

Appendix

Turnover Calculation

All the return figures that were presented in this research, were reported gross of any trading costs which may arise from the bid-ask spread, brokerage commissions and market impact of trading. To assess the size of these costs, a measure of daily turnover was calculated for each one of the considered portfolios.

In this regard, the approach presented in Barber et al. (2001) was followed. The turnover for the portfolio P during the trading day $t + 1$ was calculated as the percentage of the portfolio's holdings, as of the closing of the previous day t , that had been sold off as of the close of the trading on date $t + 1$. It represents the percentage of the portfolio that has been turned over into some other stocks during the day $t + 1$.

The turnover was calculated by following a three-step procedure:

Step 1 For each stock i in the portfolio P as of the closing of the day t , the fraction that it would have been comprised of the portfolio at the end of day $t + 1$ if there were no portfolio rebalancing was calculated. Called this fraction $L_{i,t+1}$, it is given by:

$$L_{i,t+1} = \frac{w_{i,t}}{\sum_{i=1}^{n_{P,t}} w_{i,t}} \quad (13)$$

where $w_{i,t}$ is the weight associated to each stock.

Step 2 Next, the actual fraction firm i makes up of portfolio P was computed at the end of day $t + 1$.

Called it $K_{i,t+1}$:

$$K_{i,t+1} = \frac{w_{i,t+1}}{\sum_{i=1}^{n_{P,t+1}} w_{i,t+1}} \quad (14)$$

Step 3 Finally, the eventual decrease in percentage holding of each one of the securities was summed,

yielding to the daily portfolio turnover, which, denoted with $T_{i,t+1}$ is given by:

$$T_{i,t+1} = \sum_{i=i}^{n_{p,t+1}} \max \{L_{i,t+1} - K_{i,t+1}, 0\}. \quad (15)$$

Tables

Table 9: **Summary of Analyst Recommendation Dataset**

	N. Analyst (1)	Analyst Per Covered Firm (2)	Average Rating (3)	N. Brokers (4)
2000	1686	4.20	2.02	186
2001	1733	4.68	2.11	163
2002	1111	2.65	2.38	181
2003	1319	3.16	2.49	201
2004	1500	3.52	2.49	218
2005	1698	3.89	2.02	225
2006	1556	3.48	2.53	184
2007	1416	3.13	2.46	208
2008	1154	2.54	2.52	214
2009	1283	2.80	2.52	231
2010	1424	3.94	2.45	250
2011	1332	4.41	2.45	228
2012	1331	4.17	2.45	221
2013	1397	3.72	2.45	217
2014	1503	3.56	2.45	198
2015	1556	3.41	2.45	186

Table 10: Quintile Portfolio Statistics
Equal Weighted

	Equal Weighted					Value Weighted				
	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5
Return										
Total Return	284.09%	96.08%	122.71%	97.11%	139.16%	284.09%	25.51%	42.55%	41.75%	61.08%
Number of Days	4173	4173	4173	4173	4173	4173	4173	4173	4173	4173
Arithmetic Return	18.04%	6.10%	7.79%	6.17%	8.84%	18.04%	1.62%	2.70%	2.65%	3.88%
Geometric Return	8.92%	4.37%	5.22%	4.40%	5.69%	8.92%	1.45%	2.28%	2.24%	3.07%
Volatility										
Daily	2.36%	1.26%	1.28%	1.12%	1.24%	2.36%	1.28%	1.25%	1.28%	1.37%
Weekly	17.05%	9.12%	9.26%	8.11%	8.92%	17.05%	9.24%	9.00%	9.21%	9.87%
Annual	38.50%	20.58%	20.91%	18.31%	20.13%	38.50%	20.85%	20.32%	20.80%	22.28%
Moments										
Skewness	0.22	-0.32	-0.24	-0.3	-0.42	0.22	-0.08	-0.1	-0.17	-0.45
Kurtosis	8.61	9.35	9.19	7.87	14.05	8.61	7.68	8.32	8.35	9.19
Quartiles										
Max	18.00%	12.34%	12.63%	9.08%	10.40%	18.09%	12.54%	12.01%	11.09%	10.01%
Q3	1.05%	1.04%	0.98%	1.05%	1.01%	1.05%	1.07%	1.01%	0.99%	0.01
Q2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Q1	-1.50%	-1.10%	-0.5%	-0.52%	-0.6%	-0.75%	-1.04%	-0.51%	-0.55%	-0.60%
Min	-22.05%	-10.81%	-10.05%	-11.125	-17.03%	-22.00%	-9.02%	-10.56%	-11.40%	-17.00%
% Positive D.	53.46%	55.38%	55.76%	55.07%	55.45%	53.46%	54.30%	54.52%	54.18%	54.18%
Info Sharpe	0.47	0.30	0.37	0.34	0.44	0.47	0.08	0.13	0.13	0.17

Table 11: Four Factor Model for Quintile Portfolios

Portfolio	Intercept	Mkt-Rf	SMB	HML	UMD	Adjusted R-Squared
Equal Weighted						
1	0.00 (0.97)	-0.19 (-3.77)	1.01 (37.98)	0.18 (3.42)	0.12 (3.57)	0.60
2	0.00 (0.29)	0.12 (17.42)	1.00 (38.76)	0.06 (7.95)	0.07 (14.61)	0.75
3	0.00 (1.62)	0.21 (28.75)	0.98 (32.97)	0.08 (10.40)	-0.04 (-7.55)	0.76
4	0.00 (0.93)	0.25 (36.70)	0.84 (29.01)	0.08 (11.68)	-0.06 (-14.33)	0.71
5	0.00 (1.15)	0.58 (66.33)	0.84 (23.41)	0.19 (21.82)	-0.13 (-22.97)	0.67
Value Weighted						
1	0.00 (0.97)	-0.19 (-3.77)	1.01 (37.98)	0.18 (3.42)	0.12 (3.57)	0.58
2	0.00 (-4.85)	-0.22 (-28.03)	1.02 (51.45)	-0.16 (-20.62)	0.13 (25.04)	0.73
3	0.00 (-2.88)	-0.01 (-0.74)	0.98 (40.56)	-0.14 (-20.19)	0.01 (2.55)	0.67
4	0.00 (-2.45)	0.16 (16.96)	0.96 (39.59)	-0.17 (-18.53)	-0.06 (-10.15)	0.61
5	0.00 (1.45)	0.37 (37.59)	0.98 (80.01)	-0.09 (-8.47)	-0.16 (-21.91)	0.64

Table 12: Bull Market Four Factor Analysis

Bull Market Four Factor Model							
	Portfolio	Intercept	Mkt-Rf	SMB	HML	UMD	Adjusted R-Squared
Equal Weight	1	-0.0001 (-0.23)	0.1443 (4.09)	0.9685 (40.08)	0.2157 (6.35)	-0.0107 (-0.46)	0.45
	2	0.0003 (3.92)	0.0747 (7.05)	0.9723 (134.00)	0.0539 (55.29)	0.0641 (9.33)	0.89
	3	0.0003 (3.71)	0.27 (24.46)	0.9438 (124.73)	0.0076 (0.71)	-0.0391 (-5.46)	0.89
	4	0.0003 (3.08)	0.4652 (37.26)	0.9336 (109.15)	0.1225 (10.20)	-0.1282 (-15.86)	0.88
	5	-0.0003 (-1.14)	0.6278 (18.86)	0.9774 (42.85)	0.2166 (6.76)	-0.2959 (-13.72)	0.59
Value Weighted	1	-0.0007 (-2.37)	-0.08 (-2.24)	1.077 (44.20)	0.1069 (3.12)	0.0197 (0.85)	0.49
	2	0.0001 (2.01)	-0.1594 (-16.82)	0.9495 (146.39)	-0.1885 (-20.67)	0.0801 (13.05)	0.91
	3	0.0003 (3.85)	0.1793 (15.78)	0.8956 (115.08)	-0.2109 (-19.29)	-0.0032 (-0.42)	0.87
	4	0.0002 (1.47)	0.4722 (34.70)	0.9345 (100.25)	-0.0765 (-5.82)	-0.0646 (-7.33)	0.86
	5	-0.0003 (-1.14)	0.7495 (20.63)	0.938 (37.58)	-0.0601 (-1.72)	-0.2467 (-10.48)	0.54

Table 13: Bear Market Four Factor Analysis

Bear Market Four Factor Model							
	Portfolio	Intercept	Mkt-Rf	SMB	HML	UMD	Adjusted R-Squared
Equal Weight	1	0.0011 (3.63)	0.1427 (4.32)	1.0556 (45.14)	0.2483 (6.76)	-0.0216 (-0.92)	0.56
	2	0.0003 (3.08)	0.1348 (11.74)	1.0216 (125.76)	0.0727 (5.70)	0.0453 (5.59)	0.9
	3	0.0001 (0.86)	0.3195 (27.44)	0.9745 (118.23)	0.0384 (2.96)	-0.0539 (-6.56)	0.9
	4	0.0002 (1.36)	0.5048 (37.80)	0.9683 (102.43)	0.1256 (8.46)	-0.128 (-13.57)	0.89
	5	0.0008 (2.33)	0.6772 (18.23)	1.0567 (40.19)	0.2524 (6.11)	-0.2102 (-8.02)	0.59
Value Weighted	1	0.0009 (2.80)	-0.0281 (-0.77)	1.1505 (44.47)	0.0692 (1.70)	0.0388 (1.50)	0.54
	2	-0.0002 (-2.32)	-0.1363 (-13.50)	0.9914 (138.72)	-0.1969 (-17.57)	0.08 (11.22)	0.92
	3	-0.0002 (-1.52)	0.1996 (15.59)	0.9393 (103.68)	-0.1996 (-14.039)	-0.0375 (-4.15)	0.88
	4	0.0001 (0.65)	0.5177 (35.15)	0.9893 (94.88)	-0.0859 (-5.25)	-0.0881 (-8.48)	0.87
	5	0.0004 (1.11)	0.715 (18.72)	0.9938 (36.76)	0.0613 (1.44)	-0.1668 (-6.18)	0.55