

Internet Appendix to
**Anomalies Enhanced: A Portfolio
Rebalancing Approach**

A Liquidity

Table A.1 and A.2 report the results with the proportional bid-ask spread and Amihud measure, which are largely similar to the results reported in Table 8. Specifically, the original anomalies often show the strongest performance for the most illiquid stock, whereas the trend-enhanced anomalies often have the strongest performance for the more liquid stocks, but have significant abnormal returns (Fama-French five-factor alphas) under all the three levels of liquidity. For example, for the original asset growth (AG) anomaly, the Fama-French five-factor alpha is 0.61%, 0.36%, and 0.80%, respectively, for stocks with the lowest spread (most liquid) to the highest spread (least liquid), and 0.45%, 0.50%, and 0.77%, respectively, for stocks with the lowest Amihud measure (most liquid) to the highest Amihud measure (least liquid). In contrast, for the trend-enhanced AG anomaly, the Fama-French five-factor alpha is 1.23%, 1.15%, and 1.26%, respectively, for the three different spread groups, and 0.98%, 1.17%, and 1.78%, respectively, for the three different Amihud price impact groups.

B Information Uncertainty

Table A.3 reports similar results using firm age as the proxy for information uncertainty. The younger the firm, the higher the information uncertainty. In general, youngest firms have the strongest performance for both the original anomalies and trend-enhanced anomalies. However, the performance of the trend-enhanced anomalies are more responsive to the level of information uncertainty, and thus the younger the firms are, i.e., the higher the information uncertainty is, the higher the performance improvement is for the trend-enhanced anomalies. For example, the NOA anomaly produces a Fama-French five-factor alpha of 1.09%, 0.81%, and 0.47% per month, respectively, for the youngest to the oldest firms, while the trend-enhanced NOA anomaly provides a Fama-French five-factor alpha of 2.10%, 1.56%, and 0.76% per month, respectively, for the youngest to the oldest firms. Therefore, the per-

formance improvement is 1.02%, 0.75%, and 0.28% per month, respectively, for the youngest to the oldest firms.

Finally, Table A.4 reports the results using the number of analyst following as a proxy for information uncertainty. Firms covered by fewer analyst tend to have more information uncertainty. The results are again similar to the results using either idiosyncratic volatility or firm age and support the positive relation between the performance improvement and information uncertainty. For example, the Fama-French five-factor alpha of the original NOA anomaly is 1.19%, 1.03%, and 0.71% per month, respectively, for firms with the fewest number of analyst following to firms with the highest number of analyst following. It increases to 2.06%, 1.60%, and 1.03% per month, respectively, after the trend-managed trading strategy. Thus the performance improvement is 0.87%, 0.57%, and 0.31% per month across the three groups of firms.

C Market Conditions

C.1 Business cycles

Han, Yang, and Zhou (2013) and Han, Zhou, and Zhu (2016) find that the performance of the moving average timing strategy or the trend factor is stronger in recession than in expansions. We examine whether the performance improvement produced by the trend-managed trading strategy displays similar pattern. we estimate the Fama-French five-factor alphas separately for recessions and expansions, which are identified by the NBER, and report the results in Table A.5. Panel A reports the alphas of the original anomalies. It is of interest to note that all anomalies are significant only in expansion periods and are insignificant in recession periods, except for OP anomaly, which has insignificant alphas in both periods, and GP anomaly, which is significant in the recession periods. This is likely due to higher volatility in recession periods, and many anomalies also have negative albeit insignificant alphas.

Similarly, all trend-enhanced anomalies are significant only in the expansion periods and are insignificant in the recession periods. Indeed, the alphas are even (insignificantly) smaller than those of the original anomalies in recessions. As a results, the performance improvement in expansions is stronger than that in the whole sample period reported in Table 5. For example, the performance improvement for the AG anomaly is 0.75% per month for the whole sample period, but is 0.81% per month for the expansion periods.

C.2 Market volatility

Finally, Table A.6 reports the performance improvement of the trend-managed trading strategy during periods of high and low market volatility. In Panel A, except for BM and GP, the original anomalies do not seem to be much affected by the market volatility. For example, for the accrual (AC) anomaly, the Fama-French five-factor alpha is 0.40% (0.47%) per month when the market volatility is low (high). In contrast, all anomalies but GP have higher alphas when the market volatility is low than when the market volatility is high. As a result, for all anomalies, the performance improvement is much higher during the low volatility periods than during the high volatility periods. Again, for the accrual (AC) anomaly, the Fama-French five-factor alpha is now 1.23% (1.00%) per month when the market volatility is low (high).

D Robustness

In this section, we conduct additional robustness tests of the performance improvement generated by the trend-managed trading strategy in several dimensions. We first examine whether or to what extent the performance improvement is robust to alternative specifications of the trend-managed trading strategy. We further explore whether the performance improvement is robust to the alternative multifactor asset pricing models. Finally, we report

results using value-weighting.

D.1 Alternative asset-pricing models

In this subsection, we use two recent alternative asset-pricing models to estimate the risk-adjusted abnormal returns for the anomalies.

Table A.8 presents the abnormal returns adjusted by the four-factor model of Hou, Xue, and Zhang (2015). Compared to the Fama-French five-factor alphas in Table 5, the four-factor alphas are smaller for the original anomalies as well as for the trend-enhanced anomalies, but the adjustment is more severe for the trend-enhanced anomalies.¹ For example, the four-factor alpha of the accrual (AC) anomaly increases from 0.40% to 0.77% after the trend enhancement. In contrast, the five-factor alpha of the AC anomaly increases from 0.47% to 1.21% after the trend enhancement as reported in Table 5. Nevertheless, The four-factor alphas are still large for the trend-enhanced anomalies, ranging from 0.56% to 1.01% per month excluding the only insignificant one. Therefore, risk-adjustment, although reduces the abnormal returns, does not eliminate the performance improvement. Many anomalies have significant performance improvement in alpha, and this is especially true for the short leg, which experiences significant improvement for all but one anomaly.

Table A.9 reports the abnormal performance after adjusting by the four-factor model recently proposed by Stambaugh and Yuan (2017). Since Stambaugh and Yuan (2017) use 11 anomalies, which include all eight anomalies analyzed here, to construct their mispricing factors, it is not surprising that the alphas of the original anomalies are even smaller. Similarly, the abnormal returns of the trend-enhanced anomalies are much smaller. However, four out of eight anomalies still experience significant increase in the abnormal returns for the spread portfolio and five out of eight see significant improvement in the short leg.

¹This is likely due to the trend component in the enhanced anomalies. Novy-Marx (2015) argues that the reason why HXZ factors can explain momentum is that HXZ factors include a fundamental momentum factor; the ROE factor captures the post earnings announcement drift.

D.2 Value-weighting

In this subsection we explore the performance improvement of value-weighted anomalies. Table A.10 delivers the robustness results. As shown in Panel A, not surprisingly the value-weighted anomalies yield smaller Fama-French five-factor alphas than the corresponding equal-weighted anomalies reported in Table 5. More anomalies (three out of eight) are now insignificant, and the BM anomaly is significant but has the opposite sign. In sharp contrast, all anomalies except for BM and OP are still significant after the trend-managed trading strategy, and the magnitude of alphas is rather large, although not as large as those of the equal-weighted anomalies. As a result, in terms of percentage improvement, value-weighting seems to produce even higher performance increase. For example, the original AG anomaly has an insignificant alpha of 0.12% per month, so the performance improvement is 0.38% per month, which is about 316.7% ($0.38\%/0.12\%$) increase in performance.

D.3 Momentum-managed anomalies

In this subsection, we use momentum instead as the filter to select stocks each month and compare the performance with that of the trend-managed trading strategy. Specifically, for Decile High, we drop stocks in the bottom three deciles of momentum (past 12 month cumulative returns), and for Decile Low, we drop stocks in the top three deciles of momentum. Table A.11 reports the Fama-French five-factor alphas of momentum enhanced anomalies. Panel B shows that except for the OP anomaly, all other anomalies experience significant five-factor alpha. Panel C shows the performance improvement relative to the original anomalies. The improvement in alpha ranges from 0.42% to 0.69% per month, which is always lower than the performance improvement generated by trend-managed trading strategy in Table 5. For example, the highest improvement by the momentum filter is achieved for the accrual (AC) anomaly, about 0.69% per month, whereas the performance improvement for the AC anomaly is 0.92% per month by the trend-managed trading strategy.

References

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Table A.1: Liquidity: Bid-Ask Spread

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading for stocks with different bid-ask spread. Stocks are further divided into three groups (Low, 2, High) by their bid-ask spread. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Spread	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement			
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low	
Book-To-Market	Low	0.19	0.14	-0.04	-0.21	0.28	0.48	0.39***	0.13	0.53**	
		(1.42)	(0.80)	(-0.20)	(-1.21)	(1.18)	(1.55)	(2.70)	(0.70)	(1.95)	
		2	-0.22	0.07	0.29	-0.63***	0.27	0.90***	0.41***	0.20	0.61***
	2	(-1.29)	(0.42)	(1.43)	(-2.52)	(1.55)	(2.81)	(2.91)	(1.22)	(2.47)	
		High	-0.68**	0.32	0.99***	-1.13***	0.58***	1.71***	0.46***	0.26	0.72***
		(-2.13)	(1.55)	(3.57)	(-3.18)	(2.93)	(4.43)	(3.67)	(1.52)	(3.31)	
	Gross Profit	Low	0.44***	0.20*	-0.24	0.01	0.26	0.25	0.43*	0.06	0.49
			(2.56)	(1.69)	(-1.29)	(0.05)	(1.56)	(0.78)	(1.76)	(0.57)	(1.57)
			2	0.01	0.09	0.07	-0.73***	0.30*	1.03***	0.74***	0.21
2		(0.08)	(0.52)	(0.36)	(-2.59)	(1.64)	(3.16)	(3.81)	(1.10)	(3.02)	
		High	-0.24	-0.14	0.11	-0.90***	0.16	1.06***	0.66***	0.30	0.95***
		(-0.90)	(-0.59)	(0.49)	(-2.46)	(0.79)	(2.82)	(3.11)	(1.43)	(2.90)	
Operating Profit		Low	0.16	0.20**	0.04	-0.44***	0.24	0.68***	0.60***	0.04	0.64**
			(1.21)	(1.94)	(0.26)	(-2.50)	(1.52)	(2.76)	(2.90)	(0.30)	(2.34)
			2	-0.56***	-0.06	0.50***	-1.25***	0.17	1.42***	0.69***	0.23
	2	(-3.32)	(-0.39)	(3.24)	(-4.12)	(0.95)	(4.16)	(3.32)	(1.53)	(3.01)	
		High	-0.30	-0.24	0.06	-0.39	-0.01	0.38	0.09	0.23	0.32
		(-1.01)	(-1.07)	(0.24)	(-0.82)	(-0.03)	(0.65)	(0.30)	(1.06)	(0.79)	
	Asset Growth	Low	-0.18	0.43**	0.61***	-0.74***	0.49*	1.23***	0.56***	0.06	0.62**
			(-1.46)	(2.37)	(2.85)	(-3.45)	(1.85)	(3.06)	(3.77)	(0.31)	(2.18)
			2	-0.70***	-0.33*	0.36**	-1.19***	-0.04	1.15***	0.49***	0.30
2		(-3.29)	(-1.79)	(2.03)	(-4.13)	(-0.20)	(3.03)	(3.69)	(1.40)	(2.72)	
		High	-0.85***	-0.05	0.80***	-1.23***	0.03	1.26***	0.38***	0.08	0.46
		(-2.95)	(-0.22)	(3.66)	(-3.44)	(0.14)	(3.05)	(2.85)	(0.36)	(1.55)	

Anomaly	Spread	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Investment Growth	Low	0.01 (0.07)	0.10 (0.97)	0.09 (0.76)	-0.43** (-2.12)	0.42** (2.18)	0.85*** (2.82)	0.44*** (2.83)	0.32* (1.72)	0.76*** (2.56)
	2	-0.50*** (-2.88)	-0.04 (-0.27)	0.46*** (3.08)	-1.24*** (-4.45)	0.12 (0.73)	1.36*** (3.90)	0.74*** (4.94)	0.16 (0.77)	0.90*** (2.92)
	High	-0.22 (-0.92)	0.06 (0.27)	0.28 (1.60)	-0.57** (-1.99)	0.12 (0.41)	0.69* (1.72)	0.35*** (2.53)	0.07 (0.24)	0.41 (1.25)
Net Stock Issue	Low	-0.24* (-1.87)	0.09 (0.94)	0.33** (2.40)	-0.61*** (-3.01)	0.13 (1.16)	0.74*** (3.10)	0.37*** (2.87)	0.04 (0.47)	0.42** (2.38)
	2	-0.72*** (-4.07)	0.06 (0.45)	0.78*** (4.62)	-1.06*** (-4.07)	0.20 (1.35)	1.26*** (4.17)	0.34** (2.23)	0.14 (1.21)	0.48** (2.18)
	High	-0.60** (-2.15)	0.23 (1.30)	0.83*** (3.69)	-1.05*** (-2.95)	0.25 (1.19)	1.30*** (3.20)	0.45*** (3.59)	0.02 (0.09)	0.47* (1.79)
Accrual	Low	-0.17 (-1.06)	0.30*** (2.53)	0.47*** (2.96)	-0.72*** (-2.60)	0.24 (1.21)	0.97*** (2.69)	0.55*** (3.18)	-0.05 (-0.33)	0.49* (1.82)
	2	-0.60*** (-2.83)	-0.34* (-1.78)	0.27* (1.73)	-0.92*** (-2.94)	0.01 (0.07)	0.93*** (2.71)	0.31* (1.88)	0.35 (1.59)	0.66** (2.10)
	High	-0.68*** (-2.63)	-0.20 (-0.82)	0.49*** (2.46)	-1.18*** (-3.79)	0.19 (0.83)	1.38*** (3.89)	0.50*** (3.96)	0.39* (1.79)	0.89*** (3.26)
Net Operating Asset	Low	-0.54*** (-3.50)	0.69*** (4.43)	1.23*** (4.86)	-1.02*** (-4.49)	0.90*** (3.74)	1.91*** (4.66)	0.48*** (3.65)	0.21 (1.29)	0.68*** (2.80)
	2	-0.92*** (-4.52)	0.38** (2.39)	1.29*** (5.81)	-1.39*** (-5.55)	0.81*** (4.13)	2.20*** (5.59)	0.47*** (3.81)	0.44** (1.96)	0.91*** (3.13)
	High	-0.83*** (-3.03)	0.25 (1.19)	1.08*** (4.37)	-1.34*** (-4.21)	0.50*** (2.90)	1.84*** (4.91)	0.51*** (4.30)	0.25 (1.56)	0.76*** (3.60)

Table A.2: Liquidity: Amihud Measure

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading for stocks with different Amihud measure. Stocks are further divided into three groups (Low, 2, High) by their Amihud measure. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

		Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement			
Anomaly	Amihud	Low	High	High-Low	Low	High	High-Low	Low	High	High-Low	
6	Book-To-Market	Low	-0.00 (-0.02)	-0.07 (-0.72)	-0.07 (-0.67)	-0.42*** (-2.76)	0.20 (1.32)	0.61*** (2.92)	0.42*** (3.96)	0.27 (1.62)	0.68*** (3.21)
		2	-0.05 (-0.32)	0.14 (1.46)	0.19 (1.19)	-0.48** (-2.12)	0.36*** (2.69)	0.84*** (3.17)	0.43*** (3.78)	0.22* (1.63)	0.65*** (3.49)
		High	-0.46*** (-3.07)	0.36*** (3.38)	0.82*** (5.43)	-0.99*** (-5.26)	0.53*** (4.07)	1.52*** (6.89)	0.53*** (5.69)	0.17 (1.53)	0.70*** (4.55)
	Gross Profit	Low	0.12 (1.03)	0.16* (1.72)	0.05 (0.40)	-0.14 (-0.75)	0.24* (1.70)	0.37 (1.51)	0.26* (1.84)	0.07 (0.59)	0.33 (1.43)
		2	-0.02 (-0.14)	0.18 (1.57)	0.20 (1.37)	-0.32 (-1.54)	0.39*** (3.31)	0.72*** (2.91)	0.30** (2.36)	0.21* (1.65)	0.51** (2.43)
		High	-0.14 (-1.10)	0.16 (1.33)	0.30** (2.28)	-0.49*** (-2.63)	0.48*** (4.13)	0.97*** (4.65)	0.35*** (2.76)	0.32*** (2.67)	0.67*** (3.49)
	Operating Profit	Low	0.13 (1.24)	-0.01 (-0.17)	-0.14 (-1.30)	-0.31* (-1.90)	0.24 (1.33)	0.55** (2.12)	0.44*** (3.79)	0.26 (1.46)	0.70*** (3.03)
		2	0.01 (0.07)	0.03 (0.31)	0.02 (0.17)	-0.23 (-1.19)	0.18 (1.45)	0.42* (1.77)	0.24** (2.10)	0.15 (1.19)	0.39** (2.00)
		High	-0.12 (-0.89)	-0.00 (-0.00)	0.12 (0.87)	-0.30 (-1.49)	0.38*** (2.99)	0.68*** (3.06)	0.18* (1.73)	0.38*** (3.66)	0.56*** (3.46)
Asset Growth	Low	-0.40*** (-3.15)	0.05 (0.59)	0.45*** (3.53)	-0.86*** (-4.49)	0.12 (0.76)	0.98*** (3.58)	0.46*** (4.52)	0.06 (0.46)	0.53*** (2.60)	
	2	-0.45*** (-3.12)	0.05 (0.40)	0.50*** (3.64)	-0.97*** (-4.41)	0.20 (1.41)	1.17*** (3.77)	0.52*** (4.81)	0.15 (0.86)	0.67*** (2.74)	
	High	-0.58*** (-3.88)	0.19** (1.94)	0.77*** (6.24)	-1.15*** (-5.99)	0.62*** (5.29)	1.78*** (7.93)	0.57*** (6.65)	0.44*** (3.31)	1.01*** (5.81)	

Anomaly	Amihud	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Investment Growth	Low	-0.23* (-1.89)	0.13 (1.36)	0.36*** (3.17)	-0.74*** (-3.66)	0.31* (1.69)	1.05*** (3.55)	0.51*** (4.53)	0.18 (1.05)	0.69*** (2.83)
	2	-0.16 (-1.41)	0.07 (0.69)	0.23** (2.28)	-0.61*** (-3.25)	0.34*** (2.61)	0.95*** (4.05)	0.46*** (4.07)	0.27* (1.77)	0.73*** (3.37)
	High	-0.28** (-2.22)	0.14 (1.31)	0.41*** (4.16)	-0.69*** (-4.25)	0.44*** (3.68)	1.13*** (6.14)	0.42*** (4.75)	0.30*** (2.63)	0.71*** (4.56)
Net Stock Issue	Low	-0.31** (-2.39)	0.15** (2.08)	0.46*** (3.67)	-0.62*** (-2.90)	0.03 (0.34)	0.64*** (2.67)	0.30*** (2.54)	-0.12 (-1.44)	0.19 (1.11)
	2	-0.28** (-2.19)	0.21** (2.42)	0.48*** (4.26)	-0.44** (-2.18)	0.37*** (3.37)	0.81*** (3.45)	0.16 (1.51)	0.16 (1.54)	0.33* (1.85)
	High	-0.51*** (-3.89)	0.30*** (2.91)	0.80*** (6.62)	-0.93*** (-5.15)	0.54*** (4.45)	1.48*** (6.85)	0.43*** (4.70)	0.25** (2.19)	0.67*** (4.34)
Accrual	Low	-0.34*** (-2.91)	0.10 (0.86)	0.44*** (4.06)	-0.80*** (-4.13)	-0.02 (-0.16)	0.78*** (2.92)	0.46*** (4.15)	-0.12 (-0.76)	0.34 (1.42)
	2	-0.38*** (-2.66)	0.02 (0.13)	0.40*** (3.56)	-0.83*** (-4.12)	0.40*** (2.78)	1.24*** (4.68)	0.45*** (4.48)	0.39** (2.42)	0.84*** (3.83)
	High	-0.58*** (-4.16)	0.08 (0.76)	0.66*** (6.42)	-1.07*** (-6.14)	0.59*** (4.15)	1.66*** (8.08)	0.49*** (6.10)	0.51*** (4.04)	1.00*** (6.26)
Net Operating Asset	Low	-0.53*** (-3.93)	0.31*** (2.81)	0.84*** (4.82)	-0.98*** (-4.91)	0.38** (2.11)	1.36*** (4.15)	0.45*** (4.24)	0.06 (0.44)	0.52** (2.34)
	2	-0.57*** (-3.76)	0.27** (2.23)	0.83*** (5.01)	-0.86*** (-4.16)	0.53*** (2.96)	1.39*** (4.09)	0.30*** (2.85)	0.26 (1.35)	0.56** (2.20)
	High	-0.56*** (-4.02)	0.20 (1.49)	0.76*** (5.26)	-1.14*** (-6.85)	0.41*** (2.81)	1.54*** (7.04)	0.57*** (6.79)	0.21* (1.74)	0.79*** (5.15)

Table A.3: Information Uncertainty: Firm Age

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading for stocks with different firm age. Stocks are further divided into three groups (Low, 2, High) by their firm age. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Firm Age	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Book-To-Market	Young	-0.17 (-1.20)	0.27*** (2.61)	0.43*** (2.99)	-0.74*** (-3.87)	0.59*** (3.93)	1.33*** (5.24)	0.57*** (6.00)	0.32** (2.21)	0.89*** (4.66)
	2	-0.21* (-1.76)	0.17* (1.76)	0.38*** (3.03)	-0.59*** (-3.72)	0.47*** (2.69)	1.06*** (4.59)	0.38*** (4.85)	0.30* (1.76)	0.68*** (3.52)
	Old	-0.08 (-0.83)	0.05 (0.69)	0.13 (1.19)	-0.25 (-1.53)	0.13 (1.25)	0.38* (1.87)	0.17 (1.57)	0.08 (0.74)	0.26 (1.50)
Gross Profit	Young	-0.12 (-0.88)	0.20 (1.48)	0.31** (2.24)	-0.65*** (-3.27)	0.35** (2.36)	1.01*** (3.98)	0.54*** (4.60)	0.16 (1.06)	0.70*** (3.07)
	2	-0.03 (-0.29)	0.16 (1.43)	0.19 (1.45)	-0.17 (-0.94)	0.57*** (4.66)	0.74*** (3.50)	0.14 (0.95)	0.41*** (3.72)	0.54*** (2.59)
	Old	-0.11 (-1.33)	0.19*** (2.51)	0.30*** (2.73)	-0.26* (-1.69)	0.26*** (2.62)	0.52*** (2.54)	0.15 (1.34)	0.07 (0.69)	0.22 (1.28)
Operating Profit	Young	-0.13 (-0.92)	-0.08 (-0.69)	0.05 (0.37)	-0.62*** (-3.01)	0.24* (1.64)	0.85*** (3.43)	0.48*** (4.75)	0.32** (2.34)	0.80*** (4.02)
	2	-0.05 (-0.45)	0.07 (0.59)	0.11 (0.87)	-0.29* (-1.80)	0.55*** (3.49)	0.84*** (3.84)	0.25** (2.08)	0.48*** (3.64)	0.73*** (3.85)
	Old	-0.06 (-0.88)	0.02 (0.22)	0.08 (0.89)	-0.19 (-1.49)	0.07 (0.72)	0.26 (1.49)	0.13 (1.40)	0.06 (0.51)	0.19 (1.16)
Asset Growth	Young	-0.51*** (-3.60)	0.15 (1.23)	0.65*** (4.22)	-1.20*** (-5.85)	0.31 (1.61)	1.52*** (4.43)	0.70*** (7.34)	0.17 (0.89)	0.86*** (3.53)
	2	-0.46*** (-3.27)	0.10 (0.95)	0.56*** (4.61)	-0.87*** (-4.39)	0.54*** (3.63)	1.41*** (5.60)	0.41*** (4.45)	0.44*** (2.85)	0.85*** (4.23)
	Old	-0.33*** (-3.02)	0.02 (0.26)	0.35*** (3.28)	-0.68*** (-3.87)	0.03 (0.22)	0.71*** (3.08)	0.35*** (3.13)	0.01 (0.07)	0.36* (1.91)

Anomaly	Firm Age	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Investment Growth	Young	-0.36*** (-2.50)	0.15 (1.47)	0.51*** (4.02)	-0.96*** (-4.67)	0.59*** (4.12)	1.54*** (5.56)	0.60*** (5.29)	0.43*** (2.77)	1.03*** (4.59)
	2	-0.22** (-2.36)	0.19* (1.91)	0.41*** (4.25)	-0.71*** (-4.48)	0.44*** (3.25)	1.14*** (5.18)	0.48*** (5.24)	0.25* (1.86)	0.73*** (3.90)
	Old	-0.04 (-0.49)	0.00 (0.02)	0.05 (0.52)	-0.33** (-2.18)	0.03 (0.25)	0.36* (1.76)	0.29*** (2.98)	0.03 (0.23)	0.32* (1.79)
Net Stock Issue	Young	-0.53*** (-3.81)	0.17 (1.48)	0.70*** (5.13)	-1.15*** (-6.00)	0.27 (1.43)	1.42*** (5.22)	0.62*** (6.50)	0.10 (0.65)	0.72*** (3.71)
	2	-0.36*** (-2.80)	0.29*** (3.82)	0.65*** (5.36)	-0.54*** (-2.77)	0.52*** (4.73)	1.06*** (4.35)	0.18* (1.80)	0.24** (2.20)	0.42*** (2.44)
	Old	-0.34*** (-3.43)	0.20*** (2.87)	0.54*** (5.64)	-0.50*** (-2.91)	0.22*** (2.69)	0.72*** (3.92)	0.16 (1.48)	0.02 (0.26)	0.18 (1.21)
Accrual	Young	-0.46*** (-3.00)	0.09 (0.62)	0.54*** (4.02)	-0.95*** (-4.46)	0.35** (2.13)	1.29*** (4.57)	0.49*** (5.08)	0.26* (1.67)	0.75*** (3.50)
	2	-0.44*** (-3.23)	0.08 (0.61)	0.51*** (4.66)	-0.96*** (-4.55)	0.48*** (3.26)	1.44*** (5.88)	0.53*** (4.63)	0.40*** (2.72)	0.93*** (4.49)
	Old	-0.34*** (-3.35)	0.03 (0.28)	0.36*** (3.79)	-0.76*** (-4.89)	0.14 (1.08)	0.90*** (4.19)	0.42*** (4.59)	0.11 (0.93)	0.53*** (3.13)
Net Operating Asset	Young	-0.76*** (-4.77)	0.32*** (3.05)	1.09*** (5.61)	-1.40*** (-6.84)	0.70*** (4.04)	2.10*** (6.23)	0.63*** (7.20)	0.38*** (2.61)	1.02*** (5.27)
	2	-0.60*** (-4.31)	0.22* (1.91)	0.81*** (5.42)	-0.99*** (-5.39)	0.57*** (3.41)	1.56*** (5.95)	0.40*** (4.68)	0.35** (2.17)	0.75*** (3.73)
	Old	-0.28*** (-2.52)	0.19* (1.85)	0.47*** (3.76)	-0.61*** (-3.53)	0.15 (1.18)	0.76*** (3.07)	0.32*** (3.15)	-0.04 (-0.29)	0.28 (1.50)

Table A.4: Information Uncertainty: Analyst Following

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading for stocks with different analyst following. Stocks are further divided into three groups (Low, 2, High) by their analyst following. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Analyst Follow	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Book-To-Market	Few	-0.57** (-2.38)	0.18* (1.73)	0.75*** (3.35)	-1.25*** (-4.28)	0.26* (1.74)	1.51*** (4.79)	0.68*** (4.99)	0.07 (0.55)	0.76*** (3.92)
	2	-0.15 (-0.81)	-0.07 (-0.69)	0.07 (0.44)	-0.64*** (-2.76)	0.11 (0.73)	0.75*** (2.66)	0.49*** (4.99)	0.18 (1.09)	0.68*** (3.21)
	More	0.18 (1.59)	-0.18 (-1.36)	-0.36*** (-2.72)	-0.07 (-0.39)	-0.03 (-0.23)	0.03 (0.14)	0.24*** (2.53)	0.15 (0.82)	0.39* (1.69)
Gross Profit	Few	-0.00 (-0.01)	0.29** (2.08)	0.29** (1.97)	-0.37 (-1.51)	0.62*** (3.81)	0.98*** (3.29)	0.37*** (2.55)	0.33** (2.04)	0.69*** (2.61)
	2	0.09 (0.66)	0.24* (1.68)	0.14 (0.80)	-0.44** (-2.06)	0.38** (2.39)	0.81*** (2.76)	0.53*** (3.76)	0.14 (0.88)	0.67*** (2.59)
	More	0.26* (1.89)	0.12 (0.99)	-0.15 (-0.99)	0.09 (0.41)	0.12 (0.85)	0.02 (0.08)	0.17 (1.00)	0.00 (0.01)	0.17 (0.68)
Operating Profit	Few	-0.08 (-0.58)	0.23* (1.70)	0.31** (2.10)	-0.44** (-1.94)	0.61*** (4.52)	1.04*** (3.89)	0.36*** (2.77)	0.38*** (2.87)	0.73*** (3.44)
	2	-0.07 (-0.54)	0.03 (0.23)	0.10 (0.66)	-0.52*** (-2.57)	0.21 (1.54)	0.74*** (2.83)	0.45*** (3.65)	0.18 (1.36)	0.63*** (2.89)
	More	0.26* (1.90)	0.07 (0.72)	-0.19 (-1.46)	-0.01 (-0.06)	-0.02 (-0.15)	-0.00 (-0.01)	0.27** (1.99)	-0.08 (-0.72)	0.19 (0.87)
Asset Growth	Few	-0.85*** (-4.09)	0.28* (1.88)	1.14*** (5.65)	-1.42*** (-5.48)	0.57*** (4.01)	1.99*** (5.82)	0.57*** (5.85)	0.28 (1.57)	0.85*** (3.67)
	2	-0.56*** (-3.62)	-0.01 (-0.13)	0.55*** (3.40)	-1.10*** (-4.97)	0.14 (0.98)	1.23*** (3.98)	0.54*** (5.27)	0.15 (1.04)	0.69*** (3.26)
	More	-0.20 (-1.38)	0.02 (0.15)	0.21 (1.62)	-0.49** (-2.25)	0.02 (0.14)	0.51 (1.60)	0.29*** (2.82)	0.00 (0.02)	0.30 (1.18)

Anomaly	Analyst Follow	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Investment Growth	Few	-0.38*** (-2.81)	0.29** (2.11)	0.67*** (4.88)	-0.89*** (-4.19)	0.52*** (3.28)	1.42*** (4.79)	0.52*** (4.03)	0.23 (1.41)	0.75*** (2.99)
	2	-0.29*** (-2.50)	0.01 (0.13)	0.31*** (2.80)	-0.82*** (-4.21)	0.20 (1.48)	1.02*** (3.77)	0.52*** (4.65)	0.19 (1.21)	0.71*** (3.09)
	More	-0.04 (-0.29)	0.01 (0.09)	0.05 (0.39)	-0.25 (-1.10)	-0.09 (-0.48)	0.16 (0.54)	0.21 (1.56)	-0.10 (-0.55)	0.11 (0.43)
Net Stock Issue	Few	-0.57*** (-2.75)	0.34*** (2.88)	0.91*** (5.10)	-1.04*** (-3.36)	0.55*** (5.37)	1.59*** (4.96)	0.47*** (2.85)	0.21* (1.78)	0.68*** (2.98)
	2	-0.23* (-1.79)	0.02 (0.23)	0.25** (2.12)	-0.56*** (-2.78)	0.09 (1.14)	0.65*** (2.84)	0.33*** (3.20)	0.07 (0.93)	0.40*** (2.53)
	More	-0.27** (-2.12)	0.12 (1.53)	0.38*** (3.13)	-0.39* (-1.91)	0.00 (0.01)	0.39 (1.61)	0.13 (1.17)	-0.12 (-1.28)	0.01 (0.07)
Accrual	Few	-0.45*** (-2.58)	0.18 (1.14)	0.63*** (4.04)	-0.92*** (-3.70)	0.71*** (4.68)	1.63*** (5.53)	0.47*** (3.76)	0.53*** (3.17)	1.00*** (4.09)
	2	-0.42*** (-2.73)	-0.11 (-0.82)	0.31** (2.14)	-0.87*** (-3.92)	0.03 (0.28)	0.90*** (3.34)	0.45*** (4.28)	0.14 (0.93)	0.59*** (2.77)
	More	-0.26* (-1.89)	0.02 (0.16)	0.28*** (2.60)	-0.65*** (-2.76)	0.02 (0.14)	0.67** (2.29)	0.39*** (2.95)	0.00 (0.02)	0.39 (1.54)
Net Operating Asset	Few	-0.78*** (-4.28)	0.41*** (2.64)	1.19*** (6.53)	-1.46*** (-6.30)	0.60*** (3.86)	2.06*** (7.44)	0.68*** (6.05)	0.19 (1.23)	0.87*** (4.13)
	2	-0.65*** (-4.06)	0.37*** (3.00)	1.03*** (4.94)	-1.07*** (-5.21)	0.52*** (3.01)	1.60*** (4.72)	0.42*** (5.12)	0.15 (1.05)	0.57*** (3.02)
	More	-0.38*** (-2.47)	0.34*** (2.51)	0.71*** (3.51)	-0.61*** (-2.71)	0.41** (1.99)	1.03*** (2.77)	0.24** (2.25)	0.08 (0.46)	0.31 (1.33)

Table A.5: Business Cycles

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading under different stages of business cycles, respectively. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Business Cycles	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Book-To-Market	Expansion	-0.22* (-1.89)	0.18*** (2.61)	0.41*** (3.87)	-0.75*** (-4.48)	0.44*** (5.60)	1.19*** (6.62)	0.52*** (6.25)	0.26*** (3.32)	0.78*** (6.07)
	Recession	0.37 (1.56)	0.25 (0.84)	-0.12 (-0.41)	0.31 (1.11)	-0.25 (-0.46)	-0.57 (-0.85)	0.06 (0.51)	-0.50 (-0.66)	-0.44 (-0.58)
Gross Profit	Expansion	-0.02 (-0.21)	0.14 (1.55)	0.17 (1.50)	-0.41** (-2.28)	0.45*** (5.28)	0.86*** (4.01)	0.39*** (3.24)	0.30*** (2.93)	0.69*** (3.47)
	Recession	0.15 (0.70)	0.81*** (3.43)	0.66*** (2.75)	0.29 (1.31)	0.12 (0.32)	-0.17 (-0.46)	-0.13 (-1.21)	-0.69 (-1.58)	-0.83** (-1.96)
Operating Profit	Expansion	-0.07 (-0.68)	-0.01 (-0.05)	0.07 (0.59)	-0.42*** (-2.47)	0.31*** (3.97)	0.73*** (3.72)	0.35*** (3.64)	0.31*** (3.49)	0.66*** (4.13)
	Recession	0.54*** (2.78)	0.36 (1.41)	-0.18 (-0.84)	0.71*** (2.50)	-0.07 (-0.20)	-0.79 (-1.46)	-0.17 (-0.91)	-0.43 (-0.90)	-0.60 (-1.12)
Asset Growth	Expansion	-0.53*** (-4.26)	0.08 (1.05)	0.62*** (5.76)	-1.11*** (-6.11)	0.31*** (3.20)	1.43*** (5.78)	0.58*** (7.20)	0.23* (1.82)	0.81*** (4.39)
	Recession	0.25 (1.09)	0.24 (0.93)	-0.01 (-0.03)	0.08 (0.26)	0.05 (0.14)	-0.03 (-0.05)	0.16 (1.23)	-0.19 (-0.38)	-0.02 (-0.04)

Anomaly	Business Cycles	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Investment Growth	Expansion	-0.25*** (-2.76)	0.11 (1.38)	0.36*** (5.25)	-0.77*** (-4.94)	0.36*** (4.82)	1.13*** (5.87)	0.52*** (6.15)	0.25** (2.31)	0.77*** (4.46)
	Recession	0.32 (1.24)	0.28 (1.52)	-0.04 (-0.20)	0.25 (0.79)	0.21 (0.42)	-0.04 (-0.08)	0.06 (0.51)	-0.07 (-0.14)	-0.00 (-0.01)
Net Stock Issue	Expansion	-0.43*** (-3.63)	0.24*** (3.30)	0.66*** (6.44)	-0.80*** (-4.41)	0.37*** (5.36)	1.17*** (5.85)	0.38*** (4.53)	0.13** (2.27)	0.50*** (4.01)
	Recession	0.00 (0.01)	0.43* (1.67)	0.43* (1.87)	0.17 (0.59)	-0.07 (-0.27)	-0.23 (-0.52)	-0.16 (-1.17)	-0.50 (-1.14)	-0.66 (-1.34)
Accrual	Expansion	-0.42*** (-3.45)	0.03 (0.32)	0.45*** (5.56)	-0.90*** (-5.09)	0.32*** (3.62)	1.22*** (5.70)	0.48*** (6.24)	0.28** (2.35)	0.76*** (4.25)
	Recession	0.01 (0.03)	0.35* (1.65)	0.34 (1.24)	-0.21 (-0.56)	0.32 (0.69)	0.54 (0.68)	0.22** (2.00)	-0.02 (-0.04)	0.20 (0.33)
Net Operating Asset	Expansion	-0.60*** (-4.70)	0.28*** (3.01)	0.88*** (6.20)	-1.10*** (-6.52)	0.54*** (4.32)	1.64*** (6.19)	0.50*** (7.02)	0.26** (2.01)	0.76*** (4.37)
	Recession	0.11 (0.35)	0.28 (1.31)	0.17 (0.45)	0.06 (0.15)	0.09 (0.24)	0.03 (0.05)	0.06 (0.40)	-0.19 (-0.57)	-0.14 (-0.34)

Table A.6: Market Volatility

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading under different levels of market volatility, respectively. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Market Volatility	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Book-To-Market	Low	-0.30*** (-3.68)	0.31*** (3.95)	0.61*** (5.44)	-0.86*** (-7.45)	0.50*** (5.92)	1.35*** (10.1)	0.56*** (6.18)	0.18** (2.42)	0.74*** (6.72)
	High	0.06 (0.30)	0.07 (0.63)	0.02 (0.10)	-0.28 (-1.08)	0.23 (1.26)	0.52 (1.60)	0.34*** (3.12)	0.16 (0.73)	0.50* (1.86)
Gross Profit	Low	0.03 (0.28)	0.11 (1.22)	0.08 (0.51)	-0.20 (-1.33)	0.42*** (4.53)	0.61*** (3.10)	0.23** (2.19)	0.31*** (5.13)	0.54*** (4.04)
	High	-0.07 (-0.41)	0.42*** (3.06)	0.49*** (3.36)	-0.43* (-1.69)	0.50*** (3.57)	0.93*** (2.99)	0.36** (2.39)	0.08 (0.43)	0.44 (1.51)
Operating Profit	Low	0.05 (0.54)	0.02 (0.18)	-0.04 (-0.25)	-0.26* (-1.64)	0.36*** (3.80)	0.62*** (2.79)	0.32*** (3.10)	0.34*** (5.83)	0.66*** (5.02)
	High	-0.03 (-0.19)	0.17 (1.40)	0.20 (1.58)	-0.24 (-0.96)	0.28** (2.19)	0.52* (1.77)	0.21* (1.70)	0.11 (0.68)	0.32 (1.31)
Asset Growth	Low	-0.49*** (-6.63)	0.10 (1.26)	0.59*** (5.64)	-1.09*** (-8.24)	0.26** (2.33)	1.36*** (7.85)	0.60*** (6.56)	0.16** (2.04)	0.76*** (5.87)
	High	-0.33* (-1.69)	0.16 (1.24)	0.50*** (3.15)	-0.76*** (-2.77)	0.38** (2.36)	1.14*** (3.12)	0.43*** (4.15)	0.21 (1.02)	0.64** (2.28)

Anomaly	Market Volatility	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
		Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
Investment Growth	Low	-0.30*** (-4.61)	0.12* (1.85)	0.41*** (5.46)	-0.84*** (-7.43)	0.38*** (4.42)	1.22*** (9.03)	0.54*** (6.92)	0.26*** (4.16)	0.80*** (7.75)
	High	-0.06 (-0.38)	0.18 (1.47)	0.24** (2.18)	-0.39* (-1.67)	0.36** (2.33)	0.75** (2.44)	0.34*** (3.19)	0.18 (0.93)	0.52** (1.94)
Net Stock Issue	Low	-0.34*** (-4.33)	0.24*** (3.68)	0.57*** (5.12)	-0.72*** (-5.54)	0.38*** (4.91)	1.10*** (6.04)	0.38*** (4.49)	0.14*** (2.61)	0.52*** (4.72)
	High	-0.33* (-1.81)	0.31*** (2.92)	0.64*** (4.26)	-0.51* (-1.87)	0.31*** (2.77)	0.82*** (2.68)	0.18 (1.52)	-0.00 (-0.02)	0.18 (0.88)
Accrual	Low	-0.35*** (-3.88)	0.06 (0.68)	0.40*** (3.76)	-0.85*** (-6.42)	0.37*** (3.41)	1.23*** (7.53)	0.51*** (5.77)	0.32*** (3.91)	0.82*** (6.46)
	High	-0.31* (-1.74)	0.16 (1.09)	0.47*** (4.33)	-0.67*** (-2.61)	0.34** (2.17)	1.00*** (3.00)	0.36*** (3.49)	0.17 (0.83)	0.53* (1.87)
Net Operating Asset	Low	-0.55*** (-5.41)	0.29*** (2.73)	0.84*** (5.23)	-1.09*** (-7.17)	0.47*** (3.95)	1.56*** (6.96)	0.54*** (6.18)	0.17** (2.27)	0.72*** (5.60)
	High	-0.46** (-2.31)	0.28** (2.12)	0.74*** (3.64)	-0.81*** (-3.17)	0.46*** (2.63)	1.27*** (3.35)	0.35*** (3.65)	0.18 (0.98)	0.53** (2.13)

Table A.7: Alternative Specifications of Trend-Managed Trading

This table reports the improvement in Fama-French five-factor alpha using various alternative specifications of moving average (MA) trading. For example, *MA(1)-MA(200)* means a specification where the short-term signal is MA(5), five-day MA, and the long-term signal is MA(200), 200-day MA. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust *t*-statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

NOA	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement		
	Low	High	High-Low	Low	High	High-Low	Low	High	High-Low
MA(5)-MA(200)	-0.54*** (-4.34)	0.27*** (3.03)	0.81*** (5.96)	-0.90*** (-5.08)	0.34*** (2.79)	1.24*** (4.59)	0.35*** (4.79)	0.07 (0.57)	0.43** (2.35)
MA(10)-MA(200)	-0.54*** (-4.34)	0.27*** (3.03)	0.81*** (5.96)	-0.93*** (-5.34)	0.40*** (3.33)	1.34*** (5.02)	0.39*** (5.34)	0.14 (1.07)	0.53*** (2.93)
MA(20)-MA(200)	-0.54*** (-4.29)	0.27*** (3.11)	0.81*** (6.01)	-0.96*** (-5.65)	0.42*** (3.56)	1.39*** (5.37)	0.42*** (6.13)	0.15 (1.18)	0.57*** (3.32)
MA(100)-MA(200)	-0.54*** (-4.29)	0.27*** (3.11)	0.81*** (6.01)	-0.99*** (-5.75)	0.55*** (4.85)	1.54*** (6.13)	0.45*** (6.23)	0.27** (2.37)	0.72*** (4.43)

Table A.8: HXZ Four-Factor Alpha

This table reports the improvement in Hou, Xue, and Zhang (2015) four-factor alpha with the trend-managed trading. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement			%Inc
	Low	High	High-Low	Low	High	High-Low	Low	High	High-Low	
Book-To-Market	-0.09 (-0.47)	0.32*** (2.53)	0.40** (1.94)	-0.44** (-1.98)	0.28** (1.97)	0.72*** (2.77)	0.36*** (4.23)	-0.04 (-0.30)	0.32* (1.88)	80.0
Gross Profit	0.12 (0.82)	0.31** (2.29)	0.19 (1.43)	-0.10 (-0.45)	0.37*** (3.63)	0.47** (2.08)	0.21* (1.80)	0.06 (0.48)	0.27 (1.24)	142.1
Operating Profit	0.15 (1.05)	0.11 (0.86)	-0.04 (-0.26)	-0.01 (-0.04)	0.14 (1.43)	0.15 (0.73)	0.16 (1.62)	0.03 (0.23)	0.19 (1.01)	475.0
Asset Growth	-0.28* (-1.73)	0.25** (2.19)	0.52*** (4.21)	-0.68*** (-3.05)	0.17 (1.58)	0.85*** (2.91)	0.40*** (4.98)	-0.07 (-0.45)	0.33 (1.50)	63.5
Investment Growth	-0.03 (-0.24)	0.23** (2.07)	0.26*** (3.21)	-0.35* (-1.83)	0.21** (2.02)	0.56** (2.35)	0.32*** (3.90)	-0.03 (-0.18)	0.29 (1.43)	111.5
Net Stock Issue	-0.22 (-1.54)	0.30*** (2.80)	0.53*** (5.06)	-0.40* (-1.87)	0.25*** (2.98)	0.65*** (3.11)	0.18** (2.06)	-0.06 (-0.66)	0.12 (0.80)	22.6
Accrual	-0.21 (-1.33)	0.19 (1.30)	0.40*** (4.35)	-0.52** (-2.38)	0.25*** (2.44)	0.77*** (3.06)	0.30*** (4.13)	0.06 (0.39)	0.37* (1.73)	92.5
Net Operating Asset	-0.34** (-2.11)	0.31*** (2.62)	0.65*** (4.15)	-0.65*** (-3.22)	0.36*** (2.84)	1.01*** (3.45)	0.31*** (4.56)	0.05 (0.34)	0.36* (1.89)	55.4

Table A.9: Mispricing Four-Factor Alpha

This table reports the improvement in Hou, Xue, and Zhang (2015) four-factor alpha with the MA trading. Panel A, B, and C report the alphas of the original anomalies, MA enhanced anomalies, and the difference between the MA enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement			%Inc
	Low	High	High-Low	Low	High	High-Low	Low	High	High-Low	
Book-To-Market	0.04 (0.22)	0.19** (2.11)	0.15 (0.73)	-0.28 (-1.45)	0.23 (1.58)	0.51** (2.08)	0.32*** (4.54)	0.04 (0.27)	0.36** (2.22)	240.0
Gross Profit	0.10 (0.80)	0.28*** (3.05)	0.19* (1.66)	0.03 (0.17)	0.25*** (2.61)	0.22 (1.31)	0.07 (0.81)	-0.04 (-0.36)	0.03 (0.23)	15.8
Operating Profit	0.12 (0.83)	0.12 (1.43)	0.00 (0.01)	0.04 (0.26)	0.13 (1.32)	0.09 (0.43)	0.07 (1.03)	0.01 (0.08)	0.08 (0.63)	
Asset Growth	-0.17* (-1.85)	0.13 (1.30)	0.30*** (3.15)	-0.51*** (-3.81)	0.07 (0.60)	0.58*** (3.15)	0.33*** (4.93)	-0.06 (-0.46)	0.27* (1.63)	90.0
Investment Growth	-0.02 (-0.21)	0.13 (1.42)	0.15** (1.93)	-0.31** (-2.17)	0.15 (1.27)	0.46*** (2.58)	0.29*** (4.06)	0.02 (0.16)	0.31* (1.86)	206.7
Net Stock Issue	-0.11 (-1.33)	0.25*** (3.50)	0.36*** (3.49)	-0.21* (-1.64)	0.15** (1.97)	0.36** (2.38)	0.10 (1.36)	-0.10 (-1.28)	0.00 (0.01)	0.00
Accrual	-0.19** (-1.93)	0.16 (1.50)	0.35*** (3.94)	-0.50*** (-3.93)	0.16 (1.49)	0.66*** (3.80)	0.31*** (4.88)	0.01 (0.08)	0.31** (1.95)	88.6
Net Operating Asset	-0.24*** (-2.57)	0.26*** (2.92)	0.50*** (3.97)	-0.50*** (-4.60)	0.17 (1.60)	0.67*** (3.87)	0.26*** (4.58)	-0.09 (-0.89)	0.17 (1.35)	34.0

Table A.10: Value Weighted Fama-French Five-Factor Alpha

This table reports the improvement in Fama-French five-factor alpha with the trend-managed trading for value-weighted decile portfolios. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement			%Inc
	Low	High	High-Low	Low	High	High-Low	Low	High	High-Low	
Book-To-Market	0.14** (2.07)	-0.11 (-1.48)	-0.25*** (-2.56)	0.04 (0.40)	0.02 (0.12)	-0.02 (-0.12)	0.10 (1.29)	0.12 (0.95)	0.23 (1.40)	92.0
Gross Profit	-0.18* (-1.71)	0.21** (2.17)	0.40*** (3.04)	-0.17 (-1.11)	0.26* (1.72)	0.43* (1.87)	-0.02 (-0.15)	0.05 (0.53)	0.03 (0.21)	7.50
Operating Profit	-0.01 (-0.15)	0.08 (1.34)	0.09 (0.99)	-0.10 (-0.74)	0.08 (0.74)	0.18 (0.89)	0.09 (0.80)	-0.00 (-0.02)	0.08 (0.53)	88.9
Asset Growth	-0.18** (-1.96)	-0.06 (-0.67)	0.12 (1.04)	-0.51*** (-3.38)	-0.02 (-0.13)	0.49** (2.31)	0.33*** (2.87)	0.04 (0.40)	0.37** (2.13)	308.3
Investment Growth	-0.15 (-1.43)	0.03 (0.39)	0.19 (1.47)	-0.50*** (-3.45)	0.21 (1.44)	0.71*** (3.11)	0.35*** (2.54)	0.18 (1.21)	0.52** (2.19)	273.7
Net Stock Issue	-0.39*** (-3.96)	0.11* (1.90)	0.50*** (4.08)	-0.56*** (-3.45)	0.09 (0.98)	0.64*** (3.09)	0.17 (1.39)	-0.03 (-0.47)	0.14 (0.92)	28.0
Accrual	-0.39*** (-3.60)	0.24** (2.26)	0.63*** (4.82)	-0.61*** (-3.93)	0.17 (1.04)	0.78*** (3.47)	0.22** (2.19)	-0.07 (-0.49)	0.15 (0.81)	23.8
Net Operating Asset	-0.34*** (-3.22)	0.33*** (3.42)	0.67*** (4.41)	-0.65*** (-4.12)	0.31* (1.89)	0.96*** (3.91)	0.31*** (2.90)	-0.02 (-0.18)	0.29* (1.79)	43.3

Table A.11: Momentum-Managed Anomalies

This table reports the improvement in Fama-French five-factor alpha using momentum-managed trading strategy, which removes stocks in the bottom three deciles of momentum (past 12 month cumulative returns) for Decile High, and remove stocks in the top three deciles of momentum for Decile Low. Panel A, B, and C report the alphas of the original anomalies, trend-enhanced anomalies, and the difference between the trend-enhanced and original anomalies, respectively. Newey and West (1987) robust t -statistics are in parentheses and significance at the 1%, 5%, and 10% levels is given by an ***, and **, and an *, respectively. The sample period is from July 1963 to December 2016.

Anomaly	Panel A: Original			Panel B: Trend Enhanced			Panel C: Improvement			%Inc
	Low	High	High-Low	Low	High	High-Low	Low	High	High-Low	
Book-To-Market	-0.15 (-1.33)	0.17** (2.29)	0.32*** (3.10)	-0.55*** (-3.17)	0.35*** (5.41)	0.90*** (5.25)	0.40*** (4.83)	0.18*** (3.58)	0.58*** (4.95)	181.2
Gross Profit	-0.00 (-0.04)	0.20** (2.24)	0.21** (2.00)	-0.17 (-1.15)	0.37*** (5.79)	0.54*** (3.79)	0.16** (2.20)	0.17*** (3.12)	0.33*** (2.77)	157.1
Operating Profit	0.01 (0.13)	0.02 (0.28)	0.01 (0.12)	-0.12 (-0.80)	0.26*** (3.78)	0.38*** (2.46)	0.14* (1.83)	0.24*** (4.56)	0.37*** (3.12)	3700.0
Asset Growth	-0.45*** (-3.60)	0.11 (1.46)	0.56*** (5.25)	-0.75*** (-4.30)	0.27*** (4.28)	1.02*** (5.41)	0.30*** (4.67)	0.16*** (2.61)	0.46*** (3.93)	82.1
Investment Growth	-0.19** (-2.06)	0.13* (1.84)	0.33*** (4.67)	-0.44*** (-3.14)	0.30*** (5.08)	0.73*** (5.09)	0.25*** (4.29)	0.16*** (2.86)	0.41*** (3.82)	124.2
Net Stock Issue	-0.37*** (-3.25)	0.23*** (3.38)	0.60*** (6.33)	-0.55*** (-3.52)	0.35*** (5.37)	0.90*** (5.93)	0.18*** (3.24)	0.12*** (3.28)	0.30*** (3.52)	50.0
Accrual	-0.39*** (-3.38)	0.09 (0.90)	0.48*** (6.01)	-0.63*** (-4.23)	0.25*** (3.30)	0.88*** (5.85)	0.24*** (5.08)	0.16** (2.39)	0.40*** (3.79)	83.3
Net Operating Asset	-0.54*** (-4.21)	0.28*** (3.20)	0.82*** (6.00)	-0.80*** (-4.93)	0.40*** (4.87)	1.20*** (6.49)	0.26*** (4.78)	0.12*** (2.56)	0.38*** (4.01)	46.3