Internet Appendix for "The Factor Multiverse: The Role of Interest Rates in Factor Return Measurement"

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IA.1 Complementarity between Duration Matching and Factor Regressions: Empirical Evidence

In Sections 2.2 and 2.3, we show conceptually that duration matching and factor regressions serve fundamentally different economic objectives. The two approaches are therefore complementary and can yield markedly different results. This Internet Appendix provides the empirical evidence.

As detailed in Section 3.2, for each of the 153 anomalies, we obtain the monthly returns on its duration-matched government bond portfolio ($r_{t+1}^{dur,mat}$). We apply a weight cutoff of 30 years. The mean value of $r_{t+1}^{dur,mat}$, $\overline{r}^{dur,mat}$, represents the return adjustment using the duration-matching approach.

We employ a (multi-) factor regression approach that incorporates government bond factors with maturities of 5, 10, and 30 years. For each anomaly, we regress r_{t+1} on these government bond returns.

In this factor regression approach, the return adjustment $\Delta r^{reg,m}$ is the sum of the loading on each government bond factor multiplied by the corresponding mean bond return across the three factors. If the duration matching approach leads to the same return adjustment as the factor regression approach, $\Delta r^{reg,m}$ would be equal to $\overline{r}^{dur,mat}$. As illustrated in Figure IA.1, which presents a scatter plot of these two quantities for all 153 anomalies, they clearly differ. This suggests that duration matching and factor regressions can yield different results, again because they are designed to accomplish different economic objectives.

We also extend the analysis to corporate bonds. In this context, duration matching removes interest rate movements from corporate bond returns while preserving shocks to credit and liquidity risk premia. Factor regressions remove interest rate movements and any portions of shocks to credit and liquidity risk premia that correlate with them. These two approaches, therefore, need not yield the same return adjustment. We examine six ICE BofA corporate bond indices (AA, A, BBB, BB, B, and CCC). For each index, we denote its monthly raw excess returns by r_{t+1}, the monthly excess returns on its duration-matched government bond basket by $r_{t+1}^{dur,mat}$, and $r_{t+1}^{dur,adj} = r_{t+1} - r_{t+1}^{dur,mat}$. All excess returns are

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relative to the one-month T-bill rate. The sample period is January 1997 to December 2020. The results are reported in Table IA.1.

Rows 1 to 3 present the monthly means of r_{t+1}, $r_{t+1}^{dur,mat}$, and $r_{t+1}^{dur,adj}$. Take the BB index as an example. Its monthly mean $r_{t+1}^{dur,mat}$ is 0.23%, over half of its monthly mean r_{t+1} (0.45%). Their difference, 0.22%, is statistically insignificant.

In the (single-) factor regression approach, the return adjustment is $\Delta r^{reg,s} = \beta \overline{r}^{dur,mat}$, where β is the loading of regressing r_{t+1} on $r_{t+1}^{dur,mat}$. If β were near one, the duration-matching and factor regression approaches would yield similar results. As shown by Row 5, β for the BB index is -0.08 ($t = -0.56$) and close to zero. This aligns with the near-zero correlation (-0.04) between r_{t+1} and $r_{t+1}^{dur,mat}$ (Row 4) and is due to $r_{t+1}^{dur,adj}$ being negatively correlated with $r_{t+1}^{dur,mat}$ and having a negative loading on it. Row 6 reports $\beta^{dur,adj}$ from regressing $r_{t+1}^{dur,adj}$ on $r_{t+1}^{dur,mat}$. For the BB index, $\beta^{dur,adj}$ is -1.08 ($t = -7.67$), negative and fully offsetting the loading of $r_{t+1}^{dur,mat}$ on itself—one by definition.

As a result, $\Delta r^{reg,s}$ for the BB index is -0.02%, negative and small in magnitude, which differs markedly from the monthly mean of $r_{t+1}^{dur,mat}$, 0.23%, the return adjustment from the duration-matching approach. Comparing Rows 2 and 7, the difference between the two approaches is prevalent across credit ratings from AA to CCC and increases in magnitude as credit ratings deteriorate.

In Row 8, we use the (multi-) factor regression approach incorporating multiple government bond factors with fixed maturities—specifically, zero-coupon government bond excess returns with maturities of 5, 10, and 30 years. We denote by $\Delta r^{reg,m}$ the return adjustment using this multi-factor regression approach, defined as the sum of the loadings on each government bond factor multiplied by the corresponding mean bond factor return. These adjustments are similar to their counterparts in Row 7 and still markedly different from the duration-matching adjustments (Row 2).

IA.2 Duration Matching and Explanations of Anomalies

In this Internet Appendix, we provide two sets of empirical evidence that duration adjustment helps differentiate between risk- and mispricing-based explanations for certain anomalies. Here, we use the post-1981 sample period (August 1981 to December 2020) to identify the effect of duration matching without being obscured by the attenuation effect of pooling opposite interest rate regimes, as discussed in Section 3.1.

First, we use the standard Fama-French Three-Factor (FF3) model (Fama and French (1993)) as the benchmark risk-factor model and examine FF3 α for both raw and duration-adjusted anomaly returns. We find that for some of the 153 anomalies, the raw FF3 α is statistically significant but becomes statistically insignificant after duration adjustment. For example, for the Altman Z-score (z_score) anomaly, the raw FF3 α is statistically significant (0.41% per month, $t = 3.14$), while the duration-adjusted FF3 α becomes statistically

insignificant (0.20% per month, $t = 1.06$). This suggests that, for these anomalies, the apparent mispricing relative to FF3 is driven by interest rate effects. Put differently, these anomalies are conventionally explained as mispricing relative to FF3, but we show that once interest rate effects are removed, they can be explained by the FF3 risk-factor model.

Conversely, for some other anomalies, the raw FF3 α is statistically insignificant but becomes statistically significant after adjustment. For instance, for the hiring rate (emp_gr1) anomaly, the raw FF3 α is statistically insignificant (0.14% per month, $t = 1.08$), whereas the duration-adjusted FF3 α becomes statistically significant (0.31% per month, $t = 2.16$). This suggests that these anomalies appear to be explained by FF3 based on raw returns but emerge as mispricing candidates relative to FF3 once interest rate effects are removed. All such anomalies for which the interpretation relative to FF3 (risk-based versus mispricing-based) changes after duration adjustment are reported in Table IA.2, along with their raw and duration-adjusted FF3 α estimates.

Second, Stambaugh et al. (2012) show that another way to differentiate between risk- and mispricing-based explanations of anomalies is to examine how anomaly returns vary following high- versus low-sentiment periods. If anomalies reflect (sentiment-driven) mispricing, they should be stronger following high investor sentiment. As in Stambaugh et al. (2012), we define a high-sentiment dummy $d_{H,t+1}$ that equals one if the Baker–Wurgler (Baker and Wurgler (2006)) sentiment index in the previous month t is above the median value and zero otherwise. We regress raw and duration-adjusted anomaly returns on $d_{H,t+1}$: $r_{t+1} = \alpha + \beta_H d_{H,t} + \varepsilon_t$, and $r_{t+1}^{dur,adj} = \alpha + \beta_H^{dur,adj} d_{H,t} + \varepsilon_t$. The coefficient $\beta_H/\beta_H^{dur,adj}$ captures the difference in mean anomaly returns following high versus low sentiment. A positive and significant $\beta_H/\beta_H^{dur,adj}$ indicates (at least in part) a mispricing interpretation.

Table IA.3 lists all anomalies for which the sentiment-based interpretation changes—i.e., β_H is positive and significant while $\beta_H^{dur,adj}$ is not, or vice versa—along with their estimated coefficients. For all anomalies in Table IA.3, β_H is not statistically significant, but $\beta_H^{dur,adj}$ is. For example, for the change in noncurrent operating assets ($ncoa\_gr1a$) anomaly, $\beta_H = 0.37\%$ ($t = 1.28$) and is statistically insignificant, whereas $\beta_H^{dur,adj}$ increases to 0.63% ($t = 2.07$) and becomes statistically significant. This suggests these anomalies should be attributed to sentiment-driven mispricing, which is masked by interest rate effects and becomes evident once duration adjustment is applied.

IA.3 Robustness Check: Net Payout Yield

In the main text, we use dividend yield as the proxy for $\mu^i - g^i$ to obtain weights for the series of dividend strips. In this internet appendix, we explore the use of net payout yield as the proxy for $\mu^i - g^i$. Following Boudoukh et al. (2007), we use CRSP data and calculate net equity issuance for firm i in month t as

$$(shrout_t \times cfacshr_t - shrout_{t-1} \times cfacshr_{t-1}) \times (prc_t/cfacpr_t + prc_{t-1}/cfacpr_{t-1})/2, \quad \text{(IA.1)}$$

where *shrout* is the number of shares outstanding, *prc* is the share price, and $cfacshr$ and $cfacpr$ represent the cumulative factors to adjust shares and price, respectively.

For each stock in a given month, we calculate net equity issuance yield as the sum of net equity issued over the past 12 months divided by its market equity at the end of the prior month. We then calculate net payout yield as the difference between dividend yield and net equity issuance yield.

For each long or short portfolio $i = l, s$ in each month, we calculate its current net payout yield as the value-weighted average of net payout yield (measured over the past twelve months) across all stocks in the portfolio.

We then repeat the main analysis using the portfolio-level net equity issuance yield as the proxy for $\mu^i - g^i$ in equation (20). When net equity issuance yield takes negative values, we assign the entire weight of one to the terminal period, i.e., the 30-year (60-year) Treasury strip receives a weight of 100% for the case of using a weight cutoff of 30 (60) years.

Table IA.4 presents the robustness-check results for Table 4 and largely reaffirms our main findings. Specifically, we observe significant changes in the mean return spreads of commonly used asset pricing factors after duration matching. For instance, similar to the findings in Table 4, Panel A of Table IA.4 shows that over the post-1981 sample period of August 1981 to December 2020, the investment, value, and profitability premia are considerably larger after duration matching, whereas the size premium diminishes significantly.

References for Internet Appendix

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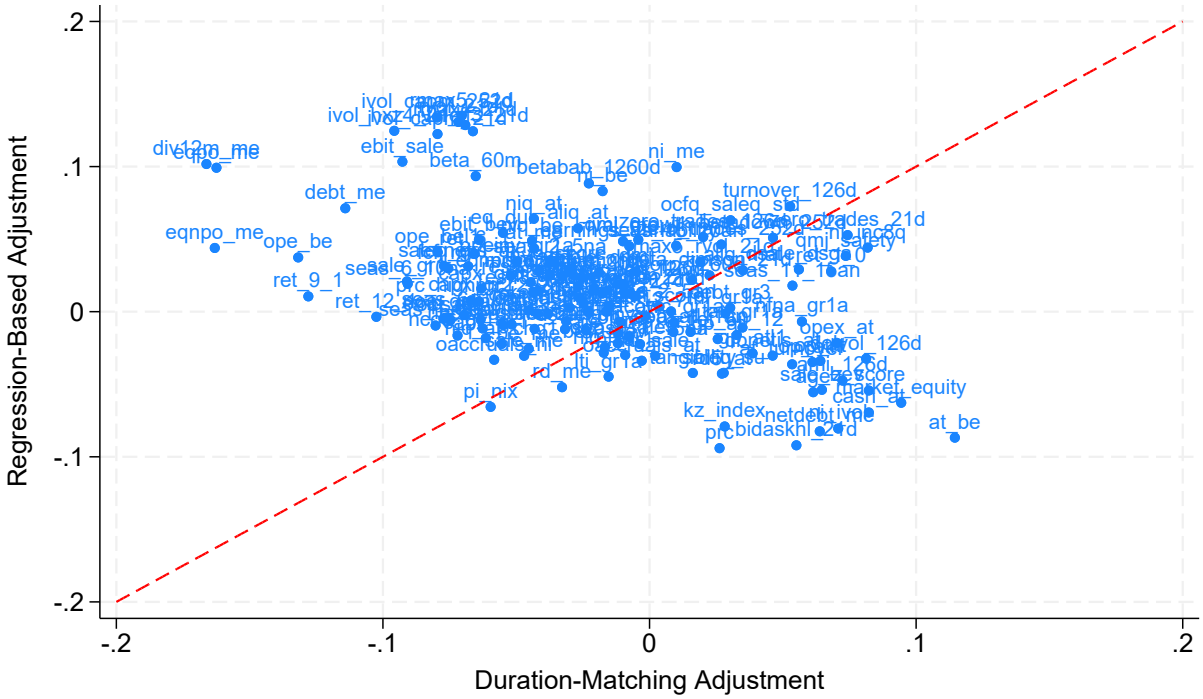

Figure IA.1. Complementarity between Duration Matching and Factor Regressions: Equity Factors. For each of the 153 anomalies, we regress its monthly long-short return on three government bond factors, represented by the excess returns of 5-year, 10-year, and 30-year zero-coupon government bonds. This figure illustrates the regression-based return adjustment, calculated as the sum of the loadings on each government bond factor multiplied by the corresponding mean factor return, plotted against the duration-matching return adjustment. All returns are in percentage terms, with excess returns measured relative to the one-month T-bill rate. The sample period is February 1962 to December 2020. We use a weight cutoff of 30 years. The red dashed line represents where the two adjustments are equal.

Table IA.1. Complementarity between Duration Matching and Factor Regressions: Corporate Bonds

This table presents the results of duration matching and factor regressions for corporate bonds. The analysis includes corporate bond indices with credit ratings from AA to CCC. Each corporate bond index's raw excess return (r) is decomposed into the excess return on a duration-matched government bond basket ($r^{dur,mat}$) and the remaining component ($r^{dur,adj}$). Rows (1) to (4) display the monthly means of these returns and the correlation between r and $r^{dur,mat}$. Rows (5) and (6) report the loadings obtained by regressing r and $r^{dur,adj}$ on $r^{dur,mat}$, respectively, with $r^{dur,mat}$ serving as the single government bond return factor. Row (7) presents the return adjustment from this single-factor regression approach, $\Delta r^{reg,s}$, calculated as the product of β and the mean of $r^{dur,mat}$. In Row (8), we extend the analysis to a regression approach incorporating multiple government bond factors—specifically, zero-coupon government bond excess returns with maturities of 5, 10, and 30 years. $\Delta^{reg,m}$ represents the return adjustment using this multi-factor regression approach, defined as the sum of the loadings on each government bond factor multiplied by the corresponding mean bond factor return. The sample period spans January 1997 to December 2020. All returns are expressed in percentage terms, and all excess returns are relative to the one-month T-bill rate. t-statistics, based on heteroskedasticity-consistent standard errors, are reported in parentheses below the coefficient estimates. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

		AA	A	BBB	BB	B	CCC
(1)	Mean r	0.30***	0.32***	0.38***	0.45***	0.36**	0.47*
		(3.92)	(3.48)	(3.68)	(3.55)	(2.29)	(1.89)
(2)	Mean $r^{dur,mat}$	0.26***	0.28***	0.29***	0.23***	0.18***	0.10*
		(3.46)	(3.38)	(3.39)	(3.53)	(3.14)	(1.95)
(3)	Mean $r^{dur,adj}$	0.04	0.04	0.10	0.22	0.18	0.37
		(0.70)	(0.56)	(0.92)	(1.52)	(1.00)	(1.38)
(4)	$Corr(r, r^{dur,mat})$	0.71	0.59	0.41	-0.04	-0.22	-0.23
(5)	β	0.72***	0.67***	0.51***	-0.08	-0.58***	-1.06***
		(12.07)	(9.71)	(5.60)	(-0.56)	(-2.69)	(-3.11)
(6)	$\beta^{dur,adj}$	-0.28***	-0.33***	-0.49***	-1.08***	-1.58***	-2.06***
		(-4.62)	(-4.83)	(-5.48)	(-7.67)	(-7.29)	(-6.06)
(7)	$\Delta r^{reg,s}$	0.19	0.19	0.15	-0.02	-0.11	-0.11
(8)	$\Delta r^{reg,m}$	0.17	0.16	0.12	-0.05	-0.15	-0.28

Table IA.2. FF3 α for raw and duration-adjusted anomaly returns

This table reports the monthly Fama-French Three-Factor (FF3) α for raw and duration-adjusted anomaly returns. It includes only those anomalies for which the raw FF3 α is statistically significant while the duration-adjusted FF3 α is not, or vice versa. The sample period is August 1981 to December 2020. t-statistics based on heteroskedasticity-consistent standard errors are reported in parentheses. All α values are in percentage terms.

Anomaly	Raw		Duration-Adjusted	
at_gr1	0.22	(1.46)	0.38	(2.28)
corr_1260d	0.35	(2.08)	0.30	(1.64)
dgp_dsale	0.27	(2.09)	0.21	(1.47)
emp_gr1	0.14	(1.08)	0.31	(2.16)
eqpo_me	0.18	(1.25)	0.62	(2.16)
fnl_gr1a	0.22	(1.99)	0.18	(1.44)
inv_gr1	0.24	(1.64)	0.31	(2.00)
ocf_me	0.32	(1.90)	0.49	(2.65)
qmj_growth	0.36	(2.50)	0.28	(1.90)
resff3_6_1	0.34	(1.98)	0.34	(1.85)
taccruals_at	0.23	(1.81)	0.32	(2.14)
turnover_126d	0.35	(1.73)	0.45	(1.99)
z_score	0.41	(3.14)	0.20	(1.06)

Table IA.3. Difference in raw and duration-adjusted anomaly returns following high versus low investor sentiment

We define a high-sentiment dummy $d_{H,t+1}$ that equals one if the Baker–Wurgler sentiment index in the previous month t is above the median value and zero otherwise. We regress raw and duration-adjusted anomaly returns on $d_{H,t+1}$: $r_{t+1} = \alpha + \beta_H d_{H,t} + \varepsilon_t$, and $r_{t+1}^{dur,adj} = \alpha + \beta_H^{dur,adj} d_{H,t} + \varepsilon_t$. The coefficient $\beta_H/\beta_H^{dur,adj}$ captures the difference in mean anomaly returns following high versus low sentiment. This table reports estimated $\beta_H/\beta_H^{dur,adj}$ and includes only those anomalies for which the sentiment-based interpretation changes—i.e., β is positive and significant while $\beta_H^{dur,adj}$ is not, or vice versa. The sample period is August 1981 to December 2020. t-statistics based on heteroskedasticity-consistent standard errors are reported in parentheses. All $\beta_H/\beta_H^{dur,adj}$ values are in percentage terms.

Anomaly	β_H		$\beta_H^{dur,adj}$	
beta_60m	1.31	(1.84)	1.86	(2.36)
betabab_1260d	1.07	(1.48)	1.60	(2.05)
betadown_252d	1.06	(1.66)	1.34	(1.96)
eq_dur	0.64	(1.38)	1.18	(2.16)
eqnpo_me	0.55	(1.29)	1.07	(2.19)
eqpo_me	0.81	(1.83)	1.62	(2.61)
f_score	0.31	(1.71)	0.40	(2.13)
ncoa_gr1a	0.37	(1.28)	0.63	(2.07)
ni_me	0.99	(1.87)	1.28	(2.22)
noa_gr1a	0.50	(1.77)	0.77	(2.50)
ocf_me	0.86	(1.87)	1.14	(2.39)
ope_be	0.85	(1.88)	1.14	(2.38)
resff3_6_1	0.63	(1.94)	0.80	(2.38)
rmax1_21d	1.20	(1.92)	1.64	(2.47)
rvol_21d	1.34	(1.79)	1.74	(2.18)

Table IA.4. Robustness Check for Mean Returns of Prominent Cross-Sectional Factors: Net Payout Yield to proxy $\mu^i - g^i$

This table reports the average monthly raw and duration-adjusted long-short returns and their difference for the other four anomalies associated with the Fama and French (2015) 5-factor model in addition to the momentum factor. Net payout yield is used as the proxy for $\mu^i - g^i$ to obtain weights for the series of dividend strips. The t-statistics are reported in parentheses. All returns are in percentage terms.

Factor	Raw		Duration-Adjusted		Difference	
Panel A: 1981:08–2020:12						
(Max. Maturity: 20/30 years, Weight Cutoff: 30 years)						
Investment (at_gr1)	0.28	(1.68)	0.61	(2.72)	0.33	(1.94)
Value (be_me)	0.21	(0.72)	0.47	(1.41)	0.26	(1.48)
Size (market_equity)	-0.10	(-0.50)	-0.48	(-1.72)	-0.38	(-2.34)
Profitability (ope_be)	0.56	(2.47)	1.01	(3.50)	0.45	(2.87)
Momentum (ret_12_1)	1.04	(3.00)	1.21	(3.32)	0.16	(2.02)
Panel B: 1985:12–2020:12						
(Max. Maturity: 30 years, Weight Cutoff: 30 years)						
Investment (at_gr1)	0.22	(1.21)	0.43	(1.93)	0.21	(1.51)
Value (be_me)	0.07	(0.23)	0.28	(0.80)	0.20	(1.42)
Size (market_equity)	-0.06	(-0.29)	-0.37	(-1.33)	-0.31	(-2.15)
Profitability (ope_be)	0.52	(2.10)	0.90	(2.93)	0.38	(2.38)
Momentum (ret_12_1)	0.99	(2.57)	1.04	(2.63)	0.06	(0.85)
Panel C: 1985:12–2020:12						
(Max. Maturity: 30 years, Weight Cutoff: 60 years)						
Investment (at_gr1)	0.22	(1.21)	0.78	(1.96)	0.56	(1.53)
Value (be_me)	0.07	(0.23)	0.52	(1.06)	0.44	(1.17)
Size (market_equity)	-0.06	(-0.29)	-0.94	(-1.90)	-0.87	(-2.17)
Profitability (ope_be)	0.52	(2.10)	1.61	(3.07)	1.09	(2.51)
Momentum (ret_12_1)	0.99	(2.57)	1.16	(2.58)	0.17	(0.89)
Panel D: 1962:02–1981:07						
(Max. Maturity: 7/10/15 years, Weight Cutoff: 30 years)						
Investment (at_gr1)	0.38	(1.76)	-0.01	(-0.02)	-0.39	(-1.79)
Value (be_me)	0.62	(1.79)	0.23	(0.57)	-0.39	(-1.78)
Size (market_equity)	0.76	(2.21)	0.99	(2.74)	0.23	(1.81)
Profitability (ope_be)	0.04	(0.18)	-0.03	(-0.14)	-0.07	(-1.15)
Momentum (ret_12_1)	1.61	(4.28)	1.79	(4.37)	0.19	(1.13)
Panel E: 1962:02–2020:12						
(Weight Cutoff: 30 years)						
Investment (at_gr1)	0.32	(2.37)	0.41	(2.22)	0.09	(0.67)
Value (be_me)	0.35	(1.53)	0.39	(1.50)	0.05	(0.33)
Size (market_equity)	0.19	(1.04)	0.01	(0.03)	-0.18	(-1.53)
Profitability (ope_be)	0.39	(2.29)	0.66	(3.18)	0.28	(2.57)
Momentum (ret_12_1)	1.23	(4.65)	1.40	(5.03)	0.17	(2.23)

IA.4 Additional Figures and Tables

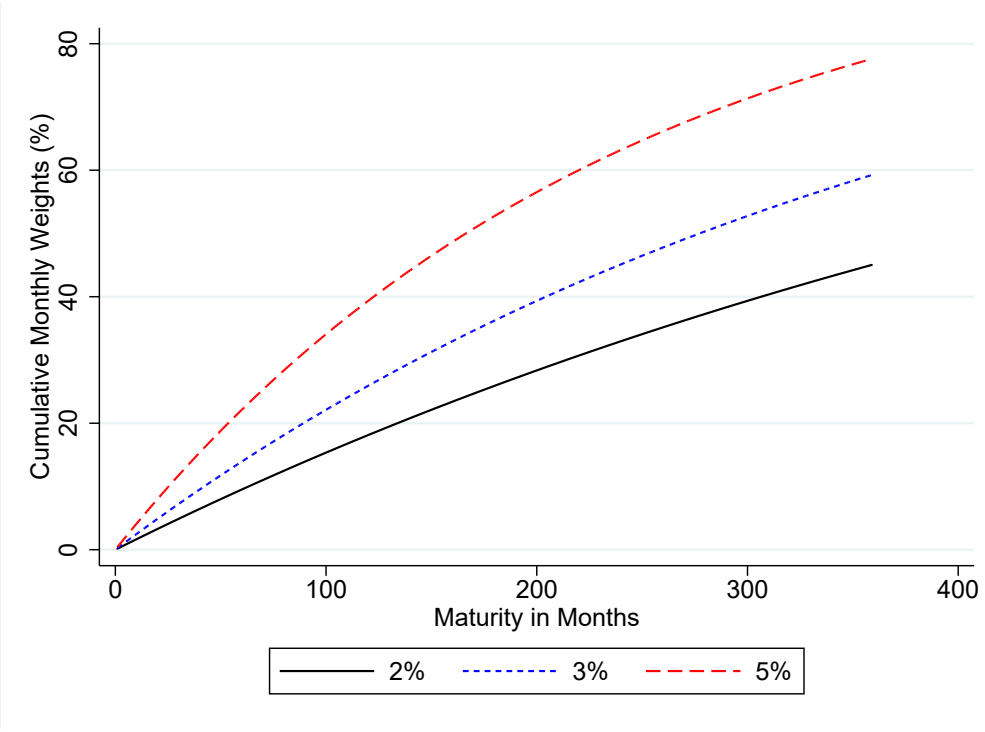

Figure IA.2. Cumulative Monthly Weights on Treasury Strips. This figure plots the cumulative monthly weights, which represent the sum of the weight on each monthly Treasury strip calculated using equation (20), up to the maturity of 359 months, for annual dividend yield $\mu^i - g^i = 2\%$, 3%, and 5%, respectively.

Table IA.5. Robustness Check for Mean Returns of Prominent Cross-Sectional Factors: Using Liu and Wu (2021) Yield Curve

This table reports the average monthly raw and duration-adjusted long-short returns and their difference for the other four anomalies associated with the Fama and French (2015) 5-factor model in addition to the momentum factor. Zero-coupon government bond returns are calculated using the Liu and Wu (2021) yield curve dataset. The t-statistics are reported in parentheses. All returns are in percentage terms.

Factor	Raw		Duration-Adjusted		Difference	
Panel A: 1981:08–2020:12						
(Max. Maturity: 20/30 years, Weight Cutoff: 30 years)						
Investment (at_gr1)	0.28	(1.68)	0.43	(2.46)	0.15	(2.08)
Value (be_me)	0.21	(0.72)	0.39	(1.24)	0.18	(1.35)
Size (market_equity)	-0.10	(-0.50)	-0.29	(-1.25)	-0.19	(-2.11)
Profitability (ope_be)	0.56	(2.47)	0.68	(2.87)	0.12	(1.82)
Momentum (ret_12_1)	1.04	(3.00)	1.02	(2.94)	-0.02	(-0.28)
Panel B: 1985:12–2020:12						
(Max. Maturity: 30 years, Weight Cutoff: 30 years)						
Investment (at_gr1)	0.22	(1.21)	0.35	(1.83)	0.13	(1.97)
Value (be_me)	0.07	(0.23)	0.23	(0.70)	0.16	(1.55)
Size (market_equity)	-0.06	(-0.29)	-0.21	(-0.89)	-0.14	(-2.45)
Profitability (ope_be)	0.52	(2.10)	0.62	(2.45)	0.10	(1.64)
Momentum (ret_12_1)	0.99	(2.57)	0.93	(2.44)	-0.06	(-0.82)
Panel C: 1985:12–2020:12						
(Max. Maturity: 30 years, Weight Cutoff: 60 years)						
Investment (at_gr1)	0.22	(1.21)	0.54	(2.26)	0.32	(1.90)
Value (be_me)	0.07	(0.23)	0.40	(1.07)	0.33	(1.54)
Size (market_equity)	-0.06	(-0.29)	-0.45	(-1.53)	-0.39	(-2.34)
Profitability (ope_be)	0.52	(2.10)	0.87	(2.76)	0.35	(1.88)
Momentum (ret_12_1)	0.99	(2.57)	0.81	(2.01)	-0.18	(-1.03)
Panel D: 1962:02–2020:12						
(Weight Cutoff: 30 years)						
Investment (at_gr1)	0.38	(1.76)	0.22	(0.84)	-0.17	(-1.29)
Value (be_me)	0.62	(1.79)	0.32	(0.81)	-0.30	(-1.62)
Size (market_equity)	0.76	(2.21)	0.96	(2.70)	0.19	(1.99)
Profitability (ope_be)	0.04	(0.18)	0.11	(0.45)	0.07	(1.10)
Momentum (ret_12_1)	1.61	(4.28)	1.88	(4.70)	0.28	(2.06)
Panel E: 1962:02–1981:07						
(Max. Maturity: 7/10/15 years, Weight Cutoff: 30 years)						
Investment (at_gr1)	0.32	(2.37)	0.36	(2.49)	0.05	(0.71)
Value (be_me)	0.35	(1.53)	0.37	(1.48)	0.02	(0.19)
Size (market_equity)	0.19	(1.04)	0.12	(0.62)	-0.06	(-0.92)
Profitability (ope_be)	0.39	(2.29)	0.49	(2.76)	0.10	(2.11)
Momentum (ret_12_1)	1.23	(4.65)	1.31	(4.89)	0.08	(1.07)

Table IA.6. Raw and Duration-Adjusted Anomaly Returns: 1962 to 1981
For each of the 153 anomalies across the 13 clusters, this table reports the average monthly raw and duration-adjusted long-short returns and their difference and time-series correlation. The t-statistics are reported in parentheses. The sample period is February 1962 to July 1981. Within each cluster, anomalies are ranked from low to high by their mean dividend yield spread DYS presented in the second column. All returns are in percentage terms. We use a weight cutoff of 30 years.

Anomaly	DYS	Raw		Duration-Adjusted		Difference		Corr.
Panel A: Accruals								
seas_16_20na	0.00	0.68	(3.11)	0.61	(2.75)	-0.06	(-1.31)	0.98
oaccruals_ni	0.45	0.89	(4.80)	0.85	(4.30)	-0.04	(-0.69)	0.96
taccruals_ni	0.91	0.50	(2.78)	0.39	(2.03)	-0.11	(-1.49)	0.92
cowc_gr1a	1.20	0.89	(4.32)	0.78	(3.52)	-0.11	(-1.74)	0.96
taccruals_at	1.31	0.41	(2.14)	0.29	(1.40)	-0.12	(-1.27)	0.90
oaccruals_at	1.32	0.87	(4.55)	0.74	(3.53)	-0.13	(-1.75)	0.93
Panel B: Debt Issuance								
ni_ar1	-0.18	-0.27	(-1.85)	-0.21	(-1.42)	0.06	(1.09)	0.94
nfna_gr1a	-0.09	0.59	(3.53)	0.58	(3.28)	-0.01	(-0.24)	0.98
ncol_gr1a	-0.08	-0.03	(-0.20)	0.06	(0.39)	0.08	(2.31)	0.97
capex_abn	-0.04	0.49	(2.99)	0.45	(2.71)	-0.05	(-1.59)	0.98
fnl_gr1a	0.10	0.51	(3.66)	0.51	(3.44)	-0.01	(-0.35)	0.98
debt_gr3	0.26	0.29	(1.99)	0.29	(1.78)	-0.00	(-0.07)	0.92
noa_at	0.38	0.17	(0.92)	0.10	(0.55)	-0.07	(-1.20)	0.96
Panel C: Investment								
capx_gr1	0.38	0.48	(3.15)	0.38	(2.35)	-0.10	(-2.38)	0.96
capx_gr2	0.58	0.38	(2.22)	0.28	(1.55)	-0.11	(-1.79)	0.94
ret_60_12	0.64	0.80	(2.38)	0.68	(1.93)	-0.12	(-1.05)	0.95
inv_gr1	0.65	0.87	(4.40)	0.84	(4.01)	-0.03	(-0.45)	0.95
nncoa_gr1a	0.76	0.66	(3.75)	0.58	(3.06)	-0.08	(-1.51)	0.96
capx_gr3	0.87	0.41	(2.36)	0.21	(1.17)	-0.19	(-2.68)	0.92
ncoa_gr1a	0.88	0.59	(3.37)	0.54	(2.91)	-0.05	(-1.01)	0.96
col_gr1a	1.01	-0.04	(-0.20)	-0.19	(-0.84)	-0.15	(-1.83)	0.93
inv_gr1a	1.13	0.89	(4.60)	0.75	(3.73)	-0.14	(-1.90)	0.93
lnoa_gr1a	1.17	0.38	(2.10)	0.23	(1.15)	-0.15	(-1.61)	0.89
ppeinv_gr1a	1.18	0.79	(4.08)	0.67	(3.09)	-0.12	(-1.56)	0.94
coa_gr1a	1.41	0.60	(2.70)	0.40	(1.63)	-0.20	(-2.16)	0.93
noa_gr1a	1.44	0.87	(4.37)	0.72	(3.35)	-0.15	(-1.87)	0.93
seas_2_5na	1.46	0.98	(2.90)	0.80	(2.24)	-0.18	(-1.34)	0.93
sale_gr1	1.46	0.14	(0.60)	-0.01	(-0.05)	-0.15	(-1.93)	0.95
emp_gr1	1.50	0.27	(1.29)	0.16	(0.72)	-0.11	(-1.33)	0.94
saleq_gr1	1.52	-0.55	(-2.16)	-0.72	(-2.72)	-0.17	(-1.77)	0.93
sale_gr3	1.67	0.37	(1.86)	0.19	(0.85)	-0.18	(-1.87)	0.90
at_gr1	1.87	0.38	(1.76)	0.17	(0.71)	-0.21	(-1.96)	0.90
be_gr1a	2.14	-0.00	(-0.02)	-0.27	(-0.96)	-0.26	(-2.26)	0.91
mispricing_mgmt	2.40	0.58	(2.62)	0.33	(1.37)	-0.25	(-1.96)	0.86
aliq_at	3.02	0.05	(0.17)	-0.32	(-0.92)	-0.37	(-2.05)	0.86

Table IA.6—*Continued*

Anomaly	*DYS*	Raw		Duration-Adjusted		Difference		Corr.
Panel D: Low Leverage								
z_score	-3.77	0.23	(0.83)	0.53	(1.55)	0.31	(1.83)	0.88
age	-1.97	0.22	(0.98)	0.50	(2.07)	0.28	(2.21)	0.85
aliq_mat	-1.88	-0.77	(-2.93)	-0.68	(-2.36)	0.09	(0.81)	0.93
cash_at	-1.86	0.24	(1.31)	0.40	(1.82)	0.16	(1.53)	0.88
rd5_at	-1.64	-0.31	(-0.99)	-0.36	(-1.04)	-0.05	(-0.37)	0.91
bidaskhl_21d	-1.42	0.32	(0.81)	0.51	(1.29)	0.20	(2.83)	0.98
rd_sale	-1.28	-0.10	(-0.34)	-0.15	(-0.46)	-0.05	(-0.41)	0.93
ni_ivol	-1.22	0.32	(1.17)	0.48	(1.61)	0.16	(1.54)	0.93
netdebt_me	-0.82	-0.26	(-0.98)	-0.18	(-0.64)	0.08	(1.11)	0.96
at_be	-0.46	0.06	(0.30)	0.14	(0.66)	0.08	(1.30)	0.96
tangibility	0.94	-0.04	(-0.21)	-0.19	(-0.92)	-0.14	(-2.15)	0.95
Panel E: Low Risk								
earnings_variability	-0.86	0.13	(0.71)	0.12	(0.62)	-0.01	(-0.12)	0.94
beta_dimson_21d	1.27	-0.12	(-0.49)	-0.24	(-0.96)	-0.12	(-1.42)	0.95
seas_6_10na	1.51	0.48	(2.08)	0.43	(1.77)	-0.04	(-0.46)	0.92
ocfq_saleq_std	1.89	-0.20	(-0.72)	-0.44	(-1.43)	-0.24	(-1.67)	0.89
zero_trades_126d	1.89	0.54	(1.67)	0.34	(1.02)	-0.20	(-1.85)	0.94
zero_trades_252d	1.91	0.52	(1.61)	0.31	(0.94)	-0.21	(-1.84)	0.94
zero_trades_21d	2.14	-0.02	(-0.06)	-0.33	(-1.02)	-0.32	(-2.41)	0.92
ivol_ff3_21d	2.46	0.25	(0.69)	-0.07	(-0.19)	-0.32	(-2.32)	0.93
ivol_capm_21d	2.48	0.25	(0.66)	-0.08	(-0.21)	-0.33	(-2.45)	0.94
rmax1_21d	2.55	0.14	(0.42)	-0.17	(-0.47)	-0.31	(-2.49)	0.94
ivol_hxz4_21d	2.69	0.41	(0.89)	-0.05	(-0.10)	-0.46	(-2.46)	0.92
rmax5_21d	2.90	0.21	(0.55)	-0.11	(-0.28)	-0.32	(-2.23)	0.93
rvol_21d	2.97	0.06	(0.14)	-0.27	(-0.62)	-0.32	(-2.09)	0.93
turnover_126d	3.02	0.08	(0.20)	-0.29	(-0.69)	-0.36	(-2.10)	0.91
ivol_capm_252d	3.30	0.04	(0.09)	-0.43	(-0.93)	-0.47	(-2.42)	0.91
betadown_252d	3.81	-0.28	(-0.75)	-0.77	(-1.80)	-0.49	(-2.24)	0.86
beta_60m	3.93	-0.29	(-0.73)	-0.75	(-1.69)	-0.46	(-2.09)	0.87
betabab_1260d	4.34	0.02	(0.04)	-0.44	(-0.95)	-0.46	(-2.29)	0.90
Panel F: Momentum								
seas_1_1na	-1.66	0.83	(2.03)	1.21	(2.82)	0.38	(2.62)	0.94
ret_12_1	-1.12	1.61	(4.28)	1.87	(4.77)	0.27	(2.13)	0.95
ret_9_1	-1.11	1.08	(2.86)	1.45	(3.66)	0.37	(2.83)	0.94
ret_6_1	-0.96	0.94	(2.71)	1.22	(3.42)	0.27	(2.62)	0.96
ret_3_1	-0.75	0.54	(1.73)	0.77	(2.32)	0.23	(2.12)	0.95
resff3_12_1	-0.23	1.02	(4.89)	1.10	(4.88)	0.08	(1.00)	0.94
resff3_6_1	-0.16	0.33	(1.57)	0.42	(1.90)	0.09	(1.38)	0.95
prc_highprc_252d	0.39	0.18	(0.44)	0.30	(0.75)	0.12	(2.11)	0.99
Panel G: Profit Growth								
tax_gr1a	-1.39	0.27	(1.06)	0.44	(1.62)	0.16	(1.87)	0.95
niq_su	-0.93	0.79	(3.36)	0.94	(3.80)	0.15	(1.86)	0.94
niq_at_chg1	-0.66	0.60	(1.34)	0.72	(1.62)	0.13	(1.08)	0.96

Table IA.6—*Continued*

Anomaly	*DYS*	Raw		Duration-Adjusted		Difference		Corr.
ret_12_7	-0.64	1.63	(5.24)	1.62	(4.86)	-0.01	(-0.10)	0.93
niq_be_chg1	-0.52	1.28	(3.09)	1.34	(3.33)	0.06	(0.60)	0.97
saleq_su	-0.46	0.56	(2.23)	0.59	(2.23)	0.03	(0.35)	0.95
seas_1_1an	-0.28	1.04	(3.86)	1.04	(3.72)	0.00	(0.04)	0.94
dsale_dinv	-0.19	1.01	(6.04)	1.08	(5.61)	0.07	(0.90)	0.91
ocf_at_chg1	-0.13	0.44	(2.94)	0.50	(3.10)	0.06	(1.29)	0.96
dsale_drec	0.02	0.04	(0.25)	0.04	(0.25)	0.00	(0.05)	0.98
dsale_dsga	0.26	-0.04	(-0.20)	-0.04	(-0.23)	-0.01	(-0.15)	0.97
sale_emp_gr1	0.37	0.09	(0.52)	0.09	(0.52)	0.00	(0.05)	0.97
Panel H: Profitability								
niq_be	-0.81	0.34	(0.85)	0.43	(1.07)	0.09	(0.65)	0.94
ope_bel1	-0.46	-0.06	(-0.25)	0.02	(0.07)	0.08	(1.18)	0.97
ebit_bev	-0.31	0.03	(0.13)	0.04	(0.17)	0.01	(0.22)	0.98
ope_be	-0.20	0.04	(0.18)	0.08	(0.35)	0.04	(0.78)	0.98
dolvol_126d	-0.14	0.61	(2.22)	0.66	(2.40)	0.05	(1.62)	0.99
f_score	0.10	0.26	(2.03)	0.21	(1.60)	-0.05	(-1.96)	0.98
ni_be	0.25	-0.38	(-1.32)	-0.42	(-1.42)	-0.04	(-0.82)	0.99
turnover_var_126d	0.39	-0.23	(-1.15)	-0.30	(-1.50)	-0.07	(-2.10)	0.99
o_score	1.42	-0.32	(-1.13)	-0.57	(-1.98)	-0.24	(-2.42)	0.94
ocf_at	1.42	0.22	(1.09)	0.06	(0.26)	-0.16	(-1.83)	0.92
ebit_sale	1.42	-0.44	(-1.56)	-0.63	(-2.09)	-0.18	(-2.18)	0.96
Panel I: Quality								
gp_atl1	-2.10	0.17	(0.76)	0.38	(1.39)	0.21	(1.79)	0.91
sale_bev	-2.04	0.36	(1.44)	0.54	(1.94)	0.18	(1.88)	0.94
gp_at	-1.81	0.10	(0.50)	0.26	(1.01)	0.15	(1.49)	0.92
at_turnover	-1.76	0.19	(0.83)	0.35	(1.38)	0.17	(1.89)	0.94
niq_at	-1.34	-0.23	(-0.64)	-0.07	(-0.19)	0.15	(1.28)	0.95
opex_at	-1.29	0.18	(0.86)	0.29	(1.22)	0.10	(1.50)	0.96
mispricing_perf	-1.18	0.55	(1.99)	0.69	(2.27)	0.15	(1.63)	0.96
ni_inc8q	-1.06	0.09	(0.40)	0.10	(0.39)	0.01	(0.11)	0.93
dgp_dsale	-1.00	0.36	(2.01)	0.49	(2.56)	0.13	(1.99)	0.94
qmj_growth	-0.81	0.10	(0.53)	0.24	(1.26)	0.14	(2.33)	0.95
op_atl1	-0.79	0.05	(0.23)	0.12	(0.51)	0.07	(1.08)	0.96
qmj_prof	-0.66	0.06	(0.28)	0.11	(0.44)	0.04	(0.87)	0.98
op_at	-0.42	0.04	(0.17)	0.03	(0.15)	-0.00	(-0.03)	0.98
qmj	-0.10	-0.01	(-0.03)	-0.03	(-0.10)	-0.02	(-0.50)	0.99
cop_atl1	0.43	0.32	(1.54)	0.22	(1.02)	-0.10	(-2.54)	0.98
cop_at	0.51	0.35	(1.71)	0.26	(1.24)	-0.09	(-2.29)	0.98
qmj_safety	1.66	-0.34	(-0.98)	-0.61	(-1.72)	-0.27	(-2.31)	0.94
Panel J: Seasonality								
kz_index	-2.22	0.40	(1.59)	0.78	(2.63)	0.37	(2.33)	0.84
seas_2_5an	-0.50	0.65	(2.90)	0.75	(3.05)	0.10	(1.09)	0.93
pi_nix	-0.49	0.29	(1.44)	0.33	(1.58)	0.04	(1.13)	0.99
sti_gr1a	-0.45	0.44	(1.81)	0.62	(2.36)	0.18	(1.81)	0.93

Table IA.6—*Continued*

Anomaly	*DYS*	Raw		Duration-Adjusted		Difference		Corr.
seas_6_10an	-0.44	0.72	(3.54)	0.85	(3.94)	0.13	(1.77)	0.94
seas_11_15an	-0.27	0.68	(3.41)	0.63	(3.04)	-0.05	(-0.81)	0.95
coskew_21d	-0.10	0.13	(0.82)	0.17	(0.98)	0.04	(0.76)	0.95
seas_16_20an	0.18	0.26	(1.22)	0.22	(1.02)	-0.04	(-0.84)	0.98
dbnetis_at	0.28	0.49	(3.31)	0.47	(3.05)	-0.02	(-0.60)	0.98
lti_gr1a	0.29	0.04	(0.29)	-0.03	(-0.20)	-0.07	(-1.83)	0.96
corr_1260d	0.75	0.52	(2.30)	0.53	(2.28)	0.01	(0.20)	0.96
seas_11_15na	1.31	0.01	(0.07)	-0.18	(-0.76)	-0.20	(-1.85)	0.90
Panel K: Short-Term Reversal								
rmax5_rvol_21d	0.00	0.41	(2.20)	0.38	(1.98)	-0.03	(-0.52)	0.96
rskew_21d	0.23	-0.09	(-0.64)	-0.13	(-0.89)	-0.04	(-0.88)	0.95
iskew_capm_21d	0.28	-0.11	(-0.71)	-0.24	(-1.57)	-0.13	(-2.61)	0.95
iskew_ff3_21d	0.34	-0.04	(-0.26)	-0.12	(-0.77)	-0.08	(-1.55)	0.95
iskew_hxz4_21d	0.35	-0.12	(-0.74)	-0.21	(-1.27)	-0.09	(-1.53)	0.93
ret_1_0	0.52	0.78	(2.68)	0.57	(1.88)	-0.21	(-2.10)	0.94
Panel L: Size								
market_equity	-1.55	0.76	(2.21)	0.98	(2.77)	0.22	(2.38)	0.97
prc	-1.49	0.61	(1.53)	0.84	(2.04)	0.22	(2.40)	0.97
ami_126d	-0.85	0.64	(2.03)	0.77	(2.40)	0.13	(2.23)	0.98
dolvol_var_126d	0.48	-0.24	(-1.23)	-0.33	(-1.65)	-0.08	(-2.21)	0.98
rd_me	0.60	0.20	(0.64)	-0.03	(-0.10)	-0.24	(-1.94)	0.93
Panel M: Value								
eqnetis_at	-0.25	0.62	(2.40)	0.53	(1.91)	-0.08	(-0.91)	0.94
fcf_me	-0.10	0.43	(2.39)	0.50	(2.51)	0.07	(0.94)	0.93
netis_at	0.18	0.77	(3.35)	0.74	(3.12)	-0.04	(-0.67)	0.97
chcsho_12m	0.18	0.67	(4.05)	0.69	(3.86)	0.01	(0.24)	0.93
ocf_me	1.03	0.60	(3.28)	0.48	(2.53)	-0.11	(-1.75)	0.94
sale_me	1.52	0.33	(0.98)	0.14	(0.42)	-0.18	(-1.79)	0.95
debt_me	1.56	0.21	(0.80)	0.08	(0.29)	-0.13	(-1.40)	0.95
at_me	2.00	0.24	(0.95)	0.03	(0.11)	-0.21	(-1.80)	0.93
bev_mev	2.85	0.55	(1.87)	0.29	(0.88)	-0.26	(-1.75)	0.89
be_me	2.89	0.62	(1.79)	0.31	(0.82)	-0.31	(-1.93)	0.91
eqnpo_me	2.97	0.62	(1.78)	0.20	(0.56)	-0.42	(-2.70)	0.91
ival_me	3.05	0.49	(1.54)	0.10	(0.29)	-0.39	(-2.36)	0.89
eq_dur	3.27	0.60	(1.88)	0.24	(0.67)	-0.35	(-2.02)	0.87
ebitda_mev	3.54	0.34	(1.31)	-0.03	(-0.11)	-0.37	(-2.09)	0.81
eqnpo_12m	3.58	0.41	(1.84)	0.12	(0.48)	-0.29	(-1.75)	0.78
ni_me	3.65	0.49	(1.55)	0.07	(0.18)	-0.42	(-2.04)	0.83
eqpo_me	7.80	0.11	(0.19)	-1.16	(-1.40)	-1.27	(-2.23)	0.73
div12m_me	7.83	-0.15	(-0.41)	-0.94	(-1.79)	-0.79	(-2.09)	0.70

Table IA.7. Raw and Duration-Adjusted Anomaly Returns: 1962 to 2020
For each of the 153 anomalies across the 13 clusters, this table reports the average monthly raw and duration-adjusted long-short returns and their difference and time-series correlation. The t-statistics are reported in parentheses. The sample period is February 1962 to December 2020. Within each cluster, anomalies are ranked from low to high by their mean dividend yield spread DYS presented in the second column. All returns are in percentage terms. We use a weight cutoff of 30 years.

Anomaly	DYS	Raw		Duration-Adjusted		Difference		Corr.
Panel A: Accruals								
oaccruals_ni	0.27	0.60	(5.27)	0.65	(5.40)	0.06	(1.30)	0.93
oaccruals_at	0.37	0.80	(6.44)	0.80	(6.07)	0.00	(0.06)	0.92
cowc_gr1a	0.57	0.76	(6.64)	0.75	(6.18)	-0.01	(-0.26)	0.95
seas_16_20na	0.67	0.25	(1.82)	0.29	(2.03)	0.04	(0.83)	0.93
taccruals_ni	0.96	0.22	(1.95)	0.25	(1.97)	0.03	(0.49)	0.86
taccruals_at	1.02	0.29	(2.80)	0.34	(2.86)	0.05	(0.76)	0.82
Panel B: Debt Issuance								
nfna_gr1a	-0.48	0.44	(4.74)	0.39	(3.72)	-0.06	(-1.62)	0.94
ni_ar1	-0.30	0.01	(0.13)	0.02	(0.22)	0.01	(0.32)	0.95
fnl_gr1a	-0.20	0.31	(3.62)	0.28	(3.00)	-0.03	(-0.89)	0.94
debt_gr3	-0.16	0.19	(2.03)	0.16	(1.56)	-0.03	(-0.80)	0.93
capex_abn	-0.12	0.35	(3.21)	0.36	(3.23)	0.02	(0.53)	0.96
ncol_gr1a	0.16	-0.01	(-0.05)	0.05	(0.51)	0.05	(2.04)	0.96
noa_at	0.26	0.61	(5.84)	0.62	(5.70)	0.01	(0.35)	0.96
Panel C: Investment								
ret_60_12	0.27	0.30	(1.57)	0.27	(1.32)	-0.03	(-0.46)	0.94
capx_gr1	0.57	0.42	(3.64)	0.48	(3.82)	0.06	(1.33)	0.93
inv_gr1	0.73	0.48	(4.02)	0.52	(4.14)	0.04	(1.07)	0.95
capx_gr2	0.79	0.35	(2.79)	0.42	(3.15)	0.07	(1.44)	0.94
nncoa_gr1a	0.91	0.46	(4.01)	0.53	(4.32)	0.06	(1.42)	0.93
lnoa_gr1a	0.94	0.43	(3.78)	0.44	(3.67)	0.02	(0.39)	0.93
ncoa_gr1a	0.99	0.43	(3.85)	0.50	(4.27)	0.07	(1.57)	0.92
capx_gr3	0.99	0.36	(3.03)	0.43	(3.28)	0.06	(1.24)	0.92
inv_gr1a	1.09	0.61	(5.00)	0.63	(4.78)	0.02	(0.31)	0.93
noa_gr1a	1.12	0.65	(5.62)	0.73	(5.78)	0.08	(1.29)	0.88
col_gr1a	1.19	-0.22	(-1.78)	-0.18	(-1.31)	0.05	(0.83)	0.92
seas_2_5na	1.20	0.38	(2.03)	0.42	(2.09)	0.04	(0.47)	0.92
coa_gr1a	1.31	0.42	(3.34)	0.44	(3.20)	0.03	(0.42)	0.89
emp_gr1	1.38	0.20	(1.57)	0.27	(2.01)	0.08	(1.49)	0.93
ppeinv_gr1a	1.40	0.50	(4.18)	0.55	(4.02)	0.05	(0.83)	0.90
at_gr1	1.52	0.32	(2.37)	0.36	(2.50)	0.04	(0.68)	0.90
saleq_gr1	1.55	-0.26	(-1.69)	-0.18	(-1.11)	0.08	(1.18)	0.91
sale_gr1	1.69	0.08	(0.53)	0.17	(1.05)	0.09	(1.34)	0.91
sale_gr3	1.73	0.09	(0.69)	0.15	(1.06)	0.06	(0.94)	0.88
mispricing_mgmt	1.78	0.70	(5.47)	0.73	(5.17)	0.03	(0.49)	0.88
be_gr1a	1.86	0.13	(0.92)	0.17	(1.04)	0.04	(0.51)	0.89
aliq_at	2.43	0.04	(0.22)	0.06	(0.33)	0.03	(0.26)	0.86

Table IA.7—*Continued*

Anomaly	DYS	Raw		Duration-Adjusted		Difference		Corr.
Panel D: Low Leverage								
z_score	-2.71	0.14	(0.91)	0.06	(0.32)	-0.08	(-0.76)	0.83
age	-2.00	0.20	(1.13)	0.13	(0.70)	-0.06	(-0.73)	0.90
cash_at	-1.89	0.33	(2.25)	0.24	(1.47)	-0.08	(-1.15)	0.90
ni_ivol	-1.73	0.04	(0.24)	-0.03	(-0.14)	-0.07	(-0.93)	0.92
netdebt_me	-1.66	0.12	(0.70)	0.05	(0.29)	-0.06	(-0.88)	0.92
at_be	-1.42	0.03	(0.15)	-0.09	(-0.48)	-0.11	(-1.82)	0.94
bidaskhl_21d	-1.41	-0.13	(-0.53)	-0.19	(-0.71)	-0.06	(-0.89)	0.97
aliq_mat	-1.07	-0.28	(-1.87)	-0.32	(-1.99)	-0.04	(-0.63)	0.94
rd5_at	-0.52	0.00	(0.02)	-0.02	(-0.13)	-0.03	(-0.54)	0.96
rd_sale	-0.31	-0.01	(-0.05)	-0.01	(-0.06)	-0.00	(-0.05)	0.97
tangibility	0.54	-0.01	(-0.05)	-0.02	(-0.18)	-0.02	(-0.49)	0.96
Panel E: Low Risk								
earnings_variability	0.11	0.10	(0.96)	0.11	(0.98)	0.01	(0.23)	0.96
beta_dimson_21d	0.85	-0.03	(-0.15)	-0.05	(-0.26)	-0.02	(-0.44)	0.97
zero_trades_126d	0.98	0.16	(0.77)	0.14	(0.66)	-0.02	(-0.35)	0.96
zero_trades_252d	1.00	0.19	(0.93)	0.17	(0.76)	-0.03	(-0.45)	0.96
zero_trades_21d	1.07	-0.15	(-0.69)	-0.22	(-1.01)	-0.07	(-1.27)	0.96
ocfq_saleq_std	1.07	0.24	(1.44)	0.21	(1.18)	-0.03	(-0.47)	0.93
seas_6_10na	1.11	0.46	(2.93)	0.55	(3.19)	0.09	(1.39)	0.93
turnover_126d	1.57	-0.02	(-0.07)	-0.07	(-0.29)	-0.05	(-0.68)	0.95
ivol_capm_21d	2.14	0.56	(2.20)	0.64	(2.33)	0.08	(0.84)	0.94
ivol_hxz4_21d	2.16	0.59	(2.21)	0.69	(2.36)	0.10	(0.91)	0.93
ivol_ff3_21d	2.17	0.49	(1.96)	0.55	(2.06)	0.07	(0.69)	0.93
rmax1_21d	2.23	0.38	(1.62)	0.45	(1.77)	0.07	(0.77)	0.94
betadown_252d	2.42	-0.15	(-0.62)	-0.20	(-0.74)	-0.05	(-0.45)	0.92
rmax5_21d	2.45	0.46	(1.78)	0.53	(1.89)	0.07	(0.73)	0.94
rvol_21d	2.51	0.39	(1.38)	0.46	(1.51)	0.07	(0.70)	0.94
ivol_capm_252d	2.87	0.40	(1.44)	0.48	(1.56)	0.08	(0.66)	0.92
betabab_1260d	3.12	0.19	(0.71)	0.22	(0.72)	0.02	(0.19)	0.92
beta_60m	3.42	-0.18	(-0.68)	-0.12	(-0.39)	0.07	(0.48)	0.90
Panel F: Momentum								
seas_1_1na	-1.47	0.72	(2.60)	0.80	(2.84)	0.08	(1.10)	0.97
ret_9_1	-0.96	0.90	(3.57)	1.03	(4.02)	0.13	(1.81)	0.96
ret_12_1	-0.94	1.23	(4.65)	1.33	(4.98)	0.10	(1.53)	0.97
ret_6_1	-0.83	0.77	(3.25)	0.83	(3.48)	0.07	(1.06)	0.97
prc_highprc_252d	-0.73	0.20	(0.69)	0.27	(0.89)	0.06	(0.97)	0.98
ret_3_1	-0.62	0.58	(2.80)	0.62	(2.90)	0.04	(0.74)	0.96
resff3_6_1	-0.05	0.30	(2.31)	0.35	(2.53)	0.04	(1.28)	0.97
resff3_12_1	-0.03	0.77	(5.33)	0.81	(5.38)	0.04	(1.17)	0.97
Panel G: Profit Growth								
tax_gr1a	-1.05	0.14	(1.07)	0.11	(0.75)	-0.03	(-0.69)	0.93
niq_su	-0.60	0.30	(2.75)	0.32	(2.75)	0.02	(0.47)	0.95
saleq_su	-0.57	0.25	(1.97)	0.22	(1.68)	-0.03	(-0.70)	0.95

Table IA.7—*Continued*

Anomaly	*DYS*	Raw		Duration-Adjusted		Difference		Corr.
niq_at_chg1	-0.45	0.23	(1.56)	0.29	(1.88)	0.06	(1.31)	0.96
ret_12_7	-0.39	1.05	(5.29)	1.05	(4.99)	0.00	(0.02)	0.95
dsale_dinv	-0.22	0.54	(5.32)	0.56	(5.19)	0.02	(0.70)	0.95
niq_be_chg1	-0.20	0.43	(3.26)	0.46	(3.45)	0.03	(0.75)	0.95
dsale_dsga	-0.17	-0.12	(-1.03)	-0.17	(-1.41)	-0.06	(-1.29)	0.94
seas_1_1an	-0.16	0.53	(3.24)	0.52	(2.98)	-0.02	(-0.28)	0.95
ocf_at_chg1	-0.12	0.33	(3.47)	0.35	(3.54)	0.02	(0.71)	0.96
sale_emp_gr1	-0.05	0.06	(0.62)	0.07	(0.67)	0.01	(0.29)	0.97
dsale_drec	0.14	-0.01	(-0.16)	0.00	(0.04)	0.02	(0.64)	0.95
Panel H: Profitability								
dolvol_126d	-0.70	0.20	(1.50)	0.12	(0.83)	-0.08	(-1.77)	0.95
f_score	0.01	0.18	(2.38)	0.17	(2.22)	-0.01	(-0.47)	0.97
niq_be	0.15	0.44	(2.25)	0.48	(2.43)	0.04	(0.92)	0.97
ope_bel1	0.37	0.29	(1.83)	0.37	(2.23)	0.08	(1.81)	0.96
turnover_var_126d	0.48	-0.08	(-0.65)	-0.06	(-0.53)	0.01	(0.35)	0.96
ebit_bev	0.49	0.39	(2.33)	0.46	(2.61)	0.06	(1.67)	0.98
ocf_at	0.60	0.55	(3.74)	0.57	(3.73)	0.03	(0.57)	0.94
ni_be	0.67	0.17	(0.89)	0.19	(0.95)	0.02	(0.47)	0.98
ope_be	0.82	0.39	(2.29)	0.52	(2.89)	0.13	(2.50)	0.96
o_score	1.16	0.15	(0.91)	0.18	(1.00)	0.03	(0.39)	0.90
ebit_sale	1.74	0.05	(0.28)	0.15	(0.70)	0.09	(1.21)	0.93
Panel I: Quality								
sale_bev	-1.90	0.65	(4.63)	0.59	(3.75)	-0.06	(-0.94)	0.90
at_turnover	-1.57	0.32	(2.25)	0.27	(1.67)	-0.05	(-0.84)	0.92
gp_atl1	-1.51	0.23	(1.55)	0.19	(1.16)	-0.04	(-0.63)	0.93
opex_at	-1.38	0.25	(1.83)	0.18	(1.18)	-0.07	(-1.18)	0.92
gp_at	-1.22	0.35	(2.51)	0.33	(2.14)	-0.03	(-0.51)	0.94
mispricing_perf	-0.90	0.71	(3.71)	0.74	(3.69)	0.03	(0.54)	0.97
op_atl1	-0.87	0.31	(2.03)	0.25	(1.52)	-0.06	(-1.24)	0.95
ni_inc8q	-0.81	0.08	(0.98)	0.00	(0.01)	-0.08	(-2.32)	0.92
op_at	-0.58	0.33	(2.20)	0.26	(1.70)	-0.06	(-1.70)	0.97
dgp_dsale	-0.54	0.22	(2.06)	0.23	(2.03)	0.01	(0.30)	0.94
qmj_growth	-0.45	0.17	(1.44)	0.18	(1.44)	0.00	(0.14)	0.97
qmj_prof	-0.33	0.49	(3.31)	0.51	(3.37)	0.02	(0.80)	0.98
cop_atl1	-0.20	0.60	(4.47)	0.59	(4.25)	-0.01	(-0.22)	0.96
qmj	-0.18	0.43	(2.24)	0.43	(2.21)	0.01	(0.12)	0.98
niq_at	-0.15	0.31	(1.73)	0.36	(1.87)	0.04	(0.94)	0.97
cop_at	0.02	0.67	(4.99)	0.68	(4.93)	0.01	(0.30)	0.96
qmj_safety	0.72	0.11	(0.62)	0.04	(0.20)	-0.07	(-1.09)	0.93
Panel J: Seasonality								
kz_index	-2.03	0.06	(0.39)	0.03	(0.16)	-0.03	(-0.32)	0.85
sti_gr1a	-0.45	0.08	(0.87)	0.10	(1.01)	0.02	(0.53)	0.91
seas_2_5an	-0.39	0.65	(4.78)	0.65	(4.30)	-0.00	(-0.06)	0.92
seas_6_10an	-0.33	0.75	(5.65)	0.82	(5.74)	0.07	(1.53)	0.95

Table IA.7—*Continued*

Anomaly	*DYS*	Raw		Duration-Adjusted		Difference		Corr.
dbnetis_at	-0.28	0.26	(2.75)	0.21	(2.08)	-0.05	(-1.49)	0.95
seas_11_15an	-0.27	0.53	(4.32)	0.48	(3.62)	-0.05	(-1.10)	0.93
seas_16_20an	-0.13	0.46	(3.30)	0.45	(3.11)	-0.01	(-0.28)	0.97
coskew_21d	-0.07	0.09	(0.80)	0.12	(0.97)	0.03	(0.81)	0.97
pi_nix	-0.04	0.18	(1.69)	0.24	(2.21)	0.06	(1.85)	0.96
corr_1260d	0.15	0.20	(1.31)	0.18	(1.15)	-0.02	(-0.41)	0.97
lti_gr1a	0.31	0.08	(0.84)	0.09	(0.99)	0.02	(0.61)	0.96
seas_11_15na	0.89	0.16	(1.13)	0.16	(1.10)	0.00	(0.07)	0.93
Panel K: Short-Term Reversal								
rmax5_rvol_21d	-0.12	0.57	(4.46)	0.56	(4.15)	-0.02	(-0.47)	0.95
rskew_21d	0.35	-0.10	(-1.08)	-0.09	(-0.97)	0.01	(0.19)	0.95
iskew_capm_21d	0.38	-0.09	(-1.00)	-0.08	(-0.85)	0.01	(0.30)	0.95
iskew_ff3_21d	0.41	-0.17	(-1.91)	-0.16	(-1.72)	0.01	(0.24)	0.95
iskew_hxz4_21d	0.42	-0.23	(-2.62)	-0.20	(-2.11)	0.03	(0.99)	0.95
ret_1_0	0.47	0.39	(1.89)	0.32	(1.50)	-0.07	(-1.25)	0.97
Panel L: Size								
market_equity	-1.53	0.19	(1.04)	0.09	(0.45)	-0.09	(-1.21)	0.92
ami_126d	-1.14	0.19	(1.22)	0.12	(0.68)	-0.07	(-1.27)	0.94
prc	-1.12	-0.04	(-0.16)	-0.07	(-0.25)	-0.03	(-0.34)	0.96
dolvol_var_126d	0.55	-0.09	(-0.78)	-0.08	(-0.68)	0.01	(0.27)	0.96
rd_me	1.03	0.31	(1.67)	0.35	(1.76)	0.03	(0.48)	0.94
Panel M: Value								
chcsho_12m	0.14	0.54	(4.50)	0.56	(4.49)	0.02	(0.59)	0.95
netis_at	0.16	0.48	(3.48)	0.50	(3.53)	0.02	(0.56)	0.98
fcf_me	0.42	0.49	(3.59)	0.57	(3.82)	0.08	(1.60)	0.95
eqnetis_at	0.49	0.50	(3.14)	0.57	(3.34)	0.07	(1.23)	0.95
ocf_me	1.43	0.58	(3.64)	0.65	(3.95)	0.07	(1.42)	0.95
sale_me	1.62	0.40	(2.08)	0.45	(2.23)	0.05	(0.67)	0.94
at_me	1.94	0.12	(0.63)	0.16	(0.78)	0.04	(0.58)	0.93
debt_me	2.11	0.06	(0.33)	0.18	(0.85)	0.11	(1.37)	0.92
bev_mev	2.22	0.07	(0.37)	0.09	(0.43)	0.02	(0.19)	0.90
ival_me	2.44	0.28	(1.62)	0.29	(1.45)	0.01	(0.10)	0.86
ni_me	2.66	0.58	(2.88)	0.57	(2.48)	-0.01	(-0.10)	0.89
ebitda_mev	2.70	0.51	(2.97)	0.55	(2.80)	0.04	(0.35)	0.83
be_me	2.84	0.35	(1.53)	0.39	(1.60)	0.05	(0.43)	0.90
eqnpo_12m	2.85	0.38	(2.80)	0.43	(2.64)	0.05	(0.54)	0.81
eqnpo_me	3.06	0.63	(3.23)	0.79	(3.57)	0.16	(1.49)	0.87
eq_dur	3.09	0.24	(1.32)	0.30	(1.35)	0.05	(0.46)	0.84
eqpo_me	5.19	0.21	(0.95)	0.37	(1.18)	0.16	(0.72)	0.69
div12m_me	7.35	-0.03	(-0.13)	0.14	(0.43)	0.17	(0.72)	0.70