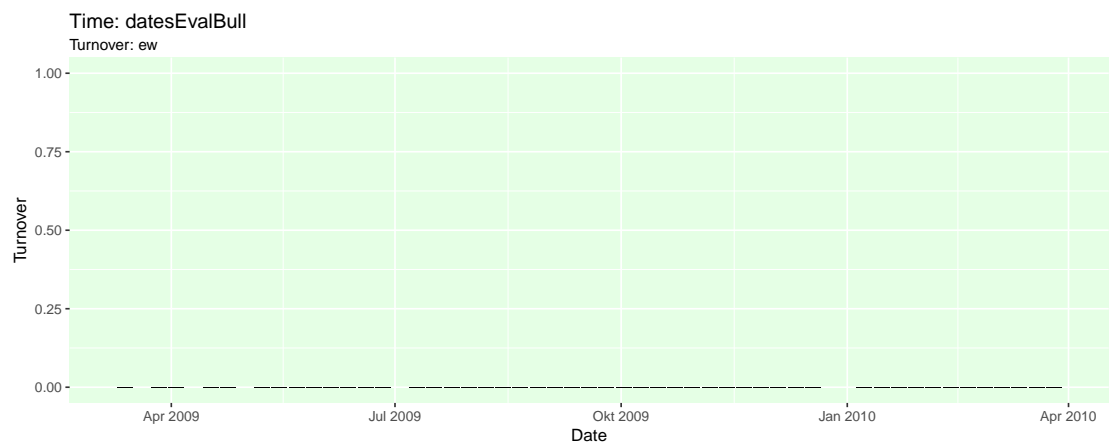
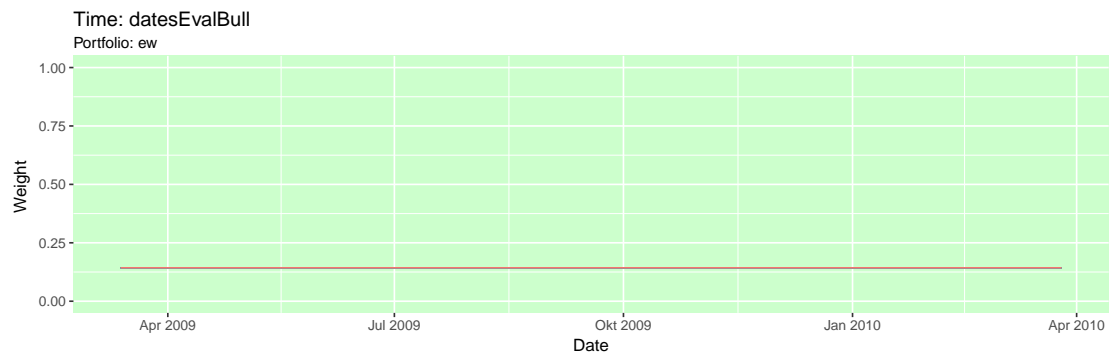
4 Results



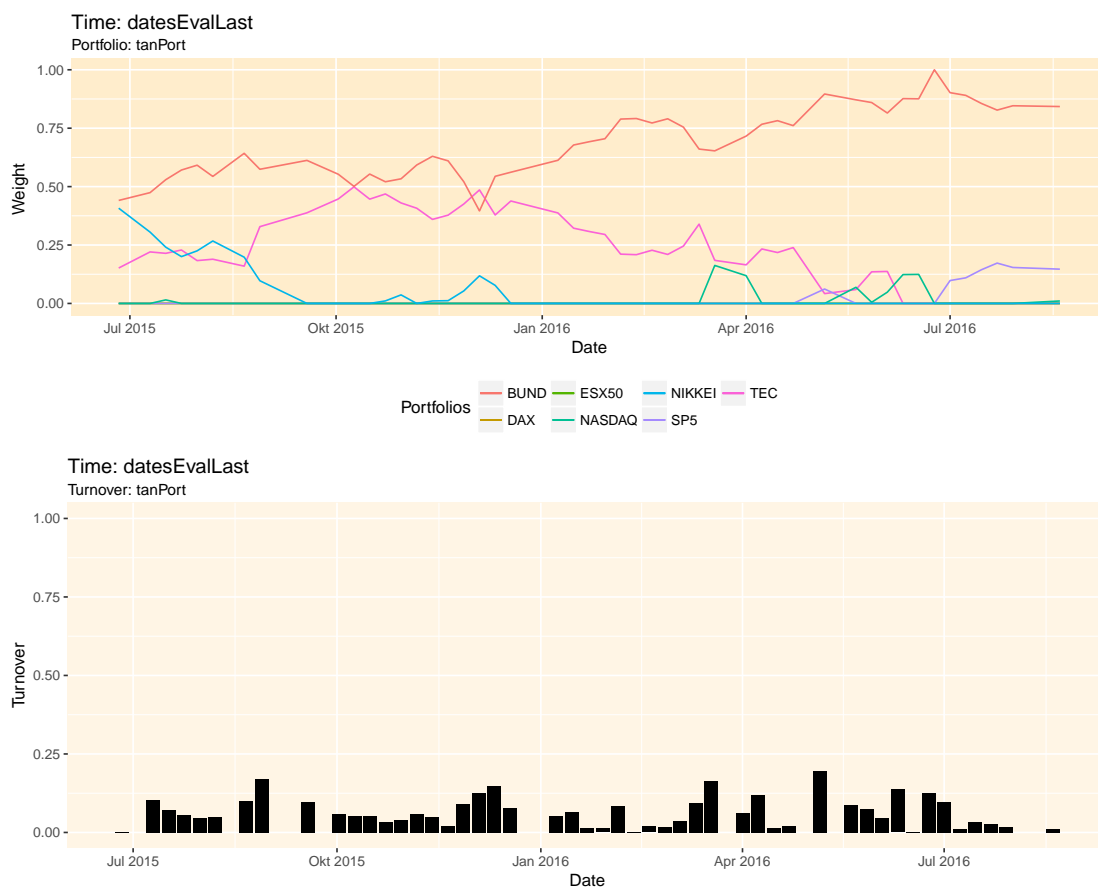
4.4 Weights



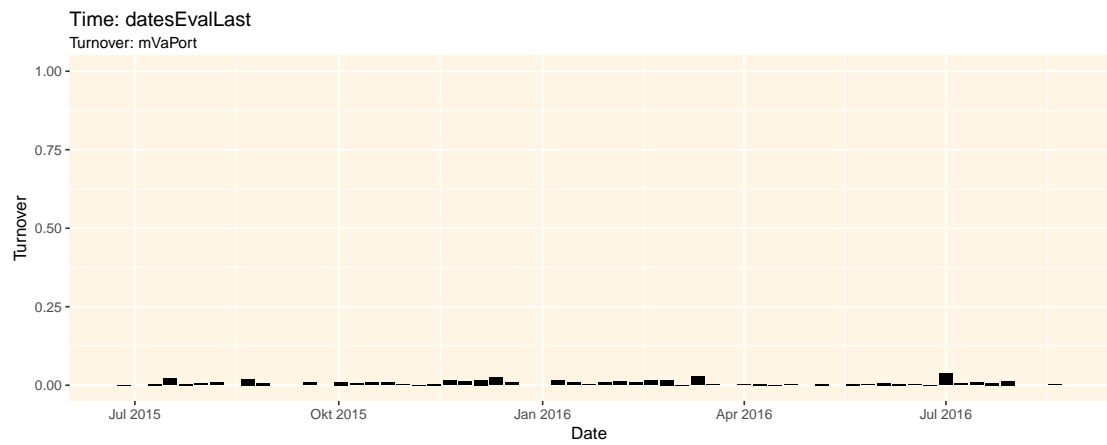
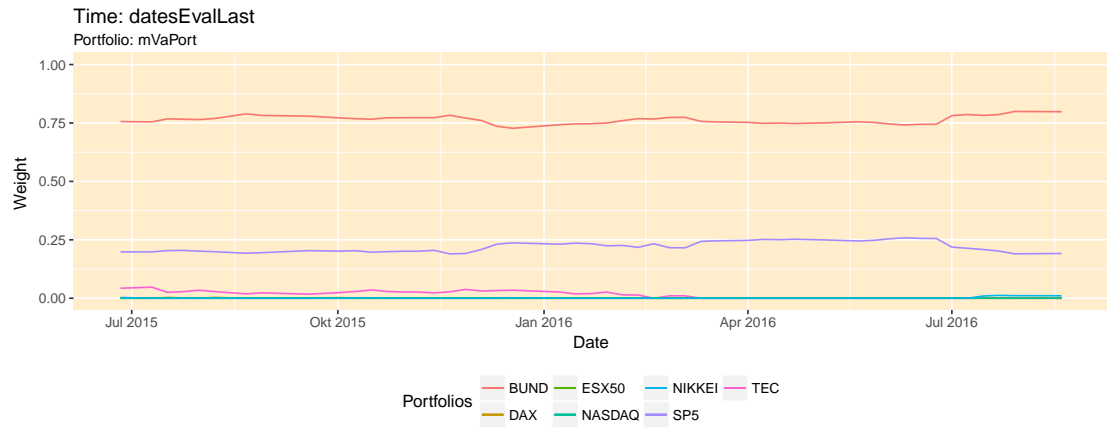
4 Results



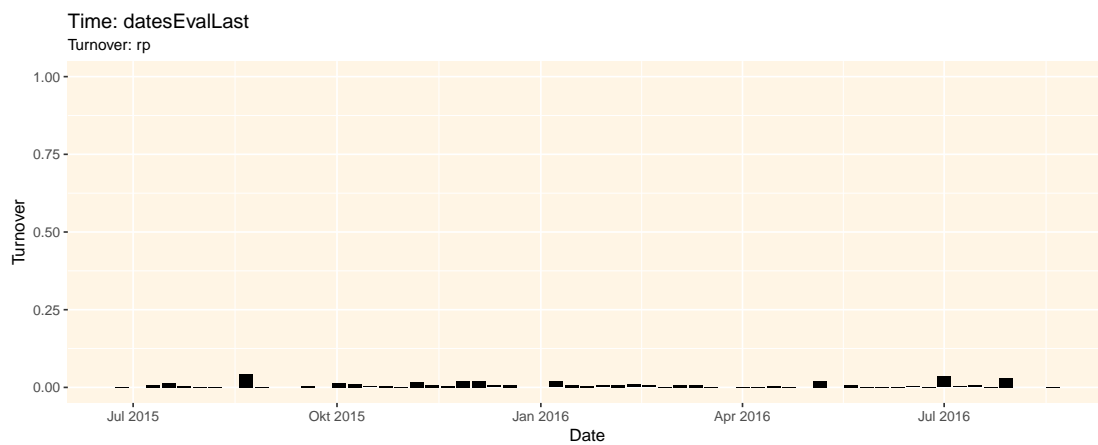
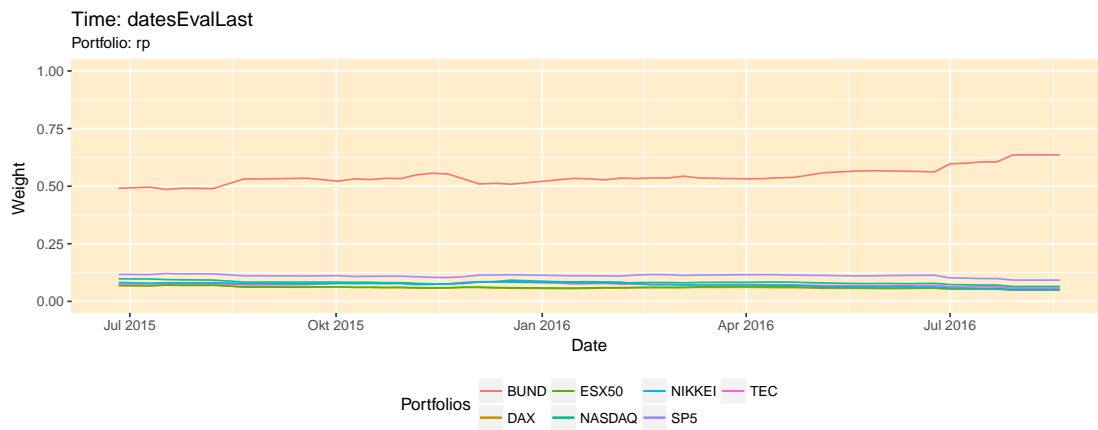
Weights-Classic - datesEvalLast



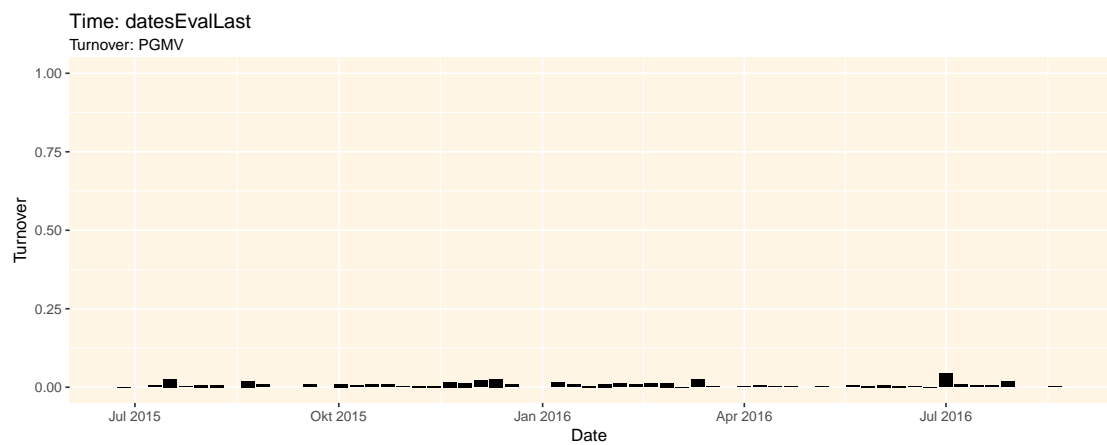
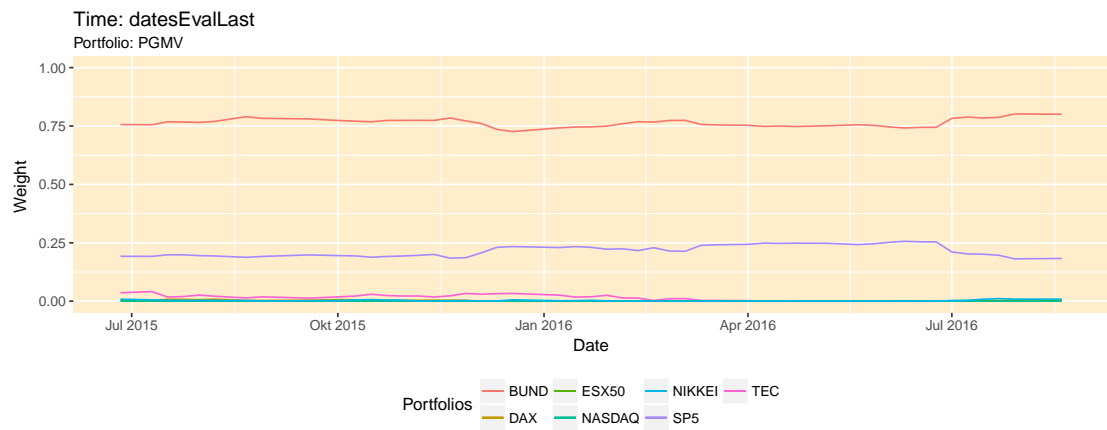
4 Results



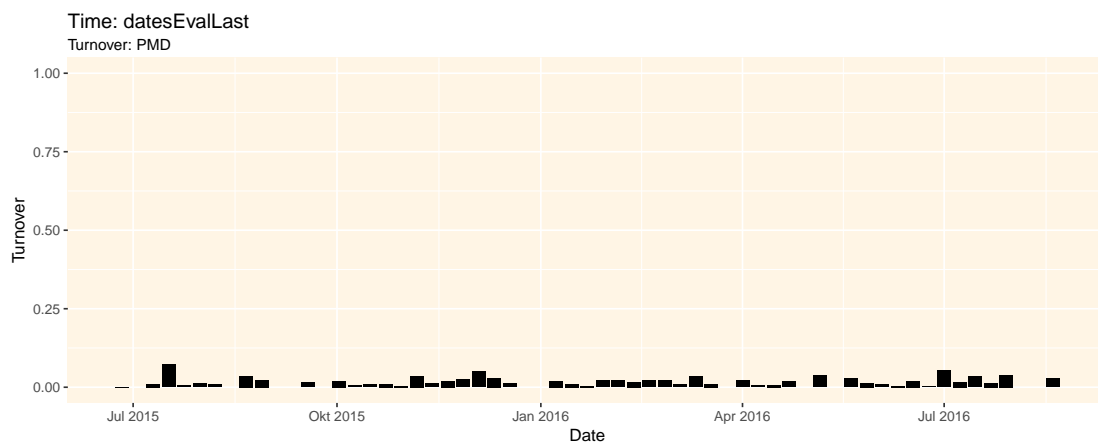
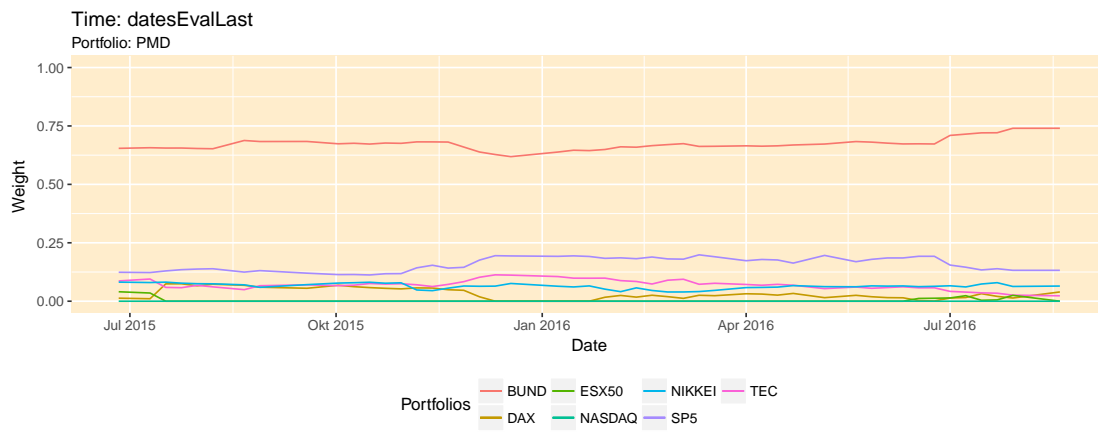
4.4 Weights



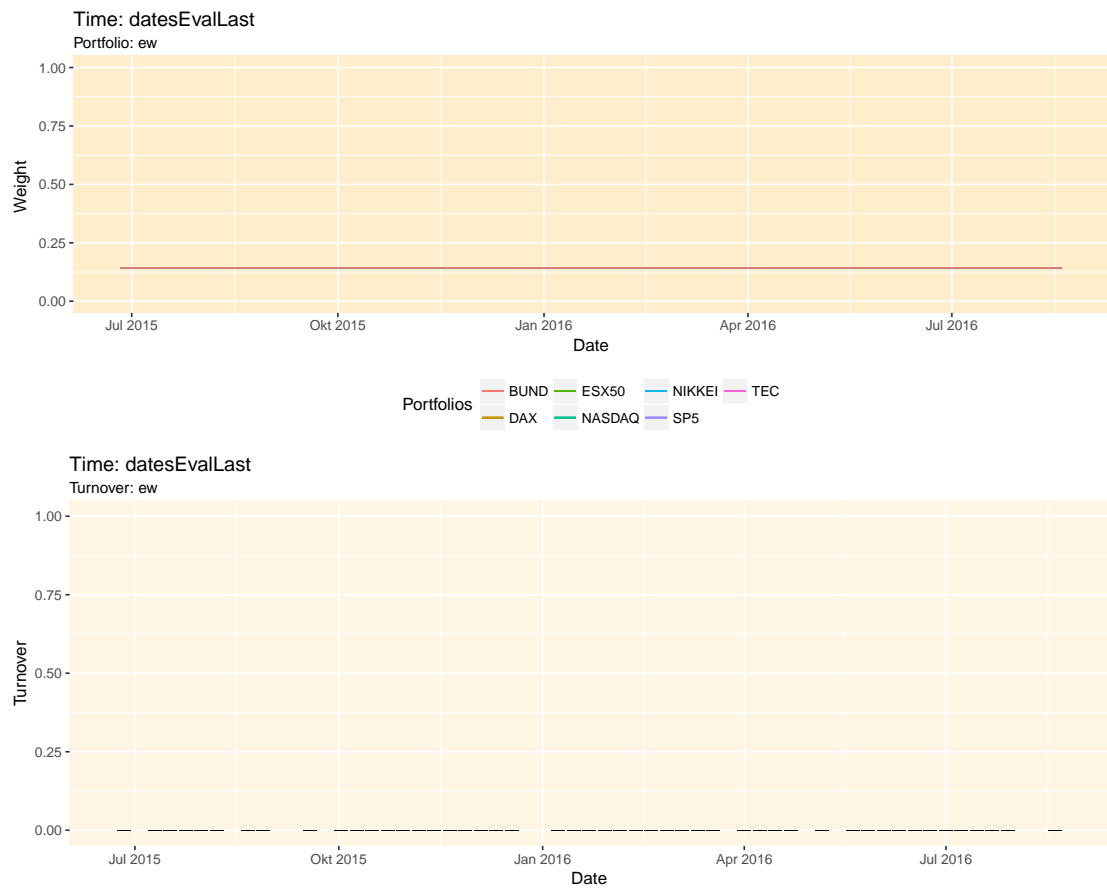
4 Results



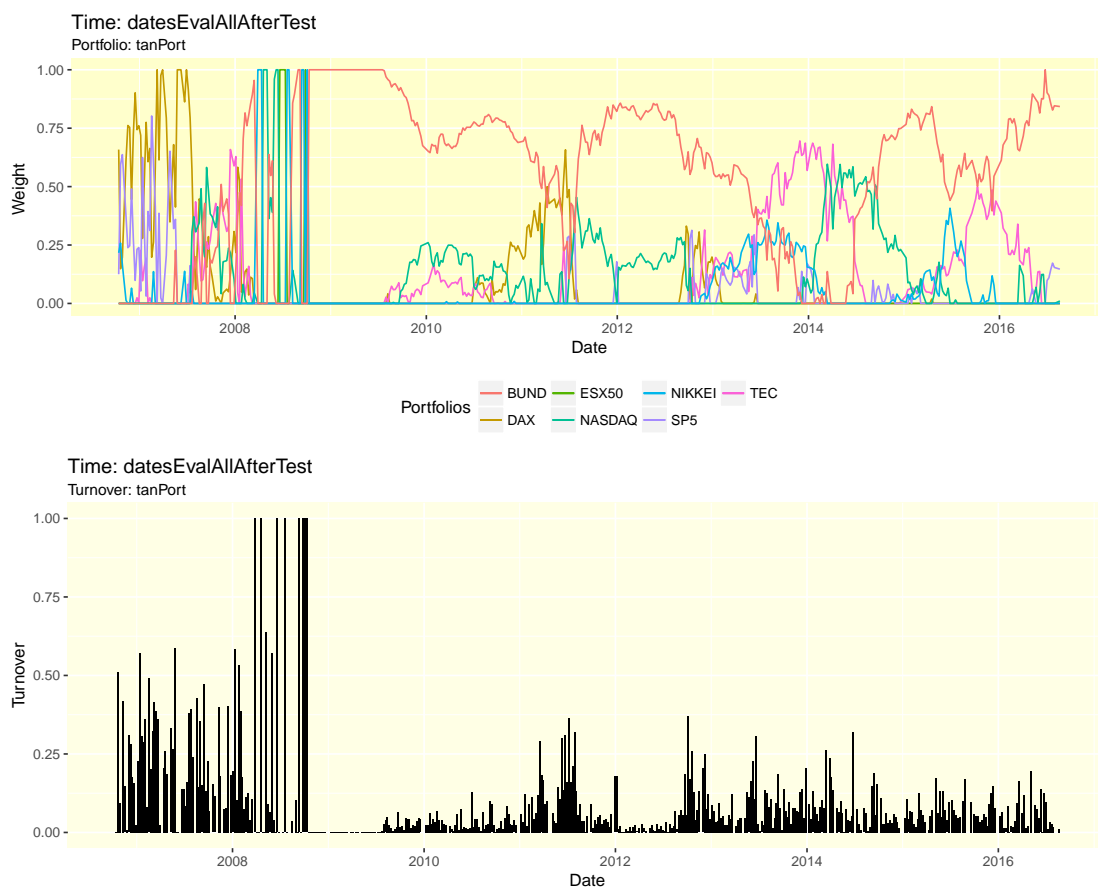
4.4 Weights



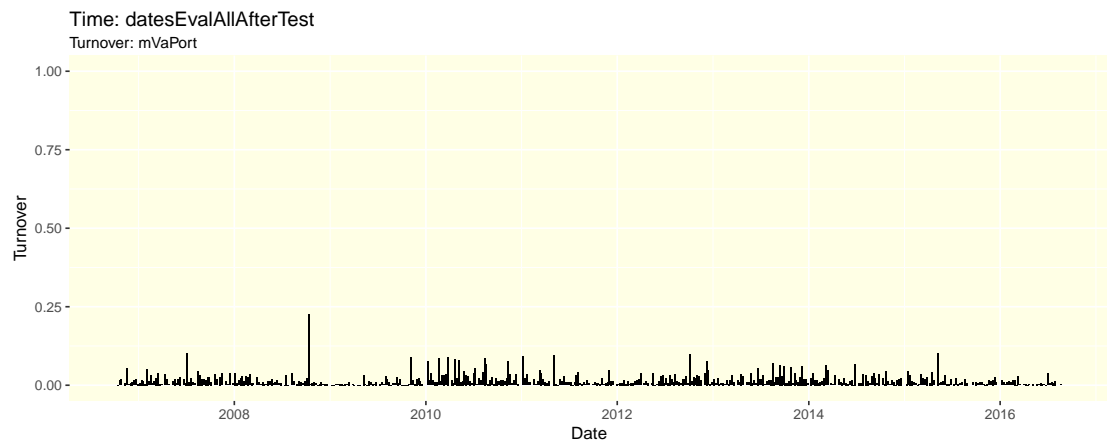
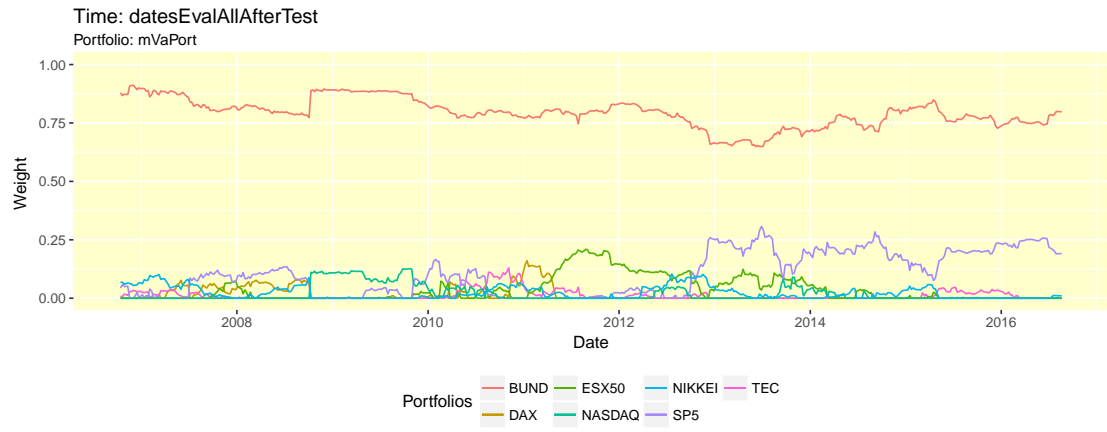
4 Results



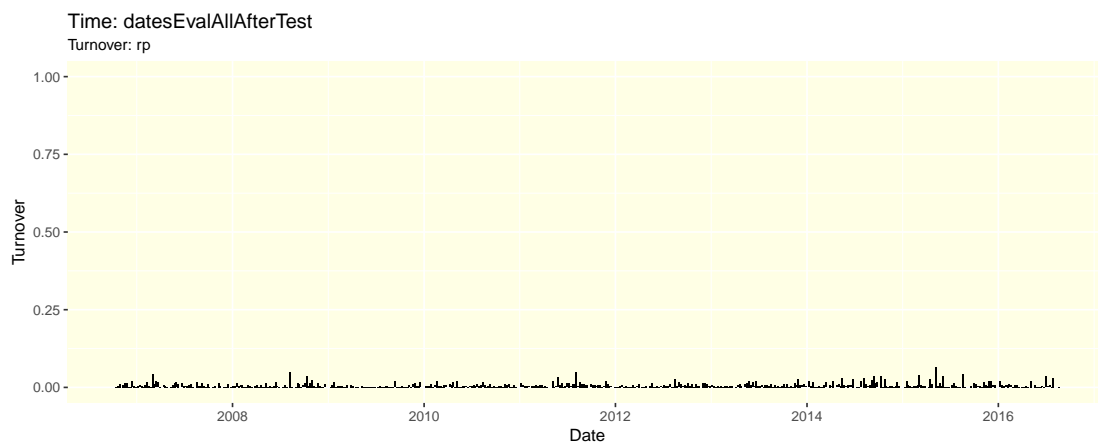
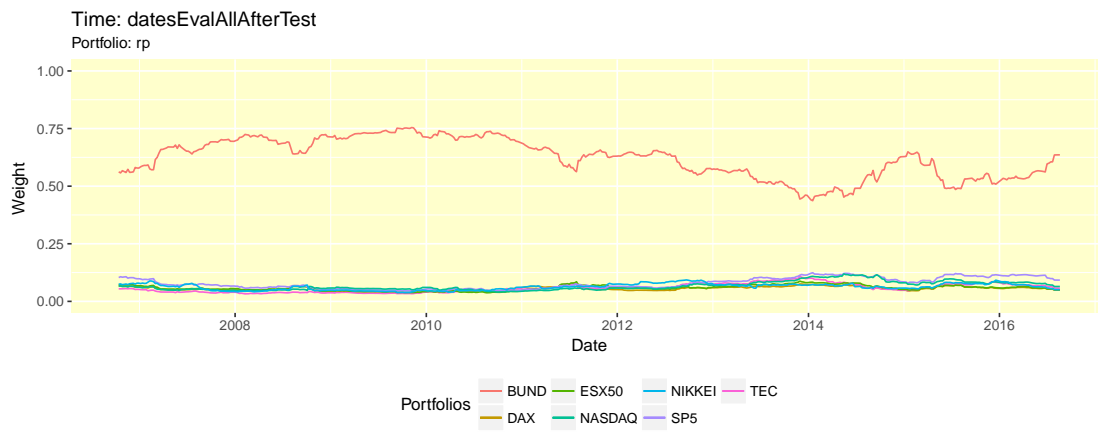
Weights-Classic - datesEvalAllAfterTest



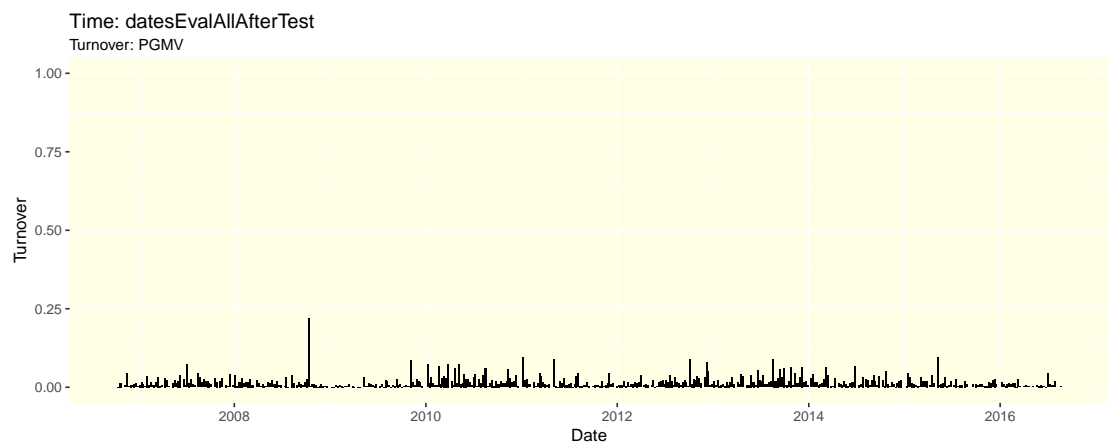
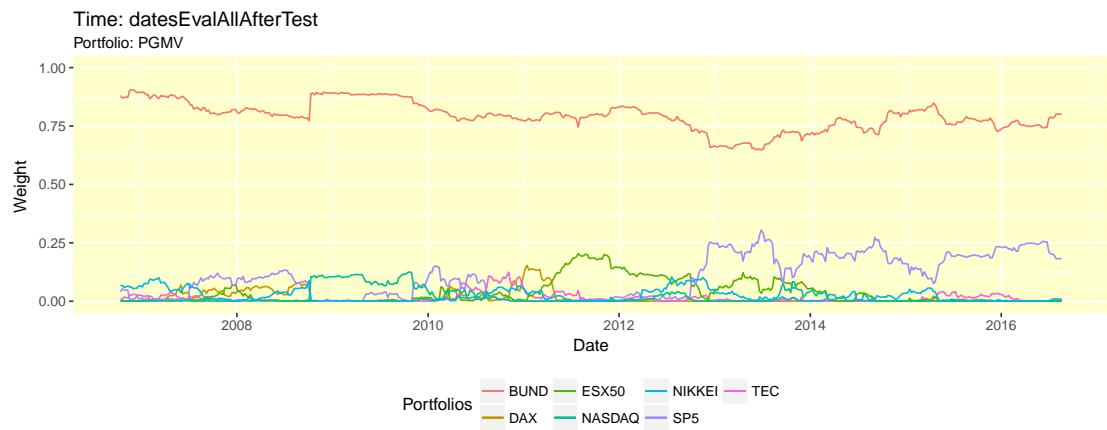
4 Results



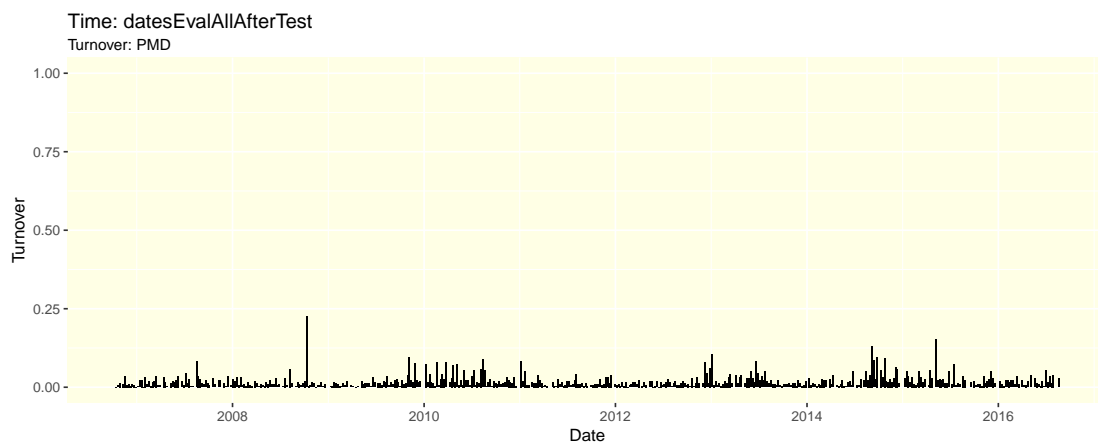
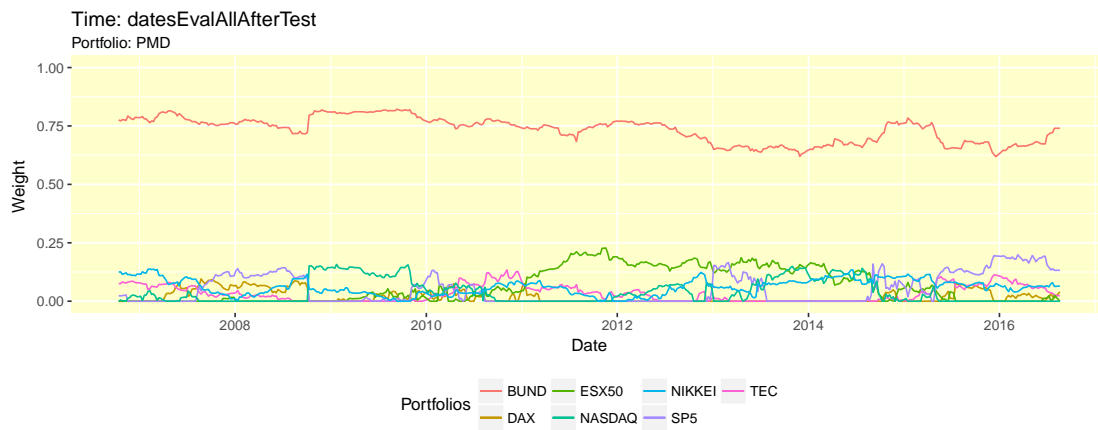
4.4 Weights



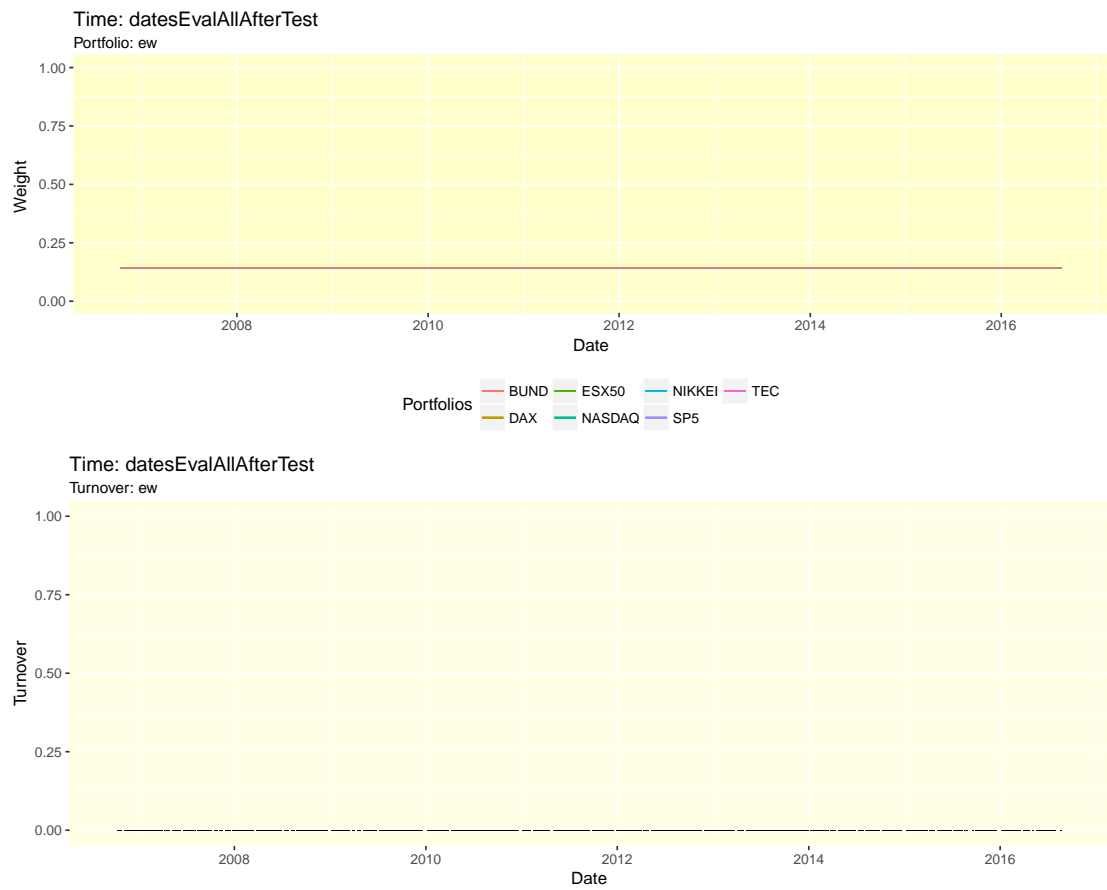
4 Results



4.4 Weights

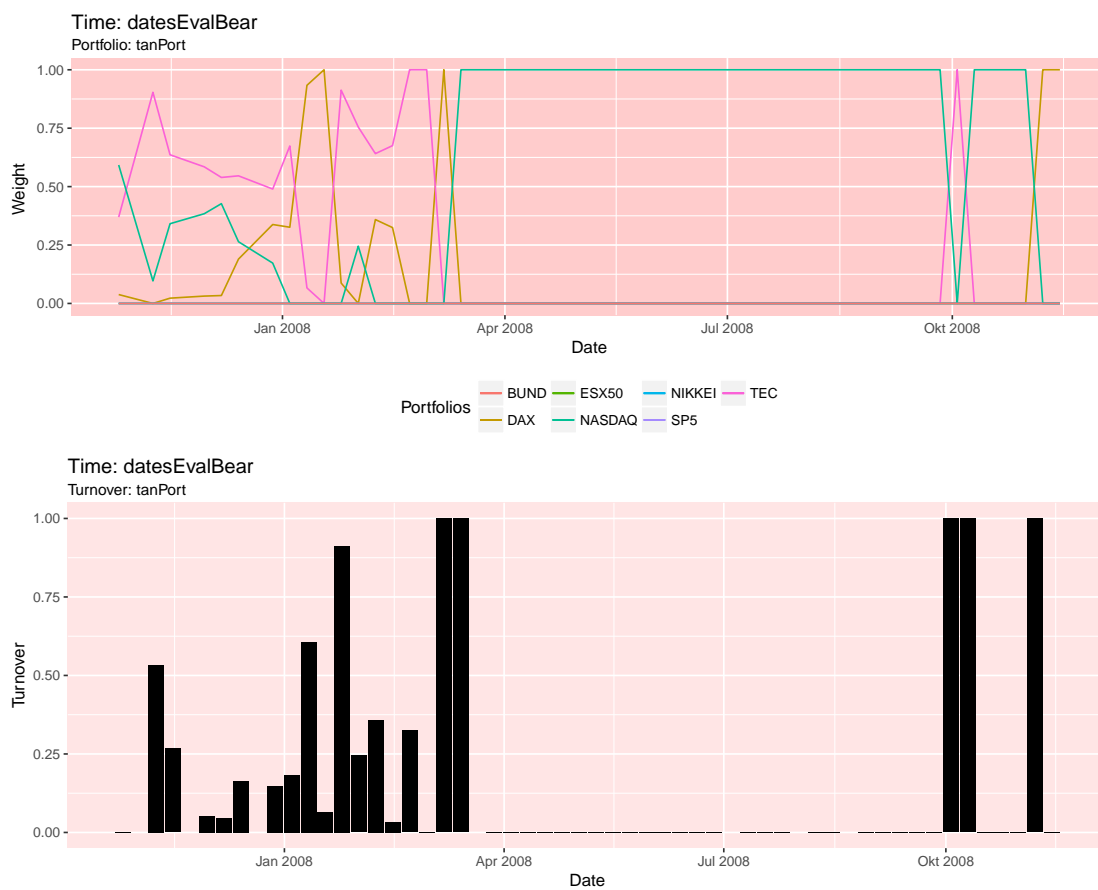


4 Results

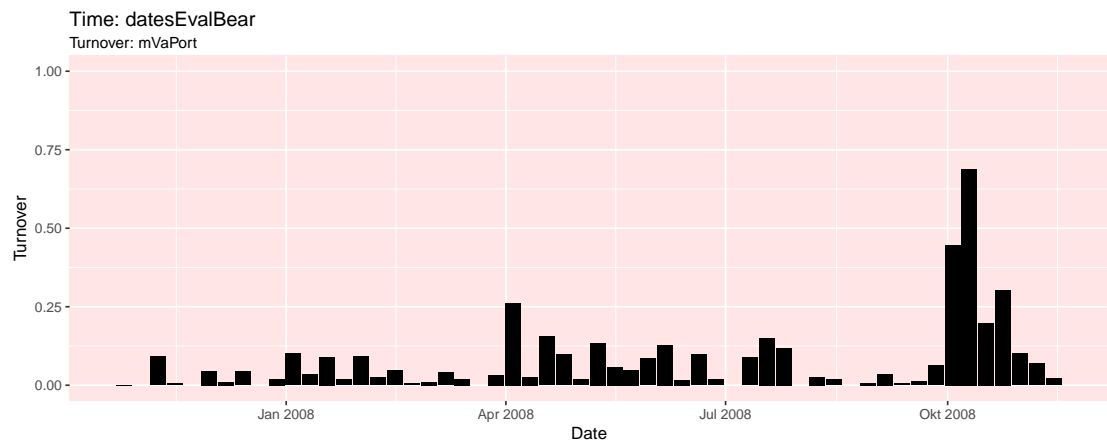
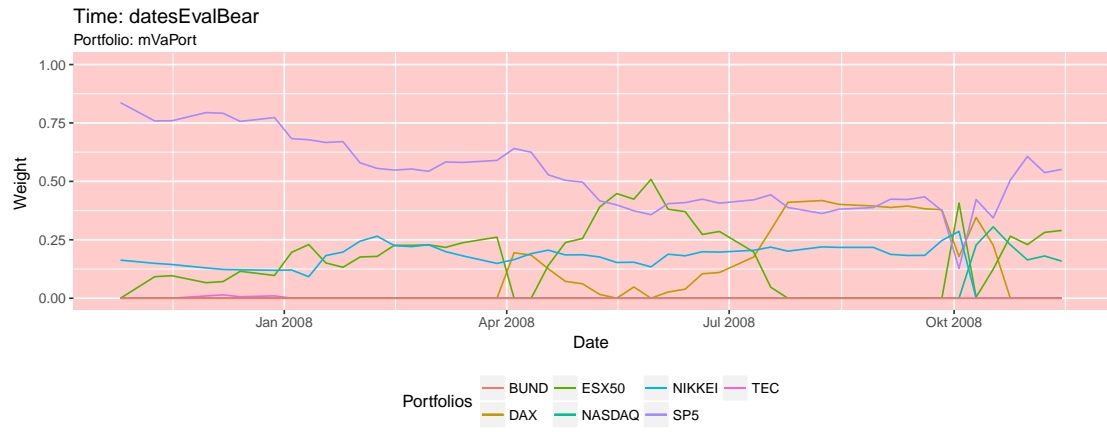


4.4.4 Weights-Classic-No-Risk-Free

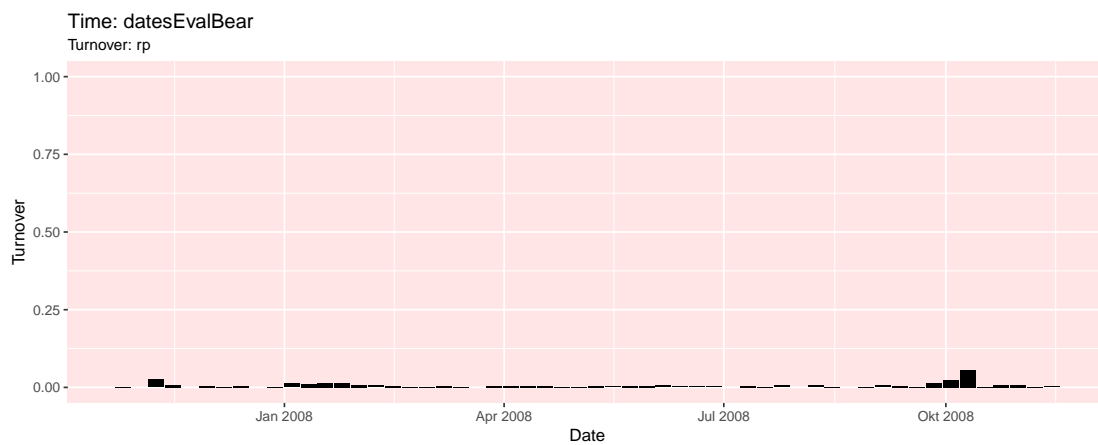
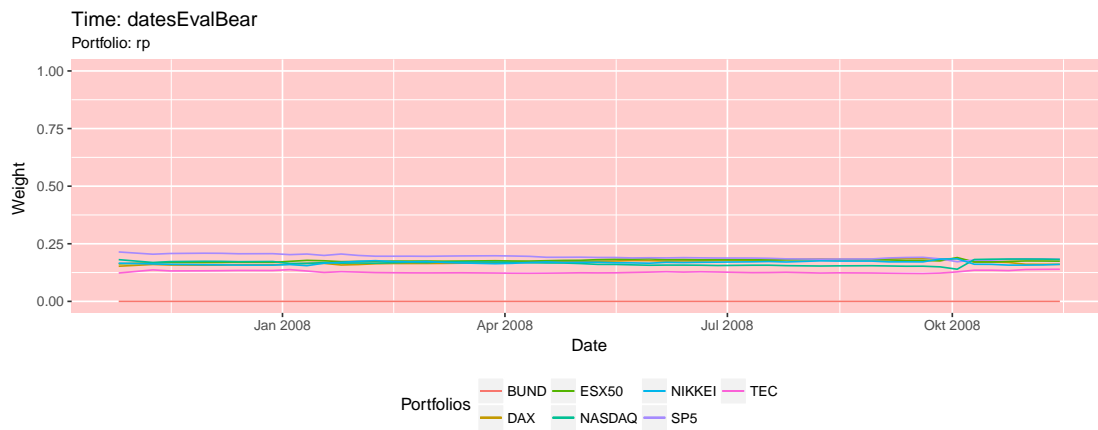
Weights-Classic-No-Risk-Free - datesEvalBear



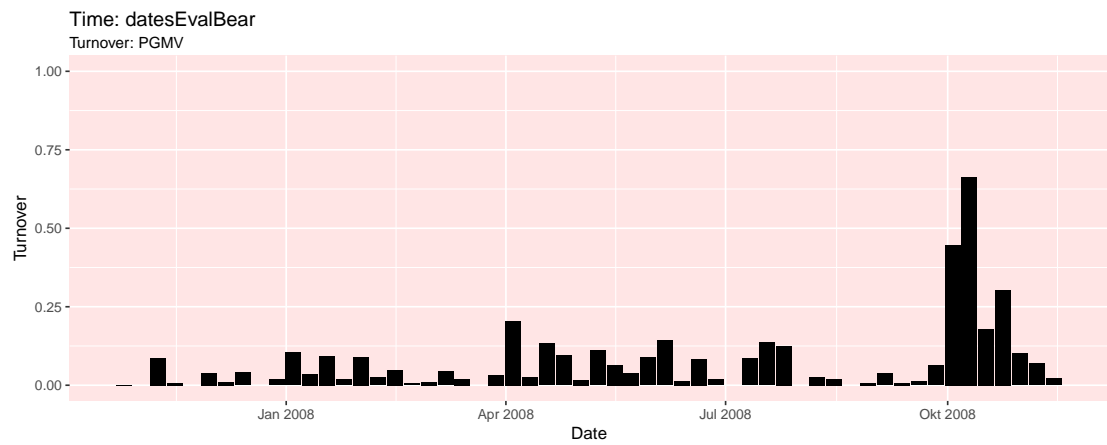
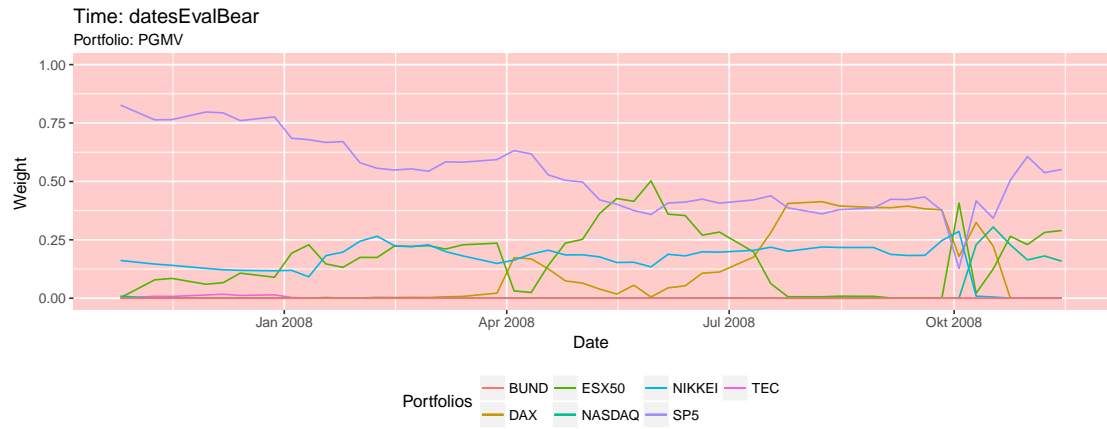
4 Results



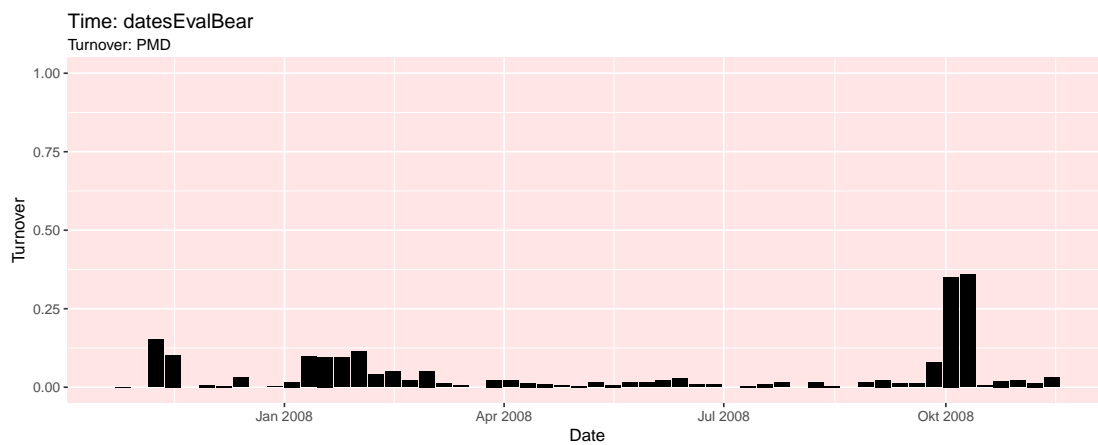
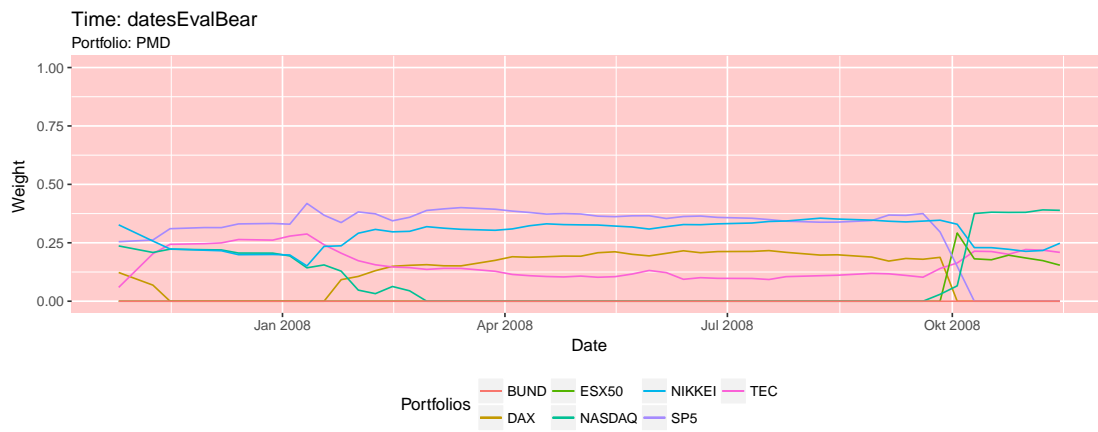
4.4 Weights



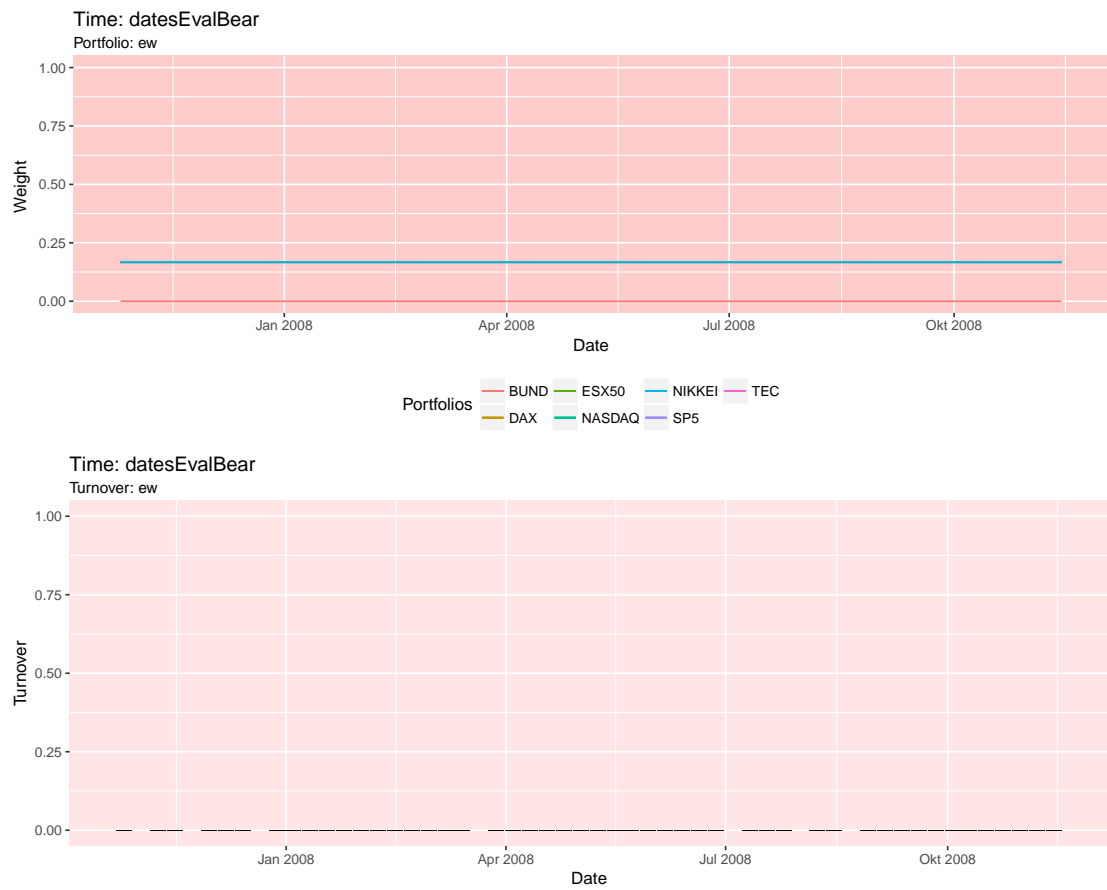
4 Results



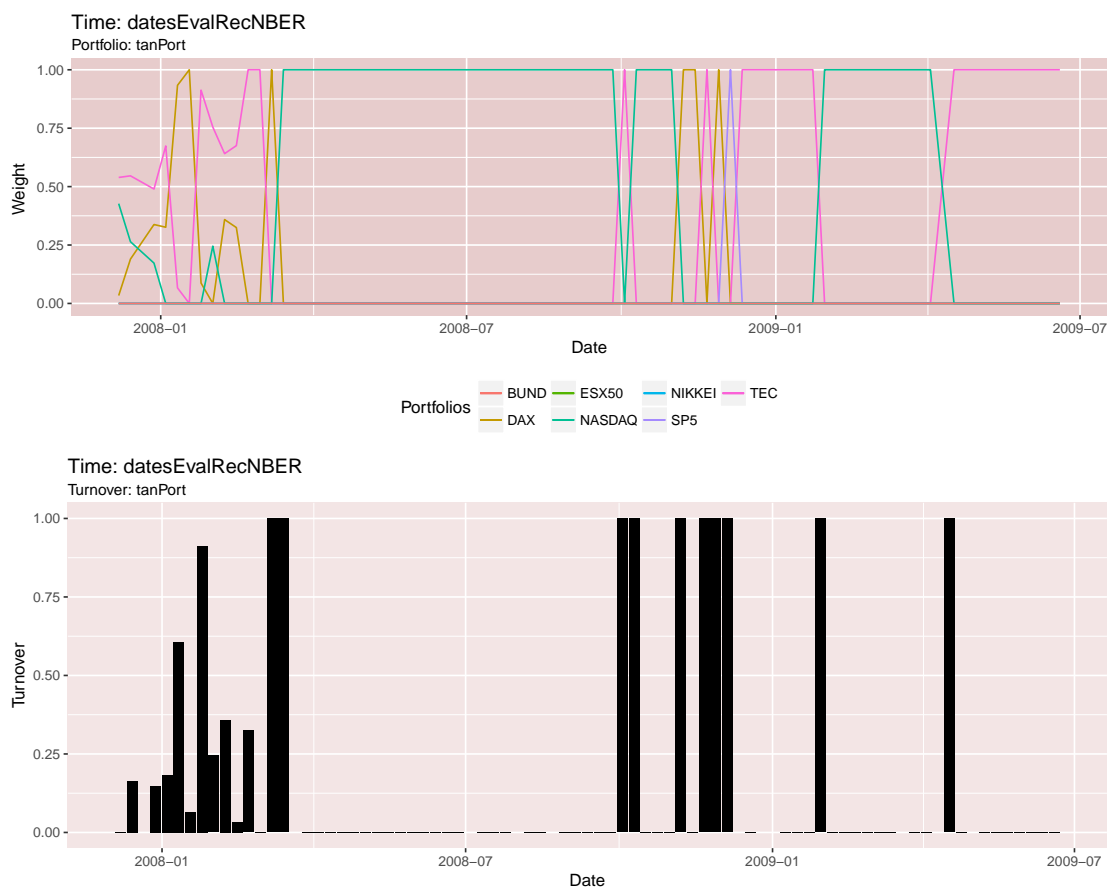
4.4 Weights



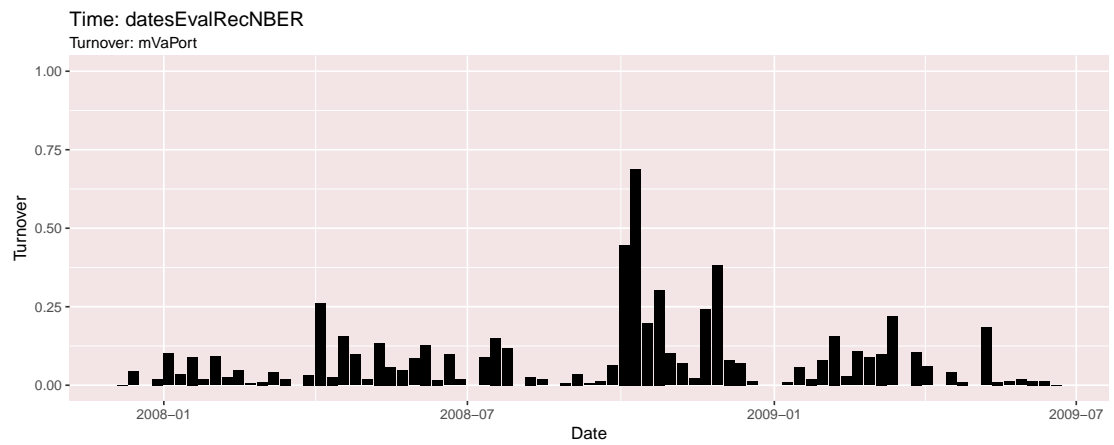
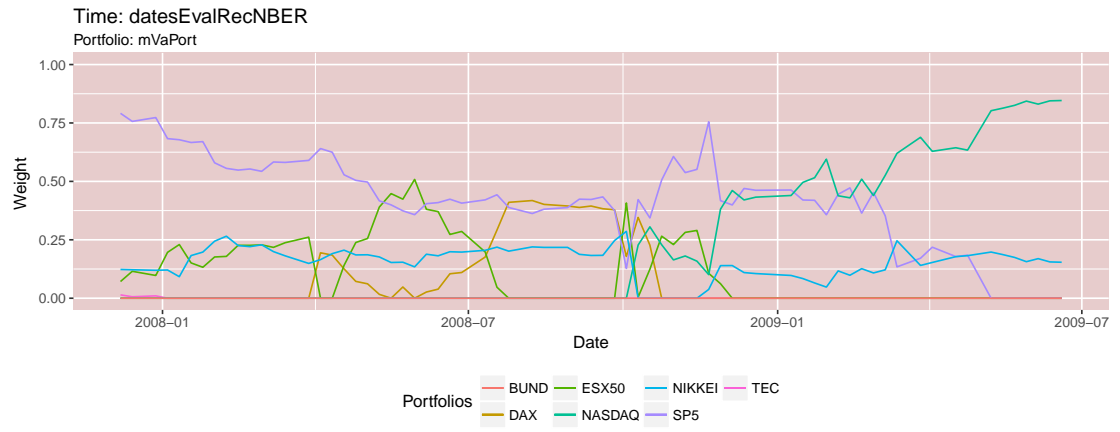
4 Results



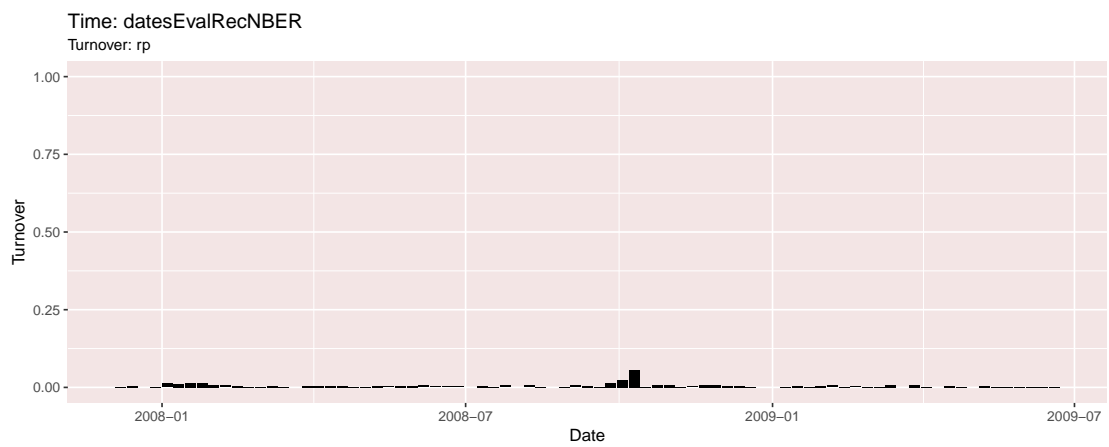
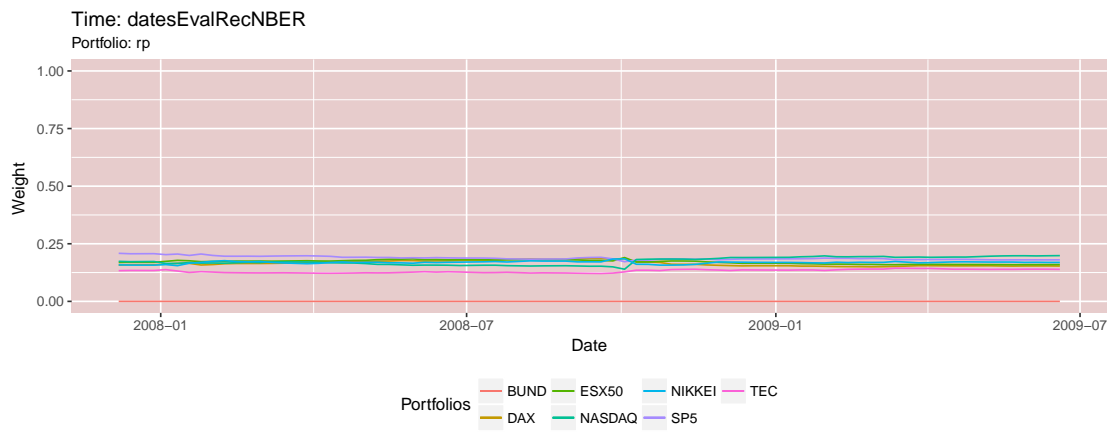
Weights-Classic-No-Risk-Free - datesEvalRecNBER



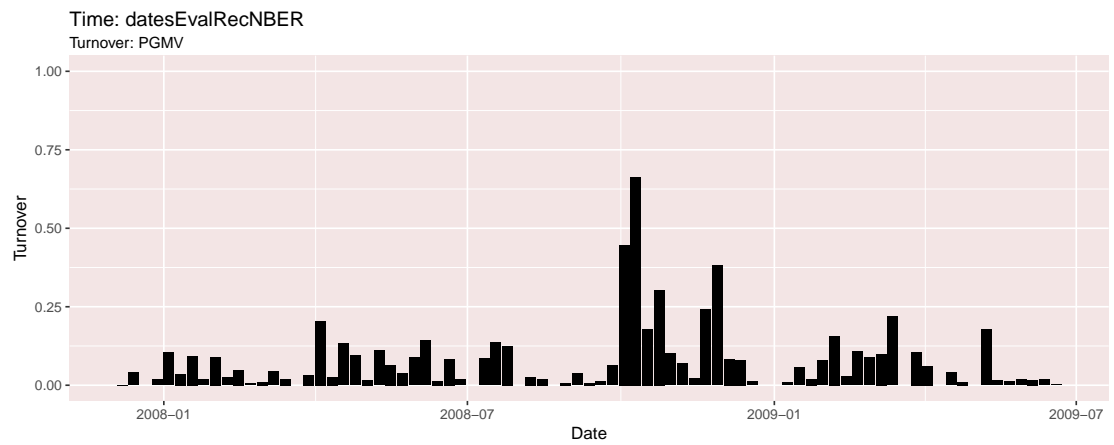
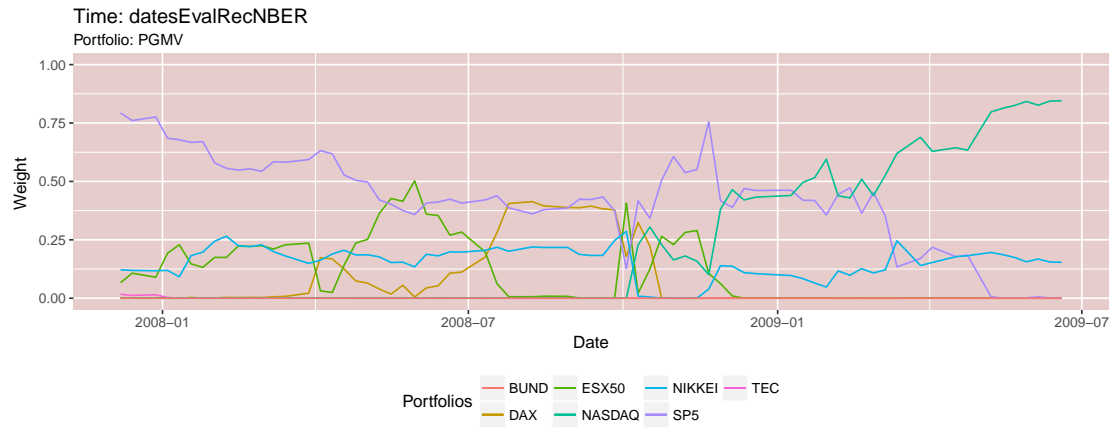
4 Results



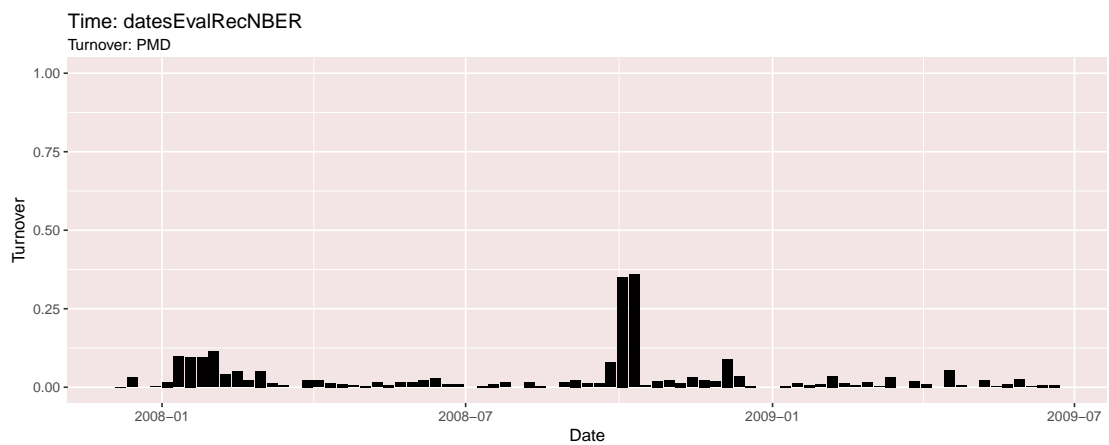
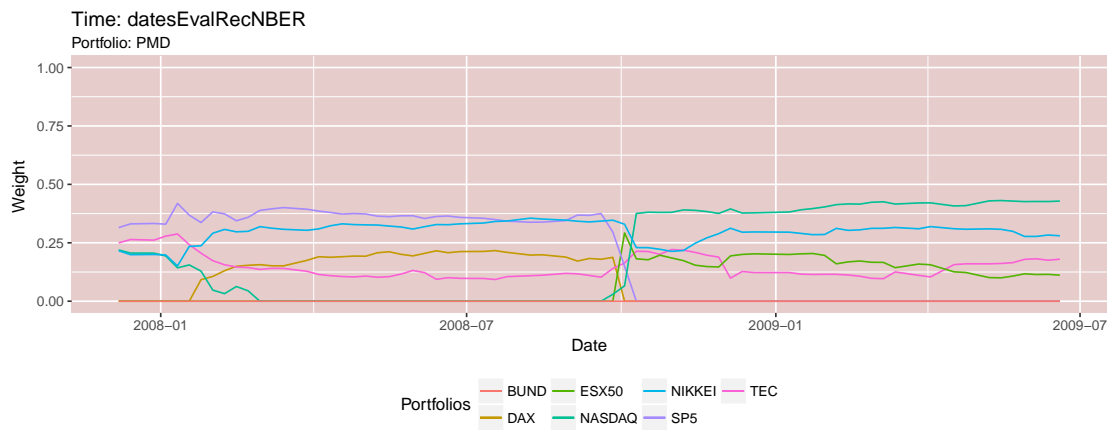
4.4 Weights



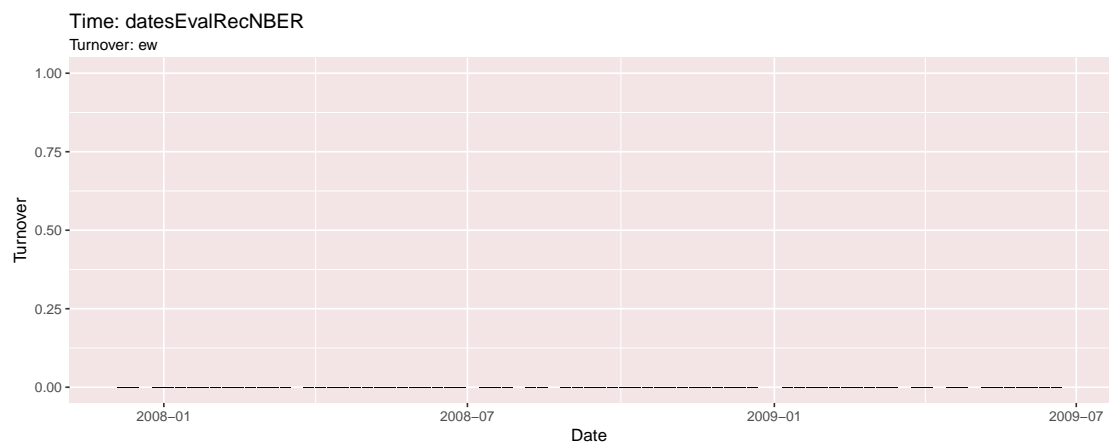
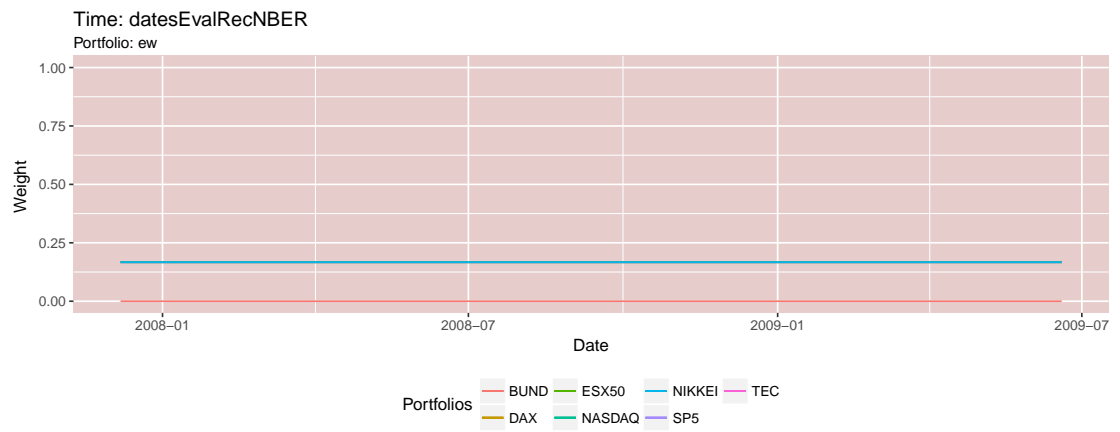
4 Results



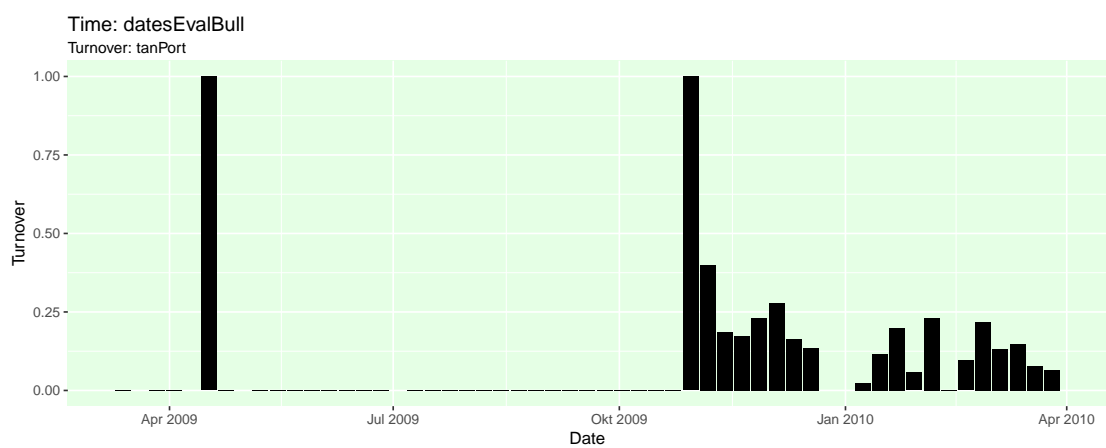
4.4 Weights



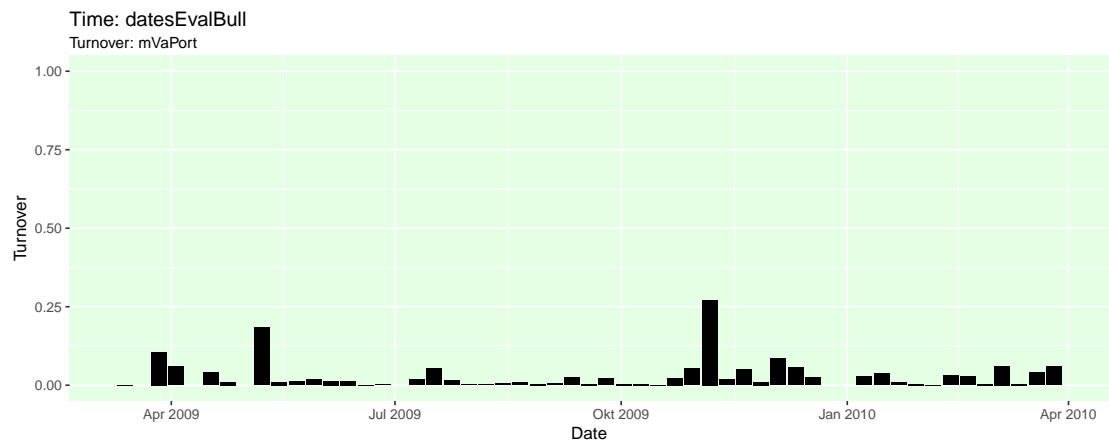
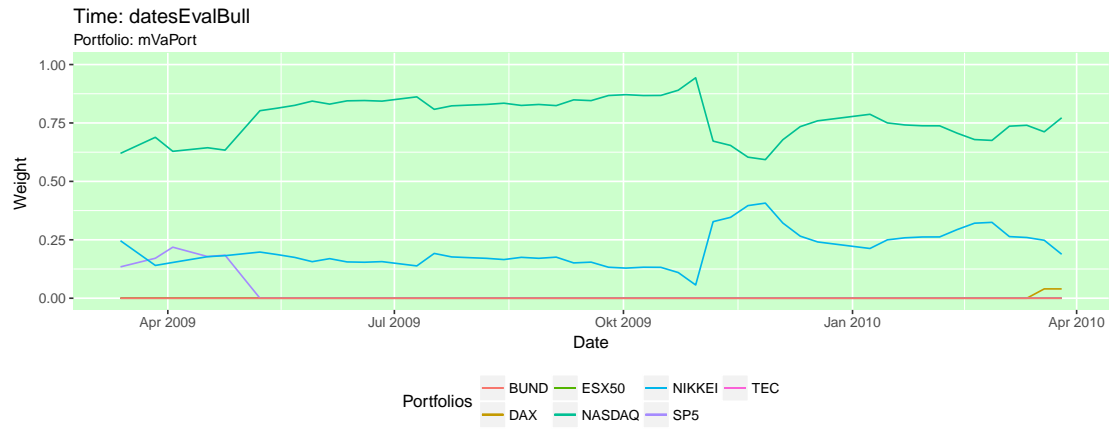
4 Results



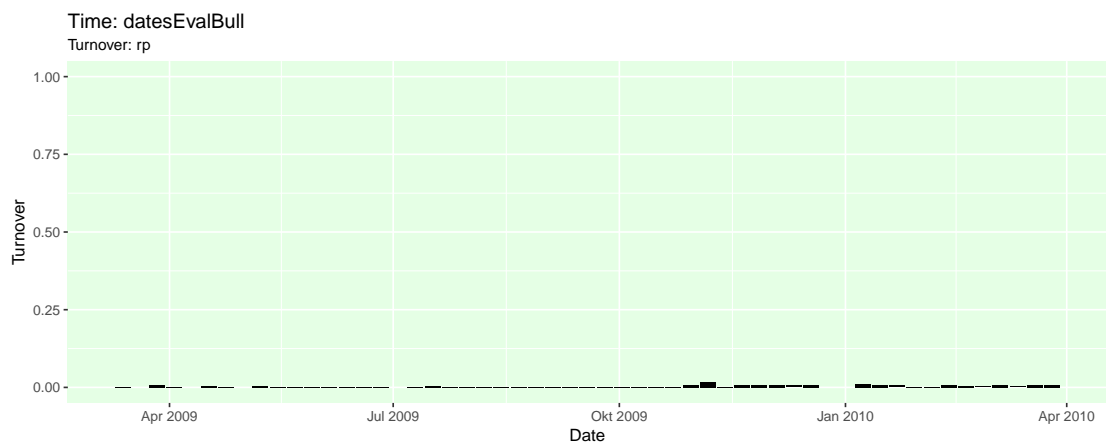
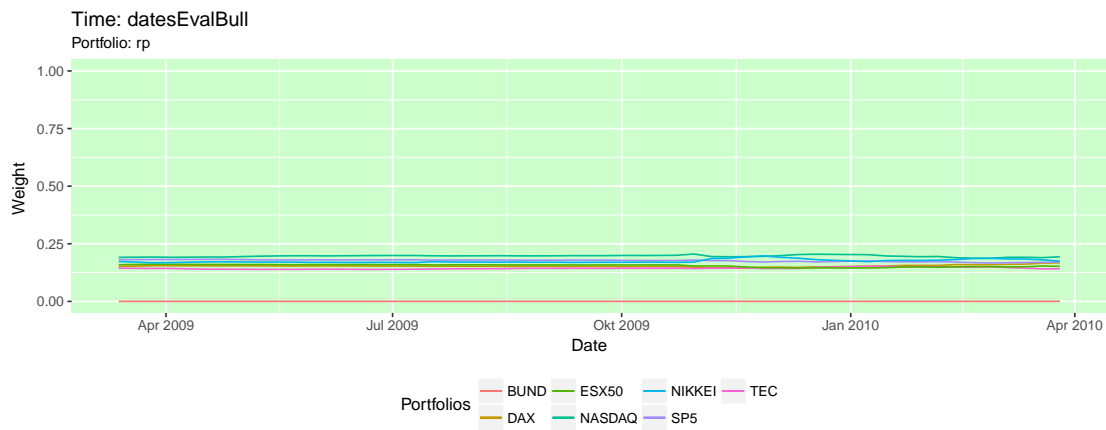
Weights-Classic-No-Risk-Free - datesEvalBull



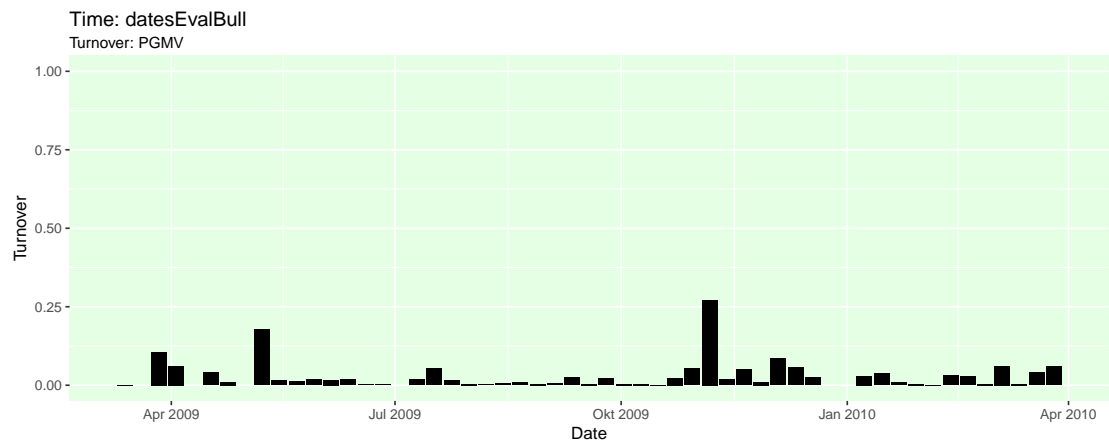
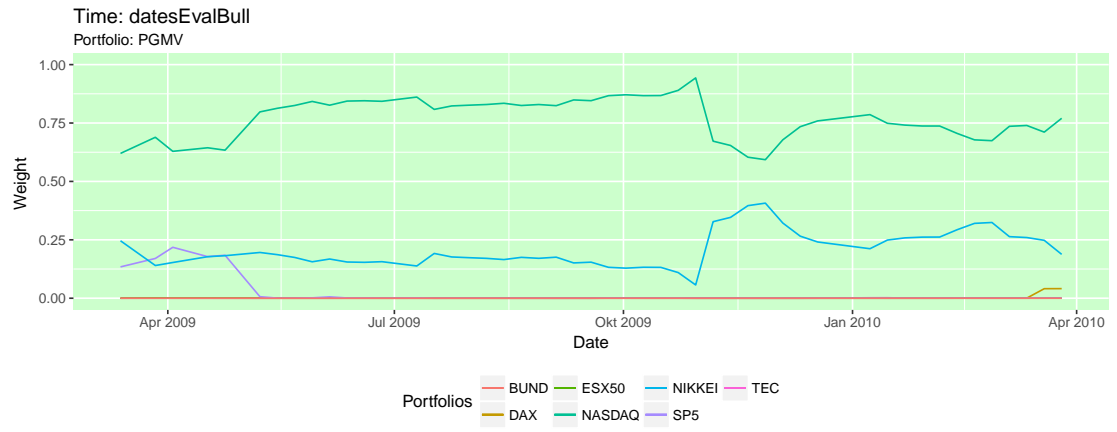
4 Results



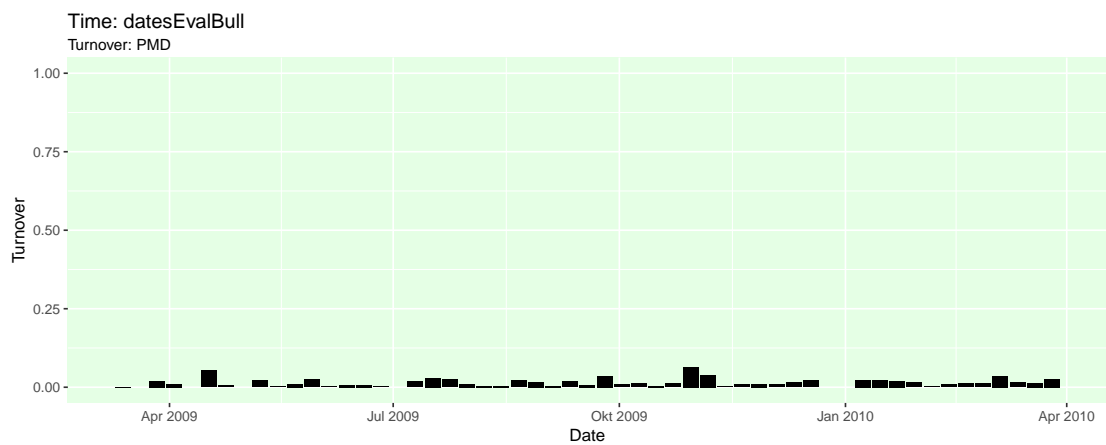
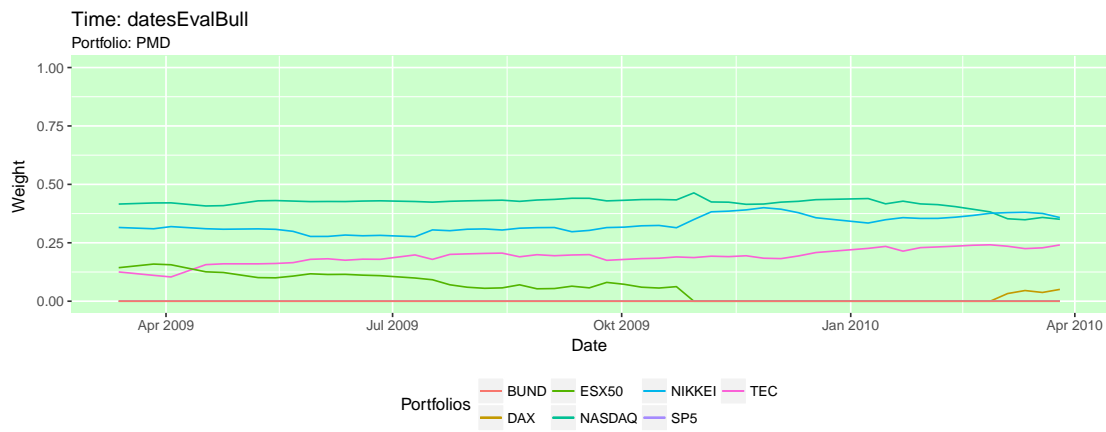
4.4 Weights



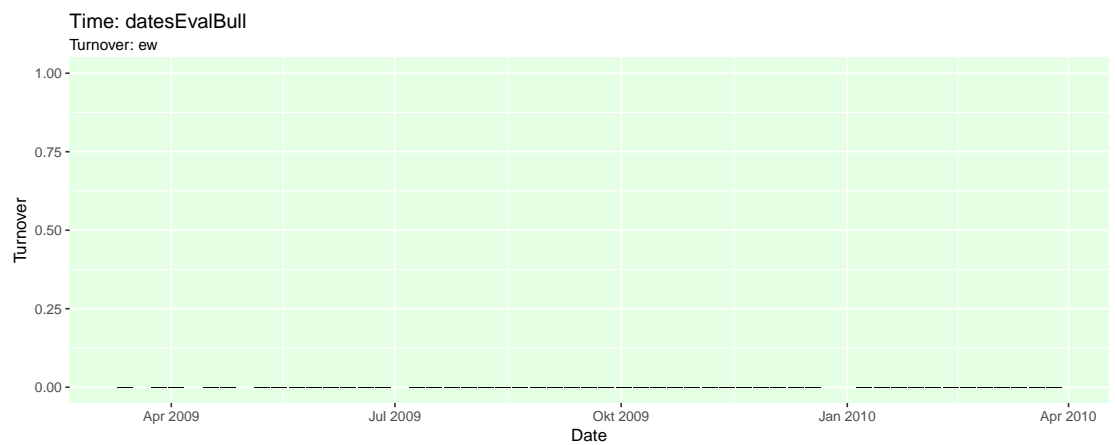
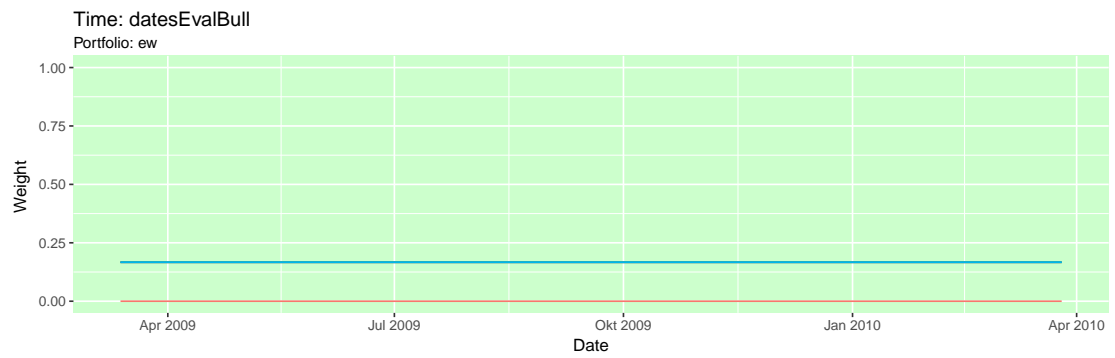
4 Results



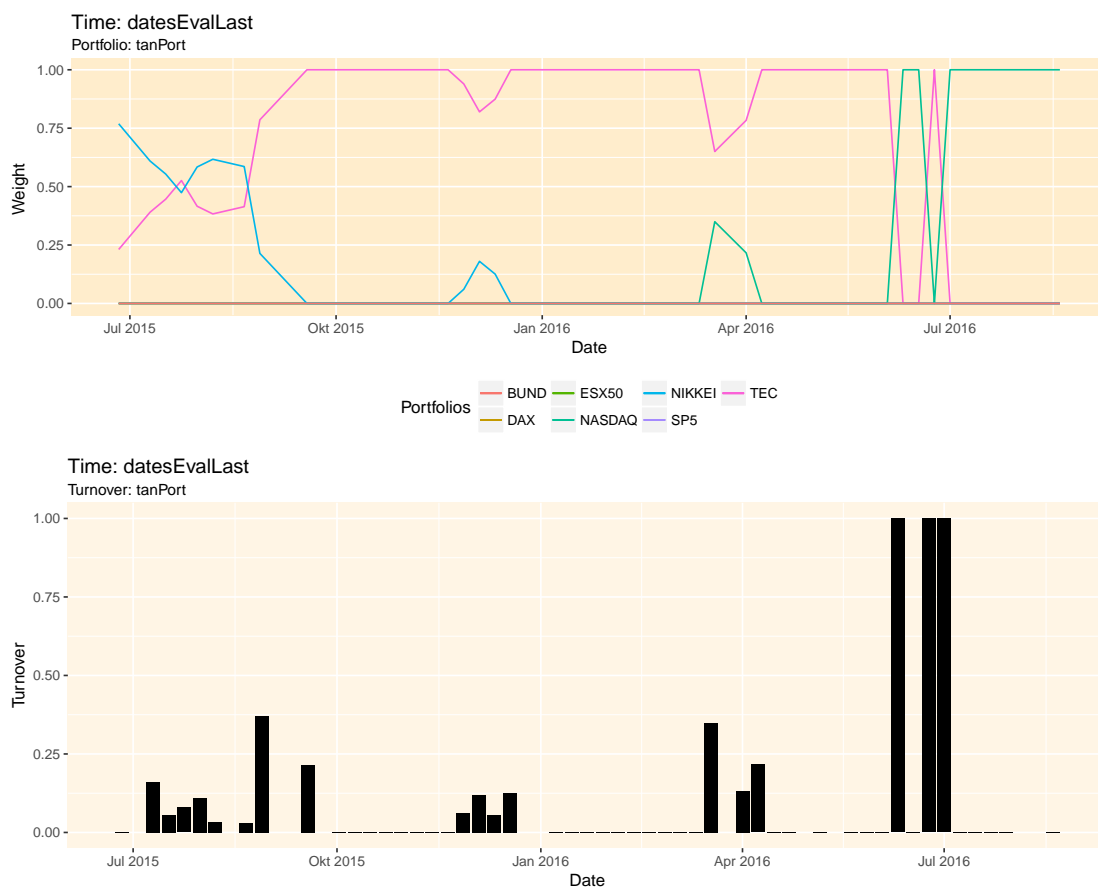
4.4 Weights



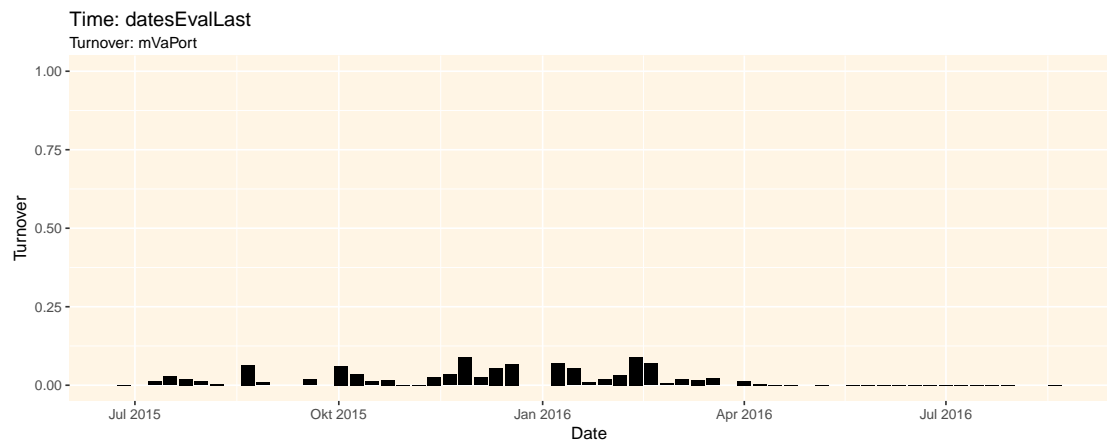
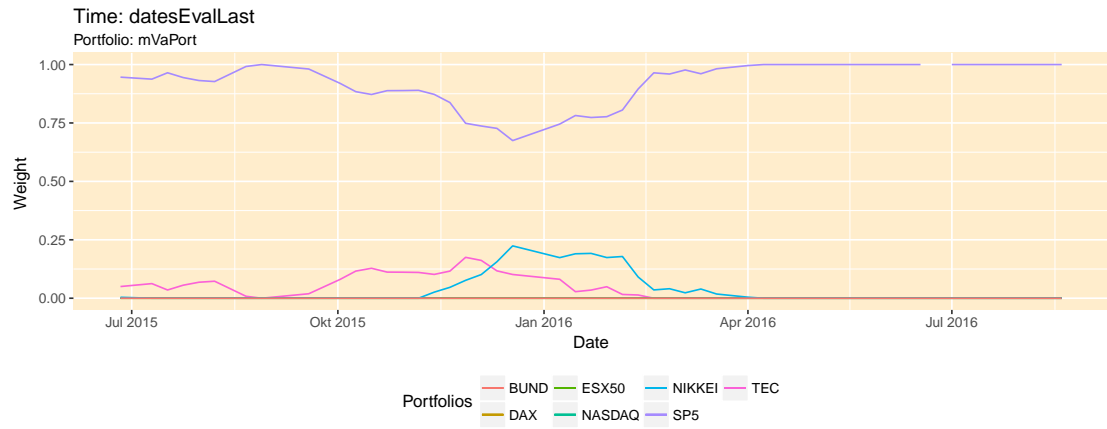
4 Results



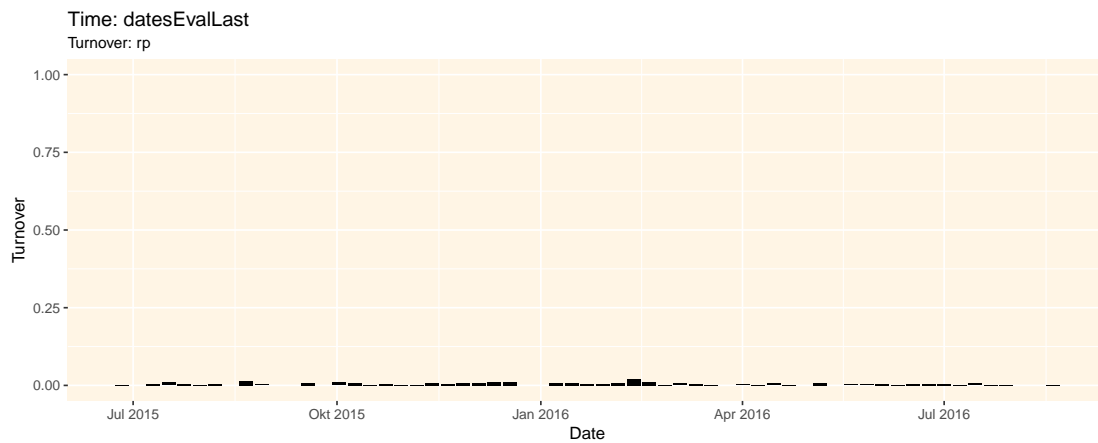
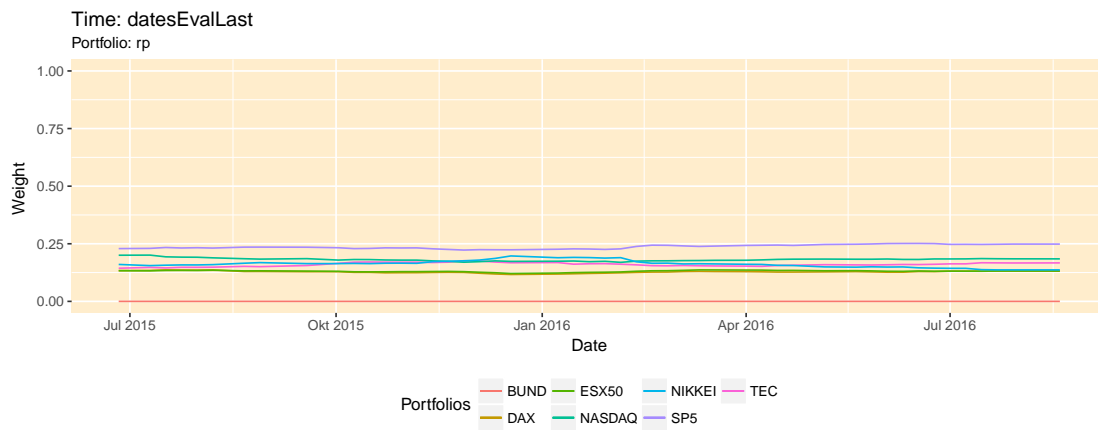
Weights-Classic-No-Risk-Free - datesEvalLast



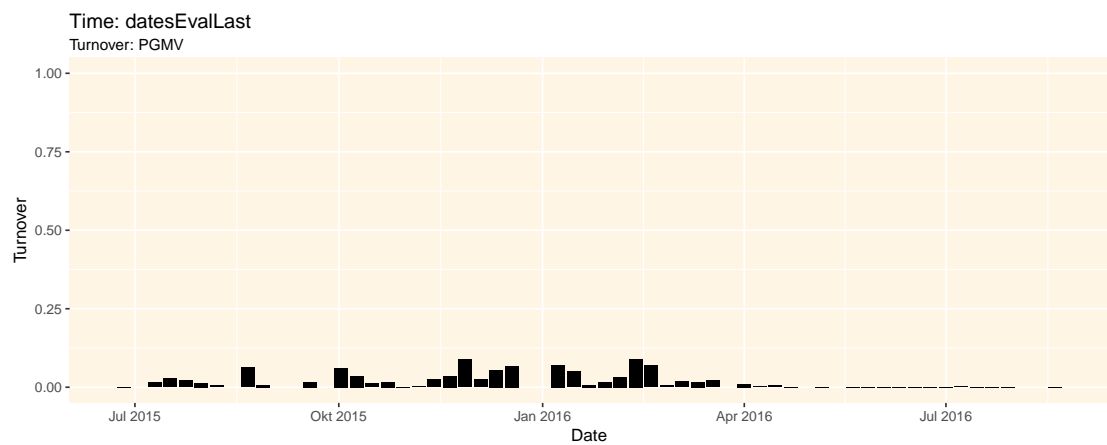
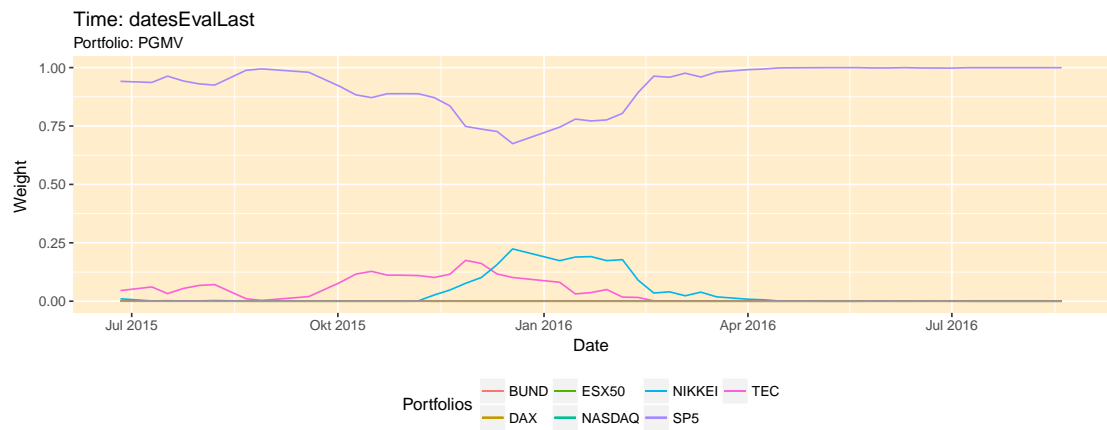
4 Results



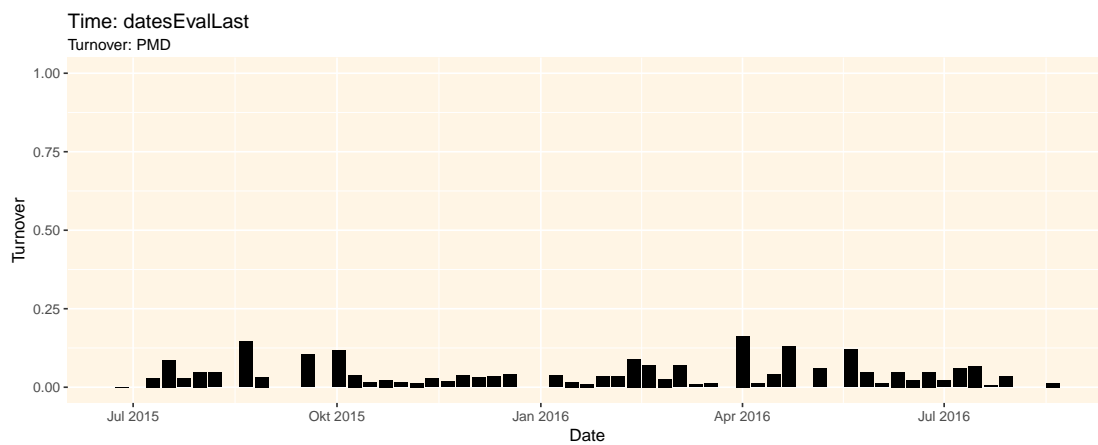
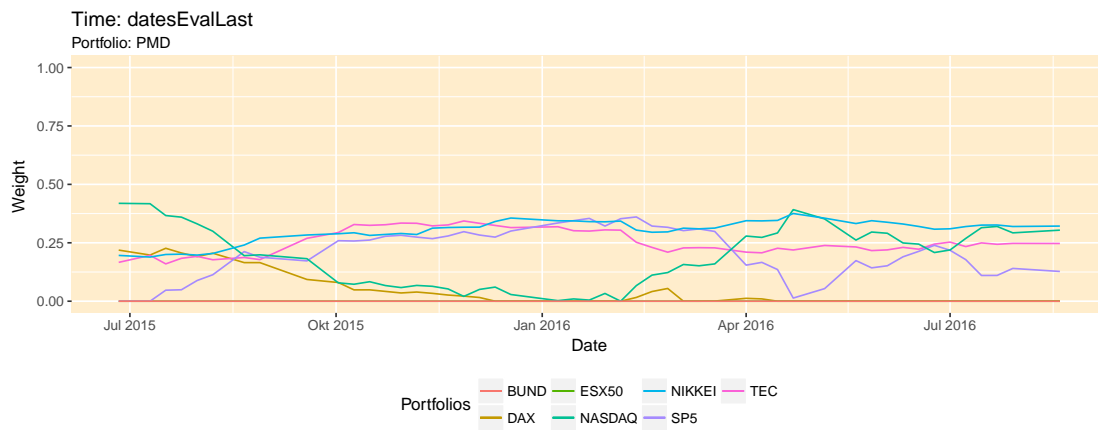
4.4 Weights



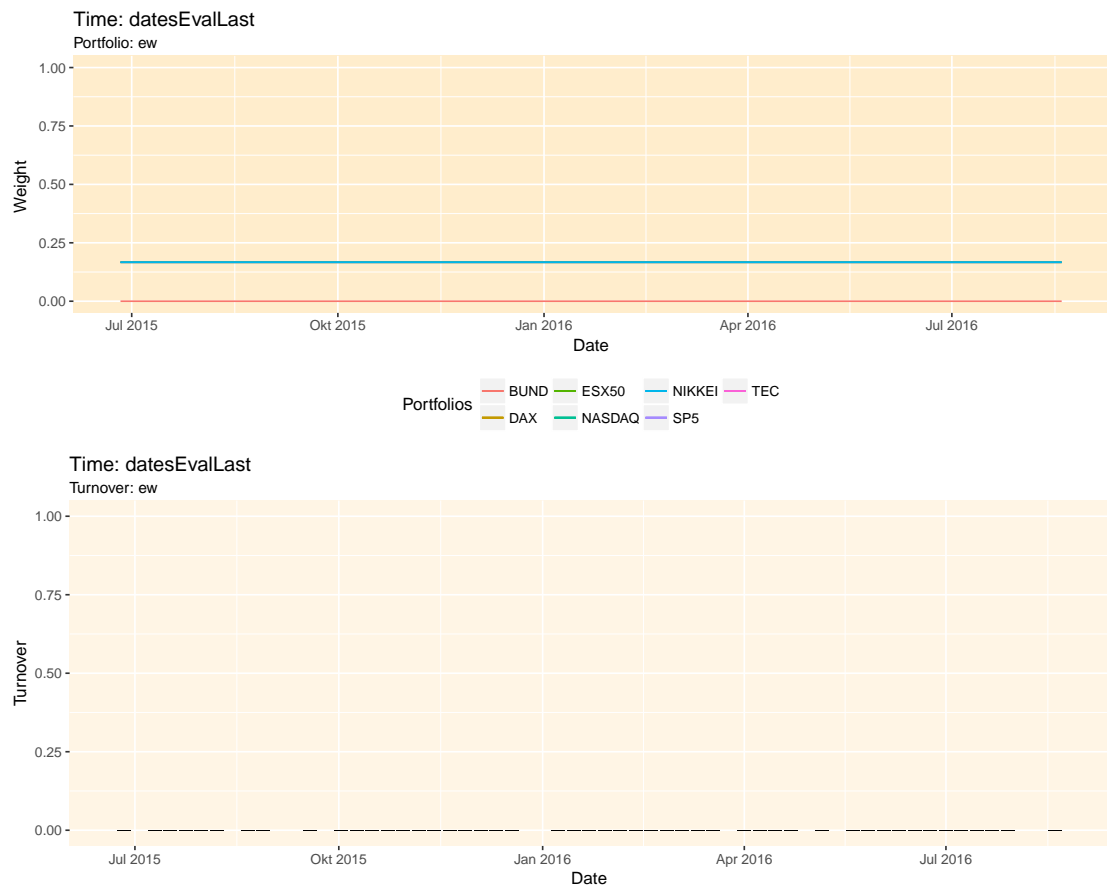
4 Results



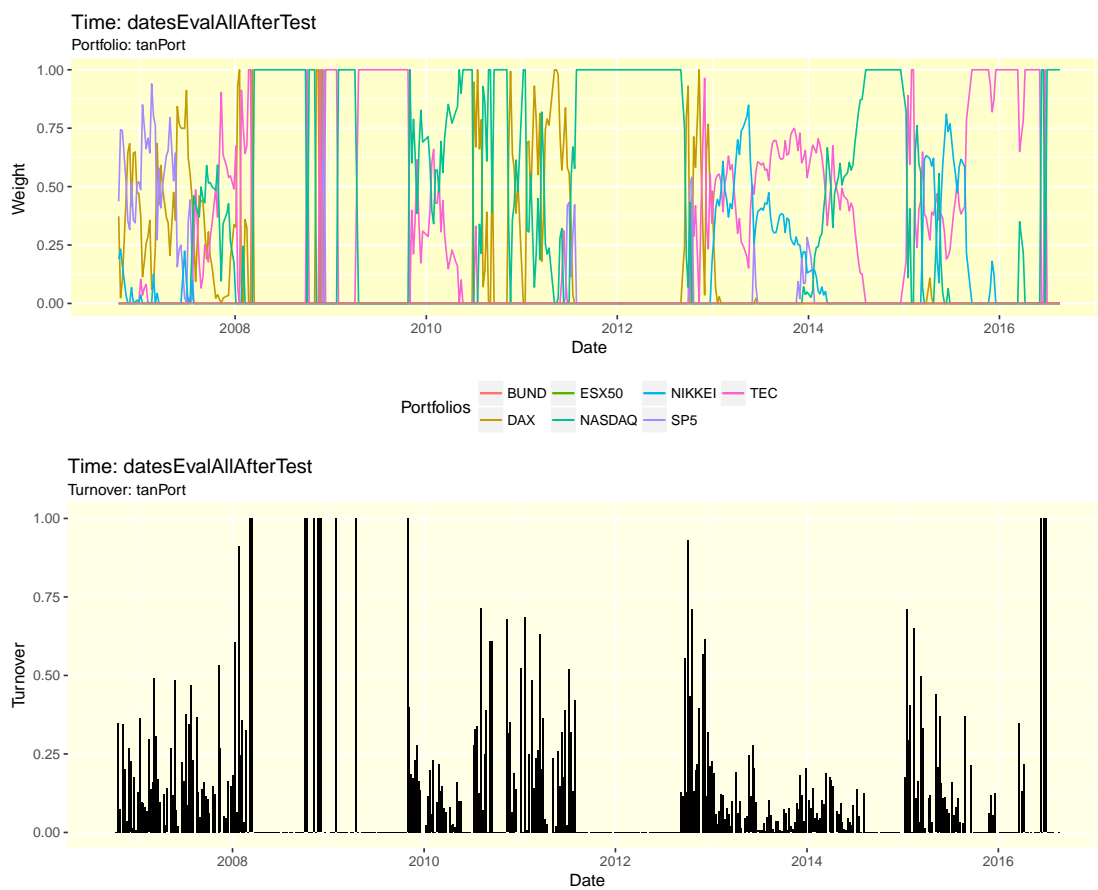
4.4 Weights



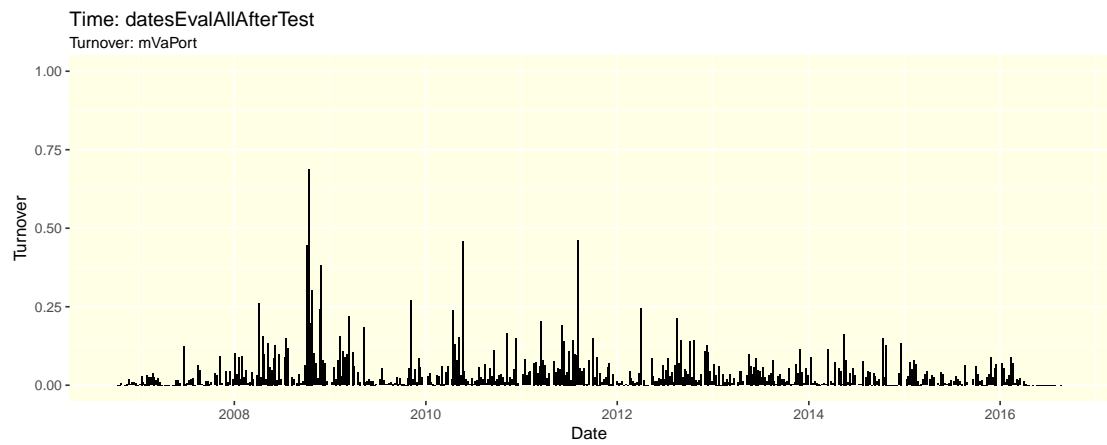
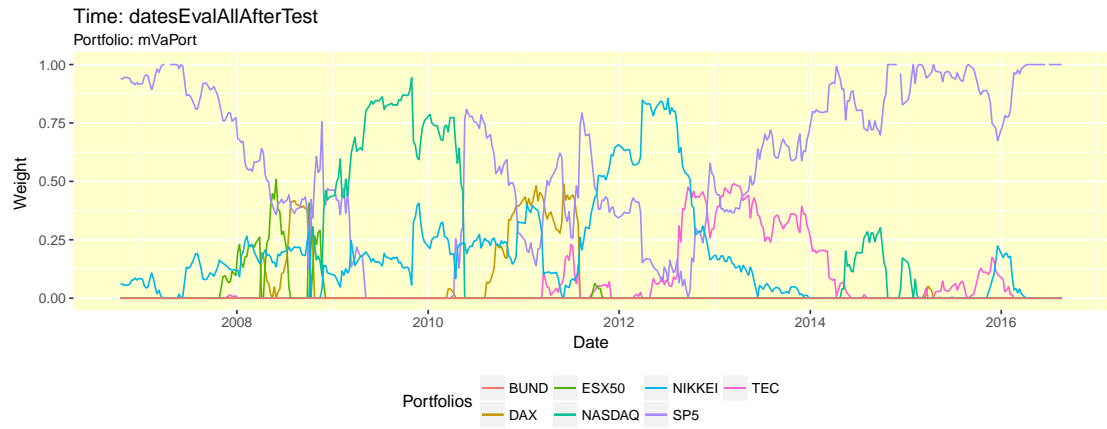
4 Results



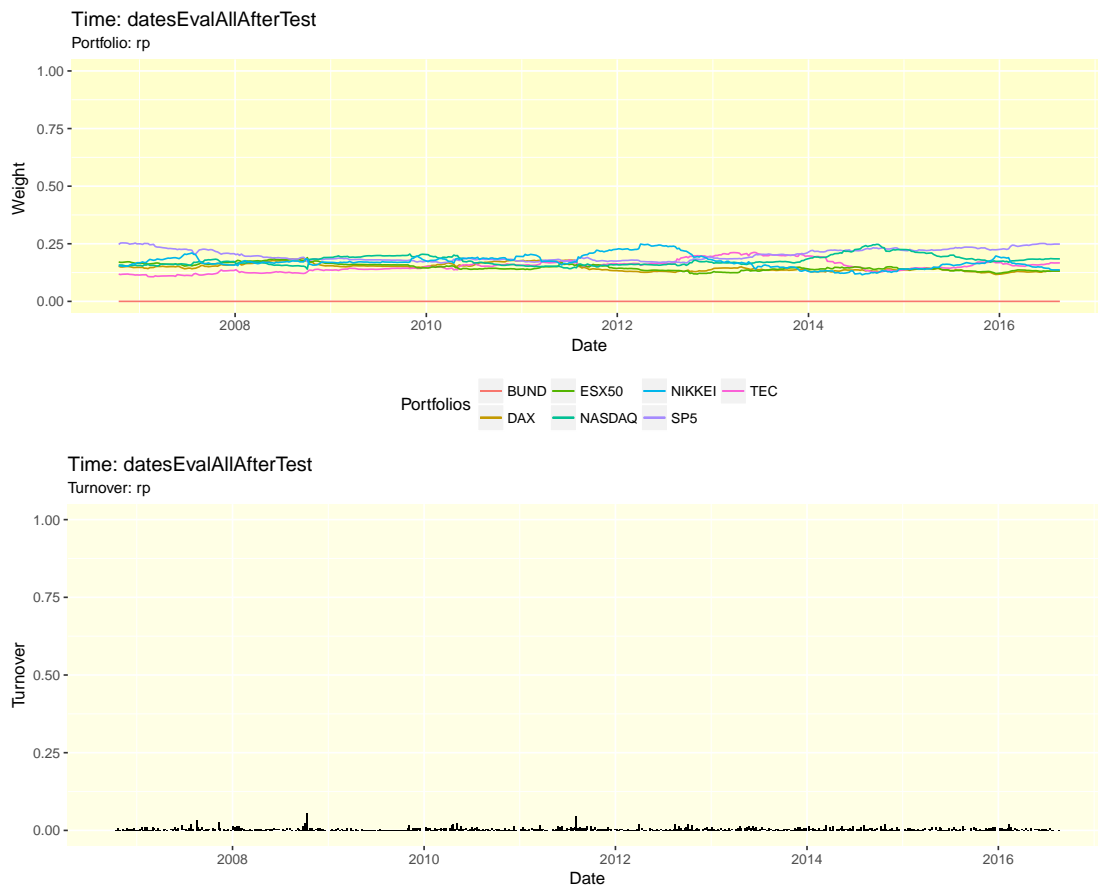
Weights-Classic-No-Risk-Free - datesEvalAllAfterTest



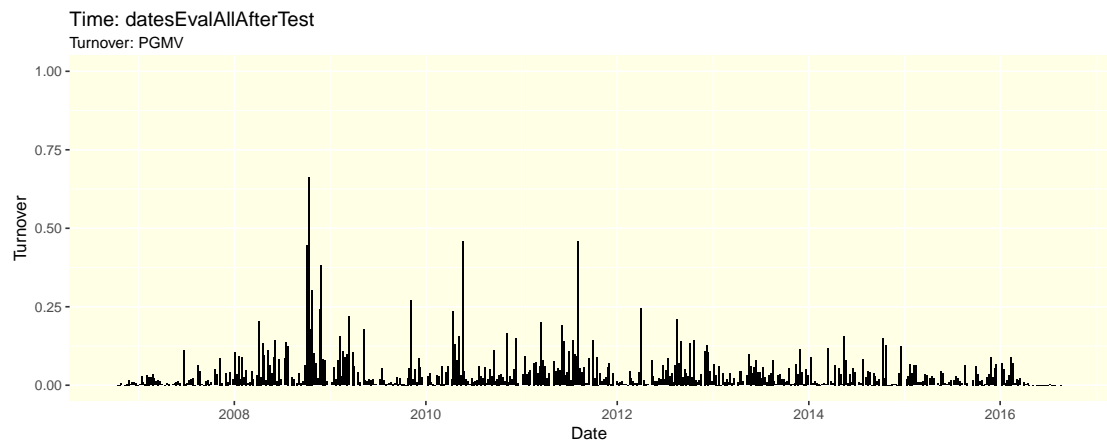
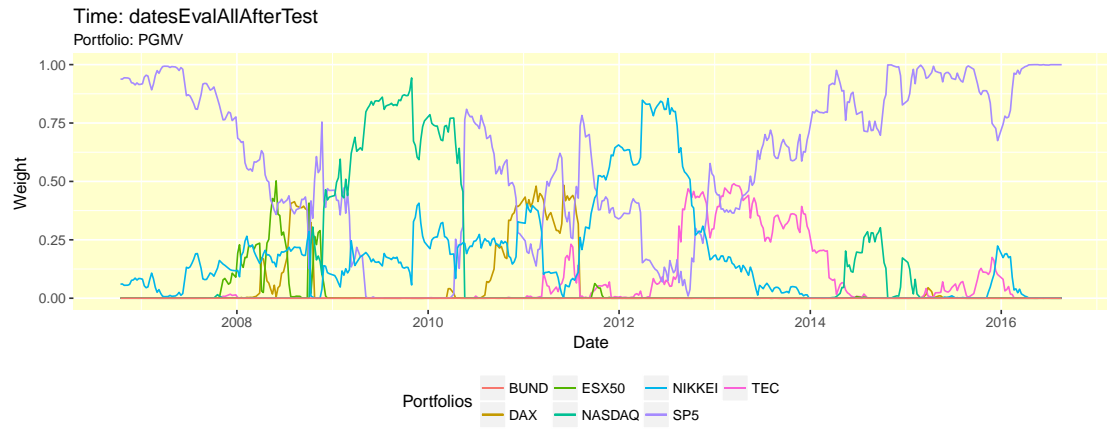
4 Results



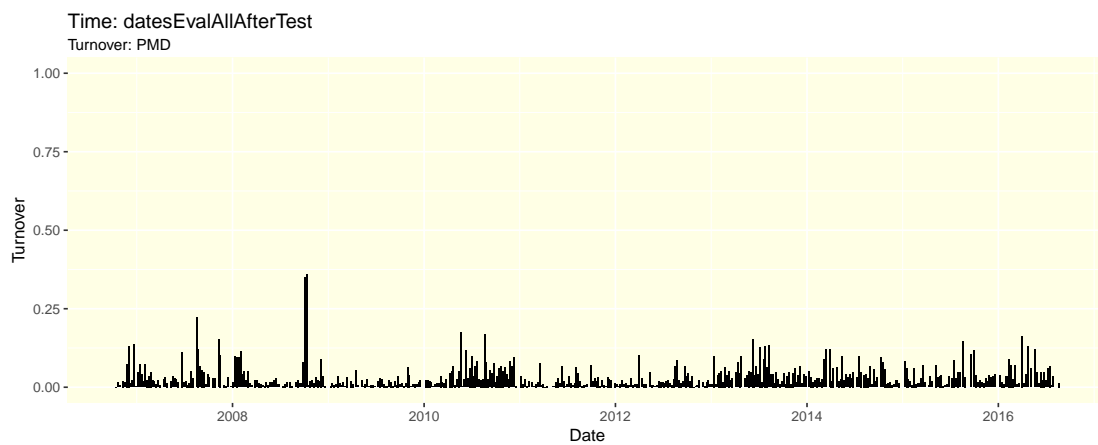
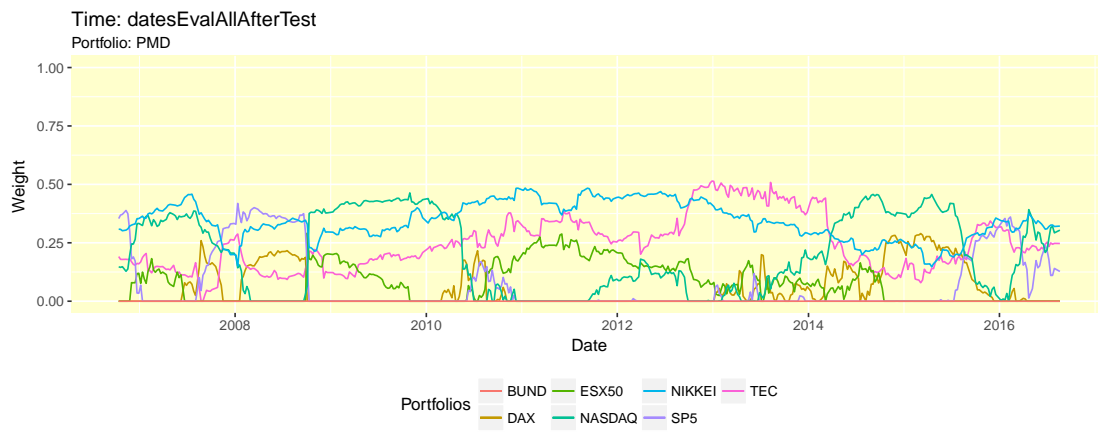
4.4 Weights



4 Results



4.4 Weights



4 Results

