# Internet Appendix to "Value at Risk and the Cross-Section of Expected Returns: Evidence from China"

This appendix provides complete results for the robustness checks discussed in the paper. Below, we briefly describe the contents of the appendix tables.

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Table IA.24: Portfolios sorted by institutional ownership ratio and *ES*1 during low consumer confidence period discussed in footnote 19 of the paper.

Figure IA.1: Consumer confidence and investor sentiment indexes

This figure shows plots of consumer confidence index and investor sentiment indexes (CICSI and ISI) in China. Both are standardized. Consumer confidence index covers the period from January 1997 to January 2020 while investor sentiment indexes available for January or February 2003 to January 2020.
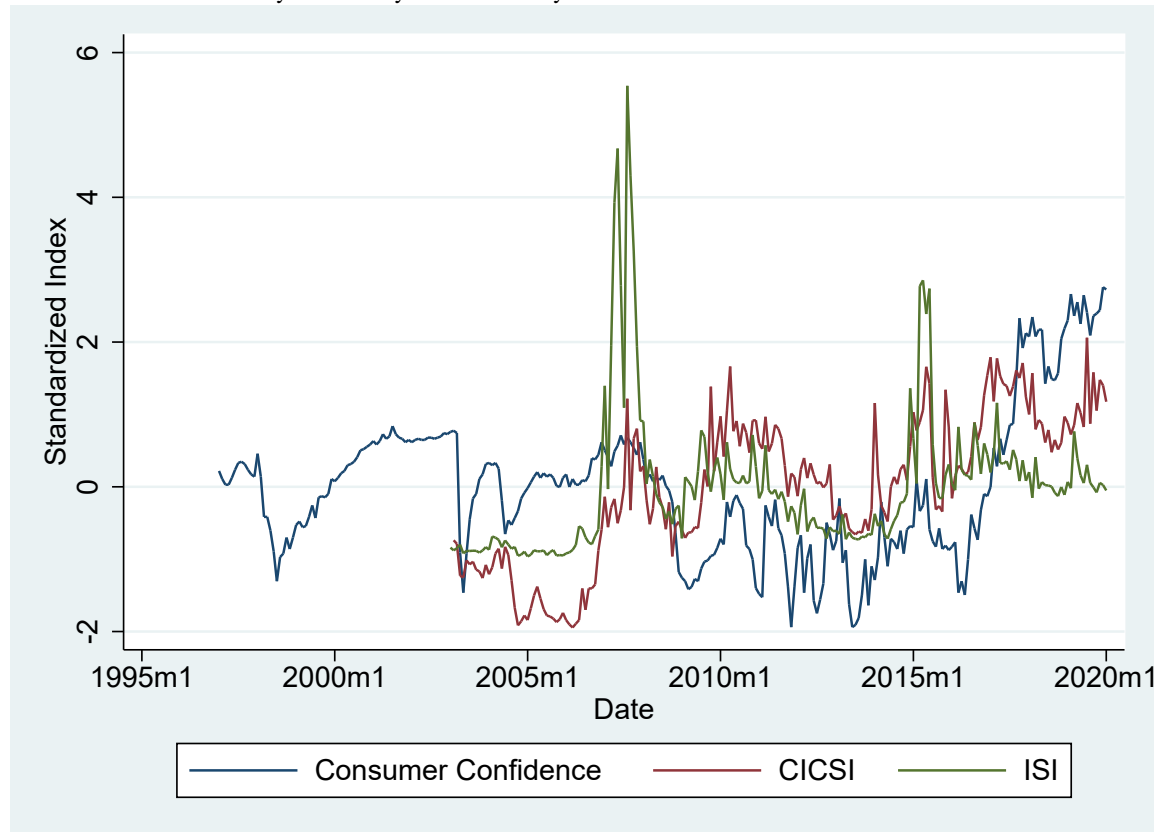
## Table IA.1: Decile portfolios

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French five-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their $t$-values (given in parentheses), for decile portfolios sorted by $VaR1_{NP}$ which is estimated in the previous month by the non-parametric method based on data $t$ ($t+1$) from January (February) 1997 to November (December) 2019 (from January 2000 to December 2018 for CH4). Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.190** | 0.477*** | 0.333** | 0.284 | 0.887* | 0.263 | 0.289* | 0.400* |
| | (2.51) | (3.44) | (2.22) | (1.54) | (1.93) | (1.30) | (1.72) | (1.87) |
| 2 | 1.367*** | 0.580*** | 0.305** | 0.255* | 0.866* | 0.154 | 0.096 | -0.116 |
| | (2.65) | (4.54) | (2.58) | (1.87) | (1.74) | (0.99) | (0.63) | (-0.67) |
| 3 | 1.320** | 0.499*** | 0.166 | 0.309*** | 0.859* | 0.115 | -0.008 | 0.004 |
| | (2.45) | (3.65) | (1.56) | (2.77) | (1.69) | (0.94) | (-0.06) | (0.03) |
| 4 | 1.308** | 0.509*** | 0.226** | 0.407*** | 0.843 | 0.100 | 0.103 | 0.146 |
| | (2.36) | (3.23) | (2.23) | (3.40) | (1.58) | (0.72) | (0.69) | (0.74) |
| 5 | 1.337** | 0.508*** | 0.238** | 0.327*** | 0.920 | 0.122 | 0.158 | 0.160 |
| | (2.30) | (2.89) | (2.16) | (3.02) | (1.61) | (0.92) | (1.17) | (0.94) |
| 6 | 1.290** | 0.382** | 0.135 | 0.393*** | 0.932 | 0.060 | 0.037 | 0.176 |
| | (2.23) | (2.10) | (1.34) | (3.44) | (1.65) | (0.43) | (0.27) | (0.95) |
| 7 | 1.004* | 0.281 | -0.030 | 0.354*** | 0.555 | -0.125 | -0.203 | 0.062 |
| | (1.73) | (1.35) | (-0.29) | (3.08) | (0.99) | (-0.76) | (-1.36) | (0.34) |
| 8 | 0.751 | 0.125 | -0.092 | 0.316** | 0.293 | -0.290 | -0.324** | -0.144 |
| | (1.26) | (0.57) | (-0.83) | (2.50) | (0.51) | (-1.65) | (-2.34) | (-0.80) |
| 9 | 0.853 | -0.011 | -0.163 | 0.284** | 0.327 | -0.479** | -0.385** | -0.121 |
| | (1.39) | (-0.05) | (-1.35) | (2.03) | (0.56) | (-2.51) | (-2.52) | (-0.63) |
| 10(highest) | 0.636 | -0.329 | -0.540*** | 0.079 | 0.158 | -0.797*** | -0.819*** | -0.324 |
| | (0.96) | (-1.09) | (-3.26) | (0.40) | (0.25) | (-3.12) | (-4.31) | (-1.43) |
| 10-1 spread | -0.569 | -0.781** | -0.854*** | -0.281 | -0.828* | -1.093*** | -1.137*** | -0.808** |
| | (-1.58) | (-2.30) | (-3.31) | (-0.89) | (-1.86) | (-2.61) | (-3.94) | (-2.30) |

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## Table IA.2: Decile portfolios for VaR

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French five-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their $t$-values (given in parentheses), for decile portfolios sorted by the left-tail risk (VaR) ($ES1$ in Panel A; $VaR5$ in Panel B; $ES5$ in Panel C) which is estimated in the previous month based on data $t$ ($t + 1$) from January (February) 1997 to November (December) 2019 (from January 2000 to December 2018 for CH4). Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Sort by 1% ES ($ES1$)**

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.284*** | 0.563*** | 0.356** | 0.376** | 0.946** | 0.317 | 0.282 | 0.461** |
| | (2.69) | (4.22) | (2.53) | (2.19) | (2.04) | (1.56) | (1.63) | (2.19) |
| 2 | 1.364** | 0.559*** | 0.294** | 0.311** | 0.762 | 0.034 | 0.079 | -0.144 |
| | (2.58) | (4.16) | (2.53) | (2.50) | (1.51) | (0.22) | (0.51) | (-0.77) |
| 3 | 1.303** | 0.464*** | 0.087 | 0.340*** | 0.793 | 0.031 | -0.080 | -0.071 |
| | (2.36) | (3.16) | (0.87) | (3.09) | (1.52) | (0.23) | (-0.57) | (-0.44) |
| 4 | 1.288** | 0.446*** | 0.182* | 0.298*** | 0.918* | 0.141 | 0.195 | 0.168 |
| | (2.31) | (2.81) | (1.74) | (2.64) | (1.72) | (1.01) | (1.32) | (0.93) |
| 5 | 1.370** | 0.504*** | 0.151 | 0.377*** | 0.862 | 0.053 | 0.055 | 0.095 |
| | (2.37) | (2.90) | (1.39) | (3.27) | (1.56) | (0.39) | (0.40) | (0.58) |
| 6 | 1.299** | 0.433** | 0.172* | 0.334*** | 0.754 | -0.059 | -0.050 | -0.077 |
| | (2.24) | (2.35) | (1.67) | (2.78) | (1.36) | (-0.42) | (-0.35) | (-0.41) |
| 7 | 1.198** | 0.329* | 0.061 | 0.326*** | 0.750 | -0.052 | -0.096 | 0.148 |
| | (2.05) | (1.73) | (0.63) | (2.84) | (1.36) | (-0.35) | (-0.64) | (0.74) |
| 8 | 1.191** | 0.316 | 0.008 | 0.337*** | 0.789 | -0.049 | -0.158 | 0.168 |
| | (2.01) | (1.52) | (0.07) | (2.74) | (1.35) | (-0.28) | (-0.97) | (0.81) |
| 9 | 1.078* | 0.207 | -0.130 | 0.324** | 0.609 | -0.217 | -0.332** | -0.078 |
| | (1.81) | (0.93) | (-1.01) | (2.20) | (1.05) | (-1.17) | (-2.00) | (-0.40) |
| 10(highest) | 0.782 | -0.106 | -0.359** | 0.101 | 0.224 | -0.607*** | -0.607*** | -0.349* |
| | (1.26) | (-0.40) | (-2.37) | (0.58) | (0.38) | (-2.75) | (-3.42) | (-1.70) |
| 10-1 spread | -0.502 | -0.669** | -0.715*** | -0.275 | -0.723* | -0.925** | -0.889*** | -0.811** |
| | (-1.63) | (-2.31) | (-3.11) | (-1.00) | (-1.86) | (-2.52) | (-3.38) | (-2.56) |

Table IA.2 (continued)

**Panel B: Sort by 5% VaR (*VaR*5)**

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.264*** | 0.566*** | 0.378*** | 0.284 | 0.730* | 0.141 | 0.155 | 0.128 |
| | (2.72) | (4.16) | (2.60) | (1.56) | (1.66) | (0.69) | (0.98) | (0.65) |
| 2 | 1.310** | 0.524*** | 0.330*** | 0.259* | 0.906* | 0.179 | 0.169 | 0.210 |
| | (2.55) | (4.31) | (2.80) | (1.87) | (1.81) | (1.30) | (1.27) | (1.18) |
| 3 | 1.347** | 0.528*** | 0.262** | 0.310** | 1.091** | 0.315** | 0.333** | 0.303* |
| | (2.50) | (3.90) | (2.33) | (2.47) | (2.06) | (2.40) | (2.41) | (1.72) |
| 4 | 1.217** | 0.371** | 0.051 | 0.250** | 0.824 | 0.026 | 0.005 | 0.229 |
| | (2.17) | (2.40) | (0.50) | (2.24) | (1.51) | (0.20) | (0.03) | (1.34) |
| 5 | 1.227** | 0.381** | 0.092 | 0.260** | 0.899 | 0.065 | -0.001 | 0.072 |
| | (2.18) | (2.27) | (0.93) | (2.31) | (1.58) | (0.50) | (-0.01) | (0.40) |
| 6 | 1.214** | 0.351* | 0.003 | 0.213* | 0.722 | -0.098 | -0.196 | -0.035 |
| | (2.09) | (1.85) | (0.03) | (1.67) | (1.28) | (-0.64) | (-1.27) | (-0.18) |
| 7 | 1.331** | 0.453** | 0.183* | 0.442*** | 0.902 | 0.069 | 0.062 | 0.186 |
| | (2.26) | (2.43) | (1.73) | (3.82) | (1.57) | (0.44) | (0.41) | (1.01) |
| 8 | 1.205** | 0.321 | 0.021 | 0.337*** | 0.739 | -0.107 | -0.164 | 0.016 |
| | (2.00) | (1.49) | (0.18) | (2.87) | (1.26) | (-0.63) | (-1.10) | (0.09) |
| 9 | 1.102* | 0.206 | -0.116 | 0.463*** | 0.501 | -0.342 | -0.402** | -0.079 |
| | (1.78) | (0.84) | (-0.90) | (3.17) | (0.84) | (-1.62) | (-2.45) | (-0.41) |
| 10(highest) | 0.938 | 0.013 | -0.379** | 0.314 | 0.452 | -0.430 | -0.582*** | 0.016 |
| | (1.42) | (0.04) | (-2.18) | (1.62) | (0.70) | (-1.53) | (-2.91) | (0.07) |
| 10-1 spread | -0.326 | -0.552 | -0.757*** | 0.030 | -0.278 | -0.571 | -0.738*** | -0.112 |
| | (-0.88) | (-1.61) | (-2.90) | (0.10) | (-0.59) | (-1.31) | (-2.65) | (-0.32) |

**Panel C: Sort by 5% ES (*ES*5)**

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.235*** | 0.532*** | 0.363** | 0.268 | 0.875* | 0.258 | 0.264 | 0.242 |
| | (2.63) | (3.70) | (2.34) | (1.41) | (1.91) | (1.26) | (1.61) | (1.21) |
| 2 | 1.332*** | 0.554*** | 0.291** | 0.273** | 0.771 | 0.065 | 0.037 | -0.001 |
| | (2.61) | (4.53) | (2.54) | (1.98) | (1.58) | (0.46) | (0.27) | (-0.01) |
| 3 | 1.242** | 0.426*** | 0.169* | 0.243** | 0.779 | 0.035 | -0.052 | -0.025 |
| | (2.32) | (3.15) | (1.66) | (2.14) | (1.53) | (0.28) | (-0.40) | (-0.14) |
| 4 | 1.263** | 0.419*** | 0.165* | 0.270** | 0.977* | 0.171 | 0.231* | 0.206 |
| | (2.27) | (2.85) | (1.65) | (2.41) | (1.78) | (1.30) | (1.66) | (1.16) |
| 5 | 1.339** | 0.488*** | 0.188* | 0.382*** | 1.036* | 0.214 | 0.188 | 0.239 |
| | (2.36) | (2.89) | (1.90) | (3.57) | (1.84) | (1.53) | (1.32) | (1.30) |
| 6 | 1.345** | 0.477*** | 0.170* | 0.408*** | 0.953* | 0.115 | 0.130 | 0.355* |
| | (2.31) | (2.59) | (1.68) | (3.43) | (1.66) | (0.81) | (0.97) | (1.97) |
| 7 | 1.202** | 0.324 | -0.025 | 0.366*** | 0.730 | -0.101 | -0.272** | -0.017 |
| | (2.03) | (1.63) | (-0.24) | (3.12) | (1.28) | (-0.65) | (-1.99) | (-0.10) |
| 8 | 1.347** | 0.464** | 0.129 | 0.515*** | 0.795 | -0.053 | -0.154 | 0.040 |
| | (2.24) | (2.13) | (1.23) | (4.40) | (1.35) | (-0.31) | (-1.12) | (0.25) |
| 9 | 1.045* | 0.151 | -0.172 | 0.318** | 0.410 | -0.433** | -0.487*** | -0.243 |
| | (1.70) | (0.63) | (-1.36) | (2.27) | (0.69) | (-2.17) | (-3.25) | (-1.33) |
| 10(highest) | 0.805 | -0.119 | -0.454*** | 0.084 | 0.288 | -0.589** | -0.686*** | -0.224 |
| | (1.23) | (-0.41) | (-2.66) | (0.43) | (0.45) | (-2.26) | (-3.43) | (-0.94) |
| 10-1 spread | -0.430 | -0.651* | -0.816*** | -0.184 | -0.586 | -0.847** | -0.950*** | -0.466 |
| | (-1.18) | (-1.93) | (-3.19) | (-0.59) | (-1.31) | (-2.04) | (-3.35) | (-1.35) |

## Table IA.3: Decile portfolios

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French 5-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their $t$-values (given in parentheses), for decile portfolios sorted by $VaR1$, which is estimated in the previous month based on data $t$ ($t+1$) from January (February) 1997 to November (December) 2019 (CH4 is available from January 2000 to December 2018). Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.417*** | 0.667*** | 0.282* | 0.431** | 1.040** | 0.461* | 0.393** | 0.336** |
| | (2.82) | (4.16) | (1.72) | (2.12) | (2.31) | (1.95) | (2.05) | (1.99) |
| 2 | 1.369*** | 0.593*** | 0.327*** | 0.408*** | 0.846* | 0.152 | 0.158 | 0.038 |
| | (2.68) | (4.46) | (2.80) | (3.24) | (1.72) | (0.89) | (0.94) | (0.26) |
| 3 | 1.273** | 0.443*** | 0.139 | 0.251** | 0.661 | -0.076 | -0.147 | -0.125 |
| | (2.33) | (3.13) | (1.49) | (2.55) | (1.31) | (-0.62) | (-1.12) | (-0.86) |
| 4 | 1.342** | 0.497*** | 0.233** | 0.365*** | 0.852 | 0.072 | 0.035 | -0.066 |
| | (2.40) | (3.21) | (2.44) | (3.68) | (1.60) | (0.55) | (0.25) | (-0.43) |
| 5 | 1.304** | 0.452** | 0.092 | 0.351*** | 0.818 | 0.018 | -0.040 | 0.069 |
| | (2.29) | (2.57) | (1.03) | (3.39) | (1.50) | (0.14) | (-0.31) | (0.42) |
| 6 | 1.166** | 0.292 | 0.013 | 0.264** | 0.647 | -0.178 | -0.189 | -0.075 |
| | (1.99) | (1.55) | (0.12) | (2.57) | (1.14) | (-1.15) | (-1.17) | (-0.39) |
| 7 | 1.191** | 0.314* | -0.030 | 0.263*** | 0.685 | -0.120 | -0.106 | 0.048 |
| | (2.02) | (1.67) | (-0.34) | (2.90) | (1.24) | (-0.82) | (-0.73) | (0.27) |
| 8 | 1.098* | 0.221 | -0.051 | 0.336*** | 0.611 | -0.208 | -0.102 | 0.106 |
| | (1.85) | (1.08) | (-0.55) | (3.08) | (1.07) | (-1.13) | (-0.58) | (0.49) |
| 9 | 0.963 | 0.077 | -0.259** | 0.217* | 0.287 | -0.540*** | -0.611*** | -0.317* |
| | (1.58) | (0.34) | (-2.39) | (1.71) | (0.50) | (-3.08) | (-4.30) | (-1.80) |
| 10(highest) | 0.761 | -0.133 | -0.435*** | 0.051 | 0.195 | -0.640*** | -0.678*** | -0.391* |
| | (1.21) | (-0.49) | (-2.91) | (0.30) | (0.32) | (-2.69) | (-3.56) | (-1.78) |
| 10-1 spread | -0.657** | -0.800** | -0.717*** | -0.380 | -0.846* | -1.101*** | -1.070*** | -0.727** |
| | (-2.00) | (-2.53) | (-2.77) | (-1.26) | (-1.87) | (-2.61) | (-3.59) | (-2.31) |

## Table IA.4: Portfolios sorted by *IVOL* and *VaR*1

This table presents both the equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *IVOL* and then by *VaR*1 from January 1997 to December 2019. At the beginning of each month, we first sort stocks by *IVOL* into five quintiles. Within each *IVOL* portfolio, we then sort stocks into five sub-quintiles by *VaR*1. *IVOL*1 and *IVOL*5 denote the lowest and highest quintiles for *IVOL*, respectively. V1 and V5 denote the lowest and highest quintiles for *VaR*1. The V5-V1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *VaR*1 within the same *IVOL* quintile or the average of five *IVOL* portfolios (Avg (IV1-IV5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (IV1-IV5) reports the return average or return spread average of the five *IVOL* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
|---|---|---|---|---|---|---|---|---|
| *IVOL*1 | 1.402*** | 1.601*** | 1.454** | 0.052 | 0.546*** | 0.394*** | 0.311** | -0.236 |
| | (2.99) | (2.89) | (2.51) | (0.21) | (3.36) | (2.87) | (1.98) | (-1.10) |
| *IVOL*2 | 1.644*** | 1.581*** | 1.417** | -0.227 | 0.597*** | 0.368*** | 0.181 | -0.416* |
| | (3.17) | (2.79) | (2.33) | (-0.89) | (4.01) | (3.27) | (1.22) | (-1.91) |
| *IVOL*3 | 1.522*** | 1.291** | 1.307** | -0.215 | 0.380** | 0.080 | -0.029 | -0.409* |
| | (2.91) | (2.24) | (2.10) | (-0.82) | (2.46) | (0.70) | (-0.21) | (-1.80) |
| *IVOL*4 | 1.119** | 1.082* | 0.824 | -0.294 | -0.043 | -0.061 | -0.358** | -0.316 |
| | (2.10) | (1.85) | (1.29) | (-1.10) | (-0.27) | (-0.48) | (-2.41) | (-1.35) |
| *IVOL*5 | 0.426 | 0.055 | -0.166 | -0.592* | -0.712*** | -1.109*** | -1.198*** | -0.486* |
| | (0.77) | (0.09) | (-0.25) | (-1.88) | (-3.71) | (-6.93) | (-5.76) | (-1.72) |
| Avg (IV1-IV5) | 1.222** | 1.122** | 0.967 | -0.255 | 0.154 | -0.066 | -0.219* | -0.373** |
| | (2.41) | (1.97) | (1.58) | (-1.09) | (1.39) | (-0.95) | (-1.95) | (-2.00) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
|---|---|---|---|---|---|---|---|---|
| *IVOL*1 | 1.096** | 0.893* | 0.808 | -0.288 | 0.433* | -0.117 | -0.140 | -0.573* |
| | (2.42) | (1.67) | (1.41) | (-0.76) | (1.83) | (-0.64) | (-0.66) | (-1.73) |
| *IVOL*2 | 1.060** | 1.064* | 0.806 | -0.253 | 0.380* | 0.144 | -0.129 | -0.509* |
| | (2.15) | (1.92) | (1.38) | (-0.70) | (1.90) | (0.81) | (-0.72) | (-1.74) |
| *IVOL*3 | 1.163** | 0.868 | 0.692 | -0.470 | 0.480** | 0.099 | -0.422** | -0.902*** |
| | (2.28) | (1.55) | (1.17) | (-1.12) | (2.03) | (0.60) | (-2.07) | (-2.62) |
| *IVOL*4 | 0.696 | 0.522 | 0.352 | -0.344 | 0.013 | -0.260 | -0.609*** | -0.621* |
| | (1.35) | (0.93) | (0.56) | (-0.83) | (0.05) | (-1.40) | (-3.28) | (-1.86) |
| *IVOL*5 | 0.341 | -0.072 | -0.450 | -0.791* | -0.615** | -0.819*** | -1.157*** | -0.542 |
| | (0.62) | (-0.12) | (-0.70) | (-1.94) | (-2.43) | (-3.05) | (-4.50) | (-1.55) |
| Avg (IV1-IV5) | 0.871* | 0.655 | 0.442 | -0.429 | 0.138 | -0.191** | -0.491*** | -0.629*** |
| | (1.85) | (1.23) | (0.76) | (-1.30) | (1.00) | (-2.00) | (-3.50) | (-2.70) |

## Table IA.5: Value at risk and expected returns

This table reports the time-series averages of the slope coefficients and their $t$-values (given in parentheses) from the Fama-MacBeth regressions of excess stock returns or risk-adjusted stock returns on various pricing variables (see the first column) using monthly data $t$ ($t+1$) from January (February) 1997 to November (December) 2019.

$$R_{i,t+1} = \lambda_{0,t} + \lambda_{1,t} VaR_{i,t} + \Lambda_t X_{i,t} + \varepsilon_{i,t+1}, \tag{1}$$

where $R_{i,t+1}$ is the excess return, which is the difference between the monthly stock return on stock $i$ and the one-month T-bill rate at time $t+1$ or the risk-adjusted return on stock $i$ at $t+1$, which is adjusted for the Fama-French three factors; $VaR_{i,t}$ is either $VaR1$ or $ES1$ for stock $i$ at time $t$; and $X_{i,t}$ is a set of control variables. For Columns (1)-(6), the dependent variable is the excess return ($R$). The risk-adjusted return ($RA$) is the dependent variable for Columns (7)-(12). We adjust the Fama-MacBeth standard errors using the Newey and West (1987) correction with six lags. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R | R | R | R | R | R | RA | RA | RA | RA | RA | RA |
| VaR1 | -0.1441*** | | -0.0495 | | -0.0226 | | -0.1815*** | | -0.0713** | | -0.0199 | |
| | (-2.92) | | (-1.04) | | (-0.57) | | (-5.20) | | (-2.02) | | (-0.52) | |
| ES1 | | -0.1079** | | -0.0423 | | 0.0106 | | -0.1105*** | | -0.0292 | | 0.0127 |
| | | (-2.14) | | (-0.93) | | (0.30) | | (-3.14) | | (-0.92) | | (0.40) |
| IVOL | | | -0.6635*** | -0.6625*** | -0.3654*** | -0.3616*** | | | -0.7590*** | -0.7684*** | -0.4135*** | -0.4115*** |
| | | | (-9.12) | (-9.09) | (-3.58) | (-3.56) | | | (-11.68) | (-11.99) | (-4.28) | (-4.29) |
| SIZE | | | | | -0.7232*** | -0.7212*** | | | | | -0.4443*** | -0.4435*** |
| | | | | | (-4.55) | (-4.55) | | | | | (-4.81) | (-4.84) |
| BM | | | | | 0.0523 | 0.0546 | | | | | 0.0801 | 0.0823 |
| | | | | | (0.61) | (0.64) | | | | | (1.16) | (1.21) |
| MOM | | | | | 0.0068** | 0.0069** | | | | | 0.0056** | 0.0057** |
| | | | | | (2.21) | (2.24) | | | | | (2.11) | (2.14) |
| TURN | | | | | -2.3653*** | -2.3674*** | | | | | -2.3702*** | -2.3719*** |
| | | | | | (-9.25) | (-9.14) | | | | | (-9.98) | (-9.82) |
| β | | | | | -0.0524 | -0.0614 | | | | | | |
| | | | | | (-0.65) | (-0.74) | | | | | | |
| ISKEW | | | | | -0.2312*** | -0.2305*** | | | | | -0.2286*** | -0.2274*** |
| | | | | | (-4.82) | (-4.78) | | | | | (-4.77) | (-4.71) |
| MAX | | | | | 0.0349** | 0.0354** | | | | | 0.0310** | 0.0313** |
| | | | | | (2.24) | (2.28) | | | | | (2.00) | (2.02) |
| Constant | 2.0811*** | 1.9475** | 2.8649*** | 2.8633*** | 8.0956*** | 7.7245*** | 1.1962*** | 0.7420** | 2.0920*** | 1.7942*** | 4.7737*** | 4.4106*** |
| | (2.76) | (2.40) | (3.54) | (3.33) | (4.37) | (4.35) | (4.17) | (2.33) | (6.52) | (5.18) | (4.45) | (4.61) |
| $R^2$ | 0.021 | 0.017 | 0.035 | 0.032 | 0.109 | 0.109 | 0.011 | 0.009 | 0.023 | 0.022 | 0.061 | 0.061 |

## Table IA.6: Decile portfolios sorted by $VaR1_{NP}$ during high and low consumer confidence periods

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French 5-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their $t$-values (given in parentheses), for decile portfolios sorted by $VaR1_{NP}$ which is estimated in the previous month by the non-parametric method based on data $t$ $(t+1)$ from January (February) 1997 to November (December) 2019 (CH4 is available from January 2000 to December 2018) during high and low consumer confidence periods. High consumer confidence periods are defined as when the consumer confidence index is larger than its mean or median (the defined months are the same as the mean and median are close here), while low consumer confidence periods are defined as months in which the consumer confidence index is below its mean or median. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: High consumer confidence period**

| | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| Portfolio | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.456** | 0.561*** | 0.345 | 0.580** | 1.523** | 0.759** | 0.468* | 0.863** |
| | (2.13) | (2.81) | (1.64) | (2.16) | (2.26) | (2.44) | (1.73) | (2.53) |
| 2 | 1.550** | 0.546*** | 0.299* | 0.396* | 1.145 | 0.272 | -0.052 | -0.212 |
| | (2.05) | (2.98) | (1.72) | (1.84) | (1.56) | (1.02) | (-0.21) | (-0.76) |
| 3 | 1.217 | 0.196 | 0.025 | 0.305* | 0.917 | 0.052 | -0.066 | -0.068 |
| | (1.58) | (1.03) | (0.16) | (1.80) | (1.31) | (0.30) | (-0.36) | (-0.33) |
| 4 | 1.243 | 0.223 | 0.178 | 0.332* | 0.956 | 0.054 | 0.078 | -0.142 |
| | (1.60) | (1.01) | (1.16) | (1.85) | (1.31) | (0.28) | (0.38) | (-0.54) |
| 5 | 1.290 | 0.225 | 0.211 | 0.368** | 1.095 | 0.098 | 0.146 | 0.081 |
| | (1.59) | (0.95) | (1.19) | (2.15) | (1.37) | (0.52) | (0.73) | (0.33) |
| 6 | 1.205 | 0.159 | 0.157 | 0.365** | 1.079 | 0.107 | 0.193 | 0.241 |
| | (1.50) | (0.64) | (1.10) | (2.28) | (1.38) | (0.55) | (0.99) | (1.03) |
| 7 | 1.106 | 0.034 | 0.101 | 0.410** | 0.806 | -0.170 | -0.045 | 0.070 |
| | (1.32) | (0.12) | (0.65) | (2.29) | (1.01) | (-0.72) | (-0.20) | (0.26) |
| 8 | 0.898 | -0.190 | -0.067 | 0.276 | 0.561 | -0.438* | -0.226 | -0.191 |
| | (1.06) | (-0.63) | (-0.39) | (1.43) | (0.69) | (-1.80) | (-1.15) | (-0.74) |
| 9 | 1.060 | -0.288 | -0.148 | 0.235 | 0.658 | -0.578** | -0.239 | -0.133 |
| | (1.18) | (-0.90) | (-0.88) | (1.26) | (0.77) | (-2.28) | (-1.23) | (-0.56) |
| 10(highest) | 0.759 | -0.886** | -0.716*** | -0.191 | 0.489 | -1.099*** | -0.789*** | -0.522* |
| | (0.80) | (-2.15) | (-2.89) | (-0.71) | (0.54) | (-3.10) | (-2.81) | (-1.74) |
| 10-1 spread | -0.974** | -1.378*** | -1.068*** | -0.681* | -1.313** | -1.785*** | -1.243*** | -1.372*** |
| | (-2.00) | (-3.08) | (-2.89) | (-1.80) | (-2.05) | (-2.96) | (-2.80) | (-2.76) |

**Panel B: Low consumer confidence period**

| | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| Portfolio | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 0.920 | 0.386** | 0.298 | -0.003 | 0.246 | -0.240 | 0.103 | -0.064 |
| | (1.40) | (2.00) | (1.45) | (-0.01) | (0.39) | (-0.96) | (0.50) | (-0.27) |
| 2 | 1.182* | 0.602*** | 0.164 | 0.148 | 0.585 | 0.031 | 0.162 | 0.006 |
| | (1.67) | (3.42) | (1.16) | (0.92) | (0.87) | (0.19) | (0.93) | (0.03) |
| 3 | 1.423* | 0.801*** | 0.217 | 0.255* | 0.799 | 0.187 | -0.071 | -0.027 |
| | (1.88) | (4.11) | (1.53) | (1.77) | (1.08) | (1.13) | (-0.41) | (-0.13) |
| 4 | 1.376* | 0.806*** | 0.199 | 0.462*** | 0.727 | 0.160 | 0.074 | 0.483 |
| | (1.73) | (3.62) | (1.55) | (2.93) | (0.93) | (0.81) | (0.34) | (1.64) |
| 5 | 1.387* | 0.802*** | 0.181 | 0.272** | 0.738 | 0.148 | 0.151 | 0.317 |
| | (1.66) | (3.08) | (1.42) | (2.10) | (0.90) | (0.78) | (0.80) | (1.32) |
| 6 | 1.382* | 0.625** | 0.036 | 0.429** | 0.773 | 0.013 | -0.162 | 0.136 |
| | (1.66) | (2.36) | (0.27) | (2.59) | (0.94) | (0.06) | (-0.81) | (0.46) |
| 7 | 0.889 | 0.538* | -0.220* | 0.324** | 0.277 | -0.078 | -0.414** | 0.122 |
| | (1.11) | (1.84) | (-1.78) | (2.35) | (0.35) | (-0.34) | (-2.04) | (0.51) |
| 8 | 0.582 | 0.463 | -0.194 | 0.385** | -0.012 | -0.131 | -0.496** | -0.038 |
| | (0.70) | (1.45) | (-1.42) | (2.36) | (-0.02) | (-0.51) | (-2.60) | (-0.16) |
| 9 | 0.619 | 0.269 | -0.206 | 0.360* | -0.044 | -0.389 | -0.516** | -0.058 |
| | (0.74) | (0.75) | (-1.20) | (1.67) | (-0.05) | (-1.35) | (-2.15) | (-0.19) |
| 10(highest) | 0.507 | 0.210 | -0.377* | 0.398 | -0.191 | -0.492 | -0.829*** | -0.048 |
| | (0.55) | (0.47) | (-1.71) | (1.36) | (-0.21) | (-1.32) | (-3.26) | (-0.14) |
| 10-1 spread | -0.144 | -0.202 | -0.657* | 0.205 | -0.317 | -0.397 | -0.985*** | -0.060 |
| | (-0.27) | (-0.39) | (-1.83) | (0.44) | (-0.52) | (-0.69) | (-2.67) | (-0.12) |

## Table IA.7: Decile portfolios sorted by $ES1$ during high and low consumer confidence periods

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French 5-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their $t$-values (given in parentheses), for decile portfolios sorted by $ES1$ which is estimated in the previous month based on data $t$ ($t+1$) from January (February) 1997 to November (December) 2019 (CH4 is available from January 2000 to December 2018) during high and low consumer confidence periods. High consumer confidence periods are defined when the consumer confidence index is larger than its mean or median (the defined months are the same as the mean and median are close here), while low consumer confidence periods are defined as months in which the consumer confidence index is below its mean or median. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: High consumer confidence period**

| | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| Portfolio | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| (lowest) | 1.499** | 0.591*** | 0.404** | 0.701*** | 1.485** | 0.705** | 0.325 | 0.874*** |
| | (2.17) | (3.18) | (2.05) | (2.71) | (2.16) | (2.20) | (1.19) | (2.71) |
| 2 | 1.350* | 0.351* | 0.180 | 0.301 | 1.061 | 0.198 | 0.069 | -0.242 |
| | (1.80) | (1.96) | (1.09) | (1.50) | (1.48) | (0.81) | (0.29) | (-0.80) |
| 3 | 1.266 | 0.233 | 0.064 | 0.349** | 0.927 | 0.048 | -0.055 | -0.092 |
| | (1.63) | (1.30) | (0.50) | (2.27) | (1.30) | (0.25) | (-0.26) | (-0.39) |
| 4 | 1.185 | 0.158 | 0.141 | 0.204 | 1.004 | 0.095 | 0.268 | -0.100 |
| | (1.52) | (0.72) | (0.90) | (1.15) | (1.35) | (0.45) | (1.17) | (-0.38) |
| 5 | 1.275 | 0.206 | 0.107 | 0.288 | 0.996 | 0.011 | 0.121 | 0.146 |
| | (1.56) | (0.84) | (0.59) | (1.52) | (1.25) | (0.05) | (0.55) | (0.54) |
| 6 | 1.174 | 0.116 | 0.177 | 0.370** | 0.814 | -0.159 | -0.069 | -0.104 |
| | (1.44) | (0.44) | (1.11) | (2.02) | (1.03) | (-0.78) | (-0.32) | (-0.41) |
| 7 | 1.054 | -0.026 | 0.062 | 0.304* | 0.763 | -0.202 | -0.100 | 0.037 |
| | (1.26) | (-0.10) | (0.43) | (1.81) | (0.98) | (-1.02) | (-0.52) | (0.15) |
| 8 | 1.102 | 0.011 | 0.061 | 0.430** | 0.917 | -0.095 | -0.117 | 0.174 |
| | (1.29) | (0.04) | (0.33) | (2.38) | (1.10) | (-0.37) | (-0.49) | (0.64) |
| 9 | 0.917 | -0.167 | -0.172 | 0.223 | 0.758 | -0.248 | -0.208 | 0.000 |
| | (1.07) | (-0.51) | (-0.87) | (1.06) | (0.91) | (-0.89) | (-0.83) | (0.00) |
| 10(highest) | 0.443 | -0.669* | -0.525** | -0.115 | 0.114 | -0.899*** | -0.602** | -0.485* |
| | (0.50) | (-1.81) | (-2.56) | (-0.51) | (0.13) | (-2.83) | (-2.42) | (-1.88) |
| 10-1 spread | -1.056** | -1.260*** | -0.930*** | -0.816** | -1.371** | -1.605*** | -0.928** | -1.359*** |
| | (-2.49) | (-3.13) | (-3.03) | (-2.22) | (-2.42) | (-2.96) | (-2.49) | (-3.25) |

**Panel B: Low consumer confidence period**

| | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| Portfolio | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 1.066 | 0.527*** | 0.221 | 0.015 | 0.405 | -0.080 | 0.178 | 0.017 |
| | (1.61) | (2.75) | (1.12) | (0.07) | (0.65) | (-0.33) | (0.83) | (0.07) |
| 2 | 1.378* | 0.766*** | 0.262* | 0.337** | 0.461 | -0.127 | -0.016 | 0.008 |
| | (1.84) | (3.83) | (1.79) | (2.29) | (0.64) | (-0.70) | (-0.08) | (0.04) |
| 3 | 1.339* | 0.698*** | 0.005 | 0.287* | 0.658 | 0.026 | -0.232 | -0.129 |
| | (1.69) | (3.00) | (0.03) | (1.81) | (0.86) | (0.14) | (-1.34) | (-0.62) |
| 4 | 1.392* | 0.742*** | 0.161 | 0.389*** | 0.831 | 0.196 | 0.092 | 0.474* |
| | (1.74) | (3.23) | (1.20) | (2.84) | (1.08) | (1.10) | (0.50) | (1.94) |
| 5 | 1.466* | 0.804*** | 0.086 | 0.427*** | 0.727 | 0.091 | -0.150 | 0.053 |
| | (1.79) | (3.25) | (0.75) | (3.30) | (0.95) | (0.53) | (-0.99) | (0.29) |
| 6 | 1.425* | 0.756*** | 0.136 | 0.291* | 0.695 | 0.043 | -0.026 | 0.024 |
| | (1.72) | (2.98) | (1.07) | (1.85) | (0.88) | (0.23) | (-0.13) | (0.09) |
| 7 | 1.343 | 0.684** | 0.025 | 0.388** | 0.737 | 0.097 | -0.072 | 0.382 |
| | (1.64) | (2.56) | (0.19) | (2.49) | (0.94) | (0.43) | (-0.30) | (1.22) |
| 8 | 1.281 | 0.620** | -0.132 | 0.269 | 0.661 | -0.004 | -0.221 | 0.258 |
| | (1.54) | (2.14) | (-0.93) | (1.61) | (0.80) | (-0.02) | (-0.94) | (0.87) |
| 9 | 1.243 | 0.581* | -0.054 | 0.466** | 0.458 | -0.190 | -0.416* | -0.125 |
| | (1.49) | (1.91) | (-0.32) | (2.22) | (0.57) | (-0.77) | (-1.85) | (-0.43) |
| 10(highest) | 1.126 | 0.456 | -0.213 | 0.344 | 0.335 | -0.318 | -0.580** | -0.140 |
| | (1.29) | (1.23) | (-0.93) | (1.24) | (0.40) | (-1.04) | (-2.21) | (-0.43) |
| 10-1 spread | 0.060 | -0.071 | -0.433 | 0.329 | -0.069 | -0.239 | -0.759* | -0.156 |
| | (0.14) | (-0.17) | (-1.22) | (0.79) | (-0.13) | (-0.48) | (-1.98) | (-0.33) |

### Table IA.8: Decile portfolios sorted by *VaR*1 during high and low investor sentiment (CICSI) periods

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French 5-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their *t*-values (given in parentheses), for decile portfolios sorted by *ES*1 which is estimated in the previous month based on data *t* (*t* + 1) from February (March) 2003 to November (December) 2019 (CH4 is available from February 2003 to December 2018) during high and low investor sentiment (CICSI) periods. High investor sentiment periods are defined when the investor composite sentiment index (CICSI) is larger than its median, while low consumer confidence periods are defined as months in which the investor composite sentiment index (CICSI) is below its median. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: High investor sentiment period**

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| (lowest) | 0.328 | 0.337 | 0.098 | 0.017 | 0.085 | 0.094 | 0.051 | -0.014 |
| | (0.46) | (1.62) | (0.49) | (0.06) | (0.13) | (0.40) | (0.24) | (-0.04) |
| 2 | 0.453 | 0.465** | 0.160 | 0.553*** | -0.110 | -0.100 | -0.142 | 0.091 |
| | (0.55) | (2.37) | (1.07) | (2.79) | (-0.14) | (-0.41) | (-0.61) | (0.30) |
| 3 | 0.355 | 0.367 | 0.030 | 0.413** | -0.136 | -0.125 | -0.171 | 0.344 |
| | (0.41) | (1.62) | (0.23) | (2.63) | (-0.17) | (-0.67) | (-0.88) | (1.24) |
| 4 | 0.461 | 0.473* | 0.172 | 0.562*** | 0.196 | 0.208 | 0.191 | 0.488* |
| | (0.52) | (1.96) | (1.37) | (3.40) | (0.23) | (1.15) | (1.02) | (1.89) |
| 5 | 0.365 | 0.377 | 0.066 | 0.355* | -0.158 | -0.146 | -0.059 | 0.235 |
| | (0.40) | (1.40) | (0.44) | (1.89) | (-0.18) | (-0.70) | (-0.27) | (0.76) |
| 6 | 0.280 | 0.293 | -0.056 | 0.352* | -0.160 | -0.148 | -0.117 | 0.283 |
| | (0.31) | (1.01) | (-0.41) | (1.94) | (-0.18) | (-0.67) | (-0.52) | (0.86) |
| 7 | 0.210 | 0.223 | -0.029 | 0.298* | -0.154 | -0.142 | -0.076 | 0.273 |
| | (0.23) | (0.74) | (-0.23) | (1.81) | (-0.18) | (-0.65) | (-0.43) | (1.06) |
| 8 | 0.176 | 0.188 | -0.120 | 0.221 | -0.274 | -0.261 | -0.296 | -0.121 |
| | (0.19) | (0.59) | (-0.81) | (1.10) | (-0.30) | (-1.09) | (-1.50) | (-0.41) |
| 9 | 0.075 | 0.087 | -0.181 | 0.171 | -0.569 | -0.556* | -0.564** | -0.303 |
| | (0.08) | (0.24) | (-0.98) | (0.70) | (-0.61) | (-1.98) | (-2.36) | (-0.91) |
| 10(highest) | -0.144 | -0.131 | -0.421* | 0.081 | -0.697 | -0.685* | -0.748*** | -0.307 |
| | (-0.14) | (-0.30) | (-1.93) | (0.27) | (-0.72) | (-1.81) | (-2.68) | (-0.83) |
| 10-1 spread | -0.472 | -0.468 | -0.519 | 0.065 | -0.782 | -0.778 | -0.798** | -0.293 |
| | (-0.98) | (-1.10) | (-1.55) | (0.14) | (-1.29) | (-1.44) | (-2.08) | (-0.55) |

**Panel B: Low investor sentiment period**

| Portfolio | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 2.102** | 0.586** | 0.586** | 0.218 | 1.742** | 0.414 | 0.366 | 0.434 |
| | (2.47) | (2.37) | (2.30) | (0.70) | (2.08) | (0.93) | (0.99) | (1.19) |
| 2 | 2.395** | 0.691*** | 0.524*** | 0.376* | 1.941** | 0.383 | 0.218 | -0.113 |
| | (2.54) | (3.21) | (2.67) | (1.73) | (2.16) | (1.19) | (0.65) | (-0.33) |
| 3 | 2.630** | 0.818*** | 0.538*** | 0.495*** | 2.174** | 0.513** | 0.270 | 0.248 |
| | (2.61) | (3.26) | (2.97) | (2.78) | (2.35) | (2.16) | (1.03) | (0.97) |
| 4 | 2.344** | 0.509 | 0.435** | 0.467** | 2.110** | 0.331 | 0.394 | 0.238 |
| | (2.26) | (1.58) | (2.04) | (2.11) | (2.13) | (1.29) | (1.38) | (0.75) |
| 5 | 2.477** | 0.646* | 0.338* | 0.489** | 2.185** | 0.394 | 0.372 | 0.203 |
| | (2.35) | (1.71) | (1.75) | (2.40) | (2.19) | (1.54) | (1.56) | (0.71) |
| 6 | 2.375** | 0.497 | 0.476*** | 0.240 | 1.914* | 0.034 | 0.201 | -0.256 |
| | (2.21) | (1.36) | (2.64) | (1.30) | (1.83) | (0.13) | (0.87) | (-0.98) |
| 7 | 2.291** | 0.326 | 0.180 | 0.218 | 1.924* | -0.039 | 0.079 | -0.100 |
| | (2.04) | (0.85) | (0.96) | (1.15) | (1.76) | (-0.14) | (0.27) | (-0.31) |
| 8 | 2.090* | 0.146 | 0.137 | 0.221 | 1.724 | -0.224 | -0.087 | -0.271 |
| | (1.86) | (0.35) | (0.60) | (1.00) | (1.58) | (-0.73) | (-0.30) | (-0.83) |
| 9 | 2.082* | 0.153 | 0.155 | 0.452** | 1.736 | -0.187 | -0.042 | -0.049 |
| | (1.83) | (0.33) | (0.72) | (2.27) | (1.59) | (-0.53) | (-0.16) | (-0.18) |
| 10(highest) | 1.815 | -0.120 | -0.079 | 0.166 | 1.381 | -0.506 | -0.246 | -0.408 |
| | (1.56) | (-0.22) | (-0.25) | (0.57) | (1.24) | (-1.11) | (-0.67) | (-1.17) |
| 10-1 spread | -0.287 | -0.705 | -0.665 | -0.052 | -0.360 | -0.921 | -0.612 | -0.841 |
| | (-0.45) | (-1.16) | (-1.39) | (-0.11) | (-0.43) | (-1.15) | (-1.09) | (-1.64) |

## Table IA.9: Decile portfolios sorted by *VaR*1 during high and low investor sentiment (ISI) periods

This table presents both the equal- and value-weighted averages of monthly stock returns, the CAPM alphas, the Fama-French 5-factor (FF5) alphas, and the Liu, Stambaugh, and Yuan (2019)'s Chinese four-factor (CH4) alphas as well as their *t*-values (given in parentheses), for decile portfolios sorted by *ES*1 which is estimated in the previous month based on data *t* (*t* + 1) from January (February) 2003 to November (December) 2019 (CH4 is available from January 2003 to December 2018) during high and low investor sentiment (ISI) periods. High investor sentiment periods are defined when the investor sentiment index (ISI) is larger than its median, while low consumer confidence periods are defined as months in which the investor sentiment index (ISI) is below its median. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: High investor sentiment period**

| | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| Portfolio | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| (lowest) | 1.686* | 0.444* | 0.230 | 0.484 | 1.535* | 0.444 | 0.235 | 0.849** |
| | (1.90) | (1.76) | (0.89) | (1.43) | (1.86) | (1.27) | (0.75) | (2.21) |
| 2 | 1.750* | 0.360* | 0.185 | 0.658*** | 1.014 | -0.230 | -0.444 | -0.169 |
| | (1.80) | (1.76) | (1.09) | (3.06) | (1.12) | (-0.73) | (-1.59) | (-0.46) |
| 3 | 1.869* | 0.413 | 0.142 | 0.585*** | 1.378 | 0.024 | -0.104 | 0.284 |
| | (1.82) | (1.64) | (0.93) | (3.62) | (1.44) | (0.10) | (-0.42) | (0.93) |
| 4 | 1.685 | 0.212 | 0.007 | 0.606*** | 1.415 | -0.034 | 0.012 | 0.385 |
| | (1.61) | (0.74) | (0.05) | (3.32) | (1.39) | (-0.15) | (0.05) | (1.26) |
| 5 | 1.676 | 0.201 | -0.034 | 0.447** | 1.061 | -0.378 | -0.230 | -0.020 |
| | (1.57) | (0.58) | (-0.19) | (2.10) | (1.05) | (-1.60) | (-0.98) | (-0.06) |
| 6 | 1.639 | 0.148 | -0.056 | 0.286 | 1.151 | -0.315 | -0.250 | -0.168 |
| | (1.52) | (0.43) | (-0.36) | (1.54) | (1.11) | (-1.27) | (-1.00) | (-0.49) |
| 7 | 1.509 | -0.010 | -0.132 | 0.270 | 1.082 | -0.430 | -0.202 | 0.180 |
| | (1.37) | (-0.03) | (-0.82) | (1.45) | (1.01) | (-1.59) | (-0.81) | (0.57) |
| 8 | 1.453 | -0.076 | -0.205 | 0.221 | 1.163 | -0.382 | -0.219 | 0.043 |
| | (1.30) | (-0.19) | (-1.11) | (0.95) | (1.06) | (-1.30) | (-0.88) | (0.12) |
| 9 | 1.298 | -0.240 | -0.218 | 0.094 | 0.800 | -0.732** | -0.523* | -0.289 |
| | (1.14) | (-0.55) | (-1.06) | (0.38) | (0.73) | (-2.16) | (-1.97) | (-0.83) |
| 10(highest) | 1.128 | -0.405 | -0.381 | -0.187 | 0.635 | -0.862** | -0.586* | -0.540 |
| | (0.97) | (-0.80) | (-1.56) | (-0.67) | (0.57) | (-1.99) | (-1.85) | (-1.48) |
| 10-1 spread | -0.558 | -0.848 | -0.611 | -0.671 | -0.900 | -1.306* | -0.822 | -1.389** |
| | (-0.98) | (-1.56) | (-1.46) | (-1.31) | (-1.20) | (-1.85) | (-1.60) | (-2.34) |

**Panel B: Low investor sentiment period**

| | Equal-weighted | | | | Value-weighted | | | |
|---|---|---|---|---|---|---|---|---|
| Portfolio | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) | Excess return (%) | CAPM alpha (%) | FF5 alpha (%) | CH4 alpha (%) |
| 1(lowest) | 0.795 | 0.431** | 0.381* | -0.121 | 0.387 | 0.058 | 0.300 | -0.030 |
| | (1.18) | (2.14) | (1.73) | (-0.49) | (0.57) | (0.17) | (1.01) | (-0.09) |
| 2 | 1.169 | 0.739*** | 0.424** | 0.199 | 0.893 | 0.475* | 0.398 | -0.095 |
| | (1.48) | (3.59) | (2.37) | (1.01) | (1.15) | (1.96) | (1.54) | (-0.34) |
| 3 | 1.215 | 0.752*** | 0.375** | 0.324* | 0.772 | 0.350* | 0.188 | 0.167 |
| | (1.43) | (3.35) | (2.38) | (1.87) | (1.00) | (1.86) | (0.90) | (0.73) |
| 4 | 1.206 | 0.732*** | 0.522*** | 0.488** | 0.971 | 0.510** | 0.546** | 0.234 |
| | (1.37) | (2.66) | (2.75) | (2.31) | (1.15) | (2.33) | (2.23) | (0.83) |
| 5 | 1.256 | 0.776** | 0.401** | 0.405** | 1.054 | 0.582*** | 0.465** | 0.303 |
| | (1.39) | (2.56) | (2.46) | (2.16) | (1.22) | (2.67) | (2.11) | (1.14) |
| 6 | 1.116 | 0.624** | 0.372** | 0.349** | 0.700 | 0.212 | 0.204 | 0.133 |
| | (1.21) | (2.00) | (2.39) | (2.01) | (0.78) | (0.96) | (1.00) | (0.54) |
| 7 | 1.090 | 0.582* | 0.256* | 0.336* | 0.763 | 0.269 | 0.255 | 0.030 |
| | (1.15) | (1.89) | (1.80) | (1.90) | (0.84) | (1.14) | (1.12) | (0.10) |
| 8 | 0.916 | 0.409 | 0.207 | 0.359* | 0.399 | -0.094 | -0.110 | -0.236 |
| | (0.96) | (1.21) | (1.15) | (1.83) | (0.44) | (-0.38) | (-0.47) | (-0.84) |
| 9 | 0.982 | 0.472 | 0.146 | 0.721*** | 0.492 | -0.010 | -0.115 | 0.038 |
| | (1.00) | (1.25) | (0.78) | (3.86) | (0.53) | (-0.03) | (-0.50) | (0.14) |
| 10(highest) | 0.678 | 0.159 | -0.125 | 0.549* | 0.188 | -0.321 | -0.433 | -0.182 |
| | (0.66) | (0.35) | (-0.43) | (1.94) | (0.19) | (-0.81) | (-1.32) | (-0.54) |
| 10-1 spread | -0.117 | -0.272 | -0.506 | 0.670 | -0.199 | -0.379 | -0.733* | -0.152 |
| | (-0.21) | (-0.55) | (-1.23) | (1.63) | (-0.28) | (-0.59) | (-1.68) | (-0.33) |

## Table IA.10: Portfolios sorted by *IVOL* and *ES*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *IVOL* and then by *ES*1 from January 1997 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *IVOL* into five quintiles. Within each *IVOL* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *IVOL*1 and *IVOL*5 denote the lowest and highest quintiles for *IVOL*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *IVOL* quintile or the average of five *IVOL* portfolios (Avg (IV1-IV5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (IV1-IV5) reports the return average or return spread average of the five *IVOL* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| *ES*1 | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *IVOL*1 | 1.463** | 1.534* | 1.177 | -0.285 | 0.398* | 0.374* | 0.130 | -0.268 |
| | (2.12) | (1.96) | (1.43) | (-0.88) | (1.76) | (1.70) | (0.52) | (-0.95) |
| *IVOL*2 | 1.393** | 1.358* | 1.206 | -0.187 | 0.230 | 0.251 | 0.164 | -0.066 |
| | (1.99) | (1.67) | (1.42) | (-0.52) | (1.14) | (1.47) | (0.74) | (-0.23) |
| *IVOL*3 | 1.349* | 1.322 | 1.020 | -0.329 | 0.331 | 0.450** | -0.016 | -0.347 |
| | (1.80) | (1.62) | (1.17) | (-0.85) | (1.54) | (2.16) | (-0.07) | (-1.00) |
| *IVOL*4 | 1.445* | 0.924 | 0.789 | -0.656 | 0.471** | 0.055 | -0.338 | -0.809** |
| | (1.86) | (1.09) | (0.83) | (-1.45) | (2.08) | (0.33) | (-1.18) | (-2.17) |
| *IVOL*5 | 0.644 | -0.068 | -0.454 | -1.098*** | -0.293 | -0.769*** | -1.316*** | -1.023*** |
| | (0.81) | (-0.08) | (-0.50) | (-2.72) | (-1.03) | (-3.10) | (-4.46) | (-2.83) |
| Avg (IV1-IV5) | 1.259* | 1.014 | 0.748 | -0.511* | 0.228 | 0.072 | -0.275 | -0.503** |
| | (1.74) | (1.26) | (0.87) | (-1.75) | (1.55) | (0.59) | (-1.56) | (-2.16) |

**Panel B: Value-weighted (%)**

| *ES*1 | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *IVOL*1 | 1.285* | 1.101 | 0.621 | -0.664 | 0.100 | 0.018 | -0.385 | -0.485 |
| | (1.89) | (1.43) | (0.77) | (-1.60) | (0.31) | (0.07) | (-1.31) | (-1.32) |
| *IVOL*2 | 1.272* | 1.176 | 0.904 | -0.368 | 0.027 | 0.162 | 0.058 | 0.031 |
| | (1.73) | (1.51) | (1.10) | (-0.76) | (0.08) | (0.65) | (0.24) | (0.07) |
| *IVOL*3 | 1.805** | 1.113 | 0.844 | -0.962 | 0.833** | 0.463* | -0.067 | -0.900* |
| | (2.43) | (1.38) | (1.01) | (-1.63) | (2.37) | (1.83) | (-0.21) | (-1.76) |
| *IVOL*4 | 1.314* | 0.630 | 0.774 | -0.540 | 0.370 | -0.222 | -0.317 | -0.687 |
| | (1.68) | (0.80) | (0.82) | (-0.90) | (1.07) | (-0.93) | (-0.87) | (-1.36) |
| *IVOL*5 | 0.764 | -0.150 | -0.383 | -1.147** | -0.262 | -0.663** | -1.032*** | -0.769* |
| | (0.98) | (-0.18) | (-0.42) | (-2.16) | (-0.77) | (-2.05) | (-2.81) | (-1.67) |
| Avg (IV1-IV5) | 1.288* | 0.774 | 0.552 | -0.736* | 0.214 | -0.048 | -0.348* | -0.562** |
| | (1.86) | (1.01) | (0.67) | (-1.88) | (1.29) | (-0.33) | (-1.82) | (-2.26) |

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## Table IA.11: Portfolios sorted by *IVOL* and *ES*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *IVOL* and then by *ES*1 from January 1997 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *IVOL* into five quintiles. Within each *IVOL* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *IVOL*1 and *IVOL*5 denote the lowest and highest quintiles for *IVOL*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *IVOL* quintile or the average of five *IVOL* portfolios (Avg (IV1-IV5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (IV1-IV5) reports the return average or return spread average of the five *IVOL* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *IVOL*1 | 1.250* | 1.789** | 1.645** | 0.395 | 0.772*** | 0.617*** | 0.585*** | -0.188 |
| | (1.93) | (2.29) | (2.07) | (1.14) | (3.53) | (3.39) | (2.63) | (-0.60) |
| *IVOL*2 | 1.534** | 1.907** | 1.705** | 0.171 | 0.539** | 0.524*** | 0.420* | -0.119 |
| | (2.13) | (2.34) | (2.06) | (0.53) | (2.58) | (2.92) | (1.96) | (-0.40) |
| *IVOL*3 | 1.296* | 1.549* | 1.628* | 0.331 | 0.167 | 0.291* | 0.226 | 0.059 |
| | (1.79) | (1.87) | (1.87) | (0.94) | (0.83) | (1.84) | (1.18) | (0.19) |
| *IVOL*4 | 0.954 | 1.325 | 1.080 | 0.127 | -0.304 | -0.045 | -0.208 | 0.096 |
| | (1.30) | (1.61) | (1.24) | (0.37) | (-1.51) | (-0.30) | (-0.92) | (0.29) |
| *IVOL*5 | 0.429 | 0.498 | 0.409 | -0.020 | -0.828*** | -1.004*** | -1.053*** | -0.225 |
| | (0.54) | (0.57) | (0.44) | (-0.04) | (-3.13) | (-4.29) | (-3.07) | (-0.50) |
| Avg (IV1-IV5) | 1.092 | 1.414* | 1.293 | 0.201 | 0.069 | 0.077 | -0.006 | -0.075 |
| | (1.55) | (1.74) | (1.54) | (0.65) | (0.45) | (0.80) | (-0.04) | (-0.28) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *IVOL*1 | 0.528 | 0.869 | 1.000 | 0.472 | 0.518* | 0.289 | 0.284 | -0.234 |
| | (0.85) | (1.18) | (1.26) | (1.04) | (1.93) | (1.29) | (1.07) | (-0.61) |
| *IVOL*2 | 0.994 | 1.047 | 0.900 | -0.094 | 0.638** | 0.274 | 0.053 | -0.584 |
| | (1.44) | (1.34) | (1.15) | (-0.23) | (2.45) | (1.16) | (0.20) | (-1.44) |
| *IVOL*3 | 0.541 | 0.942 | 0.834 | 0.294 | 0.071 | 0.249 | -0.233 | -0.304 |
| | (0.79) | (1.15) | (1.00) | (0.65) | (0.26) | (0.95) | (-0.89) | (-0.76) |
| *IVOL*4 | 0.242 | 0.736 | 0.259 | 0.017 | -0.648** | -0.247 | -0.629** | 0.019 |
| | (0.34) | (0.94) | (0.31) | (0.04) | (-2.22) | (-1.06) | (-2.36) | (0.04) |
| *IVOL*5 | 0.087 | 0.294 | -0.179 | -0.267 | -0.855** | -0.774** | -1.211*** | -0.356 |
| | (0.11) | (0.34) | (-0.20) | (-0.47) | (-2.06) | (-2.45) | (-3.08) | (-0.61) |
| Avg (IV1-IV5) | 0.479 | 0.778 | 0.563 | 0.084 | -0.055 | -0.042 | -0.347* | -0.292 |
| | (0.72) | (1.01) | (0.70) | (0.23) | (-0.31) | (-0.31) | (-1.77) | (-0.91) |

Table IA.12: Portfolios sorted by *MOM* and *ES*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *MOM* and then by *ES*1 from January 1997 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *MOM* into five quintiles. Within each *MOM* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *MOM*1 and *MOM*5 denote the lowest and highest quintiles for *MOM*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *MOM* quintile or the average of five *MOM* portfolios (Avg (M1-M5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (M1-M5) reports the return average or return spread average of the five *MOM* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MOM*1 | 1.141 | 1.061 | 0.636 | -0.505 | 0.180 | 0.205 | -0.329 | -0.509* |
| | (1.44) | (1.20) | (0.70) | (-1.49) | (0.72) | (0.78) | (-1.17) | (-1.66) |
| *MOM*2 | 1.285 | 1.434* | 0.861 | -0.424 | 0.137 | 0.411** | -0.185 | -0.322 |
| | (1.62) | (1.73) | (0.97) | (-1.29) | (0.52) | (2.12) | (-0.76) | (-1.14) |
| *MOM*3 | 1.368* | 1.413* | 1.113 | -0.255 | 0.275 | 0.091 | 0.097 | -0.178 |
| | (1.81) | (1.66) | (1.31) | (-0.80) | (1.30) | (0.41) | (0.49) | (-0.61) |
| *MOM*4 | 1.038 | 0.892 | 0.841 | -0.197 | 0.072 | -0.203 | -0.581*** | -0.653** |
| | (1.48) | (1.09) | (0.94) | (-0.54) | (0.41) | (-0.92) | (-2.66) | (-2.20) |
| *MOM*5 | 1.717** | 1.279 | 0.278 | -1.439*** | 0.526* | 0.249 | -0.808** | -1.333*** |
| | (2.38) | (1.62) | (0.32) | (-3.46) | (1.83) | (0.83) | (-2.42) | (-3.82) |
| Avg (M1-M5) | 1.310* | 1.216 | 0.746 | -0.564** | 0.238* | 0.151 | -0.361** | -0.599*** |
| | (1.81) | (1.51) | (0.87) | (-2.02) | (1.70) | (1.18) | (-2.21) | (-3.01) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MOM*1 | 0.881 | 0.827 | 0.679 | -0.202 | 0.264 | 0.282 | -0.171 | -0.435 |
| | (1.18) | (0.94) | (0.75) | (-0.39) | (0.78) | (0.90) | (-0.51) | (-1.00) |
| *MOM*2 | 1.198 | 1.345* | 0.563 | -0.634 | 0.248 | 0.586** | -0.312 | -0.560 |
| | (1.52) | (1.66) | (0.64) | (-1.44) | (0.72) | (2.18) | (-1.07) | (-1.41) |
| *MOM*3 | 1.004 | 0.965 | 0.926 | -0.078 | -0.067 | -0.184 | 0.058 | 0.125 |
| | (1.23) | (1.16) | (1.11) | (-0.15) | (-0.15) | (-0.66) | (0.20) | (0.23) |
| *MOM*4 | 0.714 | 0.711 | 0.393 | -0.322 | -0.164 | -0.175 | -0.572** | -0.409 |
| | (1.03) | (0.87) | (0.47) | (-0.63) | (-0.50) | (-0.62) | (-2.07) | (-0.97) |
| *MOM*5 | 1.485** | 1.239 | 0.468 | -1.017** | 0.394 | 0.358 | -0.601 | -0.995** |
| | (2.17) | (1.59) | (0.52) | (-1.98) | (1.35) | (1.08) | (-1.55) | (-2.35) |
| Avg (M1-M5) | 1.056 | 1.017 | 0.606 | -0.451 | 0.135 | 0.174 | -0.320* | -0.455* |
| | (1.55) | (1.31) | (0.73) | (-1.59) | (0.78) | (1.23) | (-1.81) | (-1.91) |

## Table IA.13: Portfolios sorted by *MOM* and *ES*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *MOM* and then by *ES*1 from January 1997 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *MOM* into five quintiles. Within each *MOM* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *MOM*1 and *MOM*5 denote the lowest and highest quintiles for *MOM*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *MOM* quintile or the average of five *MOM* portfolios (Avg (M1-M5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (M1-M5) reports the return average or return spread average of the five *MOM* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MOM*1 | 1.048 | 1.197 | 1.037 | -0.011 | 0.042 | -0.043 | -0.310 | -0.352 |
| | (1.34) | (1.40) | (1.18) | (-0.03) | (0.16) | (-0.17) | (-1.18) | (-1.06) |
| *MOM*2 | 1.124 | 1.373 | 1.194 | 0.070 | 0.034 | -0.055 | -0.410* | -0.444 |
| | (1.50) | (1.63) | (1.40) | (0.19) | (0.16) | (-0.31) | (-1.97) | (-1.40) |
| *MOM*3 | 1.242* | 1.609** | 1.490* | 0.249 | 0.112 | 0.159 | 0.035 | -0.077 |
| | (1.73) | (1.98) | (1.74) | (0.74) | (0.59) | (1.12) | (0.18) | (-0.25) |
| *MOM*4 | 1.264* | 1.355* | 1.427* | 0.163 | 0.193 | 0.067 | 0.148 | -0.045 |
| | (1.78) | (1.67) | (1.68) | (0.45) | (0.91) | (0.36) | (0.62) | (-0.14) |
| *MOM*5 | 0.907 | 1.218 | 0.743 | -0.164 | 0.123 | 0.125 | -0.230 | -0.354 |
| | (1.30) | (1.50) | (0.86) | (-0.39) | (0.44) | (0.50) | (-0.71) | (-0.87) |
| Avg (M1-M5) | 1.117 | 1.351* | 1.178 | 0.061 | 0.101 | 0.051 | -0.153 | -0.254 |
| | (1.58) | (1.67) | (1.40) | (0.20) | (0.72) | (0.47) | (-0.90) | (-0.98) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MOM*1 | 0.104 | 0.565 | 0.431 | 0.328 | -0.327 | -0.088 | -0.547* | -0.220 |
| | (0.14) | (0.68) | (0.49) | (0.72) | (-0.95) | (-0.30) | (-1.73) | (-0.51) |
| *MOM*2 | 0.174 | 0.794 | 0.405 | 0.231 | -0.366 | -0.043 | -0.947*** | -0.581 |
| | (0.23) | (0.97) | (0.48) | (0.53) | (-1.51) | (-0.16) | (-3.39) | (-1.53) |
| *MOM*3 | 0.251 | 0.890 | 0.671 | 0.420 | -0.460 | -0.171 | -0.395* | 0.065 |
| | (0.36) | (1.12) | (0.81) | (1.01) | (-1.66) | (-0.79) | (-1.80) | (0.18) |
| *MOM*4 | 0.655 | 0.485 | 0.967 | 0.312 | -0.005 | -0.242 | 0.049 | 0.054 |
| | (0.98) | (0.63) | (1.17) | (0.64) | (-0.02) | (-0.96) | (0.16) | (0.12) |
| *MOM*5 | 0.402 | 0.787 | 0.174 | -0.228 | 0.097 | -0.031 | -0.494 | -0.590 |
| | (0.61) | (1.00) | (0.22) | (-0.48) | (0.30) | (-0.09) | (-1.40) | (-1.24) |
| Avg (M1-M5) | 0.317 | 0.704 | 0.530 | 0.212 | -0.212 | -0.115 | -0.467** | -0.255 |
| | (0.48) | (0.92) | (0.66) | (0.58) | (-1.34) | (-0.91) | (-2.36) | (-0.85) |

## Table IA.14: Portfolios sorted by *REV* and *ES*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *REV* and then by *ES*1 from January 1997 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *REV* into five quintiles. Within each *REV* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *REV*1 and *REV*5 denote the lowest and highest quintiles for *REV*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *REV* quintile or the average of five *REV* portfolios (Avg (R1-R5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (R1-R5) reports the return average or return spread average of the five *REV* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

|  | Excess Return | | | | FF5 Alpha | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *REV*1 | 1.352* | 1.443* | 0.708 | -0.643** | 0.325 | 0.499 | -0.212 | -0.537* |
|  | (1.68) | (1.66) | (0.77) | (-1.98) | (1.13) | (1.53) | (-0.63) | (-1.70) |
| *REV*2 | 1.389* | 1.359 | 0.907 | -0.482* | 0.339 | 0.379* | 0.004 | -0.336 |
|  | (1.79) | (1.59) | (1.02) | (-1.66) | (1.48) | (1.72) | (0.02) | (-1.27) |
| *REV*3 | 1.291* | 1.272 | 0.691 | -0.600* | 0.143 | 0.358* | -0.176 | -0.319 |
|  | (1.69) | (1.49) | (0.80) | (-1.75) | (0.65) | (1.92) | (-1.05) | (-1.12) |
| *REV*4 | 1.407* | 0.935 | 0.486 | -0.921** | 0.490** | -0.137 | -0.506** | -0.996*** |
|  | (1.94) | (1.10) | (0.56) | (-2.55) | (2.13) | (-0.64) | (-2.12) | (-3.31) |
| *REV*5 | 1.554** | 0.955 | -0.347 | -1.901*** | 0.492 | 0.000 | -1.300*** | -1.792*** |
|  | (2.07) | (1.15) | (-0.39) | (-4.45) | (1.63) | (0.00) | (-3.57) | (-4.71) |
| Avg (R1-R5) | 1.399* | 1.193 | 0.489 | -0.909*** | 0.358** | 0.220* | -0.438*** | -0.796*** |
|  | (1.90) | (1.44) | (0.57) | (-3.27) | (2.51) | (1.70) | (-2.66) | (-3.80) |

**Panel B: Value-weighted (%)**

|  | Excess Return | | | | FF5 Alpha | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *REV*1 | 0.845 | 1.099 | 0.288 | -0.556 | 0.016 | 0.287 | -0.501 | -0.517 |
|  | (1.05) | (1.28) | (0.33) | (-1.28) | (0.04) | (0.77) | (-1.34) | (-1.21) |
| *REV*2 | 1.309* | 1.103 | 0.456 | -0.854** | 0.518 | 0.209 | -0.379 | -0.898** |
|  | (1.77) | (1.33) | (0.53) | (-2.08) | (1.53) | (0.80) | (-1.15) | (-2.39) |
| *REV*3 | 1.306* | 0.943 | 0.607 | -0.699 | 0.118 | 0.114 | -0.126 | -0.244 |
|  | (1.72) | (1.14) | (0.70) | (-1.61) | (0.40) | (0.46) | (-0.52) | (-0.67) |
| *REV*4 | 1.552** | 0.980 | 0.604 | -0.948* | 0.676* | 0.123 | -0.353 | -1.030** |
|  | (2.22) | (1.22) | (0.70) | (-1.72) | (1.90) | (0.42) | (-1.02) | (-2.27) |
| *REV*5 | 1.791** | 0.894 | -0.203 | -1.994*** | 0.632* | 0.148 | -1.005** | -1.637*** |
|  | (2.29) | (1.11) | (-0.23) | (-3.66) | (1.82) | (0.42) | (-2.22) | (-3.20) |
| Avg (R1-R5) | 1.361* | 1.004 | 0.350 | -1.010*** | 0.392** | 0.176 | -0.473** | -0.865*** |
|  | (1.96) | (1.28) | (0.42) | (-2.90) | (2.26) | (1.16) | (-2.37) | (-3.52) |

## Table IA.15: Portfolios sorted by *REV* and *ES*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *REV* and then by *ES*1 from January 1997 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *REV* into five quintiles. Within each *REV* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *REV*1 and *REV*5 denote the lowest and highest quintiles for *REV*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *REV* quintile or the average of five *REV* portfolios (Avg (R1-R5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (R1-R5) reports the return average or return spread average of the five *REV* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| *ES*1 | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *REV*1 | 1.602** | 1.924** | 1.863** | 0.261 | 0.678*** | 0.639*** | 0.566** | -0.112 |
| | (2.13) | (2.24) | (2.11) | (0.74) | (2.76) | (2.82) | (2.02) | (-0.33) |
| *REV*2 | 1.281* | 1.819** | 1.563* | 0.282 | 0.427** | 0.514*** | 0.312 | -0.114 |
| | (1.79) | (2.22) | (1.84) | (0.90) | (2.16) | (2.76) | (1.38) | (-0.41) |
| *REV*3 | 1.507** | 1.729** | 1.534* | 0.027 | 0.535** | 0.356** | 0.195 | -0.340 |
| | (2.12) | (2.06) | (1.80) | (0.08) | (2.51) | (2.03) | (0.95) | (-1.10) |
| *REV*4 | 1.332* | 1.208 | 0.938 | -0.393 | 0.398* | -0.153 | -0.586** | -0.984*** |
| | (1.89) | (1.49) | (1.07) | (-0.96) | (1.87) | (-0.90) | (-2.43) | (-2.71) |
| *REV*5 | 0.563 | 0.240 | -0.366 | -0.929** | -0.385 | -1.061*** | -1.788*** | -1.404*** |
| | (0.79) | (0.30) | (-0.44) | (-2.05) | (-1.23) | (-4.67) | (-6.29) | (-3.33) |
| Avg (R1-R5) | 1.257* | 1.384* | 1.106 | -0.150 | 0.331** | 0.059 | -0.260 | -0.591** |
| | (1.80) | (1.70) | (1.31) | (-0.47) | (2.30) | (0.56) | (-1.51) | (-2.25) |

**Panel B: Value-weighted (%)**

| *ES*1 | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *REV*1 | 0.546 | 1.337 | 1.380 | 0.834* | 0.008 | 0.377 | 0.366 | 0.358 |
| | (0.77) | (1.58) | (1.57) | (1.90) | (0.03) | (1.30) | (1.12) | (0.86) |
| *REV*2 | 0.792 | 1.107 | 0.717 | -0.075 | 0.417 | 0.359 | -0.100 | -0.516 |
| | (1.19) | (1.41) | (0.90) | (-0.18) | (1.50) | (1.46) | (-0.38) | (-1.40) |
| *REV*3 | 0.708 | 0.940 | 0.828 | 0.120 | 0.355 | 0.143 | -0.232 | -0.587 |
| | (1.00) | (1.17) | (1.02) | (0.25) | (1.24) | (0.54) | (-0.90) | (-1.43) |
| *REV*4 | 0.792 | 0.877 | 0.167 | -0.625 | 0.496* | -0.056 | -0.827*** | -1.323*** |
| | (1.23) | (1.13) | (0.20) | (-1.24) | (1.67) | (-0.25) | (-2.79) | (-2.95) |
| *REV*5 | 0.100 | -0.131 | -0.936 | -1.036* | -0.221 | -1.106*** | -2.000*** | -1.779*** |
| | (0.14) | (-0.16) | (-1.14) | (-1.85) | (-0.60) | (-3.12) | (-5.49) | (-3.33) |
| Avg (R1-R5) | 0.588 | 0.826 | 0.431 | -0.156 | 0.211 | -0.057 | -0.559*** | -0.769** |
| | (0.90) | (1.07) | (0.53) | (-0.39) | (1.23) | (-0.47) | (-2.69) | (-2.43) |

## Table IA.16: Portfolios sorted by *MAX* and *VaR*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *MAX* and then by *VaR*1 from January 1997 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *MAX* into five quintiles. Within each *MAX* portfolio, we then sort stocks into five sub-quintiles by *VaR*1. *MAX*1 and *MAX*5 denote the lowest and highest quintiles for *MAX*, respectively. V1 and V5 denote the lowest and highest quintiles for *VaR*1. The V5-V1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *VaR*1 within the same *MAX* quintile or the average of five *MAX* portfolios (Avg (M1-M5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (M1-M5) reports the return average or return spread average of the five *MAX* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *MAX*1 | 1.337* | 1.560* | 1.029 | -0.309 | 0.291 | 0.433* | -0.055 | -0.346 |
| | (1.94) | (1.96) | (1.22) | (-0.81) | (1.08) | (1.77) | (-0.22) | (-1.04) |
| *MAX*2 | 1.419* | 1.508* | 1.118 | -0.301 | 0.383 | 0.460** | 0.145 | -0.237 |
| | (1.97) | (1.80) | (1.25) | (-0.83) | (1.64) | (2.08) | (0.55) | (-0.78) |
| *MAX*3 | 1.579** | 1.410* | 0.764 | -0.814* | 0.407* | 0.418* | -0.011 | -0.418 |
| | (2.11) | (1.69) | (0.85) | (-1.97) | (1.93) | (1.89) | (-0.05) | (-1.29) |
| *MAX*4 | 1.561** | 0.698 | 0.599 | -0.961** | 0.541*** | -0.294 | -0.350 | -0.892*** |
| | (2.12) | (0.84) | (0.66) | (-2.35) | (2.65) | (-1.36) | (-1.53) | (-2.73) |
| *MAX*5 | 0.870 | 0.349 | -0.520 | -1.390*** | -0.282 | -0.524** | -1.335*** | -1.053*** |
| | (1.09) | (0.41) | (-0.57) | (-3.24) | (-1.08) | (-2.14) | (-4.59) | (-2.86) |
| Avg (M1-M5) | 1.353* | 1.105 | 0.598 | -0.755** | 0.268* | 0.099 | -0.321* | -0.589** |
| | (1.88) | (1.36) | (0.68) | (-2.21) | (1.72) | (0.69) | (-1.83) | (-2.40) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *MAX*1 | 1.143* | 1.696** | 0.618 | -0.525 | 0.075 | 0.767** | -0.445 | -0.520 |
| | (1.67) | (2.11) | (0.78) | (-1.15) | (0.20) | (2.56) | (-1.47) | (-1.30) |
| *MAX*2 | 1.435** | 1.457* | 0.536 | -0.899** | 0.489 | 0.364 | -0.292 | -0.781** |
| | (2.03) | (1.76) | (0.63) | (-2.03) | (1.36) | (1.14) | (-0.97) | (-2.06) |
| *MAX*3 | 1.575** | 1.116 | 0.458 | -1.116* | 0.534* | 0.223 | -0.287 | -0.821* |
| | (2.16) | (1.36) | (0.51) | (-1.87) | (1.70) | (0.78) | (-1.00) | (-1.88) |
| *MAX*4 | 1.399* | 0.569 | 0.458 | -0.941 | 0.491 | -0.326 | -0.256 | -0.747* |
| | (1.97) | (0.70) | (0.51) | (-1.51) | (1.56) | (-1.14) | (-0.85) | (-1.68) |
| *MAX*5 | 1.035 | 0.377 | -0.405 | -1.440** | -0.227 | -0.470* | -1.054*** | -0.827 |
| | (1.26) | (0.46) | (-0.45) | (-2.39) | (-0.61) | (-1.73) | (-2.87) | (-1.63) |
| Avg (M1-M5) | 1.317* | 1.043 | 0.333 | -0.984** | 0.272 | 0.112 | -0.467** | -0.739*** |
| | (1.96) | (1.33) | (0.40) | (-2.24) | (1.59) | (0.70) | (-2.42) | (-2.75) |

# Table IA.17: Portfolios sorted by *MAX* and *VaR*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *MAX* and then by *VaR*1 from January 1997 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *MAX* into five quintiles. Within each *MAX* portfolio, we then sort stocks into five sub-quintiles by *VaR*1. *MAX*1 and *MAX*5 denote the lowest and highest quintiles for *MAX*, respectively. V1 and V5 denote the lowest and highest quintiles for *VaR*1. The V5-V1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *VaR*1 within the same *MAX* quintile or the average of five *MAX* portfolios (Avg (M1-M5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (M1-M5) reports the return average or return spread average of the five *MAX* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *MAX*1 | 1.052 | 1.567** | 1.719** | 0.667* | 0.482** | 0.346* | 0.580** | 0.098 |
| | (1.66) | (2.02) | (2.05) | (1.78) | (2.14) | (1.74) | (2.47) | (0.33) |
| *MAX*2 | 1.457** | 1.904** | 1.720* | 0.263 | 0.665*** | 0.472*** | 0.326 | -0.340 |
| | (2.09) | (2.35) | (1.96) | (0.74) | (3.55) | (2.67) | (1.62) | (-1.18) |
| *MAX*3 | 1.176 | 1.932** | 1.430 | 0.254 | 0.097 | 0.366** | 0.033 | -0.064 |
| | (1.63) | (2.29) | (1.59) | (0.65) | (0.48) | (2.20) | (0.15) | (-0.20) |
| *MAX*4 | 1.018 | 0.898 | 1.296 | 0.278 | 0.016 | -0.708*** | -0.115 | -0.131 |
| | (1.43) | (1.07) | (1.48) | (0.68) | (0.08) | (-4.22) | (-0.43) | (-0.37) |
| *MAX*5 | 0.529 | 0.721 | 0.529 | -0.001 | -0.722*** | -0.825*** | -0.925*** | -0.204 |
| | (0.68) | (0.83) | (0.59) | (-0.00) | (-2.85) | (-4.10) | (-3.10) | (-0.49) |
| Avg (M1-M5) | 1.028 | 1.378* | 1.321 | 0.292 | 0.119 | -0.073 | -0.014 | -0.132 |
| | (1.48) | (1.68) | (1.53) | (0.84) | (0.78) | (-0.65) | (-0.08) | (-0.49) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *MAX*1 | 0.602 | 0.889 | 1.081 | 0.479 | 0.585** | -0.001 | 0.170 | -0.415 |
| | (0.96) | (1.17) | (1.31) | (0.89) | (2.04) | (-0.00) | (0.59) | (-1.00) |
| *MAX*2 | 0.792 | 1.202 | 1.169 | 0.376 | 0.474** | 0.336 | 0.022 | -0.452 |
| | (1.15) | (1.55) | (1.36) | (0.84) | (2.03) | (1.32) | (0.09) | (-1.32) |
| *MAX*3 | 0.722 | 1.317 | 0.787 | 0.065 | 0.186 | 0.189 | -0.158 | -0.343 |
| | (1.04) | (1.60) | (0.92) | (0.14) | (0.74) | (0.68) | (-0.55) | (-0.84) |
| *MAX*4 | 0.295 | 0.236 | 0.641 | 0.346 | -0.077 | -0.912*** | -0.255 | -0.178 |
| | (0.43) | (0.30) | (0.76) | (0.70) | (-0.28) | (-3.60) | (-0.76) | (-0.43) |
| *MAX*5 | 0.143 | 0.059 | -0.231 | -0.374 | -0.619* | -1.048*** | -1.326*** | -0.707 |
| | (0.18) | (0.07) | (-0.26) | (-0.71) | (-1.79) | (-3.84) | (-3.71) | (-1.39) |
| Avg (M1-M5) | 0.493 | 0.713 | 0.673 | 0.180 | 0.122 | -0.291* | -0.300 | -0.422 |
| | (0.74) | (0.91) | (0.81) | (0.43) | (0.79) | (-1.84) | (-1.46) | (-1.40) |

## Table IA.18: Portfolios sorted by *MAX* and *ES*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *MAX* and then by *ES*1 from January 1997 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *MAX* into five quintiles. Within each *MAX* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *MAX*1 and *MAX*5 denote the lowest and highest quintiles for *MAX*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *MAX* quintile or the average of five *MAX* portfolios (Avg (M1-M5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (M1-M5) reports the return average or return spread average of the five *MAX* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MAX*1 | 1.284* | 1.501* | 0.999 | -0.284 | 0.250 | 0.322 | 0.013 | -0.238 |
| | (1.83) | (1.93) | (1.20) | (-0.77) | (0.96) | (1.38) | (0.05) | (-0.72) |
| *MAX*2 | 1.433** | 1.409* | 1.176 | -0.257 | 0.398* | 0.392* | 0.041 | -0.357 |
| | (2.00) | (1.72) | (1.34) | (-0.75) | (1.93) | (1.67) | (0.17) | (-1.29) |
| *MAX*3 | 1.644** | 1.581* | 0.947 | -0.697* | 0.417** | 0.638*** | 0.086 | -0.331 |
| | (2.16) | (1.84) | (1.06) | (-1.71) | (2.00) | (2.70) | (0.37) | (-1.02) |
| *MAX*4 | 1.387* | 0.950 | 0.808 | -0.579 | 0.459** | 0.025 | -0.115 | -0.574* |
| | (1.87) | (1.14) | (0.90) | (-1.51) | (2.24) | (0.13) | (-0.48) | (-1.87) |
| *MAX*5 | 0.834 | 0.099 | -0.405 | -1.238*** | -0.287 | -0.691*** | -1.402*** | -1.114*** |
| | (1.05) | (0.11) | (-0.44) | (-3.04) | (-1.17) | (-2.79) | (-4.35) | (-3.09) |
| Avg (M1-M5) | 1.316* | 1.108 | 0.705 | -0.611* | 0.247* | 0.137 | -0.275 | -0.523** |
| | (1.81) | (1.36) | (0.81) | (-1.89) | (1.72) | (0.97) | (-1.51) | (-2.25) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MAX*1 | 1.047 | 1.478** | 0.575 | -0.472 | -0.023 | 0.496* | -0.352 | -0.329 |
| | (1.49) | (1.99) | (0.74) | (-1.09) | (-0.06) | (1.71) | (-1.35) | (-0.86) |
| *MAX*2 | 1.468** | 1.222 | 0.792 | -0.675 | 0.498 | 0.263 | -0.233 | -0.731 |
| | (2.10) | (1.53) | (0.94) | (-1.38) | (1.42) | (0.88) | (-0.81) | (-1.65) |
| *MAX*3 | 1.662** | 1.109 | 0.794 | -0.868 | 0.585* | 0.327 | 0.016 | -0.568 |
| | (2.26) | (1.33) | (0.92) | (-1.54) | (1.86) | (1.05) | (0.05) | (-1.31) |
| *MAX*4 | 1.247* | 0.780 | 0.699 | -0.548 | 0.413 | -0.132 | 0.050 | -0.363 |
| | (1.71) | (0.99) | (0.80) | (-0.96) | (1.29) | (-0.55) | (0.15) | (-0.83) |
| *MAX*5 | 1.030 | 0.083 | -0.045 | -1.075** | -0.192 | -0.654* | -0.999** | -0.807 |
| | (1.27) | (0.10) | (-0.05) | (-2.00) | (-0.57) | (-1.94) | (-2.46) | (-1.65) |
| Avg (M1-M5) | 1.291* | 0.935 | 0.563 | -0.728* | 0.256 | 0.060 | -0.303 | -0.560** |
| | (1.89) | (1.21) | (0.68) | (-1.85) | (1.54) | (0.37) | (-1.55) | (-2.24) |

Table IA.19: Portfolios sorted by *MAX* and *ES*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *MAX* and then by *ES*1 from January 1997 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *MAX* into five quintiles. Within each *MAX* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *MAX*1 and *MAX*5 denote the lowest and highest quintiles for *MAX*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *MAX* quintile or the average of five *MAX* portfolios (Avg (M1-M5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (M1-M5) reports the return average or return spread average of the five *MAX* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| *ES*1 | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MAX*1 | 1.298** | 1.369* | 1.599* | 0.301 | 0.712*** | 0.190 | 0.492** | -0.220 |
| | (2.03) | (1.77) | (1.95) | (0.84) | (3.17) | (0.98) | (2.17) | (-0.73) |
| *MAX*2 | 1.519** | 1.908** | 1.670* | 0.151 | 0.603*** | 0.564*** | 0.412** | -0.191 |
| | (2.14) | (2.32) | (1.96) | (0.47) | (3.17) | (3.12) | (2.11) | (-0.66) |
| *MAX*3 | 1.388* | 1.781** | 1.476* | 0.089 | 0.220 | 0.411*** | 0.046 | -0.175 |
| | (1.89) | (2.11) | (1.67) | (0.24) | (1.14) | (2.71) | (0.22) | (-0.54) |
| *MAX*4 | 0.950 | 1.021 | 1.227 | 0.277 | -0.128 | -0.347** | -0.244 | -0.116 |
| | (1.32) | (1.23) | (1.42) | (0.72) | (-0.65) | (-2.11) | (-0.97) | (-0.33) |
| *MAX*5 | 0.719 | 0.754 | 0.354 | -0.364 | -0.641** | -0.689*** | -1.137*** | -0.496 |
| | (0.91) | (0.89) | (0.40) | (-0.85) | (-2.45) | (-3.40) | (-3.90) | (-1.16) |
| Avg (M1-M5) | 1.152 | 1.343 | 1.248 | 0.095 | 0.158 | 0.027 | -0.078 | -0.236 |
| | (1.63) | (1.65) | (1.47) | (0.29) | (1.03) | (0.25) | (-0.46) | (-0.86) |

**Panel B: Value-weighted (%)**

| *ES*1 | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *MAX*1 | 0.835 | 0.761 | 0.899 | 0.064 | 0.817*** | 0.064 | 0.117 | -0.700 |
| | (1.31) | (1.07) | (1.13) | (0.13) | (2.62) | (0.25) | (0.42) | (-1.64) |
| *MAX*2 | 0.876 | 1.444* | 1.047 | 0.172 | 0.478** | 0.613*** | 0.049 | -0.429 |
| | (1.26) | (1.83) | (1.25) | (0.41) | (2.08) | (2.71) | (0.20) | (-1.25) |
| *MAX*3 | 1.006 | 1.358 | 0.802 | -0.205 | 0.393 | 0.414 | -0.067 | -0.460 |
| | (1.44) | (1.63) | (0.96) | (-0.49) | (1.63) | (1.59) | (-0.23) | (-1.18) |
| *MAX*4 | 0.126 | 0.459 | 0.466 | 0.340 | -0.368 | -0.323 | -0.512* | -0.144 |
| | (0.18) | (0.57) | (0.56) | (0.75) | (-1.32) | (-1.15) | (-1.66) | (-0.34) |
| *MAX*5 | 0.427 | 0.455 | -0.482 | -0.909* | -0.458 | -0.591* | -1.600*** | -1.142** |
| | (0.52) | (0.53) | (-0.56) | (-1.74) | (-1.22) | (-1.95) | (-4.47) | (-2.11) |
| Avg (M1-M5) | 0.634 | 0.873 | 0.530 | -0.104 | 0.181 | 0.038 | -0.392** | -0.574* |
| | (0.94) | (1.13) | (0.65) | (-0.27) | (1.08) | (0.27) | (-1.98) | (-1.82) |

## Table IA.20: Portfolios sorted by *COSKEW* and *VaR*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *COSKEW* and then by *VaR*1 from January 1997 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *COSKEW* into five quintiles. Within each *COSKEW* portfolio, we then sort stocks into five sub-quintiles by *VaR*1. *COSKEW*1 and *COSKEW*5 denote the lowest and highest quintiles for *COSKEW*, respectively. V1 and V5 denote the lowest and highest quintiles for *VaR*1. The V5-V1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *VaR*1 within the same *COSKEW* quintile or the average of five *COSKEW* portfolios (Avg (C1-C5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (C1-C5) reports the return average or return spread average of the five *COSKEW* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | | Excess Return | | | | FF5 Alpha | | |
|---|---|---|---|---|---|---|---|---|
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *COSKEW*1 | 0.669 | 0.564 | -0.023 | -0.692** | -0.471** | -0.564** | -1.085*** | -0.614* |
| | (0.90) | (0.67) | (-0.03) | (-2.01) | (-2.23) | (-2.51) | (-4.18) | (-1.92) |
| *COSKEW*2 | 0.963 | 0.806 | 0.589 | -0.374 | -0.161 | -0.333* | -0.356 | -0.195 |
| | (1.23) | (0.97) | (0.66) | (-1.06) | (-0.73) | (-1.68) | (-1.53) | (-0.57) |
| *COSKEW*3 | 1.370* | 1.198 | 0.732 | -0.638 | 0.031 | 0.231 | -0.419 | -0.449 |
| | (1.78) | (1.39) | (0.80) | (-1.57) | (0.14) | (1.04) | (-1.61) | (-1.25) |
| *COSKEW*4 | 1.710** | 1.560* | 0.637 | -1.073*** | 0.534** | 0.465** | -0.309 | -0.843** |
| | (2.35) | (1.94) | (0.73) | (-2.67) | (2.41) | (2.30) | (-1.14) | (-2.25) |
| *COSKEW*5 | 1.976*** | 2.008** | 1.429* | -0.548 | 0.901*** | 1.096*** | 0.484 | -0.417 |
| | (2.98) | (2.56) | (1.70) | (-1.30) | (3.32) | (3.63) | (1.33) | (-1.09) |
| Avg (C1-C5) | 1.338* | 1.227 | 0.673 | -0.665** | 0.167 | 0.179 | -0.337* | -0.504* |
| | (1.87) | (1.53) | (0.78) | (-2.07) | (1.10) | (1.32) | (-1.83) | (-1.92) |

**Panel B: Value-weighted (%)**

| | | Excess Return | | | | FF5 Alpha | | |
|---|---|---|---|---|---|---|---|---|
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *COSKEW*1 | 0.385 | 0.313 | -0.287 | -0.672 | -0.672** | -0.650** | -1.275*** | -0.603 |
| | (0.52) | (0.38) | (-0.32) | (-1.56) | (-2.47) | (-2.32) | (-4.57) | (-1.59) |
| *COSKEW*2 | 0.816 | 0.561 | -0.139 | -0.955** | -0.058 | -0.447* | -0.860*** | -0.802* |
| | (1.13) | (0.69) | (-0.16) | (-2.19) | (-0.18) | (-1.66) | (-2.84) | (-1.90) |
| *COSKEW*3 | 1.218 | 0.825 | 0.234 | -0.984 | 0.150 | -0.026 | -0.544 | -0.693 |
| | (1.64) | (0.92) | (0.26) | (-1.50) | (0.37) | (-0.08) | (-1.61) | (-1.32) |
| *COSKEW*4 | 1.532** | 1.536* | 0.436 | -1.097** | 0.361 | 0.505* | -0.304 | -0.665 |
| | (2.14) | (1.92) | (0.52) | (-2.13) | (1.28) | (1.86) | (-0.97) | (-1.61) |
| *COSKEW*5 | 1.568** | 1.792** | 1.134 | -0.434 | 0.589 | 0.947** | 0.503 | -0.086 |
| | (2.24) | (2.20) | (1.35) | (-0.75) | (1.63) | (2.39) | (1.42) | (-0.17) |
| Avg (C1-C5) | 1.104* | 1.006 | 0.276 | -0.828** | 0.074 | 0.066 | -0.496** | -0.570** |
| | (1.66) | (1.28) | (0.33) | (-2.01) | (0.42) | (0.41) | (-2.45) | (-2.00) |

Table IA.21: Portfolios sorted by *COSKEW* and *VaR*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by *COSKEW* and then by *VaR*1 from January 1997 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *COSKEW* into five quintiles. Within each *COSKEW* portfolio, we then sort stocks into five sub-quintiles by *VaR*1. *COSKEW*1 and *COSKEW*5 denote the lowest and highest quintiles for *COSKEW*, respectively. V1 and V5 denote the lowest and highest quintiles for *VaR*1. The V5-V1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *VaR*1 within the same *COSKEW* quintile or the average of five *COSKEW* portfolios (Avg (C1-C5)). The table also reports its Fama and French (2015) 5-factor (FF5) alpha. Avg (C1-C5) reports the return average or return spread average of the five *COSKEW* quintiles. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *COSKEW*1 | 0.519 | 0.875 | 0.647 | 0.128 | -0.694*** | -0.675*** | -1.105*** | -0.411 |
| | (0.71) | (1.05) | (0.75) | (0.40) | (-2.79) | (-3.09) | (-3.77) | (-1.35) |
| *COSKEW*2 | 0.696 | 0.954 | 0.770 | 0.074 | -0.494** | -0.563*** | -0.703*** | -0.209 |
| | (0.96) | (1.13) | (0.87) | (0.23) | (-2.55) | (-3.04) | (-2.93) | (-0.70) |
| *COSKEW*3 | 0.965 | 1.284 | 1.147 | 0.182 | -0.066 | -0.055 | -0.208 | -0.142 |
| | (1.35) | (1.51) | (1.29) | (0.54) | (-0.36) | (-0.31) | (-1.01) | (-0.50) |
| *COSKEW*4 | 1.387* | 1.884** | 1.506* | 0.119 | 0.577*** | 0.520*** | 0.266 | -0.311 |
| | (1.97) | (2.21) | (1.69) | (0.29) | (2.74) | (2.73) | (1.12) | (-0.88) |
| *COSKEW*5 | 1.892*** | 2.332*** | 2.050** | 0.159 | 1.271*** | 1.194*** | 1.312*** | 0.041 |
| | (2.78) | (2.85) | (2.35) | (0.35) | (4.18) | (4.46) | (4.19) | (0.10) |
| Avg (C1-C5) | 1.092 | 1.466* | 1.224 | 0.132 | 0.119 | 0.084 | -0.088 | -0.206 |
| | (1.59) | (1.79) | (1.42) | (0.41) | (0.79) | (0.75) | (-0.50) | (-0.77) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *VaR*1 | V1 | V3 | V5 | V5-V1 | V1 | V3 | V5 | V5-V1 |
| *COSKEW*1 | -0.140 | 0.259 | -0.077 | 0.063 | -0.914*** | -1.061*** | -1.460*** | -0.546 |
| | (-0.21) | (0.32) | (-0.09) | (0.16) | (-2.98) | (-3.95) | (-4.44) | (-1.44) |
| *COSKEW*2 | 0.161 | 0.434 | 0.162 | 0.002 | -0.415* | -0.679*** | -0.979*** | -0.564* |
| | (0.24) | (0.52) | (0.18) | (0.00) | (-1.82) | (-2.72) | (-3.49) | (-1.72) |
| *COSKEW*3 | 0.168 | 0.503 | 0.493 | 0.326 | -0.455 | -0.371 | -0.477* | -0.022 |
| | (0.26) | (0.62) | (0.57) | (0.68) | (-1.61) | (-1.46) | (-1.67) | (-0.05) |
| *COSKEW*4 | 0.546 | 1.126 | 0.690 | 0.144 | 0.318 | 0.304 | -0.182 | -0.499 |
| | (0.80) | (1.28) | (0.78) | (0.28) | (1.37) | (1.02) | (-0.65) | (-1.24) |
| *COSKEW*5 | 1.254* | 1.326* | 1.297 | 0.044 | 1.020*** | 0.490 | 0.911** | -0.109 |
| | (1.92) | (1.71) | (1.56) | (0.08) | (3.01) | (1.51) | (2.60) | (-0.22) |
| Avg (C1-C5) | 0.398 | 0.730 | 0.513 | 0.116 | -0.089 | -0.263 | -0.437* | -0.348 |
| | (0.65) | (0.92) | (0.62) | (0.30) | (-0.61) | (-1.64) | (-1.98) | (-1.18) |

## Table IA.22: Portfolios sorted by institutional ownership ratio and $ES1$

This table presents both equal- and value-weighted averages of monthly stock returns and their $t$-values (given in parentheses) for quintile portfolios sorted by institutional ownership ratio ($IOR$) and then by $ES1$ from January 1999 to December 2019. At the beginning of each month, we first sort stocks by $IOR$ into five quintiles. Within each $IOR$ portfolio, we then sort stocks into five sub-quintiles by $ES1$. $IOR1$ and $IOR5$ denote the lowest and highest quintiles for $IOR$, respectively. E1 and E5 denote the lowest and highest quintiles for $ES1$. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest $ES1$ within the same $IOR$ quintile. The table also reports its Fama and French (2015) 5-factor (FF5) alpha. DIFF reports the E5-E1 spread difference or its FF5 alpha difference between the $IOR5$ and $IOR1$ portfolios. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| $ES1$ | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| $IOR1$ | 1.292** | 1.511** | 1.044 | -0.248 | 0.171 | 0.406* | 0.026 | -0.146 |
| | (2.02) | (2.19) | (1.48) | (-0.92) | (0.83) | (1.76) | (0.11) | (-0.53) |
| $IOR2$ | 1.370** | 1.260* | 1.058 | -0.312 | 0.321 | 0.296 | 0.230 | -0.091 |
| | (2.27) | (1.93) | (1.52) | (-0.97) | (1.43) | (1.49) | (0.92) | (-0.29) |
| $IOR3$ | 1.350** | 1.123* | 0.914 | -0.436 | 0.434** | 0.149 | 0.006 | -0.428 |
| | (2.38) | (1.79) | (1.39) | (-1.52) | (2.48) | (0.67) | (0.02) | (-1.51) |
| $IOR4$ | 1.255** | 1.404** | 0.773 | -0.481 | 0.441** | 0.574** | 0.222 | -0.219 |
| | (2.28) | (2.23) | (1.18) | (-1.52) | (2.19) | (2.52) | (0.85) | (-0.70) |
| $IOR5$ | 1.256** | 0.993* | 0.748 | -0.508 | 0.738*** | 0.310 | 0.122 | -0.616* |
| | (2.58) | (1.76) | (1.23) | (-1.50) | (3.03) | (1.31) | (0.45) | (-1.92) |
| DIFF | | | | -0.260 | | | | -0.471 |
| | | | | (-0.75) | | | | (-1.30) |

**Panel B: Value-weighted (%)**

| $ES1$ | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| $IOR1$ | 1.024 | 1.104 | 0.615 | -0.409 | 0.123 | 0.193 | -0.276 | -0.399 |
| | (1.61) | (1.64) | (0.88) | (-1.26) | (0.50) | (0.76) | (-1.05) | (-1.24) |
| $IOR2$ | 0.864 | 1.006 | 0.614 | -0.249 | 0.067 | 0.382 | 0.005 | -0.062 |
| | (1.51) | (1.55) | (0.90) | (-0.62) | (0.24) | (1.62) | (0.02) | (-0.16) |
| $IOR3$ | 1.035* | 0.824 | 0.511 | -0.524 | 0.307 | 0.032 | -0.229 | -0.536* |
| | (1.85) | (1.32) | (0.78) | (-1.59) | (1.37) | (0.13) | (-0.92) | (-1.68) |
| $IOR4$ | 1.007* | 1.023* | 0.259 | -0.748* | 0.315 | 0.338 | -0.044 | -0.359 |
| | (1.86) | (1.66) | (0.40) | (-1.80) | (1.14) | (1.37) | (-0.15) | (-0.90) |
| $IOR5$ | 0.959* | 0.823 | 0.348 | -0.611 | 0.550** | 0.359 | -0.116 | -0.667* |
| | (1.94) | (1.45) | (0.57) | (-1.55) | (2.23) | (1.39) | (-0.40) | (-1.79) |
| DIFF | | | | -0.202 | | | | -0.267 |
| | | | | (-0.48) | | | | (-0.63) |

# Table IA.23: Portfolios sorted by *IOR* and *ES*1 during high consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by institutional ownership ratio (*IOR*) and then by *ES*1 from January 1999 to December 2019 during high consumer confidence period. At the beginning of each month, we first sort stocks by *IOR* into five quintiles. Within each *IOR* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *IOR*1 and *IOR*5 denote the lowest and highest quintiles for *IOR*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *IOR* quintile. The table also reports its Fama and French (2015) 5-factor (FF5) alpha. DIFF reports the E5-E1 spread difference or its FF5 alpha difference between the *IOR*5 and *IOR*1 portfolios. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *IOR*1 | 1.269 | 1.255 | 0.421 | -0.848** | 0.352 | 0.458 | -0.227 | -0.579 |
| | (1.38) | (1.27) | (0.42) | (-2.12) | (1.06) | (1.27) | (-0.59) | (-1.41) |
| *IOR*2 | 1.186 | 0.809 | 0.442 | -0.744 | 0.195 | 0.112 | -0.202 | -0.396 |
| | (1.34) | (0.87) | (0.44) | (-1.55) | (0.51) | (0.33) | (-0.56) | (-0.84) |
| *IOR*3 | 1.106 | 0.721 | 0.389 | -0.717 | 0.448* | 0.009 | -0.289 | -0.737 |
| | (1.34) | (0.81) | (0.41) | (-1.58) | (1.69) | (0.02) | (-0.75) | (-1.63) |
| *IOR*4 | 1.287 | 1.012 | 0.118 | -1.169** | 0.508 | 0.254 | -0.261 | -0.769 |
| | (1.60) | (1.15) | (0.12) | (-2.43) | (1.58) | (0.69) | (-0.64) | (-1.60) |
| *IOR*5 | 1.183 | 0.490 | 0.241 | -0.942** | 0.517 | -0.178 | -0.222 | -0.739* |
| | (1.65) | (0.61) | (0.28) | (-2.08) | (1.49) | (-0.48) | (-0.53) | (-1.73) |
| DIFF | | | | -0.094 | | | | -0.160 |
| | | | | (-0.18) | | | | (-0.29) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
|---|---|---|---|---|---|---|---|---|
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *IOR*1 | 1.318 | 0.863 | 0.190 | -1.128** | 0.412 | 0.181 | -0.333 | -0.745 |
| | (1.40) | (0.91) | (0.19) | (-2.33) | (1.04) | (0.47) | (-0.80) | (-1.53) |
| *IOR*2 | 1.189 | 0.694 | 0.342 | -0.847 | 0.128 | 0.172 | -0.176 | -0.303 |
| | (1.35) | (0.76) | (0.35) | (-1.51) | (0.32) | (0.45) | (-0.43) | (-0.57) |
| *IOR*3 | 1.069 | 0.721 | 0.220 | -0.849* | 0.495 | 0.041 | -0.365 | -0.860* |
| | (1.31) | (0.81) | (0.23) | (-1.66) | (1.44) | (0.11) | (-0.91) | (-1.70) |
| *IOR*4 | 1.399* | 1.027 | -0.049 | -1.448** | 0.459 | 0.207 | -0.345 | -0.804 |
| | (1.72) | (1.17) | (-0.05) | (-2.23) | (1.00) | (0.53) | (-0.78) | (-1.30) |
| *IOR*5 | 1.110 | 0.699 | 0.073 | -1.038* | 0.441 | -0.038 | -0.575 | -1.016** |
| | (1.55) | (0.86) | (0.08) | (-1.87) | (1.15) | (-0.10) | (-1.28) | (-1.99) |
| DIFF | | | | 0.090 | | | | -0.271 |
| | | | | (0.14) | | | | (-0.42) |

## Table IA.24: Portfolios sorted by *IOR* and *ES*1 during low consumer confidence period

This table presents both equal- and value-weighted averages of monthly stock returns and their *t*-values (given in parentheses) for quintile portfolios sorted by institutional ownership ratio (*IOR*) and then by *ES*1 from January 1999 to December 2019 during low consumer confidence period. At the beginning of each month, we first sort stocks by *IOR* into five quintiles. Within each *IOR* portfolio, we then sort stocks into five sub-quintiles by *ES*1. *IOR*1 and *IOR*5 denote the lowest and highest quintiles for *IOR*, respectively. E1 and E5 denote the lowest and highest quintiles for *ES*1. The E5-E1 spread denotes the average equal-weighted (Panel A; value-weighted for Panel B) excess return difference between the highest and lowest *ES*1 within the same *IOR* quintile. The table also reports its Fama and French (2015) 5-factor (FF5) alpha. DIFF reports the E5-E1 spread difference or its FF5 alpha difference between the *IOR*5 and *IOR*1 portfolios. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

**Panel A: Equal-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *IOR*1 | 1.317 | 1.777* | 1.693* | 0.377 | -0.197 | 0.361 | 0.265 | 0.462 |
| | (1.47) | (1.85) | (1.74) | (1.06) | (-0.88) | (1.26) | (0.91) | (1.24) |
| *IOR*2 | 1.562* | 1.732* | 1.701* | 0.139 | 0.287 | 0.394** | 0.743** | 0.456 |
| | (1.91) | (1.89) | (1.74) | (0.33) | (1.32) | (2.01) | (2.15) | (1.05) |
| *IOR*3 | 1.604** | 1.542* | 1.461 | -0.143 | 0.343 | 0.282 | 0.312 | -0.031 |
| | (2.05) | (1.73) | (1.61) | (-0.41) | (1.54) | (1.15) | (1.22) | (-0.09) |
| *IOR*4 | 1.221 | 1.814** | 1.457 | 0.236 | 0.216 | 0.787*** | 0.740** | 0.523 |
| | (1.62) | (2.01) | (1.60) | (0.59) | (0.92) | (3.02) | (2.21) | (1.32) |
| *IOR*5 | 1.333** | 1.518* | 1.277 | -0.056 | 0.819** | 0.667** | 0.470 | -0.350 |
| | (2.02) | (1.89) | (1.49) | (-0.11) | (2.38) | (2.31) | (1.36) | (-0.71) |
| DIFF | | | | -0.433 | | | | -0.812* |
| | | | | (-0.93) | | | | (-1.74) |

**Panel B: Value-weighted (%)**

| | Excess Return | | | | FF5 Alpha | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *ES*1 | E1 | E3 | E5 | E5-E1 | E1 | E3 | E5 | E5-E1 |
| *IOR*1 | 0.717 | 1.356 | 1.058 | 0.341 | -0.328 | 0.261 | -0.194 | 0.134 |
| | (0.85) | (1.41) | (1.09) | (0.81) | (-1.16) | (0.79) | (-0.60) | (0.32) |
| *IOR*2 | 0.524 | 1.333 | 0.898 | 0.375 | -0.081 | 0.588** | 0.400 | 0.480 |
| | (0.72) | (1.46) | (0.94) | (0.65) | (-0.22) | (2.07) | (1.04) | (0.85) |
| *IOR*3 | 0.999 | 0.932 | 0.815 | -0.185 | 0.134 | 0.107 | -0.161 | -0.296 |
| | (1.30) | (1.05) | (0.92) | (-0.45) | (0.47) | (0.35) | (-0.56) | (-0.75) |
| *IOR*4 | 0.597 | 1.018 | 0.580 | -0.017 | -0.025 | 0.455 | 0.351 | 0.376 |
| | (0.84) | (1.17) | (0.64) | (-0.03) | (-0.09) | (1.47) | (0.93) | (0.77) |
| *IOR*5 | 0.802 | 0.953 | 0.636 | -0.166 | 0.622* | 0.658* | 0.457 | -0.165 |
| | (1.17) | (1.20) | (0.74) | (-0.30) | (1.96) | (1.86) | (1.19) | (-0.29) |
| DIFF | | | | -0.507 | | | | -0.299 |
| | | | | (-0.93) | | | | (-0.52) |