BAFI 508 Final Project

Assessing Operating Profitability's Influence on Excess Returns Across Firm Sizes: A Comparative Analysis Using Bivariate-Sort Benchmarks

Group 2:

Kunqi Zhao

Qi Li

Wanlin Zhou

Yuehan Wang

Yuchen Zhang

1. Introduction

1.1 Literature and Background

Profitability has ascended as a paramount determinant influencing stock returns and sculpting investment strategies, encapsulating a firm's adeptness at generating earnings. This salient role is accentuated through a corpus of seminal research extending from 2013 to 2024, each elucidating distinctive insights into the intricate dynamics of profitability and its ramifications for investors.

The seminal contributions of Novy-Marx (2013) and subsequent expansions within provide a foundational underpinning for considering operating profit as a determinant of stock returns. Novy-Marx's identification of gross profitability as a potent predictor of stock performance underscores the significance of profit measures that closely align with a firm's core operations. This premise is further bolstered by the integration of profitability into the multifaceted Fama and French model, which corroborates the relevance of operational efficiency in explaining variances in stock returns.

Further inquiry into the nuances of profitability by Ball et al. (2016) accentuates the importance of disaggregating components of profitability, highlighting that operating profit has a positive relationship with the future returns of stocks. The findings of Lim et al. (2024), examining the interplay between profitability growth and firm size, enrich this discourse by demonstrating the nuanced effects of operational profitability on stock returns across different market segments.

Collectively, these scholarly investigations articulate a compelling narrative for the adoption of operating profit as a metric for assessing stock returns. The convergence of evidence from these studies illuminates operating profit's robustness as an indicator of sustainable financial performance and its predictive utility in investment decision-making processes. The definition for OP that we use for the later analysis is represented as:

OP = (Revenue - COGS - SG&A - Interest Expense) / Book Equity

1.2 Motivation

Adopting operating profit as the cornerstone of our investment strategy emerges from a series of compelling and interconnected reasons, each underscoring the metric’s critical role in assessing and predicting the financial health and performance of companies.

1.2.1 Direct Reflection of Core Business Efficiency

Operating profit provides a clear measure of management's effectiveness in generating profit from primary business activities.

1.2.2 Alignment with Value Investing Principles

The methodology aligns with the principles of value investing, which prioritizes investments in companies undervalued by the market but displaying strong fundamentals.

1.2.3 Enhanced Comparability and Consistency

OP reflects core business efficacy, and offers a consistent measure for comparing firms, unlike net income that may be affected by one-time events, taxes, or financial structuring.

1.2.4 Empirical Support for Predictive Power

Novy-Marx (2013) and the Fama and French five-factor model (2015) have provided empirical evidence for the predictive power of OP in forecasting stock returns, indicating a strong correlation between high OP and long-term shareholder value enhancement.

1.3 Research Goal

The goal is to testify whether OP is a powerful explaining factor for excess return of the stock market across firm sizes and compare our results to the bivariate-sort portfolios with the same factors from Kenneth R. French website.

2. Data and Methodology

2.1 Analysis of Current Literature

We sourced the latest Fama/French 3 Factors and *Portfolios Formed on Operating Profitability* data from Kenneth R. French's Website, opting for value-weighted portfolios to validate the conclusions observed in the literature. At this stage, we temporarily disregard the size of companies in sorting portfolios. We used the portfolios across ten quantiles and created a long-short portfolio, calculating the excess returns from July 1963 to January 2024. Based on this, we computed the average excess returns for each portfolio and employed CAPM and the three-factor model regression to calculate each portfolio's metrics. This analysis allows us to observe the relationship between Operating Profitability (OP) and returns, and to evaluate its explanatory power by interpreting alpha, beta, and other coefficients from the model.

2.2 Data and Methodological Advancement through Double-Sorting

In the Five-Factor Asset Pricing Model, portfolios with high OP have been observed to consistently outperform those with low OP, a phenomenon particularly pronounced in smaller firms. Larger firms, on the other hand, display less variance in returns, which appear to increase with profitability. Thus, we decided to adopt a double-sort methodology. By sorting portfolios by both size and OP, we enable a more granular

exploration of their combined effects on stock returns. Our methodological adaptation addresses the potential biases introduced by missing data. This approach is intended to reinforce our portfolio construction strategy and deepen our understanding of the nuanced interplay between firm size, operating profitability, and stock returns, accounting for the challenges posed by incomplete data.

To conduct the double sorting, we collected the CRSP and Compustat (CCM) data from WRDS. According to the needs of our research, we selected the REVT (Total Revenue), COGS, XINT (Interest and Related Expense - Total), XSGA (SG&A), and CEQ (Common/Ordinary Equity - Total) to calculate the OP, and MKVALT (Market Value - Total) as the measure of size. The definition of MKVALT in CCM data aligns with the definition of size factor in the Fama and French five-factor model (2015).

For the time range of the data, we discovered that before 1998, the MKVALT information of firms is missing. Thus, the time range of data we defined for research is January 1998 to December 2023.

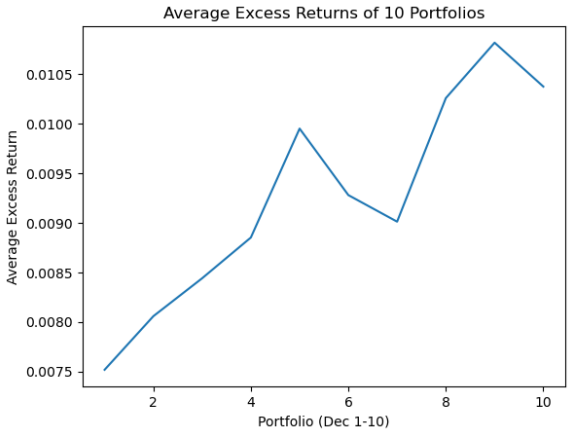
We modified the sample codes to calculate OP based on the definition in 1.1 and changed the loop structures to sort stocks first on 5 quantiles of size (MKVALT) then on 5 quantiles of OP we calculated. We also created a long-short portfolio for each size group by using (OP5 - OP1) to examine the relationship between OP and returns. Like the initial analysis, we also computed the average excess returns and applied CAPM and the three-factor model regressions for each generated portfolio to evaluate the possible interaction between OP and size. Moreover, we used the *25 Portfolios Formed on Size and Operating Profitability (5 x 5)* from Kenneth R. French's Website to calculate comparable returns using a similar time range to check whether the double-sorting portfolios built by sample codes have reasonable results.

3. Initial Findings and Interpretation

3.1 Initial Findings

We found that the average excess returns increase with the growth of OP. This increase in returns is significant compared to the lowest groups (Dec 1- Dec 2) and highest groups (Dec 7- Dec 9). The portfolios with middle OP have some variation in the increasing trend. The long-short portfolio has a positive excess return, consistent with our conclusion that higher OP tends to bring higher returns.

Figure 1. Average Excess Returns of 10 Portfolios



Data Source: *Portfolios Formed on Operating Profitability*, Kenneth R. French Data Library (accessed March 2024), https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

3.2 Comparison

Table 1. Excess Returns by Company Sizes and Operating Profitability Quintiles

Excess Returns by Company Size and Operating Profitability Quintiles					
	Low OP	2	3	4	High OP
Size Small	0.56	0.94	0.9	0.95	0.88
2	0.59	0.78	0.84	0.81	0.98
3	0.53	0.77	0.72	0.78	0.94
4	0.57	0.65	0.63	0.7	0.82
Size Big	0.39	0.33	0.43	0.47	0.57

Data Source: Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. Journal of Financial Economics, 116(1), 1-22.

For each company size group from Table 1, companies with the highest operating profitability show higher average returns compared to those with the lowest OP. This trend is consistent across size categories, with the most pronounced effect seen in the extreme high and low OP portfolios.

In the study's first phase, we use Dec0 - Dec9 to denote ten deciles of the portfolios with low to high OP values. The three tables (Appendix 6.1) verify that in both CAPM and F-F three-factor models, the alpha shows a gradual increase from negative to positive values as the OP value increases, and the beta of the market portfolio gradually decreases from 1.3 or 1.1 to around 0.97. The change of the alpha and the beta reveals that a higher OP portfolio creates a higher excess return and lower volatility.

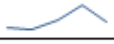
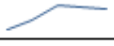
Further, the alphas in the F-F three-factor model perform slightly better than those in the CAPM model in the tenth decile. The betas of SMB show a decreasing trend from 0.616 for the first decile to 0.052 for the fourth decile, meaning these OP portfolios tend to perform well when small-cap stocks outperform large-cap stocks and the sensitivity

decreases as the OP values increases, and then the betas turn negative from -0.073 to -0.112, meaning the high-OP portfolios would underperform when small-cap stocks outperform large-cap stocks and the extent of opposition increases when the OP value increases. The betas of HML fluctuate around zero as the OP changes from low to high, showing no obvious feature or trend.

4. Further Extension Findings and Interpretation

The goal of our proposed extension is to modify the sample codes to produce double-sort portfolios by size and OP and compare them with the findings in literature. Furthermore, we also utilized one of the bivariate-sort portfolios from the Kenneth R.French website, the *25 Portfolios Formed on Size and Book-to-Market (5 x 5)* portfolios as a way for cross-check.

Table 2: Portfolios' Excess Return generated by modified sample codes.

Excess Return	OP1	OP2	OP3	OP4	OP5	Trends	L-S
ME1	0.006	0.015	0.015	0.015	0.012		0.005
ME2	0.004	0.011	0.010	0.012	0.011		0.006
ME3	0.009	0.008	0.010	0.011	0.009		0.001
ME4	0.005	0.008	0.011	0.010	0.010		0.005
ME5	0.003	0.008	0.009	0.009	0.009		0.006

This table displays the average excess returns of portfolios organized by a double sort on Size and OP. Note that OP is not an independent variable but rather is sorted within each size group. In the table, the OP1 represents the portfolio groups with lowest OP values and OP5 with the highest. The same rule applies to the size (ME) grouping. The "Trends" column is the line charts of the excess average return for OP1-OP5 for each size group. The "L-S" represents long-short portfolios.

We can easily identify higher returns for the highest OP group compared to the lowest OP group in each size group. Furthermore, the large size portfolios (ME5) show the least variance with lower returns. These basically reflect the conclusions we learn from the five-factor asset pricing model literature. Besides, since all the long-short generates a positive return, suggesting there is a positive relationship between OP and the returns.

Table 3: Portfolios' Excess Return from Kenneth R. French Website (After Year 1998)

Excess Return	OP1	OP2	OP3	OP4	OP5	Trends	L-S
ME1	0.007	0.010	0.010	0.011	0.008		0.002
ME2	0.005	0.008	0.009	0.010	0.010		0.005
ME3	0.005	0.007	0.009	0.009	0.010		0.005
ME4	0.005	0.008	0.008	0.009	0.009		0.004
ME5	0.001	0.005	0.005	0.006	0.007		0.006

For the portfolios from Kenneth R. French website, the trends of the increase in returns from OP2-OP5 are smoother compared to our portfolios. It better reflects the conclusions of the literature. The long-short portfolios' returns are also positive, and the return is higher for the largest size group compared to the smallest size group. The gaps between sample codes' data and Kenneth R. French's data might result from that there are up to 23% of missing values in XINT variables, resulting in a high missing value (near 38%) percent in the OP we calculated. In Hou, Xue, and Zhang's (2020) study, the missing values encountered during calculation of the variables would be replaced by zeros. It provides some directions for dealing with the missing values. However, some missing values like CEQ cannot be dealt with this approach as they are the denominators in the formula. Thus, we simply dropped the groups with missing OP and sizes during calculation.

The three tables (Appendix 6.2) verify that for larger size firms (ME2 - ME5), the alpha in both CAPM and F-F three-factor models is positive. For firms in ME5, there is a smooth increasing trend of alpha, suggesting OP's positive relationship with returns for large-size companies. The beta of the market portfolio also gradually decreases from 1.55 to 1.03 in the large-size firms. Overall, the result suggests that a high OP portfolio of large-size companies creates a higher excess return and lower volatility.

In the F-F three-factor model, the betas of SMB show a significant decreasing trend for every size group, with lower numbers in larger-size groups (ME4 - ME5). This result is consistent with the initial finding that OP portfolios tend to perform well when small-cap stocks outperform large-cap stocks. For each size group the betas of HML increase gradually as the OP increases, meaning that high OP portfolios tend to perform better when value stocks outperform growth stocks, and this tendency does not seem to change by the size of stocks.

5. References

Ball, R., Gerakos, J., Linnainmaa, J. T., & Nikolaev, V. (2016). Accruals, cash flows, and operating profitability in the cross-section of stock returns. *Journal of Financial Economics, 121*(1), 28-45. https://doi.org/10.1016/j.jfineco.2016.03.001

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics, 116*(1), 1-22. https://doi.org/10.1016/j.jfineco.2014.10.010

Hou, K., Xue, C., & Zhang, L. (2020). Replicating Anomalies. *Review of Financial Studies*, 33(5), 2019-2133. https://doi.org/10.1093/rfs/hhz135

Lim, B., Sotes-Paladino, J., Wang, J. G., & Yao, Y. (2024). The value of growth: Changes in profitability and future stock returns. *Journal of Banking & Finance, 158*, 107036. https://doi.org/10.1016/j.jbankfin.2023.107036

Novy-Marx, R. (2013). The other side of value: The gross profitability premium. *Journal of Financial Economics, 108*(1), 1-28. https://doi.org/10.1016/j.jfineco.2012.05.004

6. Appendices

6.1 Results of OP-Sorted Portfolios from Kenneth R. French's Website

6.1.1 Results from Average Excess Returns

	Dec 1	**Dec 2**	**Dec 3**	**Dec 4**	**Dec 5**	**Dec 6**	**Dec 7**	**Dec 8**	**Dec 9**	**Dec 10**	**L-S**
Mean	0.004	0.004	0.005	0.005	0.006	0.006	0.005	0.007	0.007	0.007	0.003
t-stat	1.581	2.294	2.617	3.038	3.627	3.334	3.148	3.936	4.256	3.897	1.798
p-value	0.114	0.022	0.009	0.002	0.000	0.001	0.002	0.000	0.000	0.000	0.073
SD	0.066	0.052	0.050	0.046	0.047	0.046	0.046	0.045	0.046	0.047	0.043
Skewness	-0.481	-0.482	-0.481	-0.339	-0.436	-0.453	-0.316	-0.387	-0.443	-0.433	0.221
Kurtosis	1.577	2.181	1.929	2.166	2.212	1.882	1.645	1.497	1.585	1.970	2.427

6.1.2 Results from CAPM

	Dec 1	Dec 2	Dec 3	Dec 4	Dec 5	Dec 6	Dec 7	Dec 8	Dec 9	Dec 10	L-S
Alpha	-0.004	-0.002	-0.001	0.000	0.001	0.000	0.000	0.001	0.002	0.001	0.005
tstat	-3.024	-2.312	-1.637	-0.433	1.229	0.319	-0.381	2.247	3.235	1.982	3.164
pval	0.003	0.021	0.102	0.665	0.220	0.750	0.703	0.025	0.001	0.048	0.002
Beta	1.303	1.075	1.033	0.966	0.977	0.964	0.981	0.963	0.963	0.970	-0.333
tstat	50.726	66.989	72.217	71.612	70.594	79.912	88.106	84.754	82.165	70.654	-10.042
pval	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R2	0.780	0.861	0.878	0.876	0.873	0.898	0.915	0.908	0.903	0.873	0.122

6.1.3 Results from the Three-Factor Model

	Dec 1	Dec 2	Dec 3	Dec 4	Dec 5	Dec 6	Dec 7	Dec 8	Dec 9	Dec 10	L-S
Alpha	-0.004	-0.002	-0.002	-0.001	0.000	0.000	0.000	0.001	0.002	0.002	0.005
tstat	-3.739	-3.473	-3.342	-1.880	0.224	-0.822	-0.432	2.534	4.594	2.712	4.028
pval	0.000	0.001	0.001	0.061	0.823	0.412	0.666	0.011	0.000	0.007	0.000
Beta Mkt	1.166	1.063	1.045	0.984	1.017	0.994	0.990	0.992	0.970	0.980	-0.187
tstat	53.028	66.292	75.627	74.269	74.128	82.850	83.912	86.366	83.589	69.186	-6.232
pval	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Beta SMB	0.616	0.171	0.101	0.052	-0.073	-0.035	-0.036	-0.147	-0.128	-0.112	-0.728
tstat	19.193	7.310	5.007	2.697	-3.659	-2.008	-2.096	-8.745	-7.544	-5.401	-16.649
pval	0.000	0.000	0.000	0.007	0.000	0.045	0.036	0.000	0.000	0.000	0.000

Beta HML	-0.095	0.168	0.237	0.212	0.186	0.169	0.013	-0.002	-0.137	-0.096	-0.002
tstat	-2.968	7.212	11.798	11.031	9.346	9.716	0.770	-0.145	-8.111	-4.692	-0.039
pval	0.003	0.000	0.000	0.000	0.000	0.000	0.441	0.885	0.000	0.000	0.969
R2	0.858	0.877	0.899	0.894	0.890	0.911	0.915	0.917	0.916	0.881	0.367

6.2 Results of Double-Sort Portfolios from Modified Codes

6.2.1 Results from Average Excess Returns

quantile		Mean	t-stat	p-value	SD	Skewness	Kurtosis
ME1	OP1	0.006445	0.903397	0.367073	0.121062	1.0713237	2.586793
	OP2	0.015112	2.559881	0.010983	0.100185	0.9963653	2.500471
	OP3	0.015212	3.395262	0.000782	0.076034	0.6064099	2.724493
	OP4	0.015484	3.843202	0.00015	0.068372	0.7625158	5.778456
	OP5	0.011765	2.72209	0.006884	0.07335	0.282031	2.692103
	L-S	0.005321	1.213179	0.226059	0.074432	-0.901787	1.89562
ME2	OP1	0.004436	0.699971	0.484512	0.107561	1.0248829	4.141216
	OP2	0.010927	2.32682	0.020671	0.079697	0.6238632	3.502985
	OP3	0.009881	2.41369	0.016418	0.06947	-0.126993	2.825054
	OP4	0.011788	2.980773	0.003121	0.067113	-0.09886	2.665319
	OP5	0.010655	2.330679	0.020463	0.07758	-0.005117	3.268307
	L-S	0.006218	1.613366	0.107764	0.065406	-1.407376	5.130044
ME3	OP1	0.008831	1.470223	0.142597	0.101932	0.5742355	2.712228
	OP2	0.008464	1.833423	0.067775	0.078341	0.2900516	2.391735
	OP3	0.009528	2.335654	0.020198	0.069229	0.0124198	1.955796
	OP4	0.011438	2.771778	0.00594	0.07003	0.208279	2.708259
	OP5	0.009384	2.140232	0.033179	0.074406	-0.132991	3.202266
	L-S	0.000553	0.16771	0.86693	0.05595	-1.260629	6.515487
ME4	OP1	0.005297	0.915495	0.360701	0.09819	0.6194055	3.800016
	OP2	0.007628	1.825342	0.068989	0.070921	0.0536732	1.510261
	OP3	0.011036	2.923283	0.003739	0.064068	-0.065616	2.540083
	OP4	0.010247	2.753582	0.006271	0.063154	-0.191352	2.605493
	OP5	0.010044	2.414014	0.016404	0.07061	0.1141114	4.29588
	L-S	0.004747	1.386244	0.166748	0.058115	-0.948645	7.854044
ME5	OP1	0.003416	0.670153	0.503299	0.086506	0.0812402	4.474103
	OP2	0.00847	2.254136	0.024942	0.063767	-0.153565	1.941508
	OP3	0.008663	2.729295	0.006739	0.053865	-0.418055	1.771717
	OP4	0.008619	2.707825	0.007179	0.054017	-0.340534	2.222973
	OP5	0.009316	3.076701	0.002295	0.051385	-0.274567	1.98732
	L-S	0.0059	1.795161	0.07368	0.055774	-0.412435	14.09305

6.2.2 Results from CAPM:

quantile		alpha	alpha_t	alpha_pval	beta_mkt	beta_t	beta_pval	rmse	R2
ME1	OP1	-0.00157	-0.26042	0.79473	1.42393	10.94426	0	0.10181	0.29518
	OP2	0.00787	1.64077	0.10195	1.28549	12.44462	0	0.08083	0.35128
	OP3	0.00962	2.66772	0.00807	0.99331	12.79818	0	0.06074	0.36415
	OP4	0.0102	3.24352	0.00132	0.93808	13.8558	0	0.05298	0.40165
	OP5	0.00587	1.79011	0.07449	1.04613	14.8089	0	0.05528	0.434
ME2	OP1	-0.0043	-0.90229	0.36766	1.55192	15.11788	0	0.08033	0.44417
	OP2	0.00396	1.19835	0.23177	1.23795	17.41988	0	0.05561	0.5148
	OP3	0.00339	1.27723	0.20256	1.15291	20.1891	0	0.04469	0.58766
	OP4	0.00537	2.16919	0.03089	1.13944	21.37564	0	0.04171	0.61503
	OP5	0.00338	1.14689	0.25239	1.29109	20.32651	0	0.0497	0.59094
ME3	OP1	-0.00058	-0.14542	0.88448	1.67045	19.59151	0	0.06672	0.57302
	OP2	0.00058	0.22108	0.82519	1.39969	24.7147	0	0.04432	0.68109
	OP3	0.0026	1.10588	0.26971	1.23018	24.30183	0	0.03961	0.67373
	OP4	0.00449	1.85486	0.06464	1.23307	23.64142	0	0.04081	0.66151
	OP5	0.00173	0.72835	0.467	1.35926	26.59413	0	0.04	0.71206
ME4	OP1	-0.00433	-1.24857	0.21284	1.70984	22.89517	0	0.05844	0.647
	OP2	0.00004	0.01736	0.98616	1.3484	31.05579	0	0.03398	0.77128
	OP3	0.00416	2.29933	0.02221	1.22025	31.29738	0	0.03051	0.77401
	OP4	0.00351	1.92943	0.05467	1.19572	30.50086	0	0.03068	0.76486
	OP5	0.00261	1.23294	0.21861	1.32057	29.00532	0	0.03563	0.7463
ME5	OP1	-0.00537	-1.88441	0.06052	1.55962	25.44029	0	0.04797	0.69353
	OP2	0.00125	0.88932	0.37458	1.28258	42.4771	0	0.02363	0.86318
	OP3	0.00245	2.35616	0.01914	1.10284	49.2188	0	0.01753	0.89441
	OP4	0.00255	2.05002	0.04127	1.0785	40.34613	0	0.02092	0.85056
	OP5	0.0035	3.09127	0.00219	1.03342	42.44279	0	0.01905	0.86299
Long-Short	ME1	0.00745	1.73103	0.08452	-0.3778	-4.07871	0.00006	0.07248	0.05497
	ME2	0.00769	2.01072	0.04529	-0.26083	-3.16947	0.00169	0.0644	0.03393
	ME3	0.00231	0.71694	0.474	-0.31119	-4.49571	0.00001	0.05417	0.066
	ME4	0.00694	2.11155	0.03559	-0.38928	-5.50262	0	0.05536	0.09573
	ME5	0.00886	2.96896	0.00324	-0.5262	-8.18827	0	0.05029	0.18991

6.2.3 Results from the Three-Factor Model

quantile		alpha	alpha_t	alpha_pval	beta_mkt	beta_mkt_t	beta_mkt_pval	beta_smb	beta_smb_t	beta_smb_pval	beta_hml	beta_hml_t	beta_hml_pval	rmse	R2
ME1	OP1	-0.003	-0.645	0.519	1.130	9.725	0.000	1.586	9.457	0.000	-0.188	-1.264	0.207	0.088	0.478
	OP2	0.006	1.512	0.132	1.051	11.367	0.000	1.286	9.637	0.000	-0.030	-0.256	0.799	0.070	0.517
	OP3	0.008	2.703	0.007	0.809	11.836	0.000	1.023	10.373	0.000	0.025	0.281	0.779	0.052	0.543
	OP4	0.009	3.273	0.001	0.787	13.155	0.000	0.888	10.292	0.000	0.276	3.597	0.000	0.045	0.567
	OP5	0.004	1.581	0.115	0.887	14.194	0.000	0.927	10.284	0.000	0.258	3.222	0.001	0.047	0.589
ME2	OP1	-0.006	-1.573	0.117	1.270	15.402	0.000	1.493	12.544	0.000	-0.333	-3.146	0.002	0.062	0.667
	OP2	0.003	0.974	0.331	1.036	18.158	0.000	1.124	13.654	0.000	0.043	0.592	0.554	0.043	0.710
	OP3	0.002	0.941	0.348	1.007	21.448	0.000	0.861	12.700	0.000	0.309	5.132	0.000	0.036	0.741
	OP4	0.004	2.111	0.036	0.998	24.546	0.000	0.861	14.679	0.000	0.417	8.006	0.000	0.031	0.792
	OP5	0.002	0.731	0.465	1.118	23.230	0.000	1.045	15.046	0.000	0.473	7.668	0.000	0.036	0.782
ME3	OP1	-0.002	-0.754	0.452	1.411	21.930	0.000	1.405	15.134	0.000	-0.156	-1.886	0.060	0.049	0.775
	OP2	-0.001	-0.503	0.616	1.222	29.720	0.000	1.021	17.200	0.000	0.221	4.196	0.000	0.031	0.844
	OP3	0.001	0.633	0.527	1.075	33.636	0.000	0.946	20.510	0.000	0.485	11.833	0.000	0.024	0.879
	OP4	0.003	1.842	0.067	1.082	32.801	0.000	0.938	19.704	0.000	0.564	13.333	0.000	0.025	0.874
	OP5	0.000	-0.017	0.987	1.205	38.601	0.000	0.954	21.190	0.000	0.536	13.394	0.000	0.024	0.900
ME4	OP1	-0.005	-1.926	0.055	1.516	24.380	0.000	1.025	11.426	0.000	-0.224	-2.807	0.005	0.047	0.773
	OP2	-0.001	-0.789	0.431	1.218	37.791	0.000	0.761	16.359	0.000	0.215	5.201	0.000	0.024	0.883
	OP3	0.003	2.498	0.013	1.115	43.647	0.000	0.664	18.007	0.000	0.445	13.590	0.000	0.019	0.910
	OP4	0.002	1.926	0.055	1.093	42.974	0.000	0.654	17.810	0.000	0.473	14.509	0.000	0.019	0.908
	OP5	0.001	0.823	0.411	1.223	35.536	0.000	0.637	12.837	0.000	0.516	11.696	0.000	0.026	0.866
ME5	OP1	-0.005	-2.119	0.035	1.473	25.608	0.000	0.407	4.904	0.000	-0.384	-5.209	0.000	0.044	0.750
	OP2	0.001	0.638	0.524	1.242	41.901	0.000	0.243	5.677	0.000	0.090	2.364	0.019	0.022	0.878
	OP3	0.002	2.181	0.030	1.075	52.520	0.000	0.190	6.445	0.000	0.199	7.570	0.000	0.015	0.918
	OP4	0.002	1.975	0.049	1.076	44.204	0.000	0.068	1.950	0.052	0.288	9.233	0.000	0.018	0.885
	OP5	0.003	3.031	0.003	1.027	43.864	0.000	0.075	2.220	0.027	0.205	6.813	0.000	0.018	0.883
Long-Short	ME1	0.008	1.966	0.050	-0.243	-2.754	0.006	-0.659	-5.165	0.000	0.447	3.940	0.000	0.067	0.202
	ME2	0.007	2.283	0.023	-0.152	-2.110	0.036	-0.448	-4.298	0.000	0.806	8.700	0.000	0.055	0.310
	ME3	0.002	0.811	0.418	-0.206	-3.486	0.001	-0.451	-5.280	0.000	0.692	9.119	0.000	0.045	0.367
	ME4	0.007	2.441	0.015	-0.294	-4.842	0.000	-0.388	-4.433	0.000	0.740	9.506	0.000	0.046	0.382
	ME5	0.009	3.341	0.001	-0.446	-7.728	0.000	-0.332	-3.986	0.000	0.589	7.953	0.000	0.044	0.394