

RELEASE NOTES FOR JUNE 2020 UPDATE

Chen Xue¹

June 16, 2020

In this release, we expand the testing portfolios data from 50 to 185 anomalies, which are grouped into 6 categories, including momentum (40), value-growth (32), investment (29), profitability (44), intangibles (30), and frictions (10). The sample is from January 1967 to December 2019.

Anomaly Selection

The anomalies are a subset of the 452 anomalies in Hou, Xue, and Zhang (2020).² We first include the 158 anomalies that are significant ($|t|$ greater than or equal to 1.96) in their original sample from January 1967 to December 2016. We then add anomalies that have become significant in two extensions, including 11 anomalies for the extended period through December 2018 (Hou, Mo, Xue, and Zhang 2020) and one more through December 2019 (R&D capital-to-assets, Rca).³

The 11 anomalies are prior 11-month returns with 12-month holding period (R11_12), 52-week high with 12-month holding period (52w12), segment momentum with 12-month holding period (Sm12), asset turnover (Ato), capital turnover (Cto), quarterly O-score with 1-month holding period (Oq1), quarterly taxable income-to-book income with 12-month holding period (Tbiq12), quarterly sales growth with 1-month holding period (Sgq1), quarterly R&D expense-to-sales with 6- and 12-month holding periods (Rdsq6 and Rdsq12), and the nonannual component of year 1-lagged return (R1n).

¹ Lindner College of Business, University of Cincinnati, 2338 Lindner Hall, 2906 Woodside Dr, Cincinnati, OH 45221. Tel: (513) 556-7078. E-mail: xuecx@ucmail.uc.edu.

² Hou, Kewei, Chen Xue, and Lu Zhang, 2020, Replicating anomalies, *Review of Financial Studies* 33, 2019-2133.

³ Hou, Kewei, Haitao Mo, Chen Xue, and Lu Zhang, 2020, An augmented q -factor model with expected growth, forthcoming, *Review of Finance*.

We include expected growth from the expected growth factor of Hou, Mo, Xue, and Zhang (2020), with 1-, 6-, and 12-month holding periods.

We include 12 anomalies that, albeit insignificant, are prominent in the empirical asset pricing literature, including standardized unexpected earnings (Sue6, 6-month holding period), long-term reversal (Rev1, 1-month holding period), dividend yield (Dp), payout yield (Op), total accruals (Ta), operating profits-to-equity (Ope), market equity (Me), idiosyncratic volatility per the Fama-French 3-factor model (Ivff1, 1-month holding period), idiosyncratic volatility per the Hou-Xue-Zhang q -factor model (Ivq1, 1-month holding period), total volatility (Tv1, 1-month holding period), market beta (β 1, 1-month holding period), and short-term reversal (Srev).

Finally, for anomalies that have become insignificant over time since the first release of our data library, we continue their coverage to maintain consistency with previous releases.

The Number of Significant Anomalies

Among the 452 anomalies in Hou, Xue, and Zhang (2020), the number of significant anomalies at the 5% level has declined from 158 to 142 in the latest sample period, as shown in Table A. In particular, the number of significant anomalies in the value-versus-growth category has decreased steadily from 29 to 13. The number of significant anomalies is more stable for other categories.

Table A: The Number of Significant Anomalies			
	1/1967-12/2016	1/1967-12/2018	1/1967-12/2019
Momentum (57)	36	39	39
Value-Growth (69)	29	15	13
Investment (38)	28	26	24
Profitability (79)	35	40	38
Intangibles (103)	26	27	26
Frictions (106)	4	3	2
Total (452)	158	150	142

Other Data Changes

In addition to expanding the testing portfolios, this release also includes the following changes.

First, we have provided the number of *unique* stocks for monthly and daily portfolios. For some anomalies, the 3 by 5 portfolios interacted with size can be thinly populated or even missing in early years. The sample size information can be used to determine the starting date for using our data. For monthly rebalanced portfolios with a multi-month holding period, we count the total number of *unique* stocks across *all* subportfolios.

Second, for 3 by 5 portfolios, there can be missing observations. In the CSV files, we have recorded missing observations as empty values and the number of stocks as zero.

Third, for Wednesday-to-Wednesday weekly returns, we have added one more week at the end of 2019. Although this week ends on 1/1/2020 (Wednesday, a holiday), its trading activities end on 12/31/2019 (Tuesday). This change affects both weekly factors and weekly portfolio returns that were posted in the February 2020 release of our data library.

Technical Documents

We have created Technical Documents to accompany our factors and testing portfolios data. The Technical Documents detail the construction of our data. We will update the Technical Documents regularly to incorporate changes to our data construction.

In this release, we improve the data construction in two ways. First, for supplier and customer industries momentum (Sim and Cim), we have incorporated the 2012 Bureau of Economic Analysis (BEA) industry classifications released in November 2018 (North American Industry Classification System, NAICS). Second, for quarterly asset liquidity (Almq), we no longer subtract goodwill (Compustat annual item GDWL) when calculating tangible fixed assets. Goodwill is part of intangible assets (item INTAN), which is already subtracted in the calculation.

Next Update

We plan to update factors and benchmark portfolios in February 2021 and testing portfolios in April 2021.