Tables and Figures from R

benjamin.hakedal

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1 Methodology tables

1.1 Return data

		Returns				
i	Date	ISIN 1	ISIN 2	ISIN 3	...	ISIN n
1	30.11.2000	0.034	0.053	NA	...	0.011
2	31.12.2000	-0.015	0.021	NA	...	0.003
3	31.01.2001	0.004	-0.064	0.026	...	0.065
...	...	...	...	...	...	...
241	30.11.2020	NA	NA	0.048	...	0.089

1.2 MktCap data

		MktCap				
i	Date	ISIN 1	ISIN 2	ISIN 3	...	ISIN n
1	30.11.2000	1005	6762	NA	...	2057
2	31.12.2000	1025	6790	NA	...	1978
3	31.01.2001	1020	6803	8193	...	1956
...	...	...	...	...	...	...
241	30.11.2020	NA	NA	9843	...	5039

1.3 Revenue data

		Revenue				
i	Date	ISIN 1	ISIN 2	ISIN 3	...	ISIN n
1	30.11.2000	234	720	NA	...	1203
2	31.12.2000	234	743	NA	...	1203
3	31.01.2001	234	743	893	...	1203
...	...	...	...	...	...	...
241	30.11.2020	NA	NA	4078	...	5039

1.4 GICS data

		GICS				
i	Date	ISIN 1	ISIN 2	ISIN 3	...	ISIN n
1	30.11.2000	Financial	Unknown	NA	...	Industrials
2	31.12.2000	Financial	Unknown	NA	...	Industrials
3	31.01.2001	Financial	Unknown	Materials	...	Industrials
...	...	...	...	...	...	...
241	30.11.2020	NA	NA	Materials	...	Financial

1.5   Accounting data

i	Date	ISIN 1	ISIN 2	ISIN 3	ISIN 4	...	ISIN n
				Accounting Metric			
1	30.11.2000	0.434	0.256	NA	0.098	...	0.123
2	31.12.2000	0.434	0.256	NA	0.098	...	0.123
3	31.01.2001	0.434	0.256	NA	0.098	...	0.123
4	28.02.2001	0.458	0.211	NA	0.098	...	0.123
5	31.03.2001	0.458	0.211	NA	0.098	...	0.156
6	30.04.2001	0.458	0.211	NA	0.102	...	0.156
...	...	...	...	...	...	...	...
241	30.11.2020	NA	NA	0.158	0.283	...	0.098

2 EBITDA

2.1 Performance statistics

	Annual Avg. Return	Annual St. Dev.	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
OSEBX	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
Equal	0.1262	0.2123	0.4661	0.8344	0.0365	0.1186
MktCap	0.1055	0.2812	0.2783	1.1023	-0.0042	0.0710
Revenue	0.1207	0.2819	0.3316	1.0384	0.0158	0.0900

2.2 Transaction statistics

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
Transactions	0.00	0.00	2.00	2.58	4.00	10.00	620.00

2.3 Average GICS Proportion over Time

	Equal	MktCap	Revenue
Unknown	0.02	0.06	0.07
Energy	0.34	0.32	0.19
Materials	0.00	0.00	0.01
Industrials	0.14	0.09	0.06
ConsumerDiscretionary	0.00	0.00	0.00
ConsumerStaples	0.00	0.00	0.02
HealthCare	0.00	0.00	0.00
Financials	0.45	0.49	0.62
InformationTechnology	0.01	0.00	0.00
TelecommunicationServices	0.00	0.00	0.00
Utilities	0.02	0.02	0.02
RealEstate	0.00	0.00	0.00

2.4 Fama French Statistics

Table 1: Regression Results - EBITDA Margin

	Norwegian Model (FF3F + MOM + LIQ) —			European Model (FF5F + MOM)		
	Equal-rf	MktCap-rf	Revenue-rf	Equal-rf	MktCap-rf	Revenue-rf
	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	0.001	-0.0002	0.001	0.004	0.0003	0.004
Index-rf	1.021*	1.166*	1.163*	0.682*	0.859*	0.718*
SMB	0.322*	0.045	0.148	0.805*	0.793*	0.960*
HML	0.265*	0.286*	0.382*	0.202	0.663*	0.654*
RMW				0.032	0.421	0.117
CMA				-0.352	-0.581	$-0.728*$
UMD	0.028	-0.033	-0.012	0.005	-0.132	-0.184
LIQ	0.097	0.052	0.079			
Observations	239	239	239	239	239	239
Adjusted R^2	0.697	0.664	0.607	0.470	0.496	0.457

Notes   *p<0.05; Transaction cost: 0.02

2.5 Figures

Figure 1: EBITDA Margin Strategy: Backtesting from 2000-11-30 to 2020-11-30

*Strategy: Every month, invest in the 10 stocks listed on OSE with the highest EBITDAMarginPrc
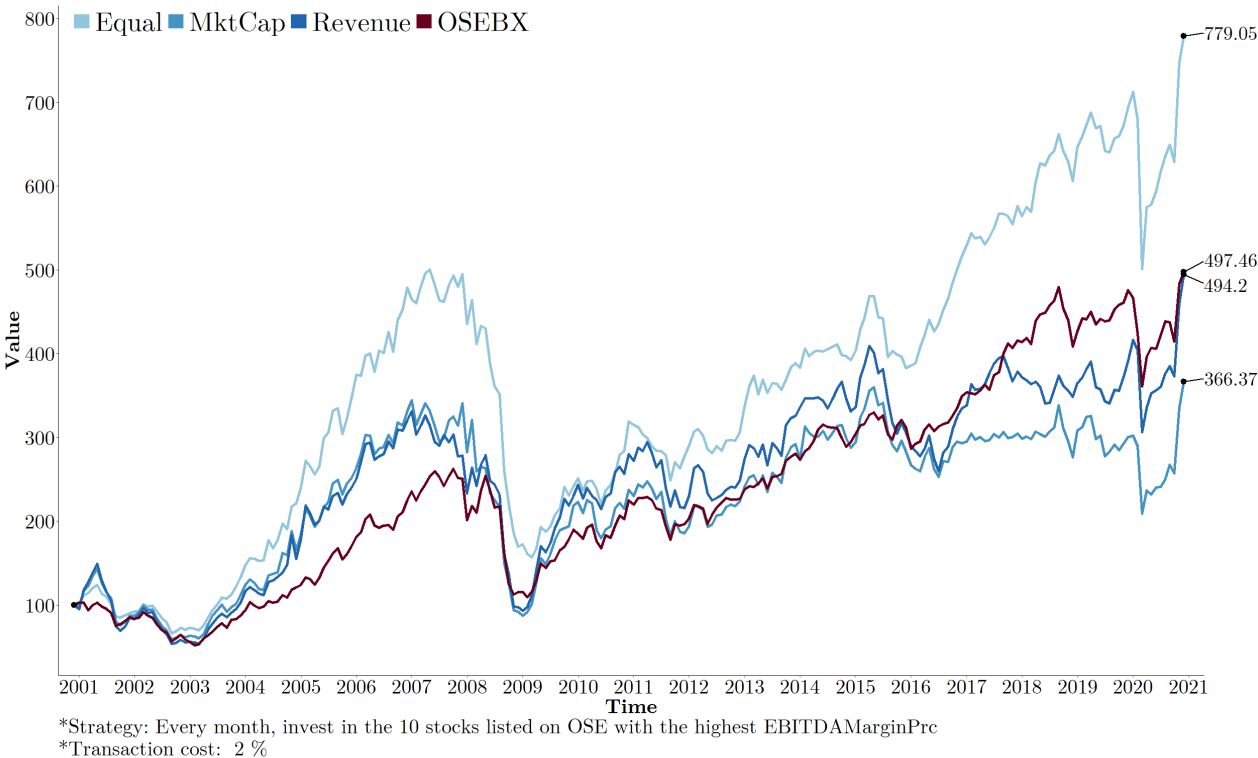*Transaction cost: 2 %

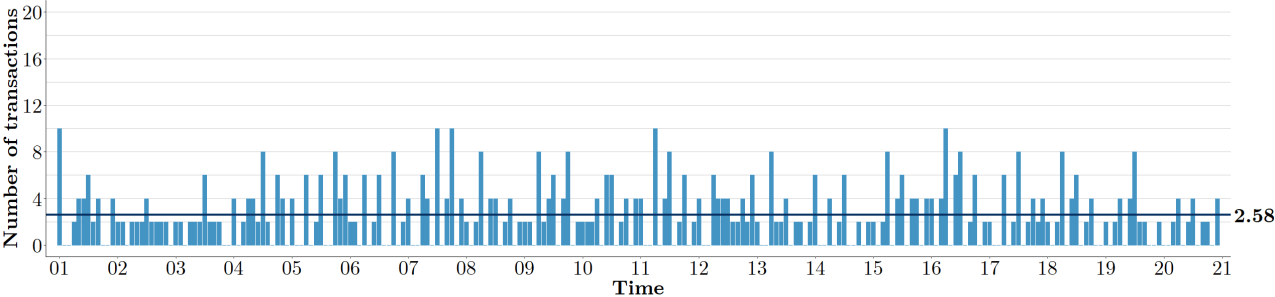Figure 2: EBITDA Margin Strategy: Transactions over time

Figure 3: EBITDA Margin Strategy: GICS Sector Proportions over time

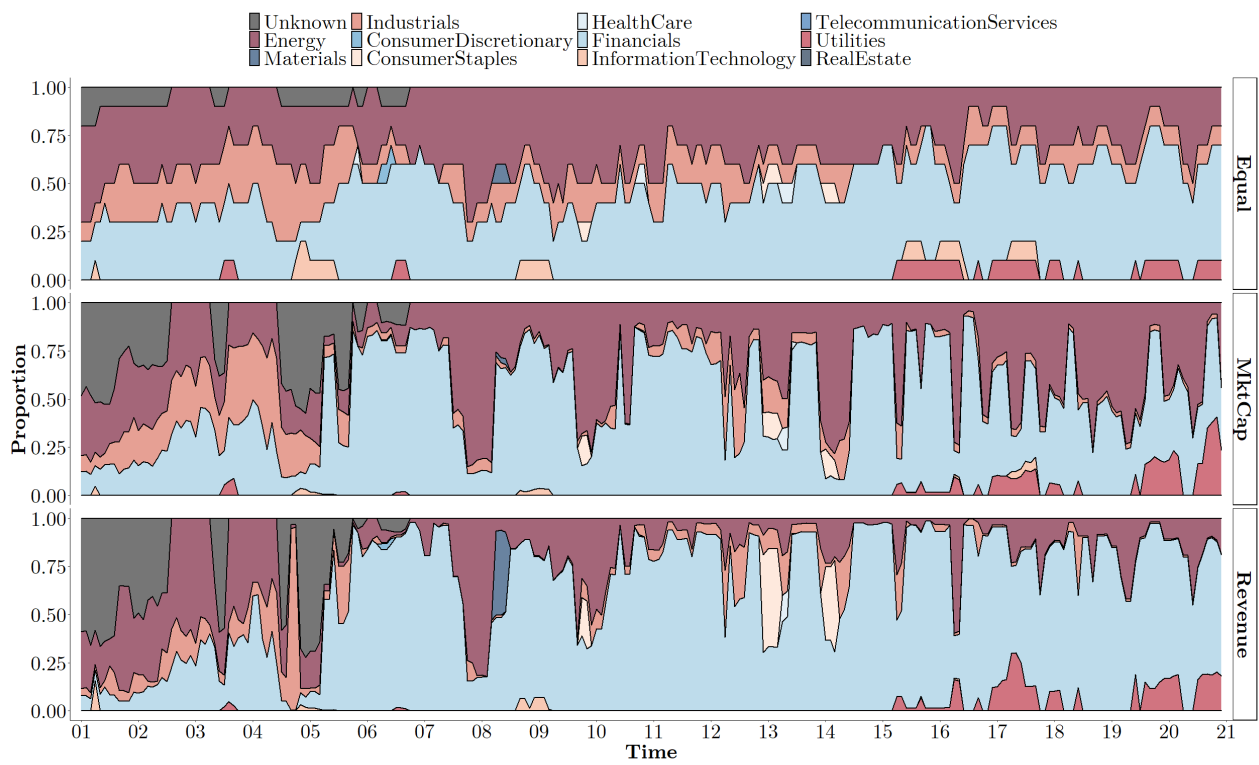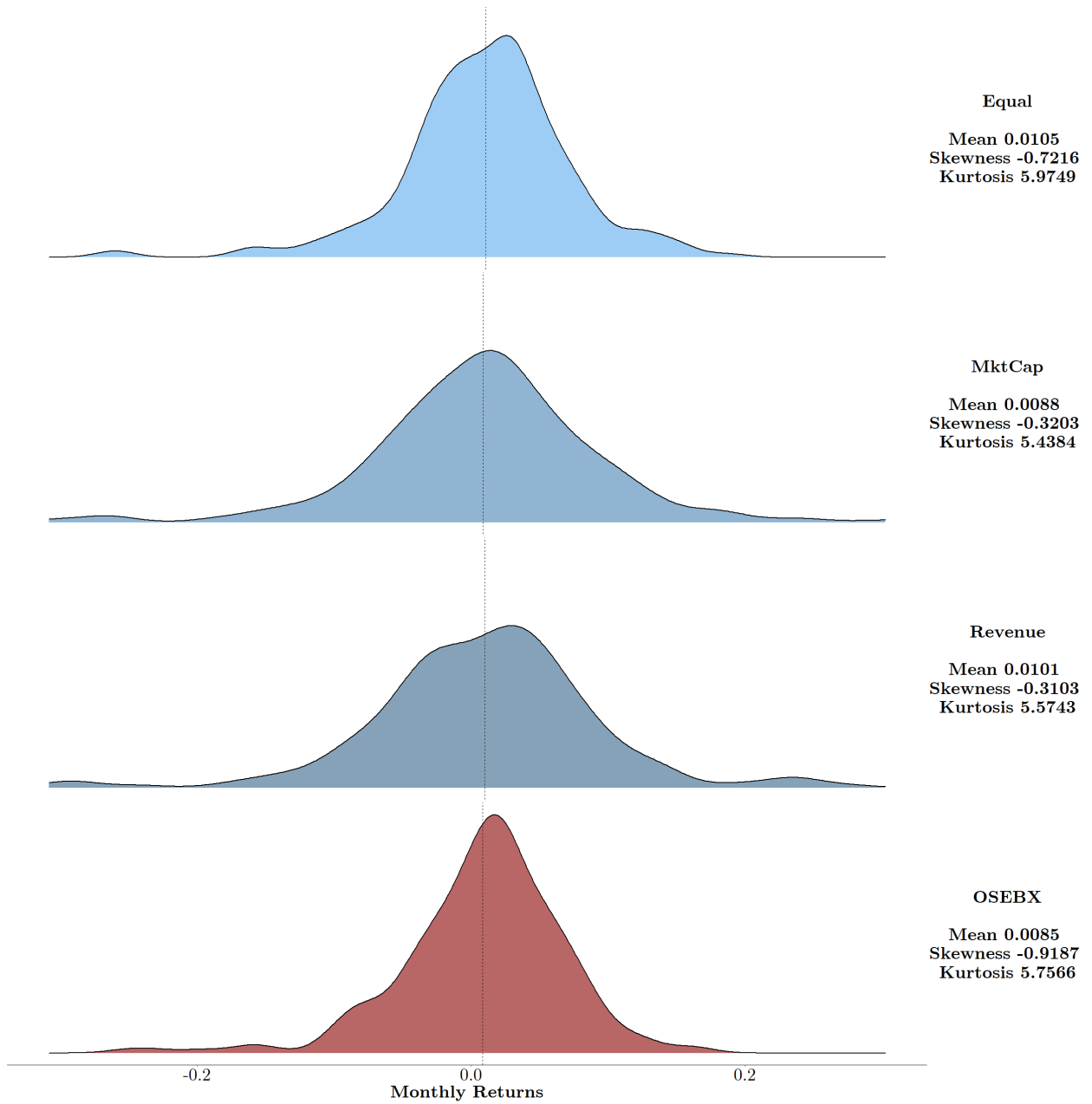Figure 4: EBITDA Margin Strategy: Return Distributions

Equal

Mean 0.0105
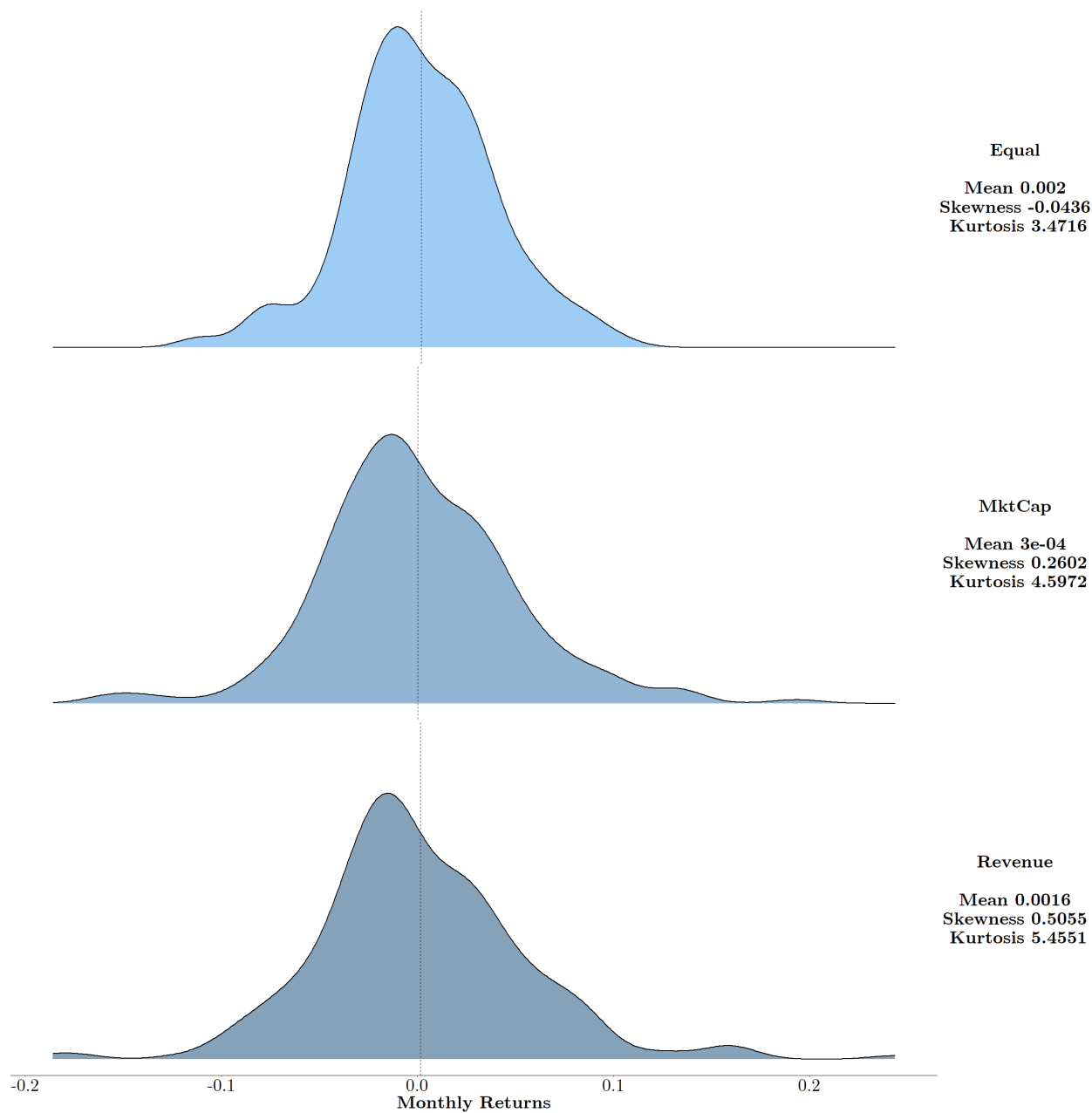**Skewness -0.7216**
Kurtosis 5.9749

MktCap

Mean 0.0088
Skewness -0.3203
Kurtosis 5.4384

Revenue

Mean 0.0101
Skewness -0.3103
Kurtosis 5.5743

OSEBX

Mean 0.0085
Skewness -0.9187
Kurtosis 5.7566

Monthly Returns

Figure 5: EBITDA Margin Strategy: Excess $(r_p - r_m)$ Return Distributions

Equal

Mean 0.002
Skewness -0.0436
Kurtosis 3.4716

MktCap

Mean 3e-04
Skewness 0.2602
Kurtosis 4.5972

Revenue

Mean 0.0016
Skewness 0.5055
Kurtosis 5.4551

Monthly Returns

3 Debt-to-Equity Ratio

3.1 Performance Statistics

	Annual Avg. Return	Annual St. Dev.	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
Index	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
Equal	0.1060	0.2975	0.2647	0.9712	0.0061	0.0811
MktCap	0.0855	0.3381	0.1722	1.0950	-0.0237	0.0532
Revenue	0.1797	0.3439	0.4435	0.9673	0.0801	0.1577

3.2 Transaction Statistics

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
Transactions	0.00	0.00	2.00	1.63	2.00	10.00	392.00

3.3 Gics Proportion over Time

	Equal	MktCap	Revenue
Unknown	0.01	0.00	0.00
Energy	0.17	0.31	0.24
Materials	0.00	0.00	0.00
Industrials	0.04	0.02	0.12
ConsumerDiscretionary	0.06	0.05	0.14
ConsumerStaples	0.00	0.00	0.00
HealthCare	0.20	0.09	0.04
Financials	0.11	0.10	0.15
InformationTechnology	0.41	0.42	0.32
TelecommunicationServices	0.00	0.00	0.00
Utilities	0.00	0.00	0.00
RealEstate	0.00	0.00	0.00

3.4 Fama French Statistics

Table 2: Regression Results - Debt-to-Equity

	Norwegian Model (FF3F + MOM + LIQ)			European Model (FF5F + MOM)		
	Equal-rf	MktCap-rf	Revenue-rf	Equal-rf	MktCap-rf	Revenue-rf
	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	-0.002	-0.003	0.007	0.012*	0.012*	0.021*
Index-rf	0.870*	0.824*	0.677*	0.737*	0.777*	0.645*
SMB	0.768*	0.717*	0.382*	0.966*	0.431	0.507
HML	0.006	0.057	0.170	-1.228*	-1.201*	-1.230*
RMW				-1.504*	-1.393*	-1.909*
CMA				0.207	0.130	0.458
UMD	-0.113	-0.268*	-0.219*	-0.411*	-0.546*	-0.452*
LIQ	-0.595*	-0.836*	-0.724*			
Observations	239	239	239	239	239	239
Adjusted R^2	0.531	0.525	0.368	0.448	0.399	0.308

Notes   *p<0.05; Transaction cost: 0.02

3.5 Figures

Figure 6: Debt-to-Equity Strategy: Backtesting from 2000-11-30 to 2020-11-30

*Strategy: Every month, invest in the 10 stocks listed on OSE with the lowest D_EPrc
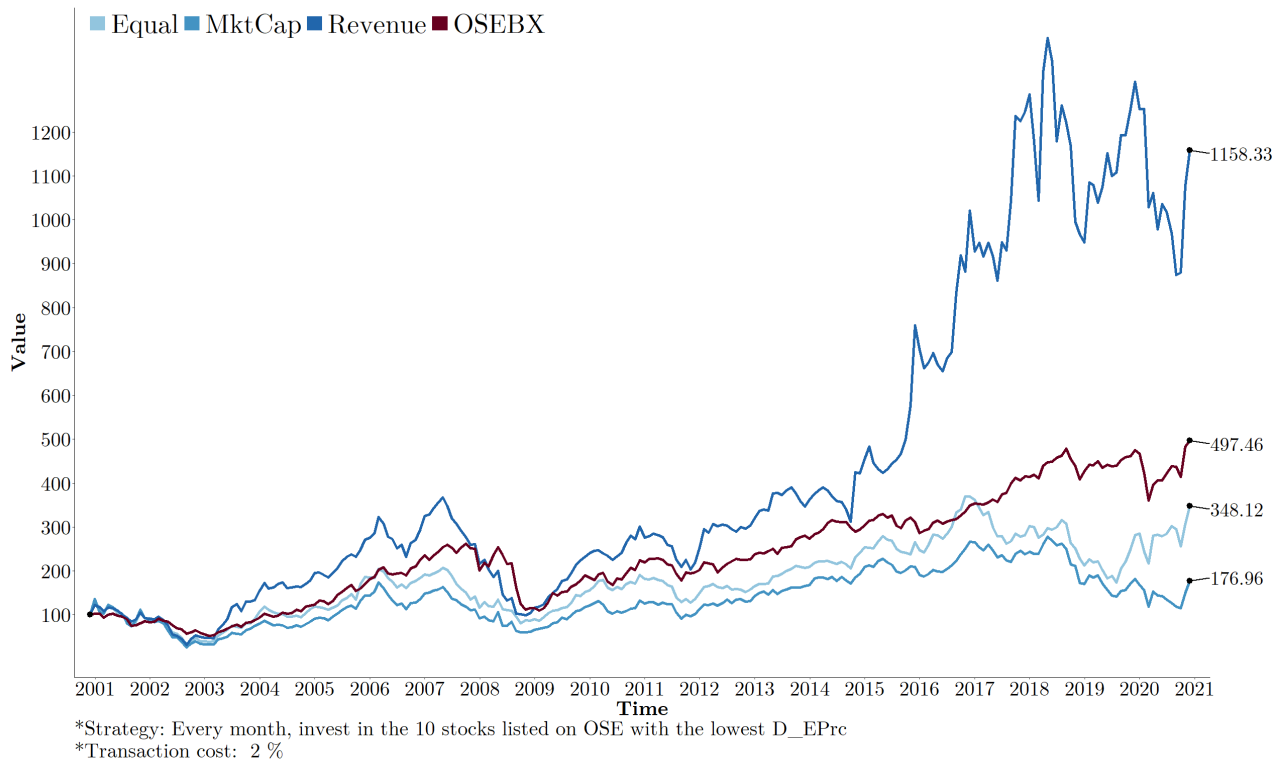*Transaction cost: 2 %

Figure 7: Debt-to-Equity Strategy: Transactions over time
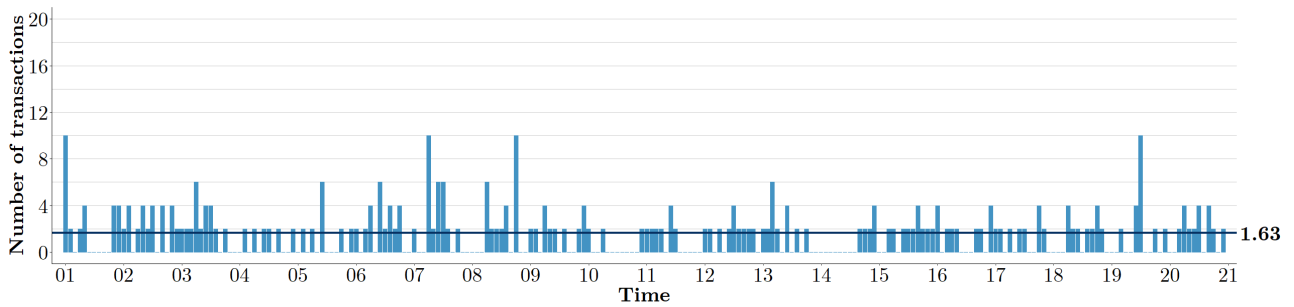
Figure 8: Debt-to-Equity Strategy: GICS Sector Proportions over time

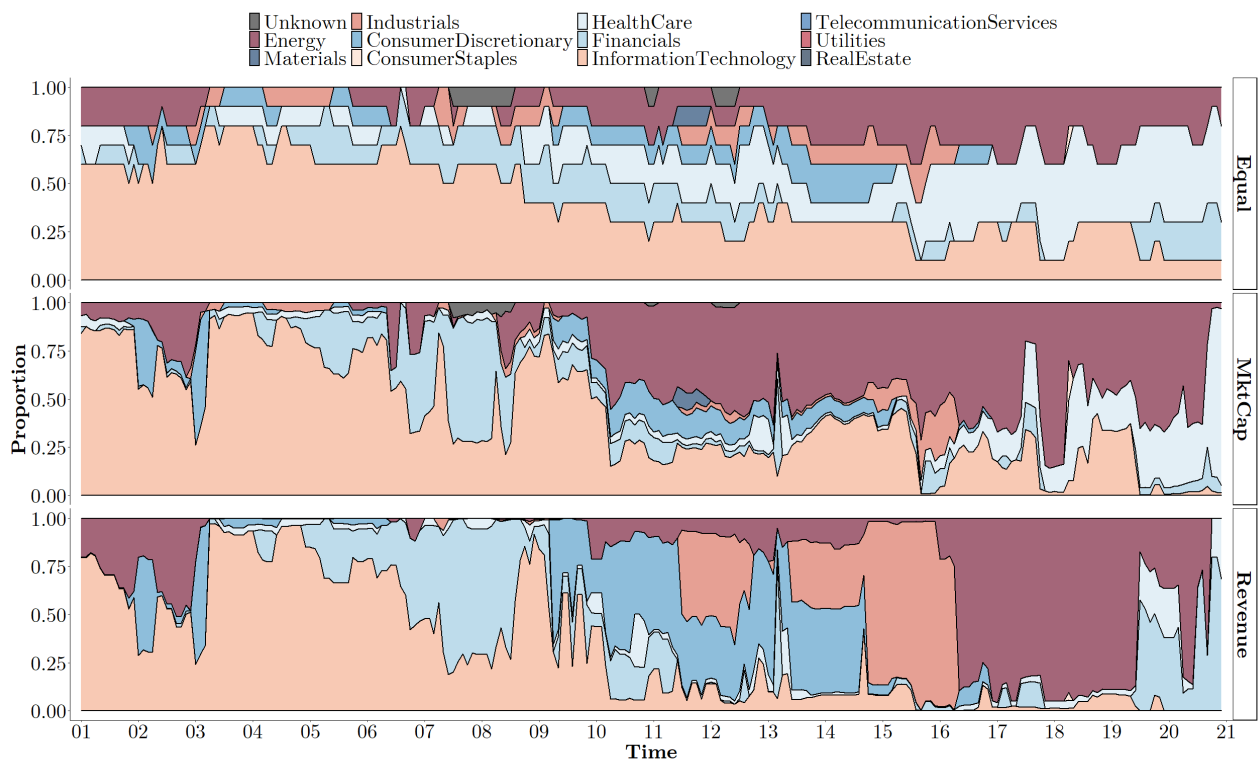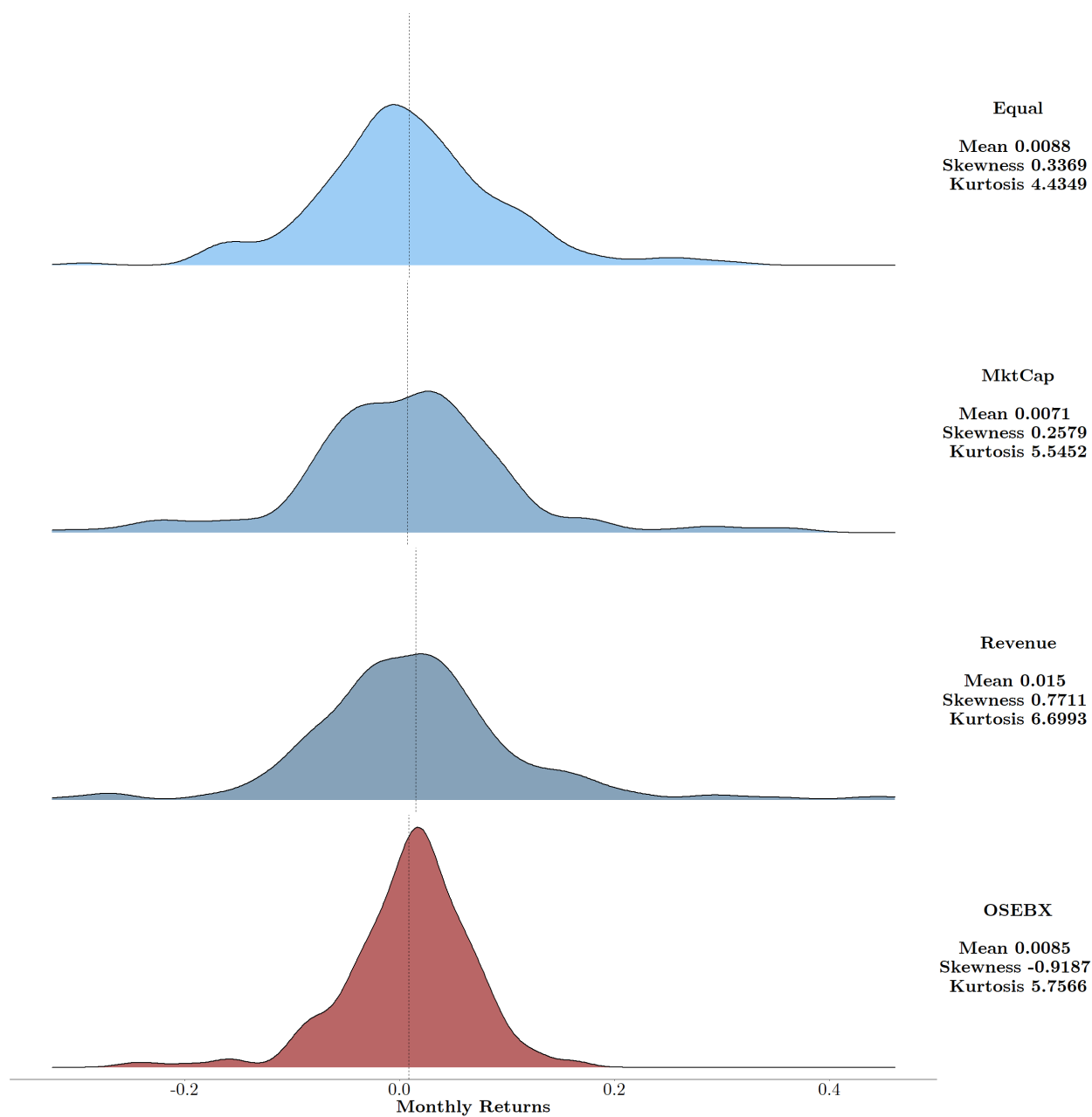Figure 9: Debt-to-Equity Strategy: Return Distributions

Equal

Mean 0.0088
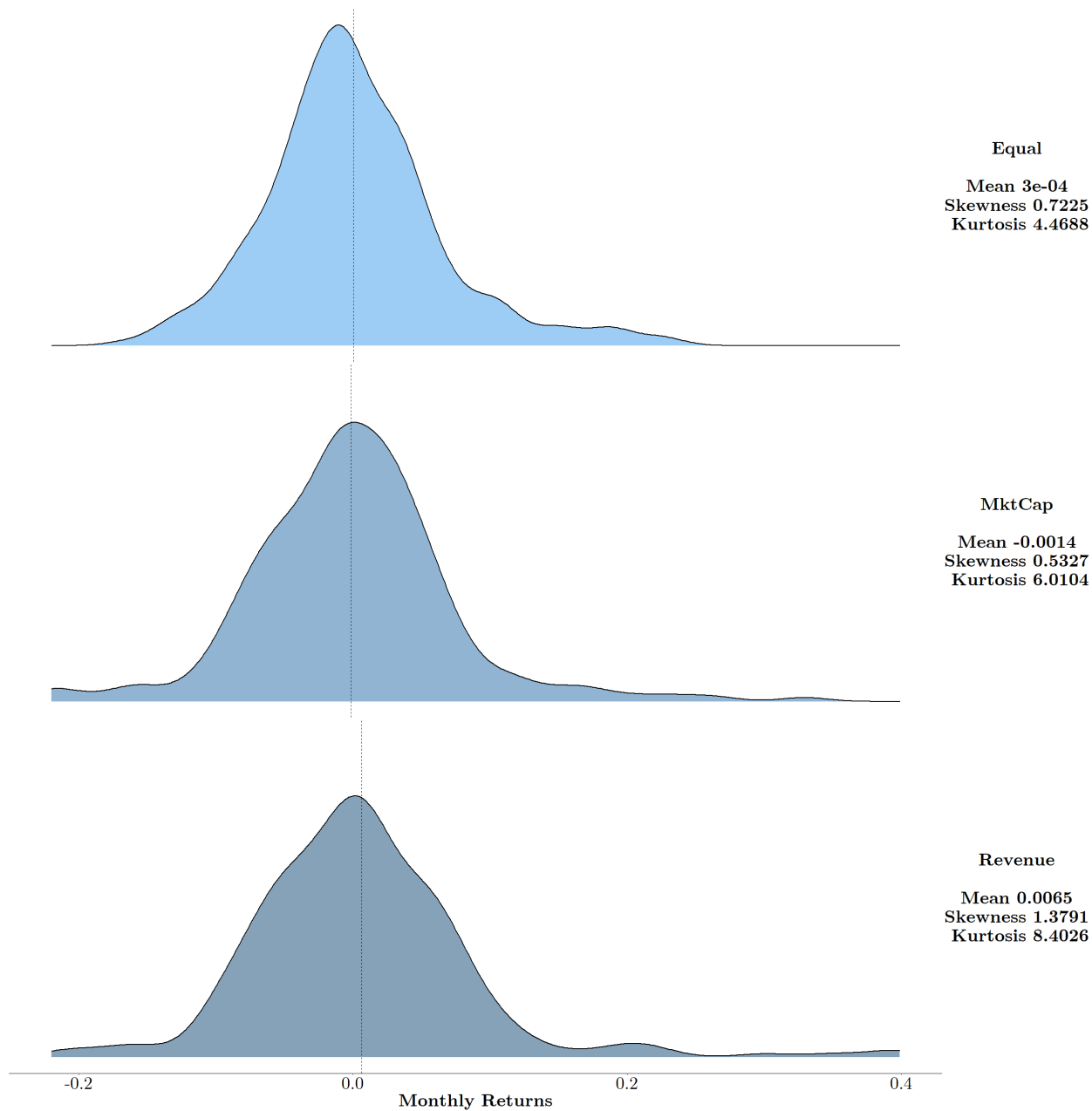**Skewness 0.3369**
Kurtosis 4.4349

MktCap

Mean 0.0071
Skewness 0.2579
Kurtosis 5.5452

Revenue

Mean 0.015
Skewness 0.7711
Kurtosis 6.6993

OSEBX

Mean 0.0085
Skewness -0.9187
Kurtosis 5.7566

-0.2   0.0   0.2   0.4
Monthly Returns

Figure 10: Debt-to-Equity Strategy: Excess $(r_p - r_m)$ Return Distributions

Equal

Mean 3e-04
Skewness 0.7225
Kurtosis 4.4688

MktCap

Mean -0.0014
Skewness 0.5327
Kurtosis 6.0104

Revenue

Mean 0.0065
Skewness 1.3791
Kurtosis 8.4026

Monthly Returns

4 Net Profit Margin

4.1 Performance Statistics

	Annual Avg. Return	Annual St. Dev.	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
Index	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
Equal	0.0770	0.2107	0.2362	0.7724	-0.0080	0.0644
MktCap	0.0392	0.2444	0.0491	0.8816	-0.0540	0.0136
Revenue	0.0420	0.2398	0.0614	0.8267	-0.0471	0.0178

4.2 Transaction Statistics

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
Transactions	0.00	0.00	4.00	4.10	6.00	14.00	984.00

4.3 Gics Proportion over Time

	Equal	MktCap	Revenue
Unknown	0.03	0.07	0.07
Energy	0.31	0.36	0.27
Materials	0.00	0.00	0.01
Industrials	0.16	0.09	0.10
ConsumerDiscretionary	0.01	0.01	0.01
ConsumerStaples	0.02	0.02	0.06
HealthCare	0.02	0.01	0.01
Financials	0.38	0.37	0.41
InformationTechnology	0.04	0.04	0.03
TelecommunicationServices	0.00	0.02	0.02
Utilities	0.02	0.02	0.01
RealEstate	0.00	0.00	0.00

4.4 Fama French Statistics

Table 3: Regression Results - Net Profit Margin

	Norwegian Model (FF3F + MOM + LIQ)			European Model (FF5F + MOM)		
	Equal-rf	MktCap-rf	Revenue-rf	Equal-rf	MktCap-rf	Revenue-rf
	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	-0.003	-0.005	-0.005	-0.001	-0.003	-0.001
Index-rf	0.888*	0.861*	0.870*	0.663*	0.669*	0.588*
SMB	0.318*	0.068	0.209	0.815*	0.397*	0.434*
HML	0.258*	0.107	0.213*	0.210	0.382	0.287
RMW				0.198	0.220	-0.086
CMA				-0.191	-0.504	-0.326
UMD	0.032	-0.028	-0.023	0.003	-0.044	-0.088
LIQ	-0.031	-0.088	-0.075			
Observations	239	239	239	239	239	239
Adjusted R^2	0.606	0.542	0.510	0.427	0.341	0.310

Notes   *p<0.05; Transaction cost: 0.02

4.5 Figures

Figure 11: Net Profit Margin Strategy: Backtesting from 2000-11-30 to 2020-11-30

*Strategy: Every month, invest in the 10 stocks listed on OSE with the highest NetProfitMarginPrc
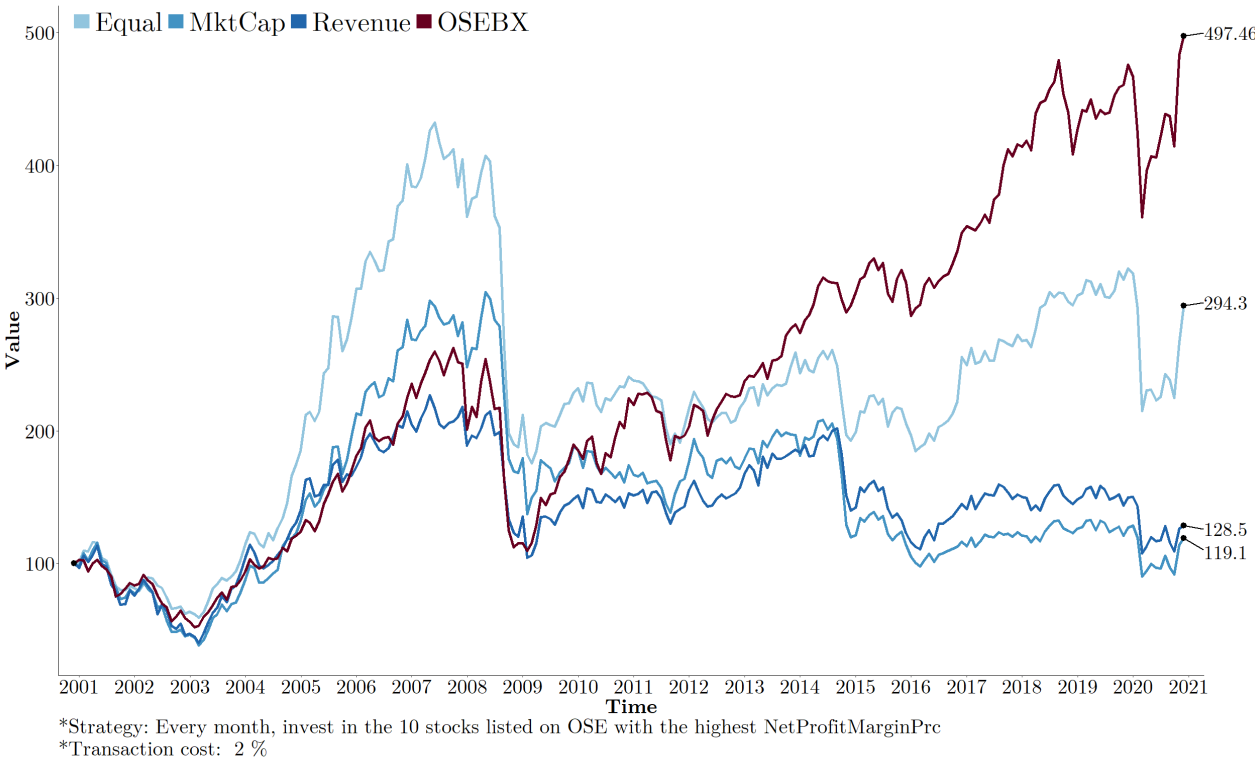*Transaction cost: 2 %

Figure 12: Net Profit Margin Strategy: Transactions over time
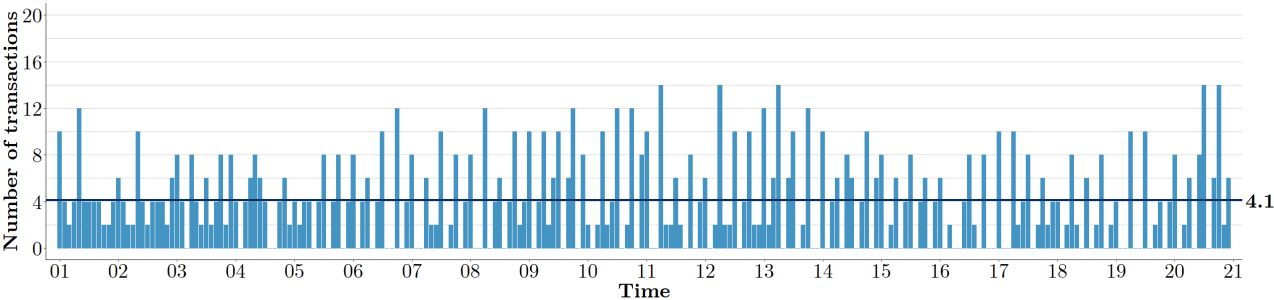
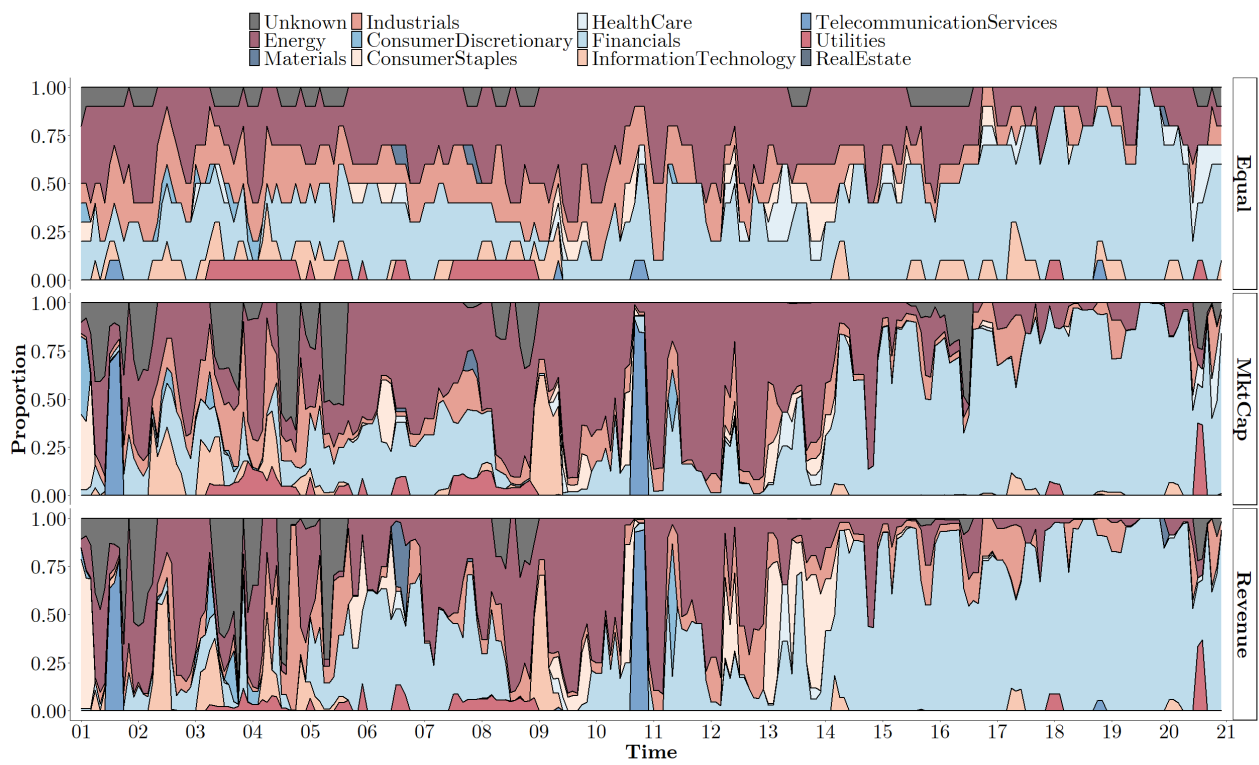Figure 13: Net Profit Margin Strategy: GICS Sector Proportions over time

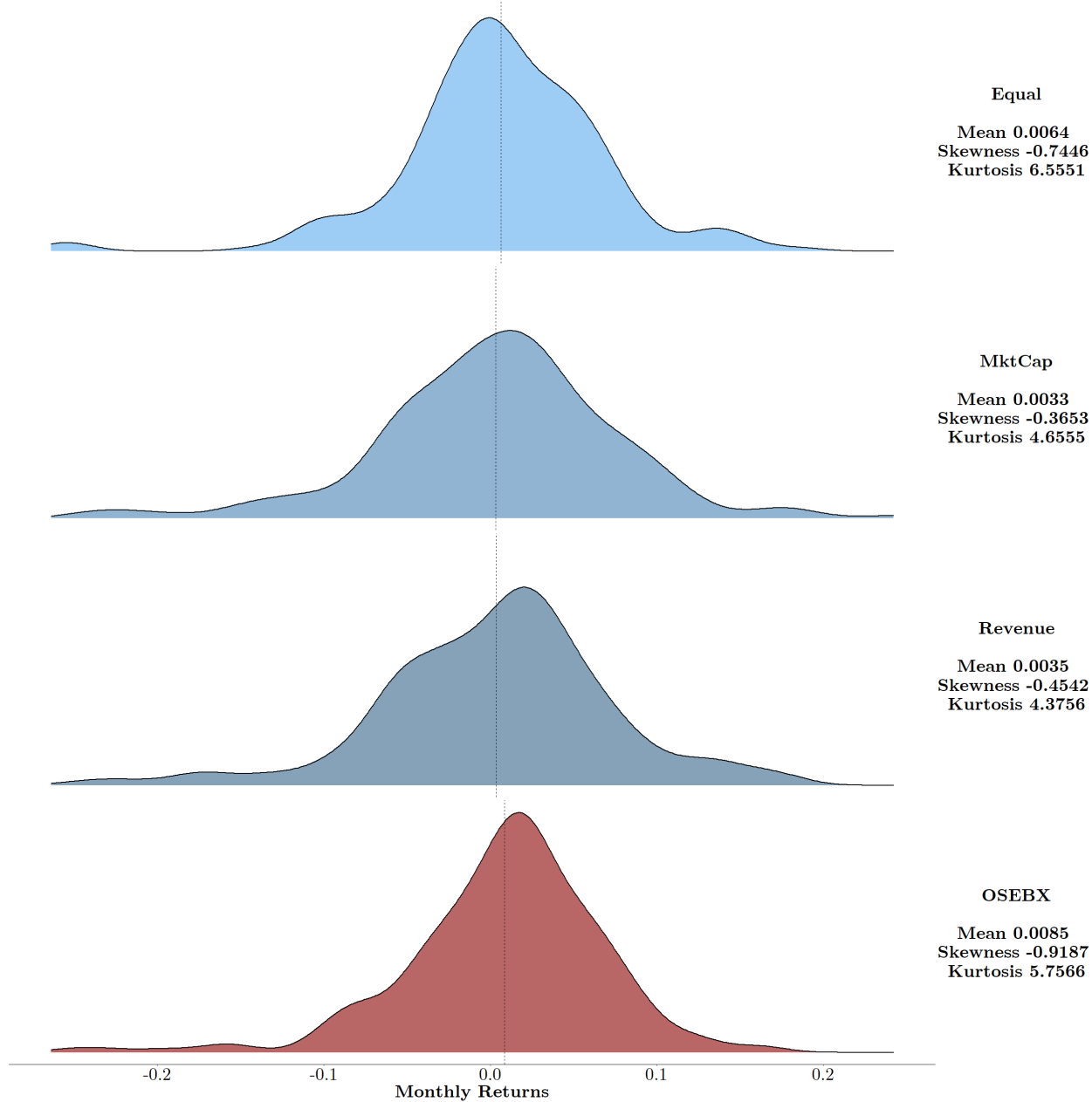Figure 14: Net Profit Margin Strategy: Return Distributions

Equal

Mean 0.0064
Skewness -0.7446
Kurtosis 6.5551

MktCap

Mean 0.0033
Skewness -0.3653
Kurtosis 4.6555

Revenue

Mean 0.0035
Skewness -0.4542
Kurtosis 4.3756

OSEBX

Mean 0.0085
Skewness -0.9187
Kurtosis 5.7566

Monthly Returns

Figure 15: Net Profit Margin Strategy: Excess $(r_p - r_m)$ Return Distributions

Equal

Mean -0.0021
Skewness 0.311
Kurtosis 3.096

MktCap

Mean -0.0052
Skewness -0.356
Kurtosis 4.3847

Revenue

Mean -0.005
Skewness 0.1733
Kurtosis 4.4716

Monthly Returns
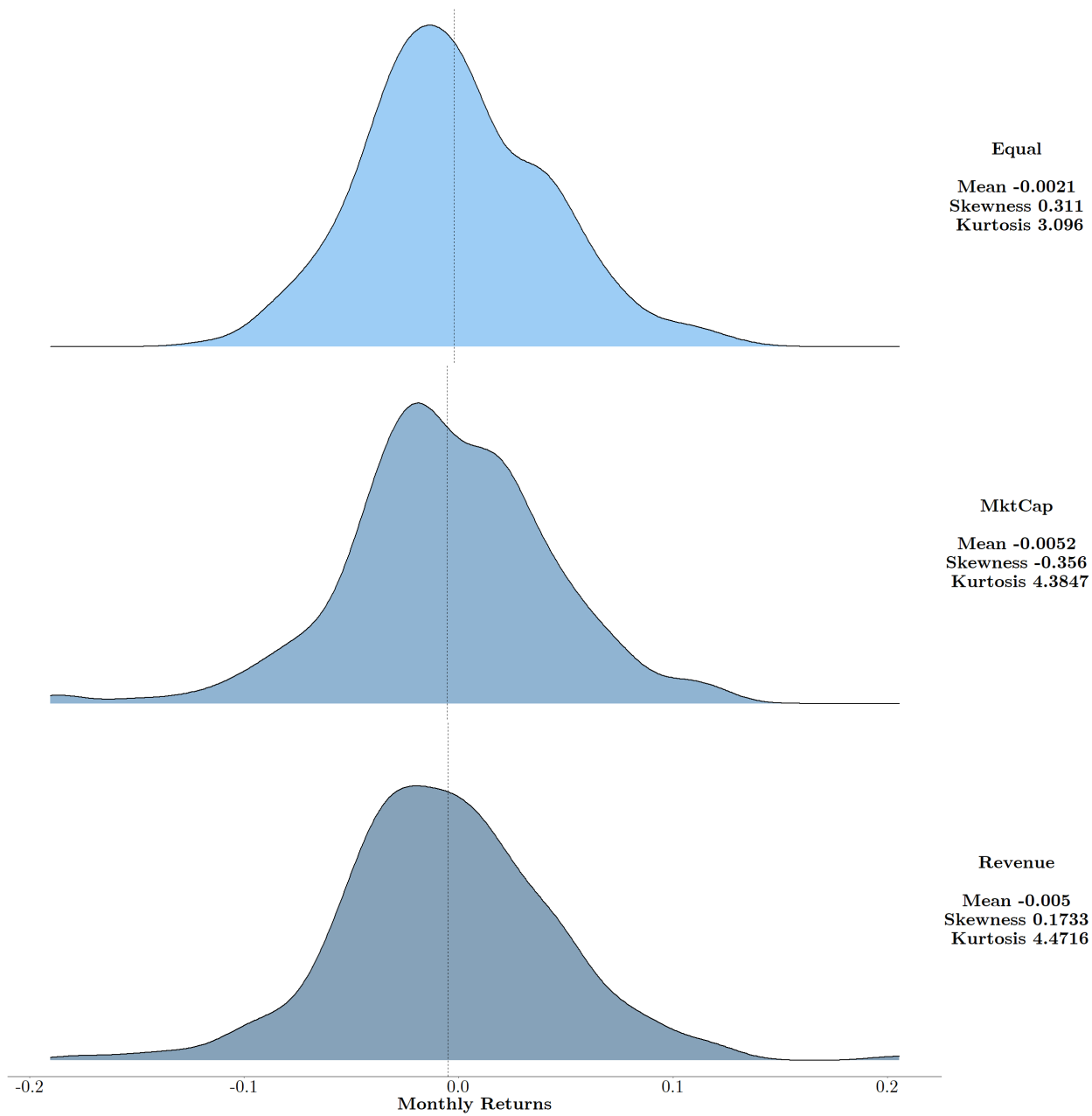
5 Current Ratio

5.1 Performance Statistics

	Annual Avg. Return	Annual St. Dev.	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
Index	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
Equal	0.0852	0.2834	0.2045	0.9311	-0.0117	0.0622
MktCap	0.1066	0.2503	0.3171	0.8285	0.0174	0.0958
Revenue	0.1543	0.2535	0.5013	0.7580	0.0704	0.1677

5.2 Transaction Statistics

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
Transactions	0.00	0.00	2.00	2.73	4.00	12.00	656.00

5.3 Gics Proportion over Time

	Equal	MktCap	Revenue
Unknown	0.02	0.01	0.02
Energy	0.18	0.26	0.14
Materials	0.01	0.01	0.00
Industrials	0.14	0.17	0.23
ConsumerDiscretionary	0.00	0.00	0.00
ConsumerStaples	0.05	0.20	0.22
HealthCare	0.31	0.11	0.09
Financials	0.08	0.03	0.06
InformationTechnology	0.18	0.16	0.11
TelecommunicationServices	0.00	0.00	0.00
Utilities	0.04	0.06	0.12
RealEstate	0.00	0.00	0.00

5.4 Fama French Statistics

Table 4: Regression Results - Current Ratio

	Norwegian Model (FF3F + MOM + LIQ)			European Model (FF5F + MOM)		
	Equal-rf	MktCap-rf	Revenue-rf	Equal-rf	MktCap-rf	Revenue-rf
	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	-0.005	-0.001	0.004	0.004	0.004	0.008
Index-rf	1.003^*	0.851^*	0.827^*	0.766^*	0.807^*	0.657^*
SMB	0.784^*	0.272^*	0.205	1.351^*	0.892^*	1.038^*
HML	0.034	0.033	0.105	-0.903^*	-0.822^*	-0.716^*
RMW				-0.702^*	-0.284	-0.150
CMA				0.072	0.753^*	0.422
UMD	-0.092	0.046	0.052	-0.291^*	-0.206	-0.159
LIQ	-0.298^*	-0.135	-0.027			
Observations	239	239	239	239	239	239
Adjusted R^2	0.541	0.467	0.376	0.427	0.362	0.258

Notes	*p<0.05; Transaction cost: 0.02

5.5 Figures

Figure 16: Current Ratio Strategy: Backtesting from 2000-11-30 to 2020-11-30

*Strategy: Every month, invest in the 10 stocks listed on OSE with the highest CurrentRatio
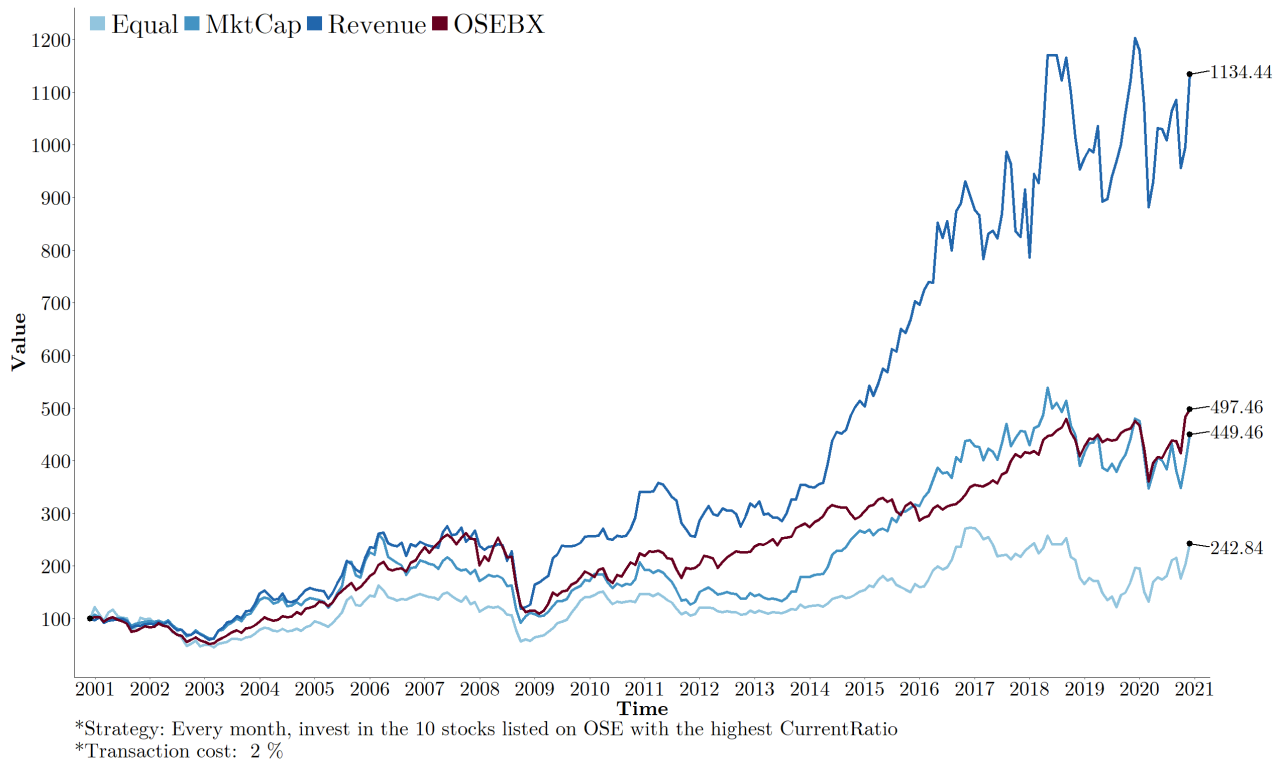*Transaction cost: 2 %

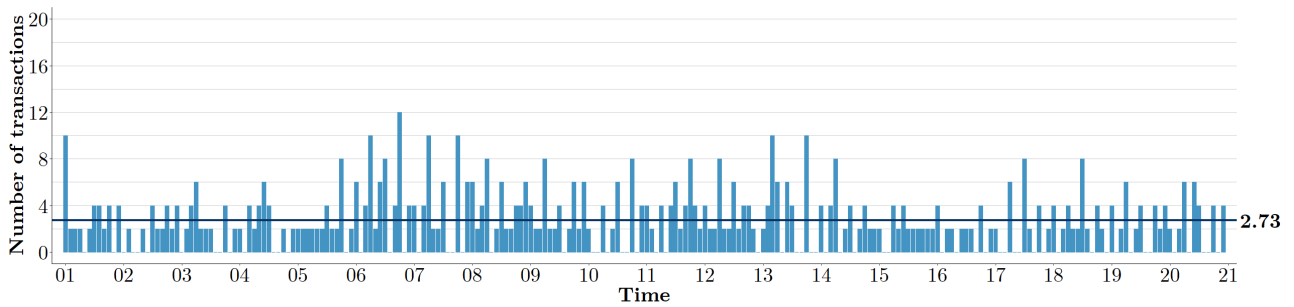Figure 17: Current Ratio Strategy: Transactions over time

Figure 18: Current Ratio Strategy: GICS Sector Proportions over time

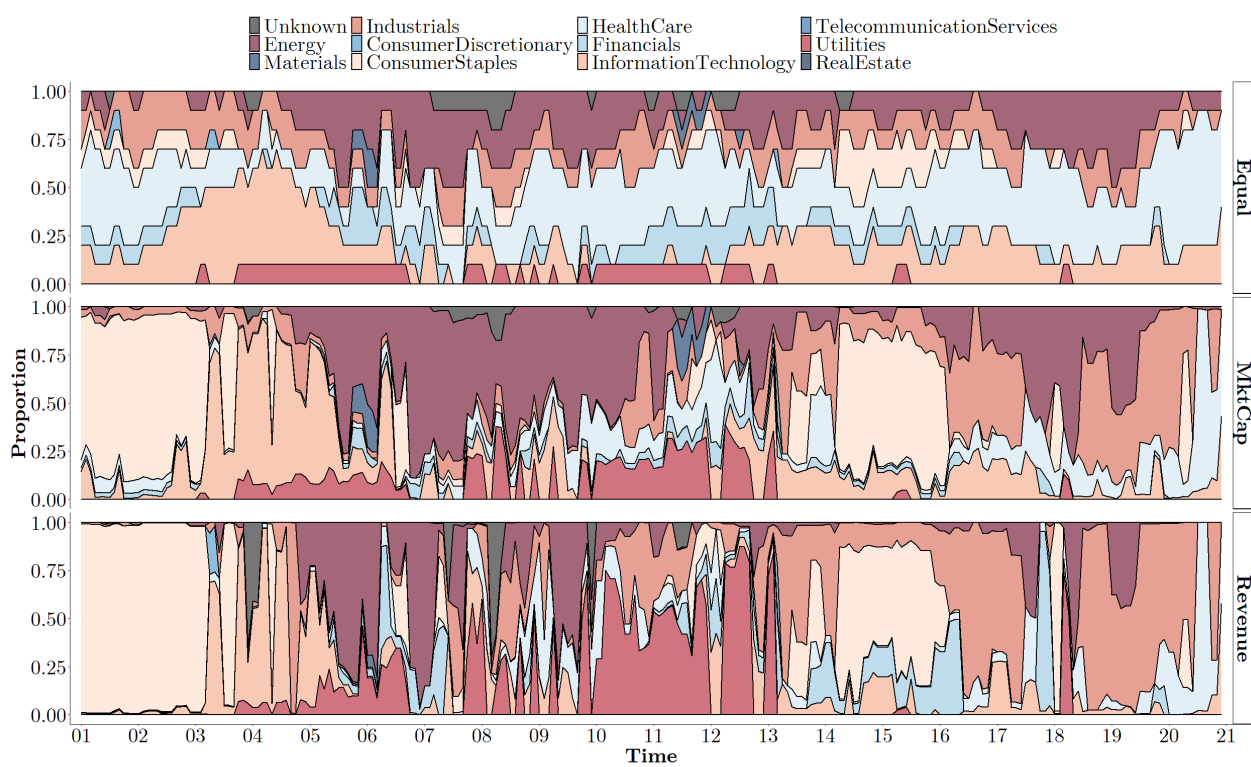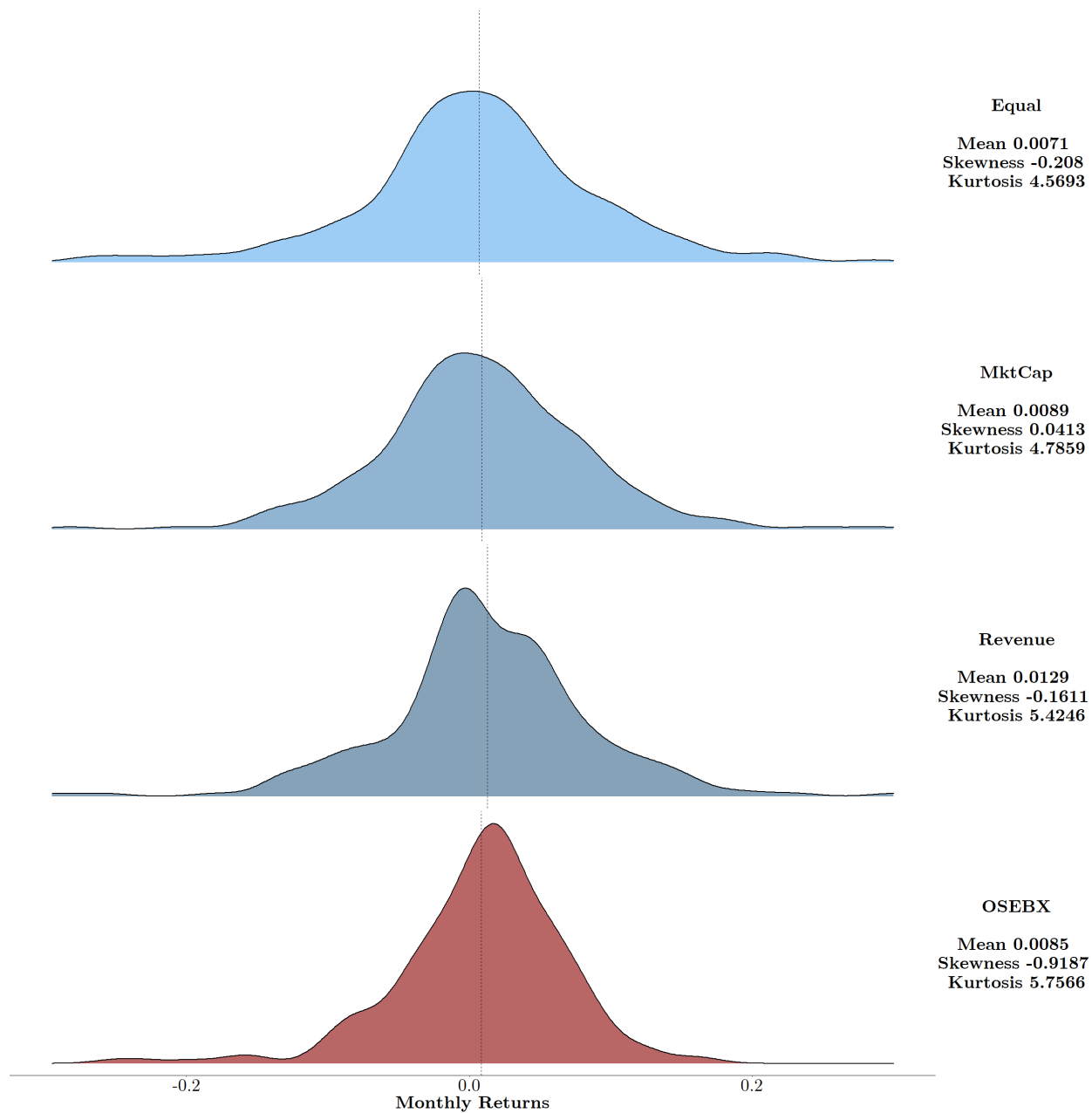Figure 19: Current Ratio Strategy: Return Distributions

Equal

Mean 0.0071
Skewness -0.208
Kurtosis 4.5693

MktCap

Mean 0.0089
Skewness 0.0413
Kurtosis 4.7859

Revenue

Mean 0.0129
Skewness -0.1611
Kurtosis 5.4246

OSEBX

Mean 0.0085
Skewness -0.9187
Kurtosis 5.7566

Monthly Returns

Figure 20: Current Ratio Strategy: Excess $(r_p - r_m)$ Return Distributions

Equal

Mean -0.0014
Skewness 0.5452
Kurtosis 3.8432

MktCap

Mean 4e-04
Skewness 0.7677
Kurtosis 5.0772

Revenue

Mean 0.0044
Skewness 0.4281
Kurtosis 5.0131

-0.1   0.0   0.1   0.2   0.3
Monthly Returns
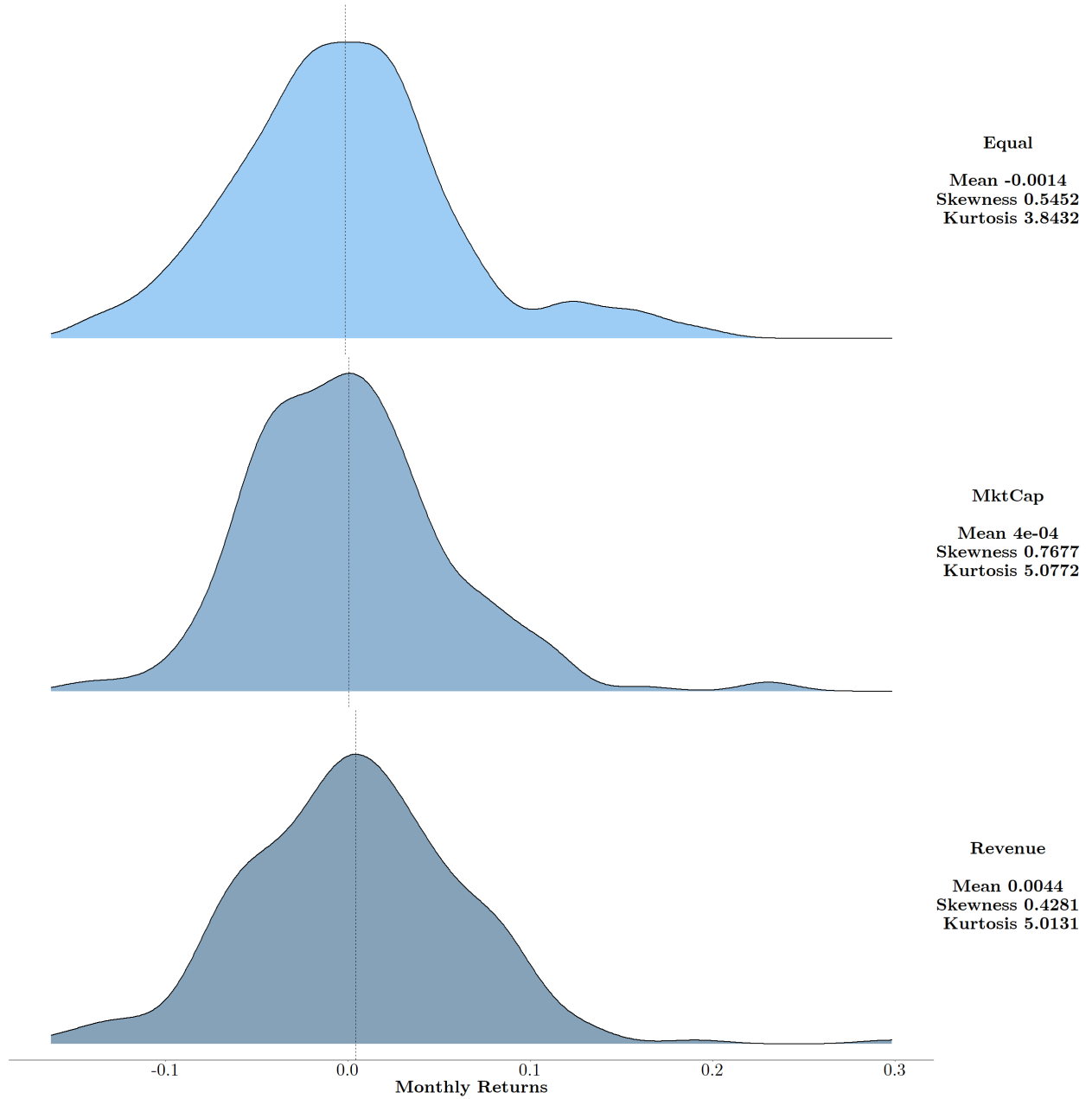
6 Interest Coverage Ratio

6.1 Performance Statistics

	Annual Avg. Return	Annual St. Dev.	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
Index	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
Equal	0.1311	0.2239	0.4640	0.9045	0.0362	0.1149
MktCap	0.0941	0.2512	0.2664	1.0076	-0.0085	0.0664
Revenue	0.1064	0.2472	0.3201	0.9715	0.0064	0.0814

6.2 Transaction Statistics

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
Transactions	0.00	0.00	2.00	2.53	4.00	10.00	608.00

6.3 Gics Proportion over Time

	Equal	MktCap	Revenue
Unknown	0.02	0.04	0.03
Energy	0.30	0.45	0.40
Materials	0.02	0.04	0.07
Industrials	0.30	0.18	0.19
ConsumerDiscretionary	0.02	0.02	0.02
ConsumerStaples	0.06	0.06	0.04
HealthCare	0.07	0.00	0.00
Financials	0.05	0.04	0.05
InformationTechnology	0.11	0.02	0.02
TelecommunicationServices	0.05	0.15	0.19
Utilities	0.01	0.00	0.00
RealEstate	0.00	0.00	0.00

6.4 Fama French Statistics

Table 5: Regression Results - Interest Coverage Ratio

	Norwegian Model (FF3F + MOM + LIQ)			European Model (FF5F + MOM)		
	Equal-rf	MktCap-rf	Revenue-rf	Equal-rf	MktCap-rf	Revenue-rf
	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	0.002	−0.001	−0.00004	0.003	0.002	0.004
Index-rf	0.961*	1.069*	0.949*	0.828*	0.863*	0.872*
SMB	0.226*	0.004	0.024	0.822*	0.270	0.180
HML	0.104	0.044	0.046	−0.098	−0.282	−0.402
RMW				0.111	−0.273	−0.433
CMA				−0.323	−0.270	−0.174
UMD	0.002	0.064	0.052	0.020	0.127	0.100
LIQ	−0.047	0.086	−0.077			
Observations	239	239	239	239	239	239
Adjusted R^2	0.690	0.671	0.643	0.519	0.379	0.406

Notes *p<0.05; Transaction cost: 0.02

6.5 Figures

Figure 21: Interest Coverage Ratio Strategy: Backtesting from 2000-11-30 to 2020-11-30

*Strategy: Every month, invest in the 10 stocks listed on OSE with the highest InterestCoverageRatio
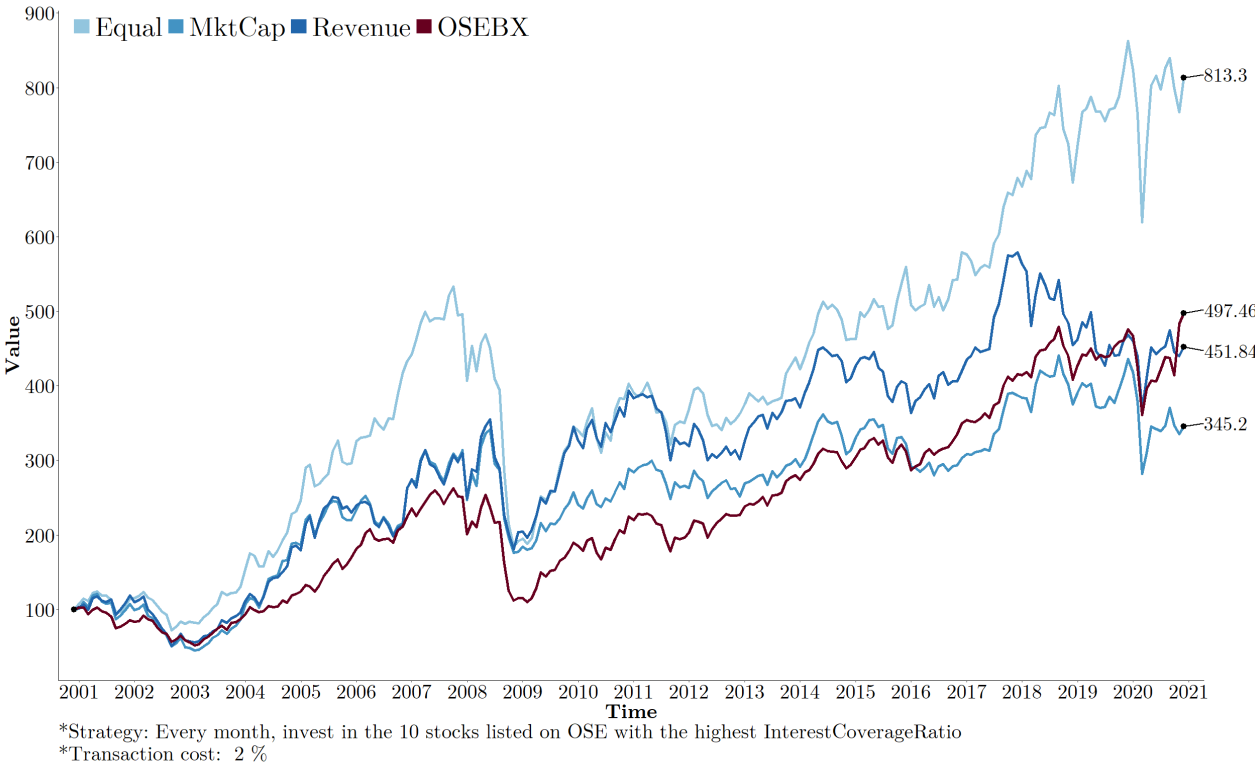*Transaction cost: 2 %

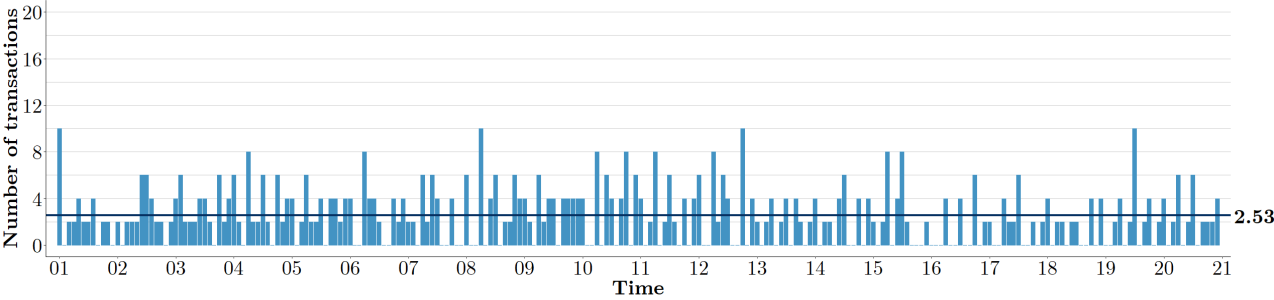Figure 22: Interest Coverage Ratio Strategy: Transactions over time

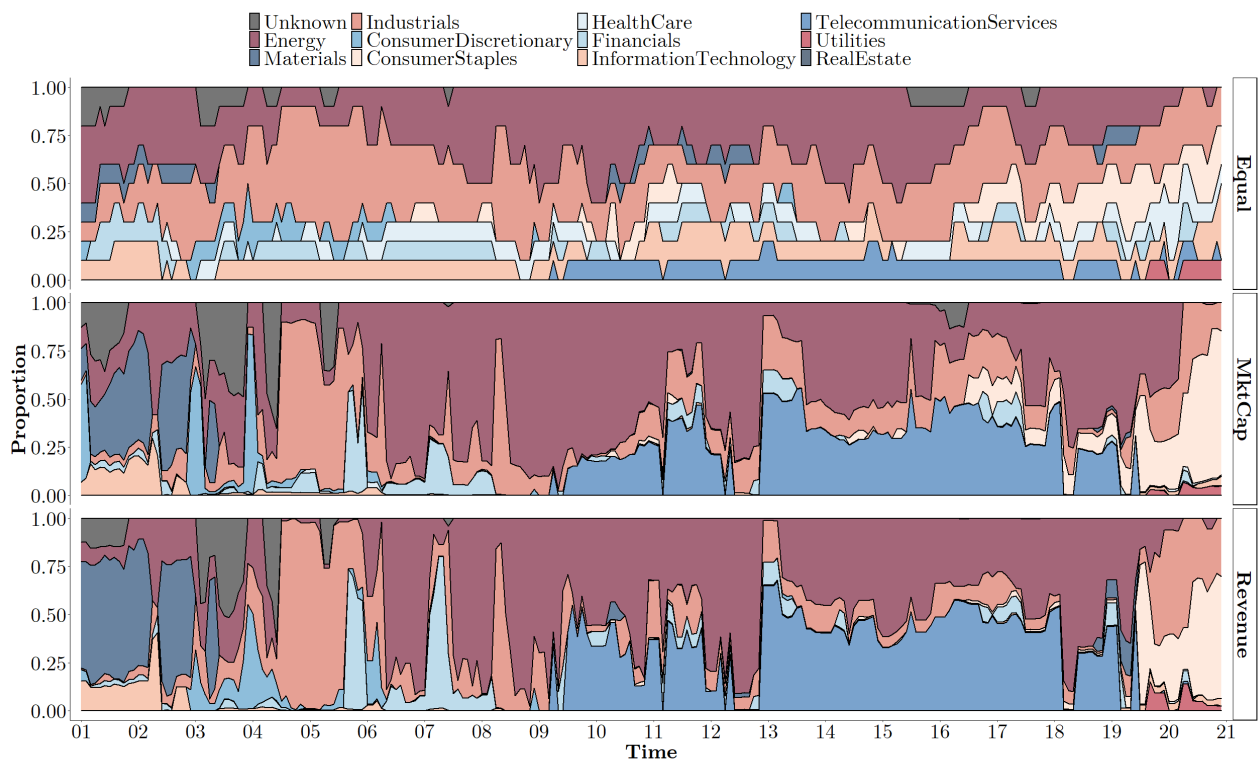Figure 23: Interest Coverage Ratio Strategy: GICS Sector Proportions over time

Figure 24: Interest Coverage Ratio Strategy: Return Distributions
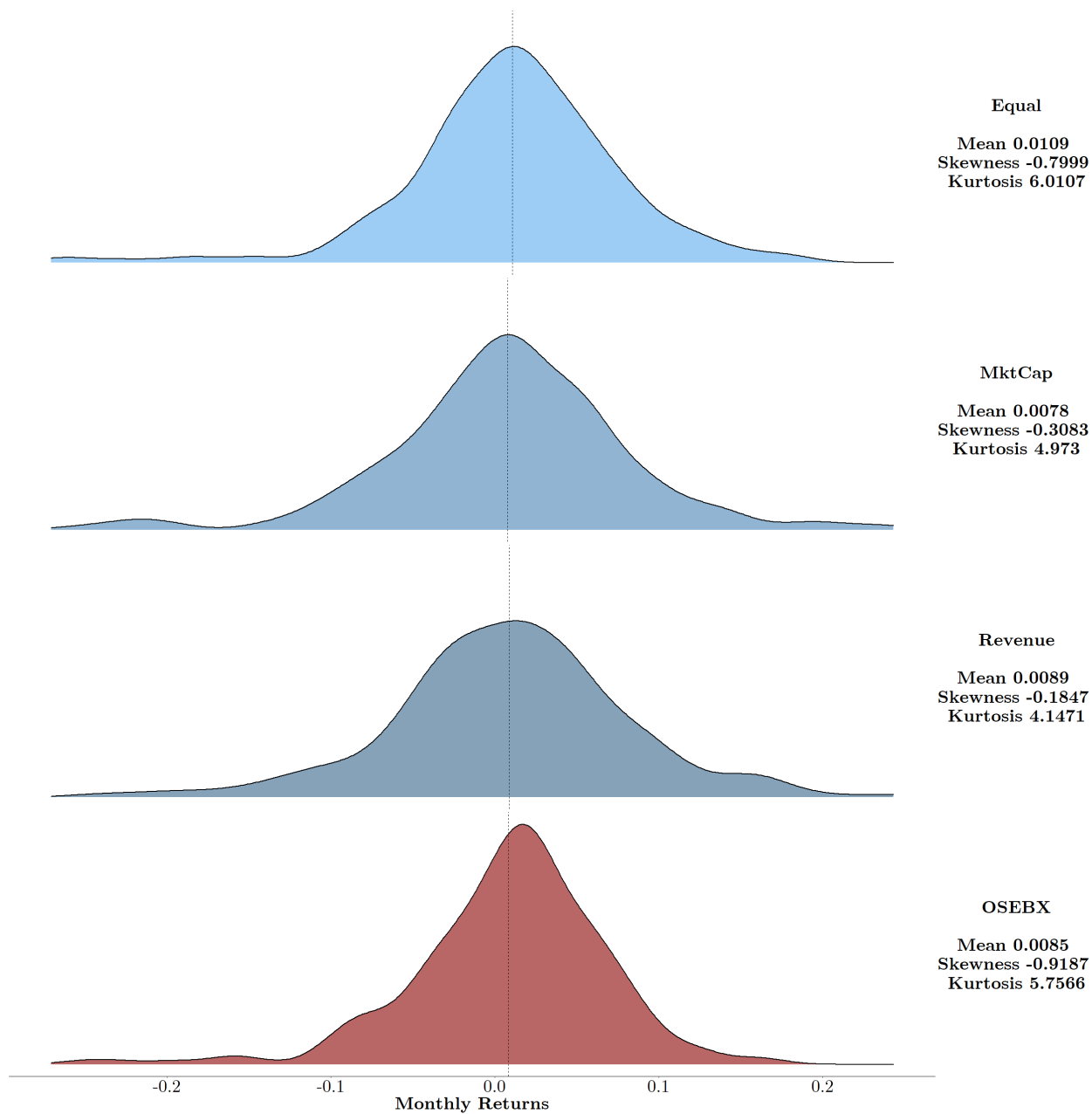
Equal

Mean 0.0109
Skewness -0.7999
Kurtosis 6.0107

MktCap

Mean 0.0078
Skewness -0.3083
Kurtosis 4.973

Revenue

Mean 0.0089
Skewness -0.1847
Kurtosis 4.1471

OSEBX

Mean 0.0085
Skewness -0.9187
Kurtosis 5.7566

Monthly Returns

Figure 25: Interest Coverage Ratio Strategy: Excess $(r_p - r_m)$ Return Distributions

Equal

Mean 0.0024
Skewness -0.4716
Kurtosis 7.5612

MktCap

Mean -7e-04
Skewness 0.38
Kurtosis 7.0688

Revenue

Mean 4e-04
Skewness 0.2942
Kurtosis 5.3062

Monthly Returns
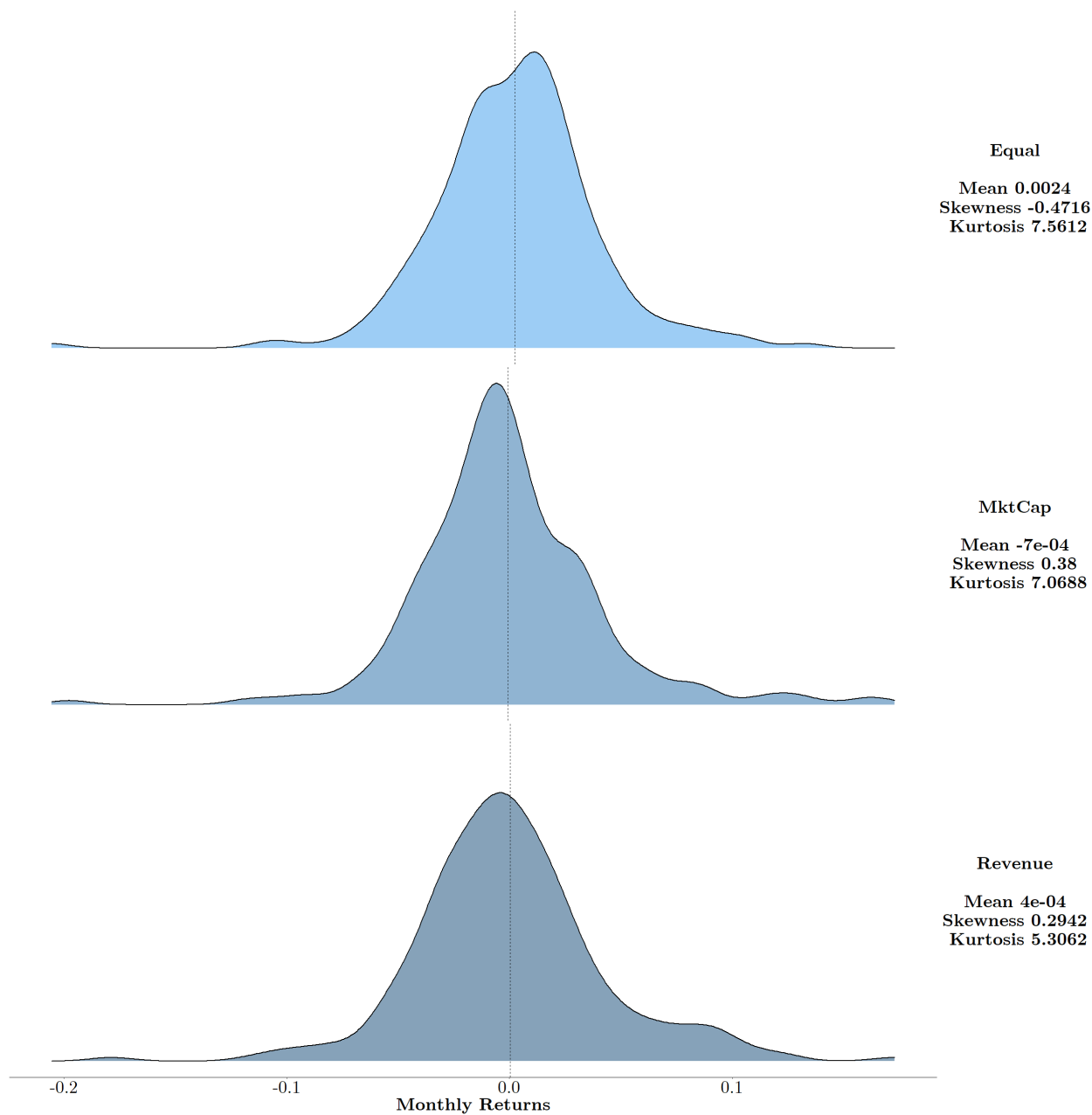
7 Best combination

7.1 Portfolio statistics

	Annual Avg. Return	Annual St. Dev.	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
Index	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
Equal	0.1138	0.2209	0.3917	0.8379	0.0238	0.1033
MktCap	0.1307	0.2728	0.3795	1.0304	0.0264	0.1005
Revenue	0.1769	0.2636	0.5677	0.8664	0.0848	0.1727

7.2 Transactions

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
Transactions	0.00	2.00	4.00	4.12	6.00	14.00	990.00

7.3 GICS statistics

	Equal	MktCap	Revenue
Unknown	0.03	0.09	0.08
Energy	0.42	0.42	0.34
Materials	0.00	0.00	0.00
Industrials	0.19	0.13	0.17
ConsumerDiscretionary	0.00	0.00	0.00
ConsumerStaples	0.09	0.17	0.26
HealthCare	0.07	0.01	0.01
Financials	0.09	0.03	0.06
InformationTechnology	0.08	0.11	0.05
TelecommunicationServices	0.00	0.00	0.00
Utilities	0.04	0.03	0.03
RealEstate	0.00	0.00	0.00

7.4 Fama French regression

Table 9: Regression Results - EBITDA Margin, Net Profit Margin, and Current Ratio

	Norwegian Model (FF3F + MOM + LIQ)			European Model (FF5F + MOM)		
	Equal-rf	MktCap-rf	Revenue-rf	Equal-rf	MktCap-rf	Revenue-rf
	(1)	(2)	(3)	(4)	(5)	(6)
Alpha	−0.001	0.0003	0.005	0.002	0.006	0.010*
Index-rf	0.840*	0.958*	0.837*	0.789*	0.859*	0.704*
SMB	0.357*	0.247*	0.162	0.842*	0.662*	0.801*
HML	0.160*	0.060	0.118	−0.178	−0.506	−0.251
RMW				0.050	−0.388	−0.173
CMA				−0.033	0.064	−0.127
UMD	0.081	0.063	0.123	0.001	−0.062	−0.093
LIQ	−0.259*	−0.305*	−0.210			
Observations	239	239	239	239	239	239
Adjusted R^2	0.635	0.605	0.459	0.461	0.356	0.295

| Notes | | | | | | *p<0.05; Transaction cost: 0.02 |

7.5 Figures

Figure 26: Best Multiple Metric Strategy: Backtesting from 2000-11-30 to 2020-11-30

*Strategy: Every month, invest the 10 highest ranked stocks, by EBITDAMarginPrc & NetProfitMarginPrc & CurrentRatio
*Transaction cost: 2 %

Figure 27: Best Multiple Metric Strategy: Transactions over time

Figure 28: Best Multiple Metric Strategy: GICS Sector Proportions over time

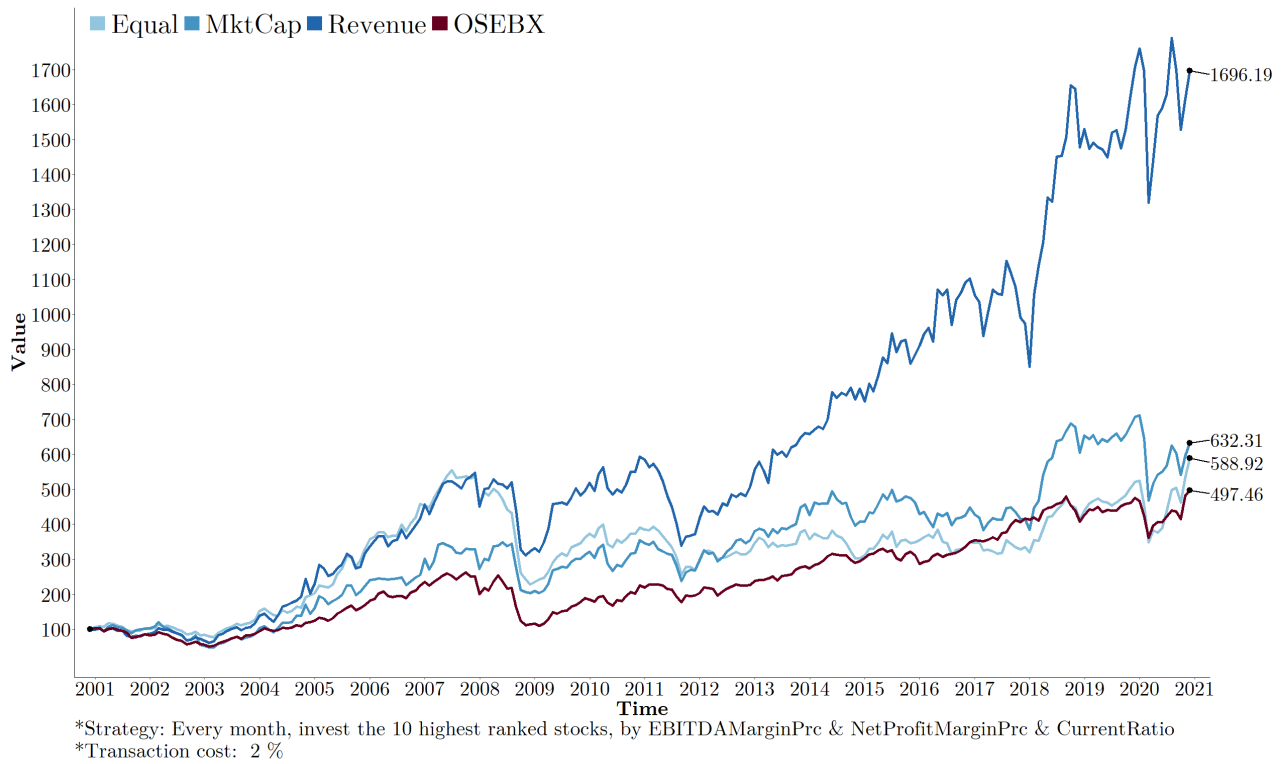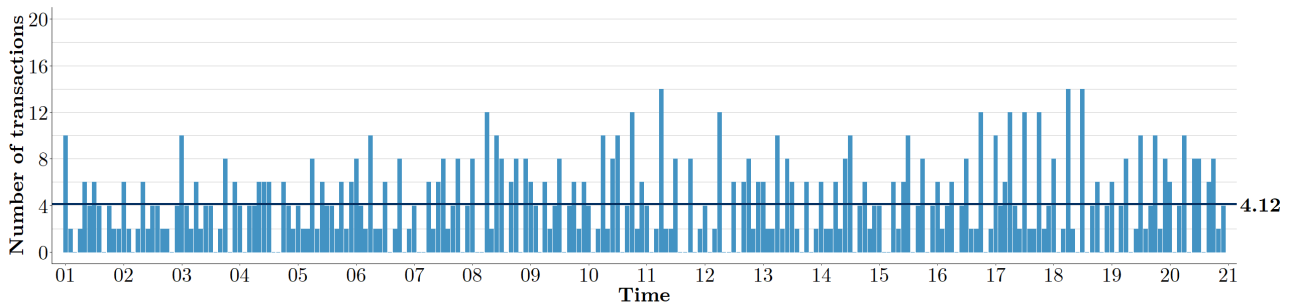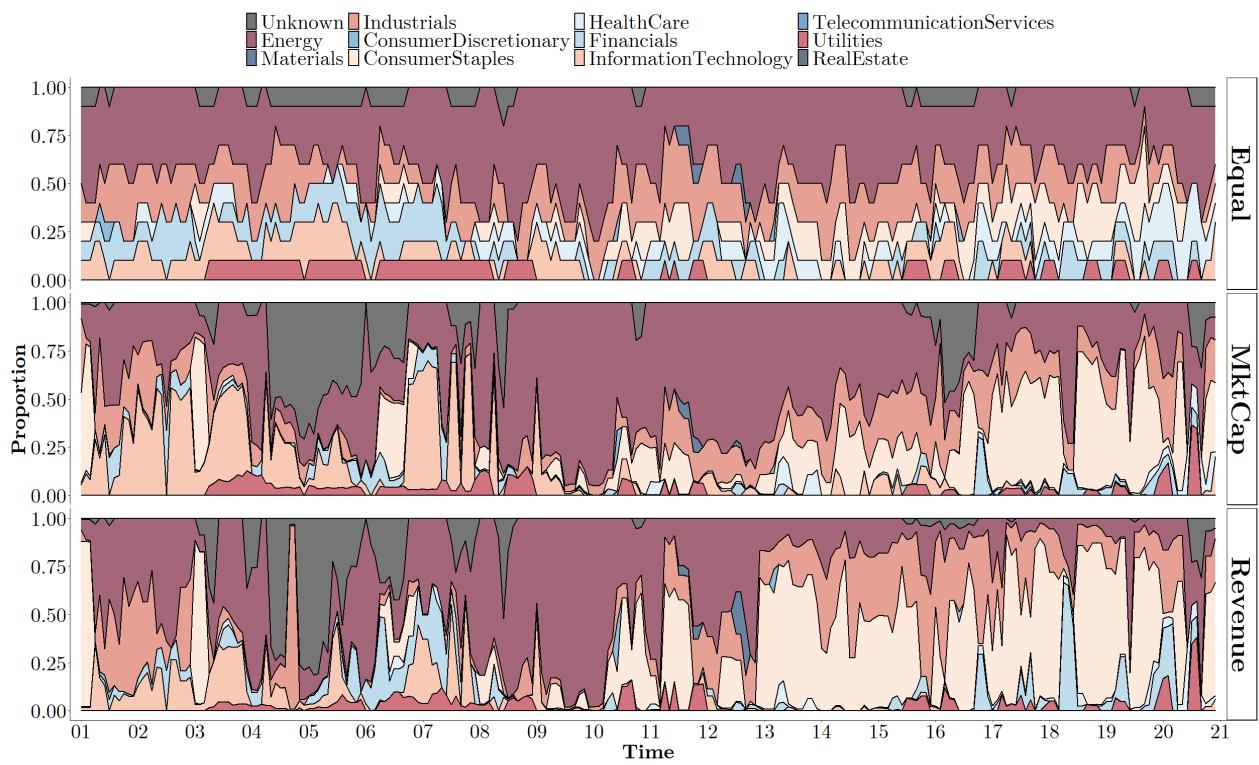Figure 29: Best Multiple Metric Strategy: Return Distributions

Equal

Mean 0.0095
Skewness -0.4696
Kurtosis 4.9708

MktCap

Mean 0.0109
Skewness -0.4828
Kurtosis 5.1438

Revenue

Mean 0.0147
Skewness 0.0079
Kurtosis 4.6241

OSEBX

Mean 0.0085
Skewness -0.9187
Kurtosis 5.7566

Monthly Returns
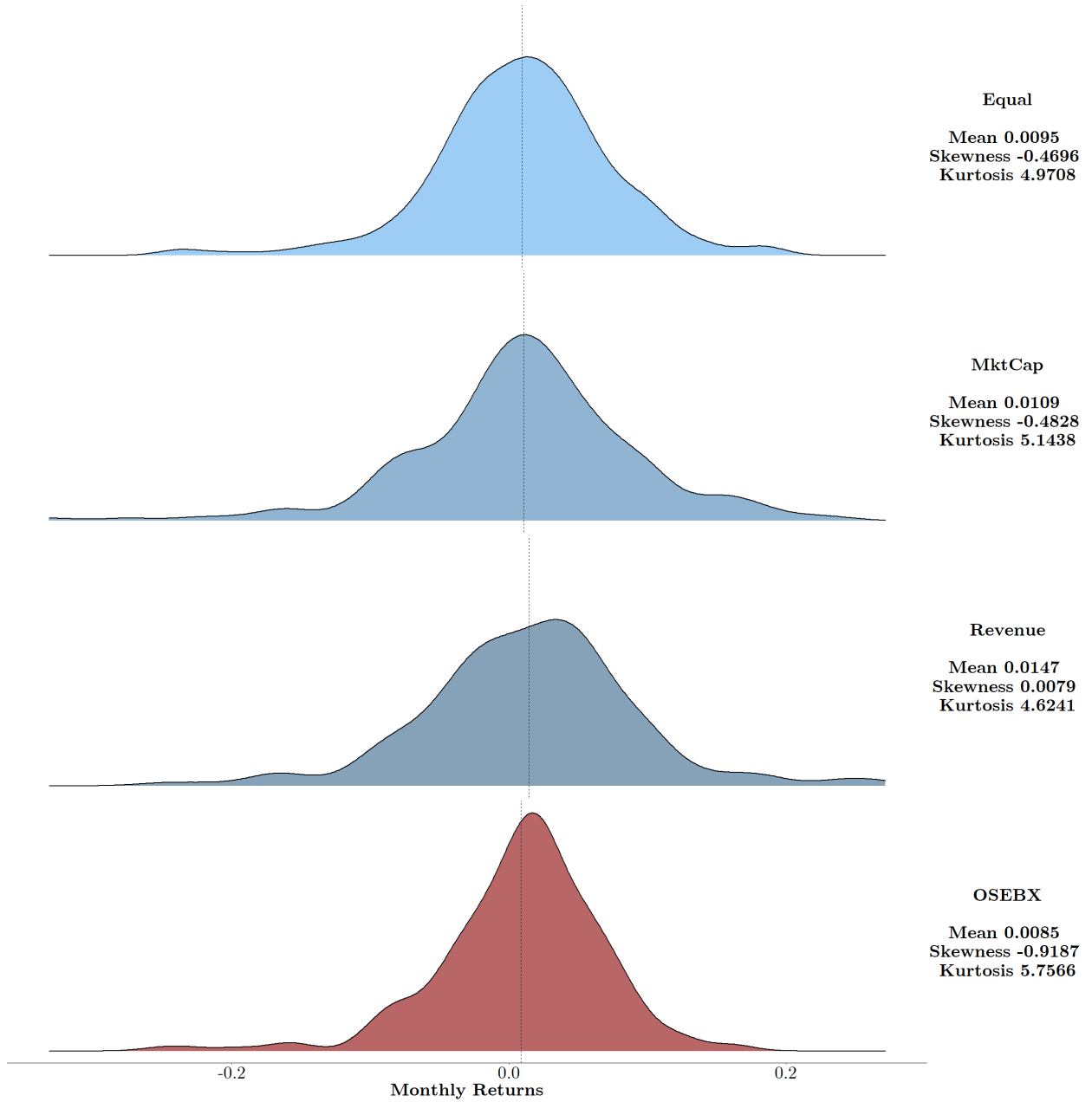
Figure 30: Best Multiple Metric Strategy: Excess $(r_p - r_m)$ Return Distributions

Equal

Mean 0.001
Skewness 0.2516
Kurtosis 3.4105

MktCap

Mean 0.0024
Skewness -0.1891
Kurtosis 6.0187

Revenue

Mean 0.0062
Skewness 0.4042
Kurtosis 4.3032

Monthly Returns
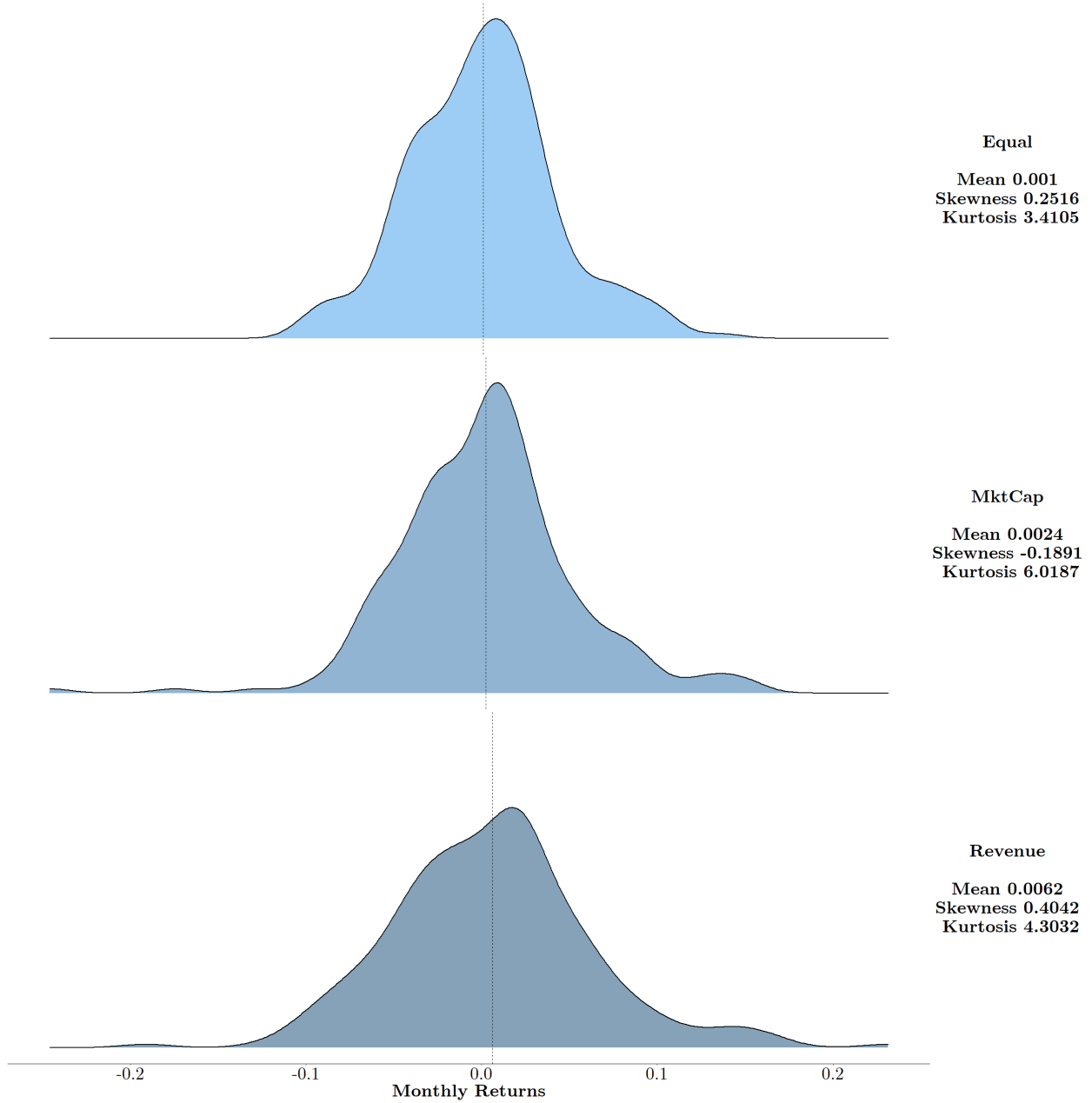
8 Appendix Figures

8.1 Portfolio statistics - all strategies

Table 10: Portfolio statistics for strategies discussed, including transaction costs at 2 percent. Weight: Equal (E), Market Capitalization (M), and Revenue (R). Multiple Metric strategy ranks stocks each month based on EBITDA Margin, Net Profit Margin and Current Ratio, and invest in top 10 with highest score.

Strategy	Weight	AAR	St. Dev	Sharpe Ratio	Beta	Jensen's Alpha	Treynor's Measure
Index	-	0.1021	0.2043	0.3662	1.0000	0.0000	0.0748
EBITDA Margin	E	0.1262	0.2123	0.4661	0.8344	0.0365	0.1186
	M	0.1055	0.2812	0.2783	1.1023	-0.0042	0.0710
	R	0.1207	0.2819	0.3316	1.0384	0.0158	0.0900
Debt-to-Equity	E	0.1060	0.2975	0.2647	0.9712	0.0061	0.0811
	M	0.0855	0.3381	0.1722	1.0950	-0.0237	0.0532
	R	0.1797	0.3439	0.4435	0.9673	0.0801	0.1577
Net Profit Margin	E	0.0770	0.2107	0.2362	0.7724	-0.0080	0.0644
	M	0.0392	0.2444	0.0491	0.8816	-0.0540	0.0136
	R	0.0420	0.2398	0.0614	0.8267	-0.0471	0.0178
Current Ratio	E	0.0852	0.2834	0.2045	0.9311	-0.0117	0.0622
	M	0.1066	0.2503	0.3171	0.8285	0.0174	0.0958
	R	0.1543	0.2535	0.5013	0.7580	0.0704	0.1677
Interest Coverage Ratio	E	0.1311	0.2239	0.4640	0.9045	0.0362	0.1149
	M	0.0941	0.2512	0.2664	1.0076	-0.0085	0.0664
	R	0.1064	0.2472	0.3201	0.9715	0.0064	0.0814
Multiple Metric	E	0.1138	0.2209	0.3917	0.8379	0.0238	0.1033
	M	0.1307	0.2728	0.3795	1.0304	0.0264	0.1005
	R	0.1769	0.2636	0.5677	0.8664	0.0848	0.1727

8.2 Transactions - all strategies

Table 11: Transaction statistics for each strategy discussed.

Strategy	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Sum
EBITDA Margin	0.00	0.00	2.00	2.58	4.00	10.00	620.00
Debt-to-Equity	0.00	0.00	2.00	1.63	2.00	10.00	392.00
Net Profit Margin	0.00	0.00	4.00	4.10	6.00	14.00	984.00
Current Ratio	0.00	0.00	2.00	2.73	4.00	12.00	656.00
Interest Coverage Ratio	0.00	0.00	2.00	2.53	4.00	10.00	608.00
Multiple Metric	0.00	2.00	4.00	4.12	6.00	14.00	990.00

8.3 GICS Sector Mean over time - all strategies

Table 12: GICS Sector proportion averages over backtesting period.

						GICS Sector Category							
Strategy	Weight	Unknown	Energy	Materials	Industrials	Cons. Disc.	Cons. Staples	Health Care	Financials	IT	Telecom	Utilities	Real Estate
EBITDA	E	0.02	0.34	0.00	0.14	0.00	0.00	0.00	0.45	0.01	0.00	0.02	0.00
Margin	M	0.06	0.32	0.00	0.09	0.00	0.00	0.00	0.49	0.00	0.00	0.02	0.00
	R	0.07	0.19	0.01	0.06	0.00	0.02	0.00	0.62	0.00	0.00	0.02	0.00
Debt	E	0.01	0.17	0.00	0.04	0.06	0.00	0.20	0.11	0.41	0.00	0.00	0.00
to	M	0.00	0.31	0.00	0.02	0.05	0.00	0.09	0.10	0.42	0.00	0.00	0.00
Equity	R	0.00	0.24	0.00	0.12	0.14	0.00	0.04	0.15	0.32	0.00	0.00	0.00
Net	E	0.03	0.31	0.00	0.16	0.01	0.02	0.02	0.38	0.04	0.00	0.02	0.00
Profit	M	0.07	0.36	0.00	0.09	0.01	0.02	0.01	0.37	0.04	0.02	0.02	0.00
Margin	R	0.07	0.27	0.01	0.10	0.01	0.06	0.01	0.41	0.03	0.02	0.01	0.00
Current	E	0.02	0.18	0.01	0.14	0.00	0.05	0.31	0.08	0.18	0.00	0.04	0.00
Ratio	M	0.01	0.26	0.01	0.17	0.00	0.20	0.11	0.03	0.16	0.00	0.06	0.00
	R	0.02	0.14	0.00	0.23	0.00	0.22	0.09	0.06	0.11	0.00	0.12	0.00
Interest	E	0.02	0.30	0.02	0.30	0.02	0.06	0.07	0.05	0.11	0.05	0.01	0.00
Coverage	M	0.04	0.45	0.04	0.18	0.02	0.06	0.00	0.04	0.02	0.15	0.00	0.00
Ratio	R	0.03	0.40	0.07	0.19	0.02	0.04	0.00	0.05	0.02	0.19	0.00	0.00
Multiple	E	0.03	0.42	0.00	0.19	0.00	0.09	0.07	0.09	0.08	0.00	0.04	0.00
Metric	M	0.09	0.42	0.00	0.13	0.00	0.17	0.01	0.03	0.11	0.00	0.03	0.00
	R	0.08	0.34	0.00	0.17	0.00	0.26	0.01	0.06	0.05	0.00	0.03	0.00

9 Backtesting all combintations

Table 13: Backtesting all possible combinations of Financial Ratios, from 2000-11-30 to 2020-11-30, sorted by highest Sharpe Ratio. Definitions for Financial Ratios: D.E = Debt-to-Equity, C.R = Current Ratio, I.C.R = Interest Coverage Ratio, E.M = EBITDA Margin, N.P.M = Net Profit Margin. Weighting (W): E = Equal, M = Market Capitalization, R = Revenue.

	Financial Ratios			W	AAR	SD	Sharpe	Beta	Alpha	Treynor
	1	2	3							
1	N.P.M	E.M	C.R	R	0.177	0.264	0.568	0.866	0.085	0.173
2	E.M	E.M	C.R	R	0.158	0.285	0.459	0.968	0.058	0.135
3	N.P.M	N.P.M	C.R	R	0.144	0.265	0.441	0.807	0.056	0.145
4	E.M	C.R	C.R	R	0.145	0.287	0.411	0.973	0.045	0.121
5	N.P.M	E.M	C.R	E	0.114	0.221	0.392	0.838	0.024	0.103
6	I.C.R	I.C.R	C.R	E	0.113	0.221	0.387	0.909	0.018	0.094
7	N.P.M	E.M	C.R	M	0.131	0.273	0.380	1.030	0.026	0.101
8	N.P.M	N.P.M	C.R	E	0.110	0.223	0.369	0.789	0.023	0.104
	OSEBX				**0.102**	**0.204**	**0.366**	**1.000**	**0.000**	**0.075**
9	I.C.R	E.M	E.M	E	0.108	0.226	0.357	0.898	0.014	0.090
10	I.C.R	I.C.R	D.E	E	0.103	0.215	0.354	0.843	0.013	0.090
11	N.P.M	C.R	C.R	R	0.113	0.252	0.341	0.821	0.024	0.105
12	E.M	C.R	C.R	E	0.098	0.226	0.314	0.861	0.006	0.082
13	I.C.R	E.M	D.E	E	0.099	0.233	0.306	0.952	0.000	0.075
14	I.C.R	I.C.R	E.M	E	0.098	0.238	0.296	0.938	0.000	0.075
15	N.P.M	D.E	D.E	E	0.088	0.210	0.289	0.752	0.004	0.081
16	I.C.R	E.M	C.R	E	0.093	0.230	0.288	0.917	-0.002	0.072
17	N.P.M	N.P.M	C.R	M	0.107	0.280	0.285	0.990	0.006	0.080
18	E.M	E.M	C.R	M	0.108	0.287	0.283	1.056	0.002	0.077
19	N.P.M	D.E	C.R	E	0.089	0.223	0.280	0.832	-0.000	0.075
20	E.M	D.E	D.E	E	0.090	0.225	0.279	0.816	0.002	0.077
21	N.P.M	E.M	D.E	E	0.088	0.223	0.274	0.859	-0.003	0.071
22	N.P.M	I.C.R	D.E	E	0.087	0.224	0.268	0.904	-0.008	0.066
23	N.P.M	N.P.M	E.M	E	0.085	0.221	0.261	0.855	-0.006	0.068
24	I.C.R	I.C.R	C.R	M	0.093	0.259	0.256	1.013	-0.010	0.065
25	N.P.M	E.M	E.M	E	0.083	0.222	0.251	0.871	-0.009	0.064
26	I.C.R	D.E	D.E	E	0.086	0.233	0.251	0.880	-0.007	0.066
27	N.P.M	N.P.M	I.C.R	E	0.084	0.227	0.249	0.919	-0.012	0.061
28	I.C.R	E.M	C.R	M	0.091	0.258	0.246	1.005	-0.012	0.063
29	D.E	C.R	C.R	E	0.105	0.318	0.245	0.990	0.004	0.079
30	I.C.R	E.M	E.M	R	0.091	0.267	0.238	0.964	-0.009	0.066
31	I.C.R	C.R	C.R	M	0.098	0.301	0.235	1.128	-0.014	0.063
32	E.M	E.M	C.R	E	0.084	0.247	0.231	0.919	-0.012	0.062
33	I.C.R	E.M	E.M	M	0.088	0.267	0.227	1.024	-0.016	0.059
34	E.M	C.R	C.R	M	0.092	0.288	0.227	1.074	-0.015	0.061
35	N.P.M	C.R	C.R	M	0.086	0.260	0.225	0.920	-0.010	0.064
36	N.P.M	I.C.R	E.M	E	0.078	0.227	0.225	0.914	-0.017	0.056
37	E.M	D.E	C.R	E	0.076	0.227	0.217	0.849	-0.014	0.058
38	N.P.M	N.P.M	D.E	E	0.075	0.225	0.212	0.840	-0.015	0.057
39	N.P.M	C.R	C.R	E	0.072	0.215	0.209	0.811	-0.016	0.055
40	E.M	E.M	D.E	E	0.077	0.242	0.207	0.961	-0.022	0.052
41	I.C.R	I.C.R	D.E	R	0.079	0.252	0.204	0.954	-0.020	0.054
42	I.C.R	I.C.R	D.E	M	0.076	0.246	0.199	0.959	-0.023	0.051
43	I.C.R	D.E	C.R	E	0.073	0.246	0.186	0.938	-0.024	0.049
44	I.C.R	D.E	D.E	M	0.077	0.270	0.186	0.967	-0.022	0.052
45	N.P.M	I.C.R	C.R	E	0.069	0.226	0.185	0.920	-0.027	0.045
46	D.E	D.E	C.R	E	0.083	0.306	0.182	0.953	-0.015	0.058
47	I.C.R	I.C.R	E.M	M	0.072	0.251	0.177	0.989	-0.029	0.045
48	N.P.M	E.M	E.M	R	0.074	0.278	0.167	1.034	-0.031	0.045

Table 13: Backtesting all possible combinations of Financial Ratios, from 2000-11-30 to 2020-11-30, sorted by highest Sharpe Ratio. Definitions for Financial Ratios: D.E = Debt-to-Equity, C.R = Current Ratio, I.C.R = Interest Coverage Ratio, E.M = EBITDA Margin, N.P.M = Net Profit Margin. Weighting (W): E = Equal, M = Market Capitalization, R = Revenue.

	Financial Ratios			W	AAR	SD	Sharpe	Beta	Alpha	Treynor
49	I.C.R	I.C.R	E.M	R	0.068	0.243	0.166	0.905	-0.027	0.045
50	N.P.M	D.E	C.R	M	0.074	0.285	0.163	1.005	-0.029	0.046
51	I.C.R	C.R	C.R	R	0.080	0.322	0.162	1.113	-0.031	0.047
52	D.E	C.R	C.R	R	0.080	0.328	0.160	0.870	-0.013	0.060
53	N.P.M	I.C.R	D.E	R	0.071	0.275	0.160	1.022	-0.033	0.043
54	I.C.R	C.R	C.R	E	0.063	0.232	0.154	0.924	-0.033	0.039
55	N.P.M	I.C.R	I.C.R	R	0.064	0.258	0.143	0.954	-0.035	0.038
56	I.C.R	E.M	D.E	R	0.066	0.276	0.141	1.062	-0.040	0.037
57	I.C.R	D.E	C.R	M	0.068	0.291	0.140	1.029	-0.036	0.040
58	N.P.M	D.E	C.R	R	0.066	0.283	0.138	0.923	-0.030	0.042
59	N.P.M	E.M	D.E	R	0.061	0.259	0.131	0.953	-0.037	0.036
60	I.C.R	E.M	C.R	R	0.063	0.280	0.129	1.043	-0.042	0.035
61	I.C.R	I.C.R	C.R	R	0.061	0.261	0.129	0.991	-0.041	0.034
62	N.P.M	D.E	D.E	R	0.060	0.269	0.123	0.790	-0.026	0.042
63	D.E	C.R	C.R	M	0.066	0.326	0.120	0.924	-0.030	0.042
64	I.C.R	E.M	D.E	M	0.058	0.261	0.118	1.024	-0.046	0.030
65	N.P.M	N.P.M	E.M	R	0.058	0.271	0.115	1.004	-0.044	0.031
66	N.P.M	I.C.R	D.E	M	0.054	0.257	0.103	0.980	-0.047	0.027
67	N.P.M	I.C.R	I.C.R	M	0.053	0.255	0.102	0.979	-0.047	0.027
68	N.P.M	D.E	D.E	M	0.055	0.272	0.101	0.895	-0.040	0.031
69	N.P.M	I.C.R	C.R	M	0.055	0.286	0.097	1.142	-0.058	0.024
70	N.P.M	E.M	E.M	M	0.051	0.266	0.088	1.038	-0.054	0.023
71	D.E	D.E	C.R	M	0.056	0.333	0.088	0.988	-0.045	0.030
72	E.M	D.E	C.R	M	0.053	0.311	0.083	1.098	-0.056	0.024
73	N.P.M	I.C.R	C.R	R	0.050	0.306	0.075	1.155	-0.064	0.020
74	E.M	E.M	D.E	R	0.045	0.264	0.068	0.933	-0.052	0.019
75	N.P.M	E.M	D.E	M	0.046	0.276	0.068	1.057	-0.060	0.018
76	D.E	D.E	C.R	R	0.046	0.325	0.057	0.770	-0.039	0.024
77	E.M	D.E	C.R	R	0.040	0.313	0.042	1.020	-0.063	0.013
78	N.P.M	I.C.R	E.M	R	0.039	0.286	0.042	1.071	-0.068	0.011
79	I.C.R	D.E	C.R	R	0.040	0.311	0.041	1.059	-0.066	0.012
80	N.P.M	N.P.M	D.E	M	0.038	0.286	0.037	1.078	-0.070	0.010
81	N.P.M	I.C.R	E.M	M	0.037	0.282	0.035	1.103	-0.073	0.009
82	N.P.M	N.P.M	I.C.R	M	0.036	0.289	0.030	1.146	-0.077	0.008
83	E.M	D.E	D.E	M	0.034	0.281	0.025	0.968	-0.065	0.007
84	E.M	D.E	D.E	R	0.026	0.280	-0.004	0.920	-0.070	-0.001
85	N.P.M	N.P.M	I.C.R	R	0.023	0.298	-0.013	1.051	-0.082	-0.004
86	E.M	E.M	D.E	M	0.023	0.281	-0.015	1.061	-0.084	-0.004
87	N.P.M	N.P.M	D.E	R	0.014	0.293	-0.043	0.954	-0.084	-0.013

10   Appendix Figures

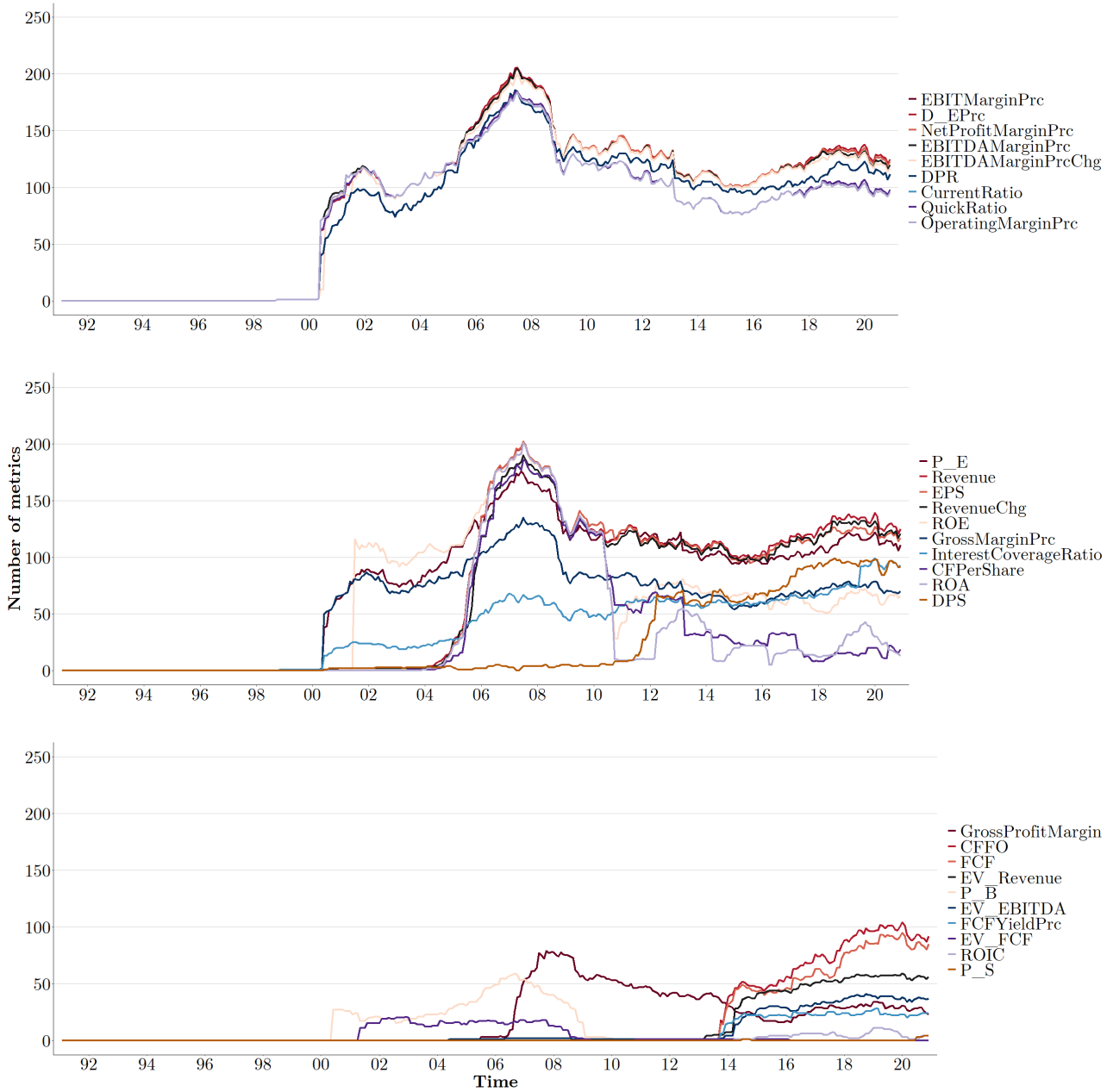Figure 31: Number of accounting metrics available each month
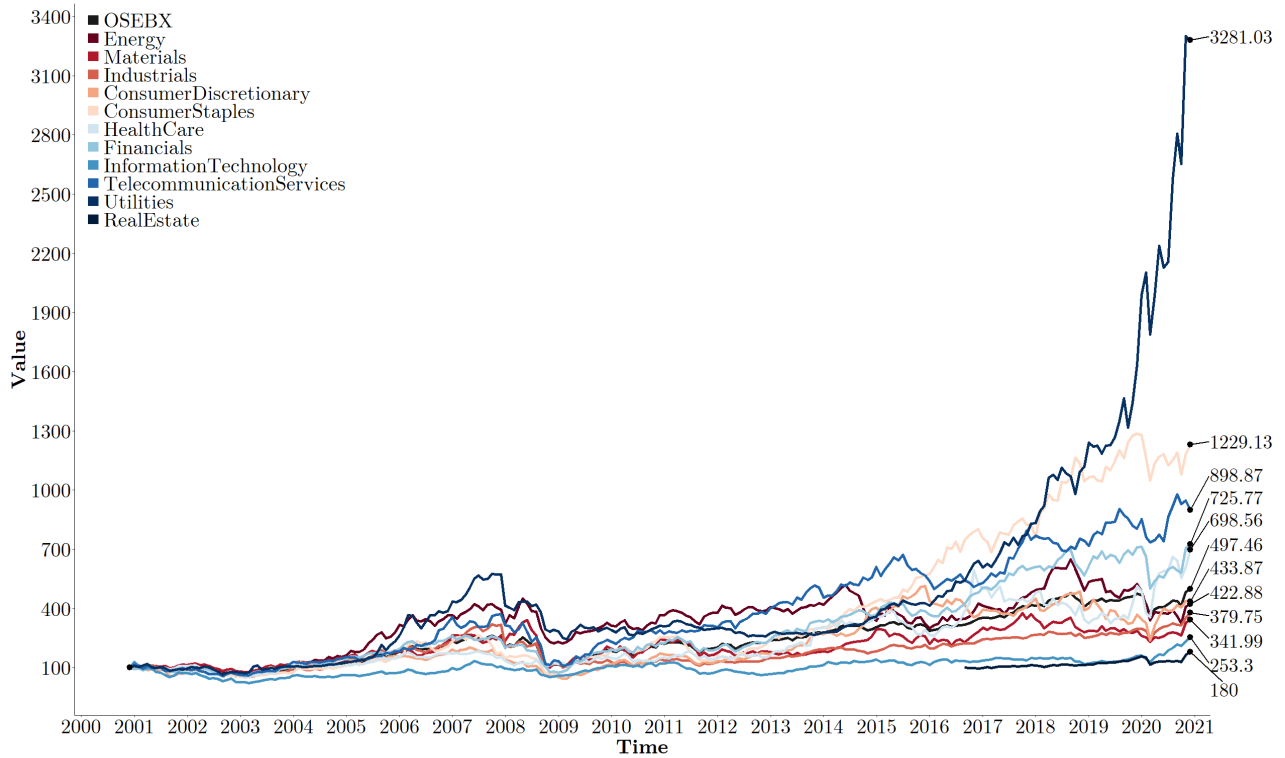
Figure 32: Sector Indices over time

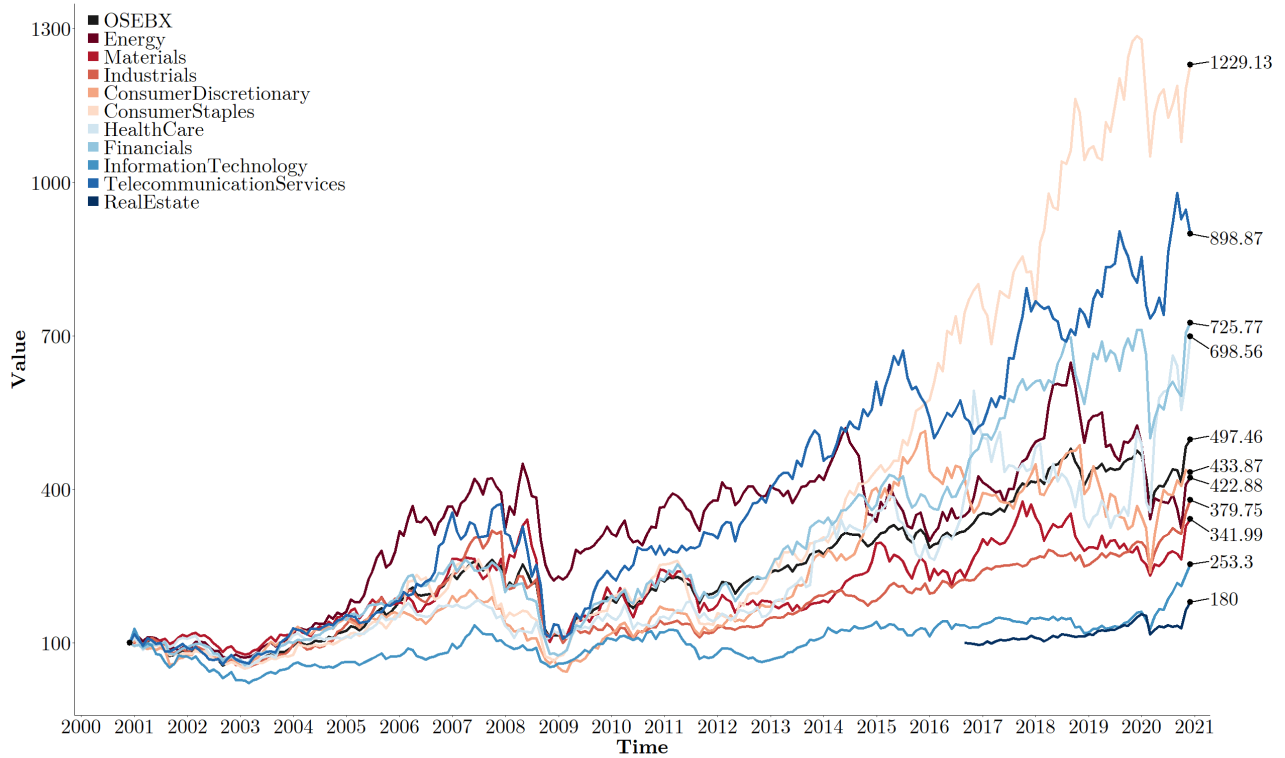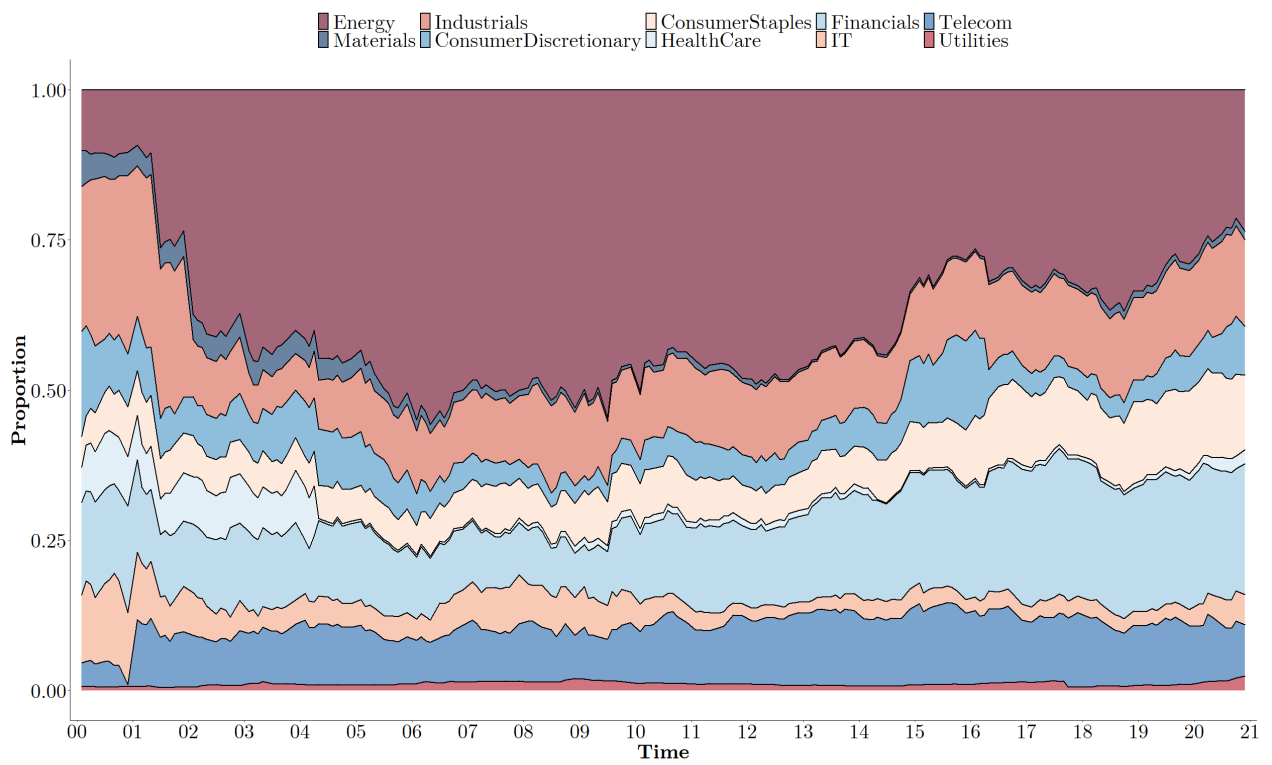Figure 33: Sector Indices over time - excluding Utilities

Figure 34: Sector proportion over time on the Oslo Stock Exchange

11 Data Summary Tables

Table 14: Forward looking return data from 2000-12-31 to 2020-11-30

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
R	36,937	0.010	0.130	−0.959	−0.049	0.061	2.162