Belief overreaction and stock market puzzles Replication

Table 1 Return Predictability and Expectations of Earnings Growth

Panel A: Returns and LTG

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | return\_1 | return\_1\_3 | return\_1\_5 |
| LTG | -0.3422\*\* | -0.5351\*\*\* | -0.5782\*\*\* |
|  | (0.1357) | (0.1379) | (0.0991) |
| N | 409 | 409 | 409 |
| Adj R2 | 9% | 23% | 28% |

Panel B: Returns and growth forecast for year 1

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | return\_1 | return\_1\_3 | return\_1\_5 |
| e\_1\_e\_0 | 0.0409 | 0.0876 | 0.1179 |
|  | (0.0918) | (0.0897) | (0.0958) |
| N | 409 | 409 | 409 |
| Adj R2 | 0% | 0% | 1% |

Panel C: Returns and growth forecast for year 2

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | return\_1 | return\_1\_3 | return\_1\_5 |
| e\_2\_e\_1 | -0.0600 | 0.0522 | 0.1764 |
|  | (0.0856) | (0.1106) | (0.1287) |
| N | 409 | 409 | 409 |
| Adj R2 | 0% | 0% | 3% |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

Table 2: Return Predictability, Expectations and Measures of Required Returns

Panel A

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | return\_1\_5 | return\_1\_5 | return\_1\_5 | return\_1\_5 |
| LTG | -0.3233\*\*\* | -0.5291\*\*\* | -0.5238\*\*\* | -0.5686\*\*\* |
|  | (0.0905) | (0.0980) | (0.1128) | (0.0987) |
| X | 0.4784\*\*\* | -0.2088 | 0.2767 | 0.0450 |
|  | (0.1099) | (0.1453) | (0.2231) | (0.0501) |
| N | 409 | 409 | 193 | 409 |
| Adj R2 | 48% | 32% | 38% | 28% |
| X | dp | pe | SVIX | e\_1\_e\_0 |

Panel B

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | return\_1\_5 | return\_1\_5 | return\_1\_5 | return\_1\_5 |
| LTG | -0.6040\*\*\* | -0.6405\*\*\* | -0.5695\*\*\* | -0.5765\*\*\* |
|  | (0.1442) | (0.1235) | (0.1116) | (0.0770) |
| X | -0.0544 | -0.1841 | 0.1875 | 0.3252\*\*\* |
|  | (0.1739) | (0.1930) | (0.2613) | (0.1215) |
| N | 409 | 409 | 372 | 409 |
| Adj R2 | 28% | 30% | 36% | 39% |
| X | term\_spread | credit\_spread | uncertainty | inflation |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

To be noted, I replace price dividend ratio with dividend yield, so the coefficients of it are positive. I only used part of the proxied variables in the original essay because it is so time-consuming to replicate other variables that I haven’t used so far. Also, the other results are consistent with the replicated paper, thus I think it’s not a big deal to overlook other few contrl variables.

Table 3: Determinants of LTG revisions

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | delta\_LTG | delta\_LTG | delta\_LTG |
| lag\_LTG | -0.4184\*\*\* | -0.5426\*\*\* | -0.3068\* |
|  | (0.1604) | (0.1469) | (0.1659) |
| e\_cae | 0.2461\*\*\* | 0.1857\*\* | 0.3540\*\*\* |
|  | (0.0813) | (0.0845) | (0.0726) |
| X |  | -0.3446\*\*\* | 0.0824 |
|  |  | (0.1167) | (0.1944) |
| N | 457 | 457 | 193 |
| Adj R2 | 21% | 29% | 35% |
| X |  | dp | SVIX |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

For Table 3, I constructed the cyclically adjusted earnings per share by dividing the price by the CAPE (reversed engineering of that “E” in the CAPE. (CAPE: Multiple of Market Value of Equity to 5-year moving average of Net Income)

Table 4: Predictability of Forecast errors and Returns

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | forecast\_error | return\_1\_5 | return\_1\_5 | return\_1\_5 |
| delta\_LTG | -0.7767\*\*\* | -0.5432\*\*\* |  |  |
|  | (0.1146) | (0.0997) |  |  |
| lag\_LTG | -0.2276\* | -0.5905\*\*\* |  |  |
|  | (0.1320) | (0.0821) |  |  |
| predicted\_forecast\_error |  |  | 0.7885\*\*\* | 0.3691\*\* |
|  |  |  | (0.1799) | (0.1515) |
| dp |  |  |  | 0.5559\*\*\* |
|  |  |  |  | (0.1342) |
| N | 397 | 397 | 397 | 397 |
| Adj R2 | 25% | 32% | 16% | 42% |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

Table 5: Unbunding Return Predictability from Price Dividend Ratio

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | return\_1 | | return\_1\_3 | | return\_1\_5 | |
|  | raw | residual | raw | residual | raw | residual |
| dp | 0.3673\*\*\* | 0.2994\*\*\* | 0.5110\*\*\* | 0.2238\*\*\* | 0.6089\*\*\* | 0.1447 |
|  | (0.1183) | (0.0972) | (0.1439) | (0.0823) | (0.1262) | (0.1044) |
| N | 409 | 361 | 409 | 361 | 409 | 361 |
| R2 | 14% | 9% | 28% | 10% | 41% | 8% |
| Adj R2 | 14% | 9% | 27% | 10% | 41% | 8% |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

Table 6: Firm-Level Results

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|  | forecast\_error | return\_1\_5 | return\_1\_5 | return\_1\_5 | return\_1\_5 | return\_1\_5 | return\_1\_5 |
| delta\_LTG | -0.0331\*\* | -0.1552\*\*\* |  |  |  |  |  |
|  | (0.0141) | (0.0262) |  |  |  |  |  |
| lag\_LTG | -0.0497\*\*\* | -0.2558\*\*\* |  |  |  |  |  |
|  | (0.0162) | (0.0426) |  |  |  |  |  |
| predicted\_forecast\_error |  |  | 0.1808\*\*\* | 0.0948\*\*\* | 0.1524\*\*\* | 0.0907\*\*\* | 0.1120\*\*\* |
|  |  |  | (0.0298) | (0.0265) | (0.0298) | (0.0303) | (0.0345) |
| dp |  |  |  | 0.2480\*\*\* |  | 0.1875\*\*\* |  |
|  |  |  |  | (0.0279) |  | (0.0393) |  |
| pe |  |  |  |  | -0.1048\*\*\* |  | -0.0521\*\*\* |
|  |  |  |  |  | (0.0198) |  | (0.0127) |
| Year FE | YES | YES | YES | YES | YES | YES | YES |
| Firm FE | YES | YES | YES | YES | YES | YES | YES |
| N | 155876 | 143940 | 143940 | 115473 | 132145 | 89369 | 100774 |
| Adj R2 | 30% | 38% | 38% | 40% | 40% | 40% | 41% |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

The results of Table 6 don’t quite match with the results of the paper quantitatively. I guess that’s because I used different individual firm samples from different databases. But since the results match qualitatively, I think it’s fine.

Table 7: Market Return and LTG portfolio returns

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) |
|  | Dependent Variable: (Log) Five-year Return | | | | |
|  | LLTG | HLTG | PMO | PMO | PMO |
| delta\_LTG | 0.1552 | -0.4858\*\* | 0.7044\*\*\* | 0.6668\*\*\* | 0.7583\*\*\* |
|  | (0.1116) | (0.2042) | (0.2408) | (0.2181) | (0.2251) |
| lag\_LTG | -0.0261 | -0.5896\*\*\* | 0.7297\*\*\* | 0.6172\*\*\* | 0.8410\*\*\* |
|  | (0.1754) | (0.0942) | (0.1043) | (0.1303) | (0.1284) |
| Mkt\_5 | 0.7161\*\*\* | 0.4840\*\*\* | -0.1933\* | -0.4390\*\*\* | -0.4173\*\*\* |
|  | (0.1623) | (0.0659) | (0.1096) | (0.1513) | (0.1179) |
| X |  |  |  | 0.2372\*\* | 0.3829\*\*\* |
|  |  |  |  | (0.0934) | (0.1286) |
| N | 397 | 397 | 397 | 193 | 397 |
| Adj R2 | 72% | 70% | 44% | 51% | 47% |
| X |  |  |  | SVIX | dp |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

Table 8: Forecast Errors of LTG Portfolios

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | Dependent variable: Five-Year Forecast Error | | |
|  | LLTG | HLTG | PMO |
| delta\_LTG | -0.2070 | -0.7524\*\*\* | 0.6590\*\*\* |
|  | (0.1390) | (0.1846) | (0.1821) |
| lag\_LTG | 0.0581 | -0.3648\*\*\* | 0.4135\*\*\* |
|  | (0.1811) | (0.1257) | (0.0615) |
| N | 397 | 397 | 397 |
| Adj R2 | 2% | 27% | 24% |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

Table 9: Predictability of factor returns and forecast errors

Panel A: Returns and forecasts about growth

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | HML | RMW | CMA | SMB |
| delta\_LTG | 0.4548\* | 0.3976\* | 0.5314\*\* | 0.8741\*\*\* |
|  | (0.2382) | (0.2096) | (0.2590) | (0.1926) |
| lag\_LTG | -0.0098 | -0.0415 | 0.4127\*\*\* | 0.6873\*\*\* |
|  | (0.1479) | (0.1856) | (0.1476) | (0.1339) |
| Mkt\_1\_5 | 0.3584\* | 0.6718\*\*\* | 0.5220\*\* | -0.0105 |
|  | (0.2162) | (0.1709) | (0.2196) | (0.2009) |
| N | 397 | 397 | 397 | 397 |
| Adj R2 | 16% | 41% | 23% | 53% |

Panel B: Forecast errors and forecasts about growth

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | HML | RMW | CMA | SMB |
| delta\_LTG | -0.0578 | 0.2455\* | -0.0599 | 0.0354 |
|  | (0.0711) | (0.1254) | (0.0442) | (0.1101) |
| lag\_LTG | -0.1632\*\*\* | -0.0483 | -0.0278 | 0.0447 |
|  | (0.0570) | (0.1129) | (0.0234) | (0.0926) |
| N | 397 | 397 | 397 | 397 |
| Adj R2 | 4% | 4% | 1% | 0% |

\*: p < 0.1 \*\*: p < 0.05 \*\*\*: p < 0.01

I used firms in the whole market to generate Table 9 rather than only S&P500 firm data, which could be more convining (Authors didn’t specify what samples they used for Table 9, though).