

Supplementary Material for "The impact of big winners on passive and active equity investment strategies"

Maxime Markov

markov@theory.polytechnique.fr

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1 Total return distributions

In Section 3 of the main text, we analyzed the histograms of the distribution of total returns. Figure S1 in the supplementary material provides histograms for all the indexes studied in this article, including the CCMP and SPX indices shown in Figure 1. Additionally, we included a blue curve, which is a kernel density estimate, on top of the histograms.

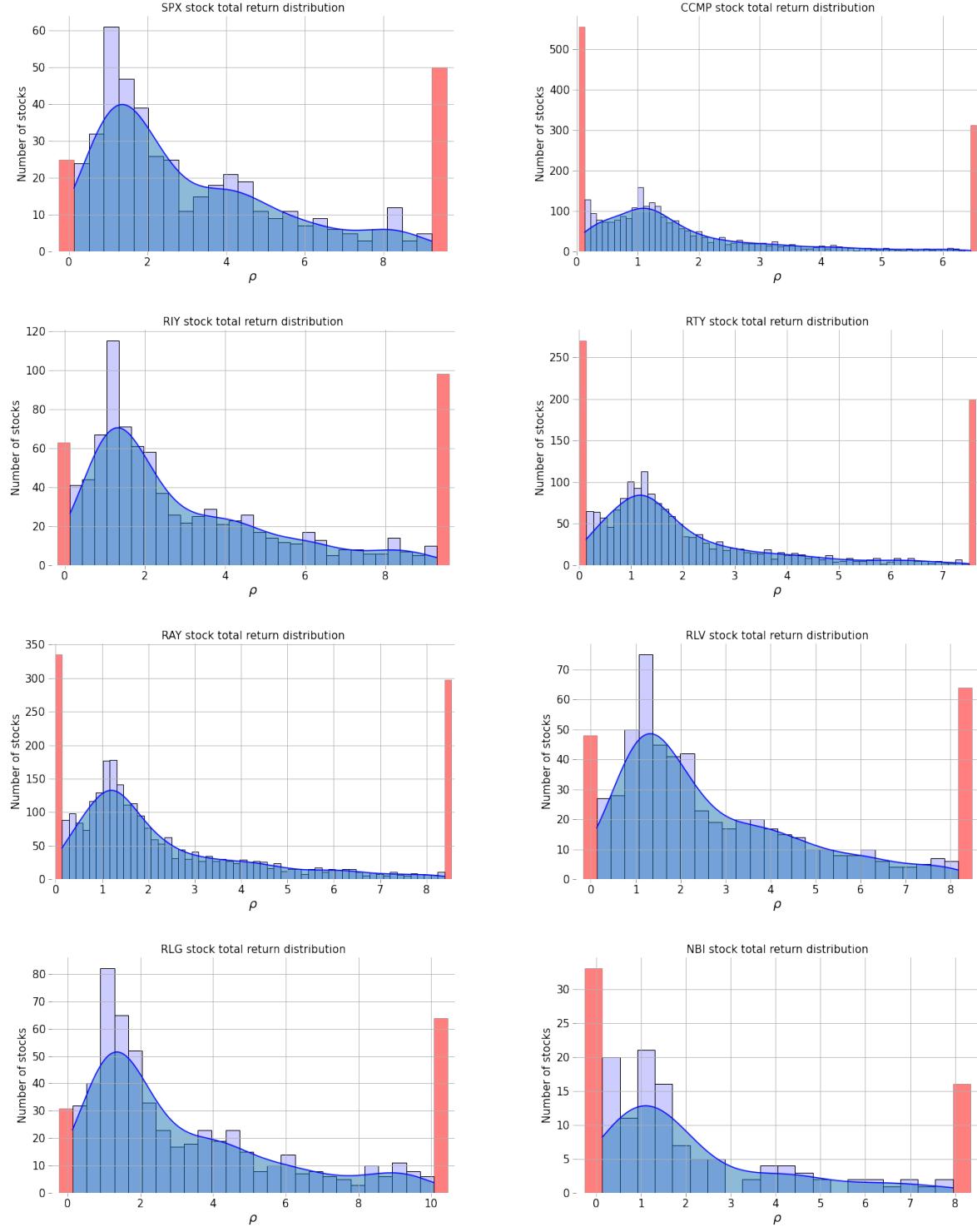
The statistical properties of the index distributions are presented in Table 1 of the main text. Table S1 presents mode estimation directly from the histograms (with error bars indicating the distance to the neighboring bin) and from the kernel density estimation. We also included two columns to evaluate the fit (manually verified) and the dominance of the left cumulative bin in the distribution.

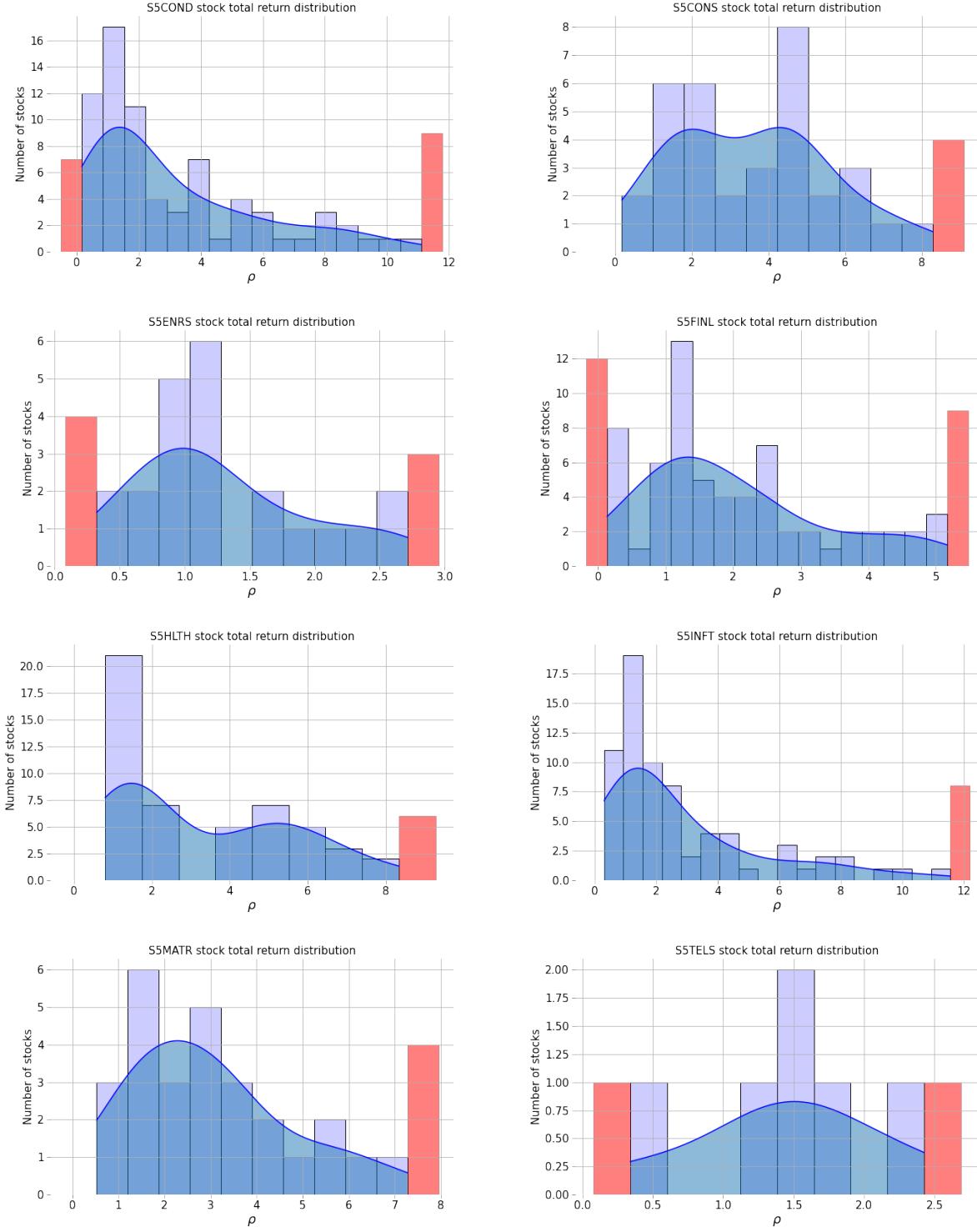
2 Geometric Brownian motion parameters

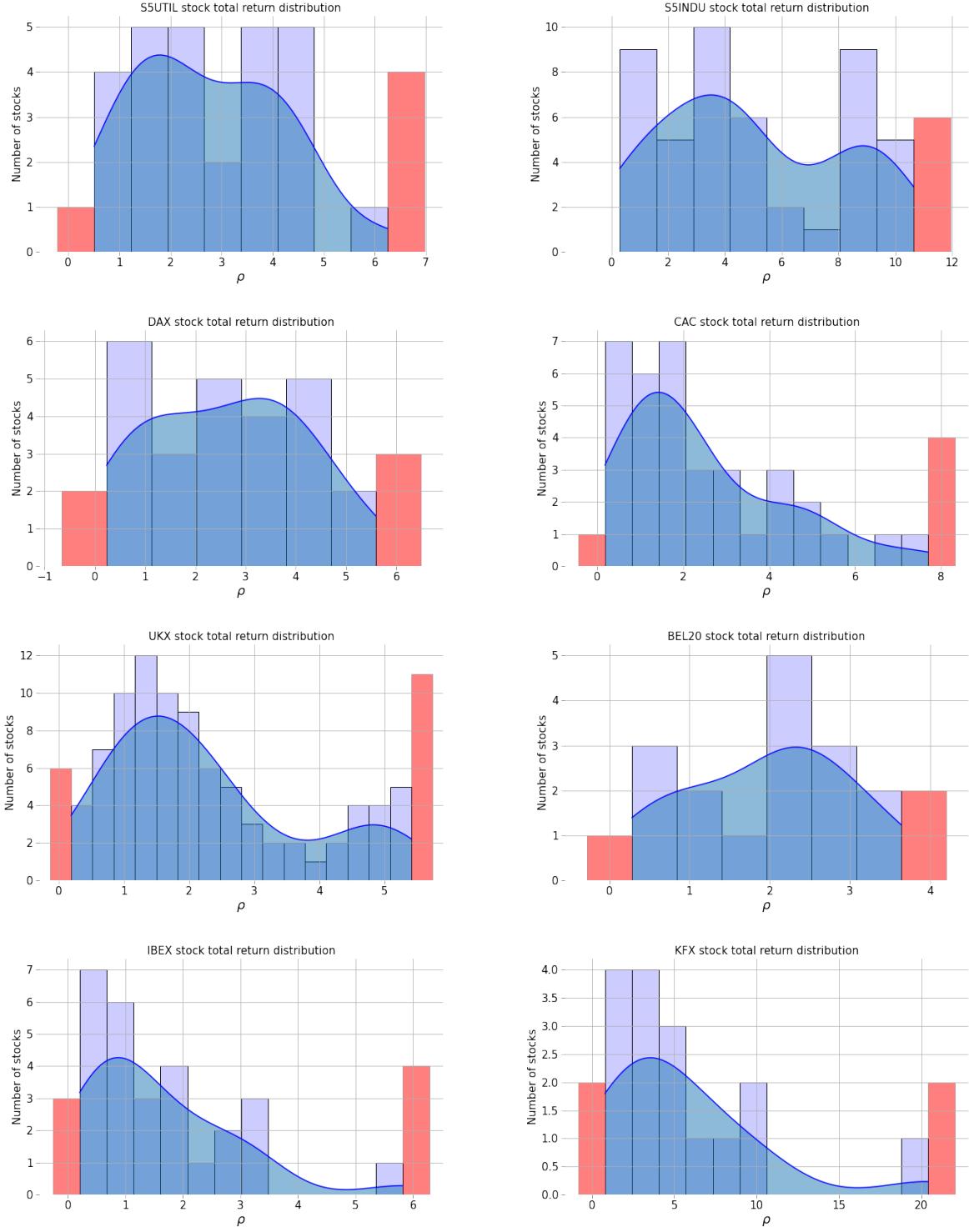
In Figure S2, we present the distribution of the percentage drift and volatility parameters of the Geometric Brownian motion for all studied indexes, complementing Figure 4 in the main text. We fit the distributions with skew-normal and Laplace asymmetric distributions for percentage drift (left panels) and with a gamma distribution for the percentage volatility (right panels). We also study the dependence of percentage drift on percentage volatility using a scatter plot and a linear regression fit (middle panels).

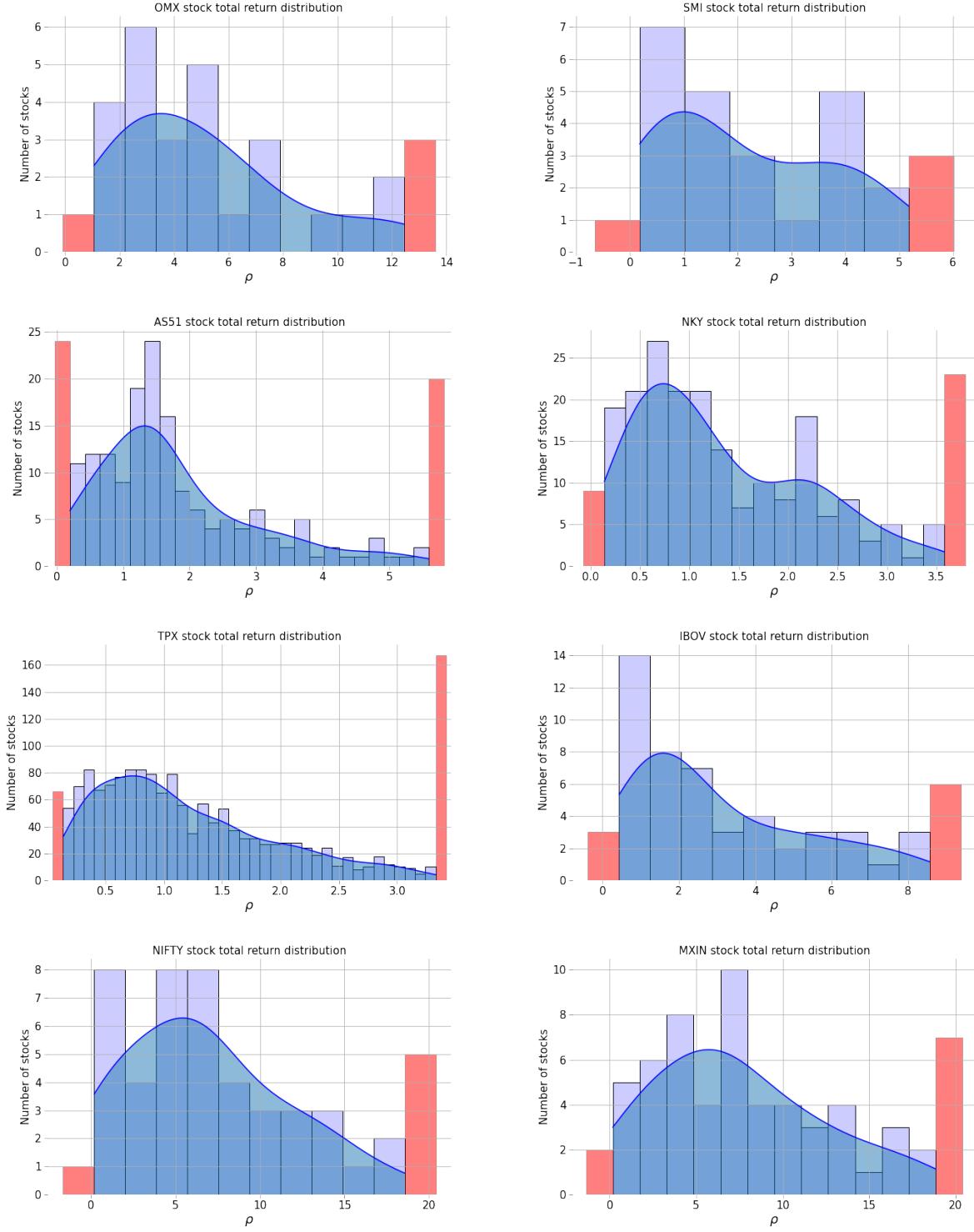
| index | mode (histogram) | mode (KDE) | left bin | quality | N _{bins} | N _{pts} |
|-------------------|------------------|------------|----------|---------|-------------------|------------------|
| US | | | | | | |
| SPX | 0.89 ± 0.38 | 1.37 | lower | good | 25 | 425 |
| CCMP | 1.00 ± 0.10 | 1.09 | higher | good | 67 | 2315 |
| RIY | 1.05 ± 0.30 | 1.33 | lower | good | 31 | 819 |
| RTY | 1.19 ± 0.13 | 1.17 | higher | good | 57 | 1539 |
| RAY | 1.17 ± 0.15 | 1.21 | higher | good | 57 | 2375 |
| RLV | 1.06 ± 0.31 | 1.31 | lower | good | 27 | 531 |
| RLG | 0.90 ± 0.38 | 1.34 | lower | good | 27 | 544 |
| NBI | 0.92 ± 0.39 | 1.12 | higher | bad | 21 | 110 |
| S&P500 | | | | | | |
| S5COND | 0.85 ± 0.68 | 1.38 | lower | good | 17 | 72 |
| S5CONS | 4.23 ± 0.81 | 4.29 | lower | bad | 11 | 34 |
| S5ENRS | 1.04 ± 0.24 | 0.98 | lower | bad | 11 | 22 |
| S5FINL | 1.08 ± 0.31 | 1.32 | higher | bad | 17 | 64 |
| S5HLTH | 0.80 ± 0.94 | 1.48 | lower | bad | 9 | 50 |
| S5INFT | 0.93 ± 0.63 | 1.38 | lower | good | 19 | 70 |
| S5MATR | 1.20 ± 0.67 | 2.29 | lower | good | 11 | 27 |
| S5TELS | 1.38 ± 0.26 | 1.50 | lower | bad | 9 | 6 |
| S5UTIL | 1.23 ± 0.72 | 1.81 | lower | bad | 9 | 27 |
| S5INDU | 2.88 ± 1.29 | 3.52 | lower | bad | 9 | 47 |
| Europe | | | | | | |
| DAX | 0.24 ± 0.89 | 3.28 | lower | bad | 7 | 25 |
| CAC | 0.18 ± 0.63 | 1.43 | lower | bad | 13 | 35 |
| UKX | 1.17 ± 0.33 | 1.53 | lower | good | 17 | 86 |
| BEL20 | 1.96 ± 0.56 | 2.33 | lower | good | 7 | 16 |
| IBEX | 0.21 ± 0.47 | 0.88 | lower | good | 13 | 27 |
| KFX | 0.80 ± 1.63 | 2.44 | lower | good | 13 | 16 |
| OMX | 2.20 ± 1.14 | 3.52 | lower | good | 11 | 26 |
| SMI | 0.18 ± 0.83 | 0.99 | lower | bad | 7 | 23 |
| APAC | | | | | | |
| AS51 | 1.32 ± 0.22 | 1.31 | higher | good | 25 | 158 |
| Japan | | | | | | |
| NKY | 0.57 ± 0.21 | 0.75 | lower | good | 17 | 194 |
| TPX | 0.31 ± 0.09 | 0.73 | lower | good | 37 | 1438 |
| BRIC | | | | | | |
| IBOV | 0.44 ± 0.81 | 1.58 | lower | good | 11 | 48 |
| NIFTY | 0.19 ± 1.84 | 5.45 | lower | bad | 11 | 44 |
| MXIN | 6.41 ± 1.55 | 5.72 | lower | good | 13 | 54 |
| SHCOMP | 2.70 ± 0.43 | 2.54 | lower | good | 41 | 783 |
| SHSZ300 | 1.76 ± 0.41 | 2.43 | lower | good | 35 | 266 |

Table S1: Estimations of the mode and the fit quality of the total return distributions.









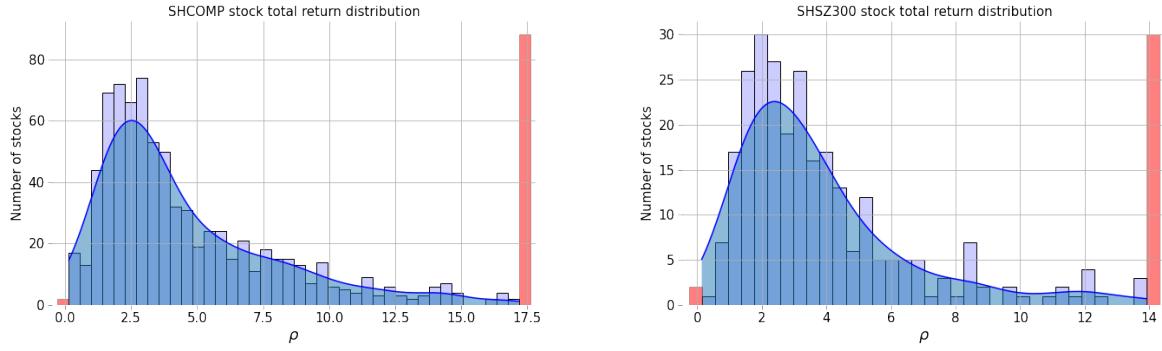
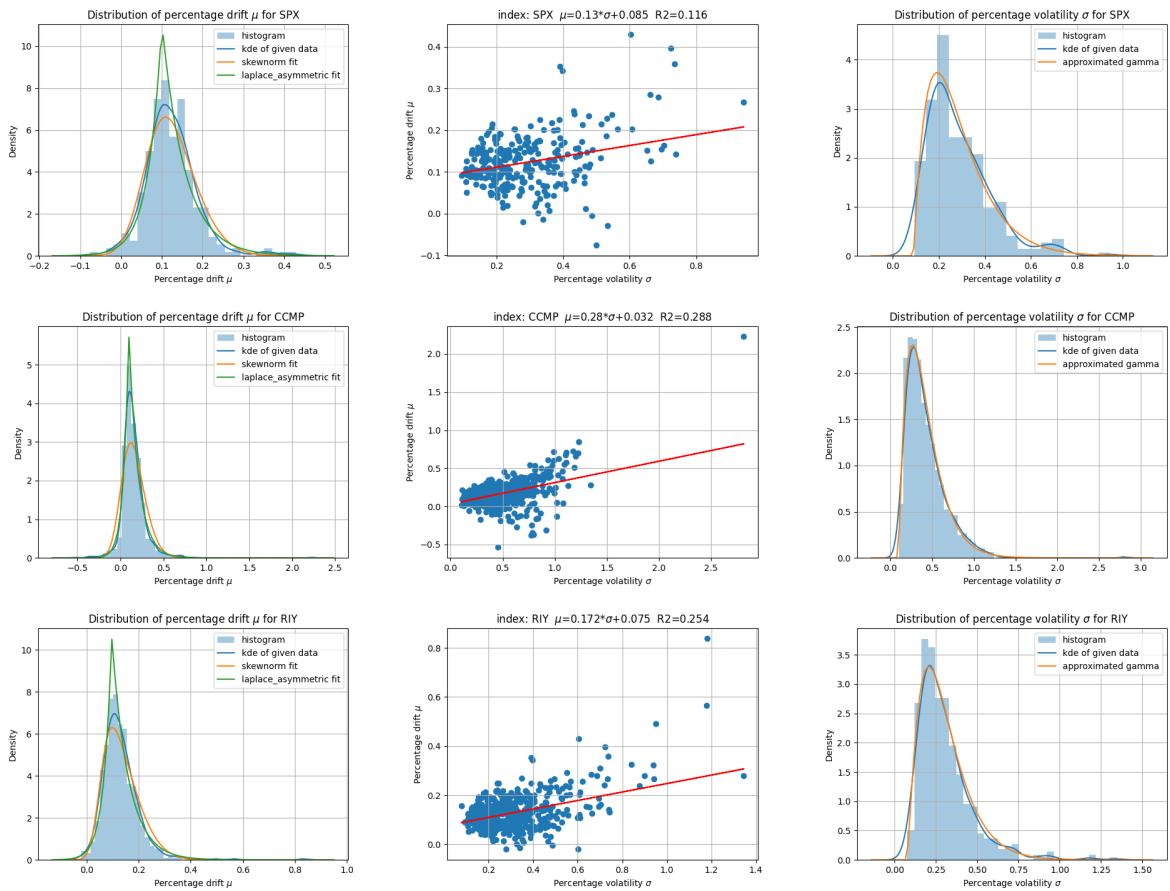
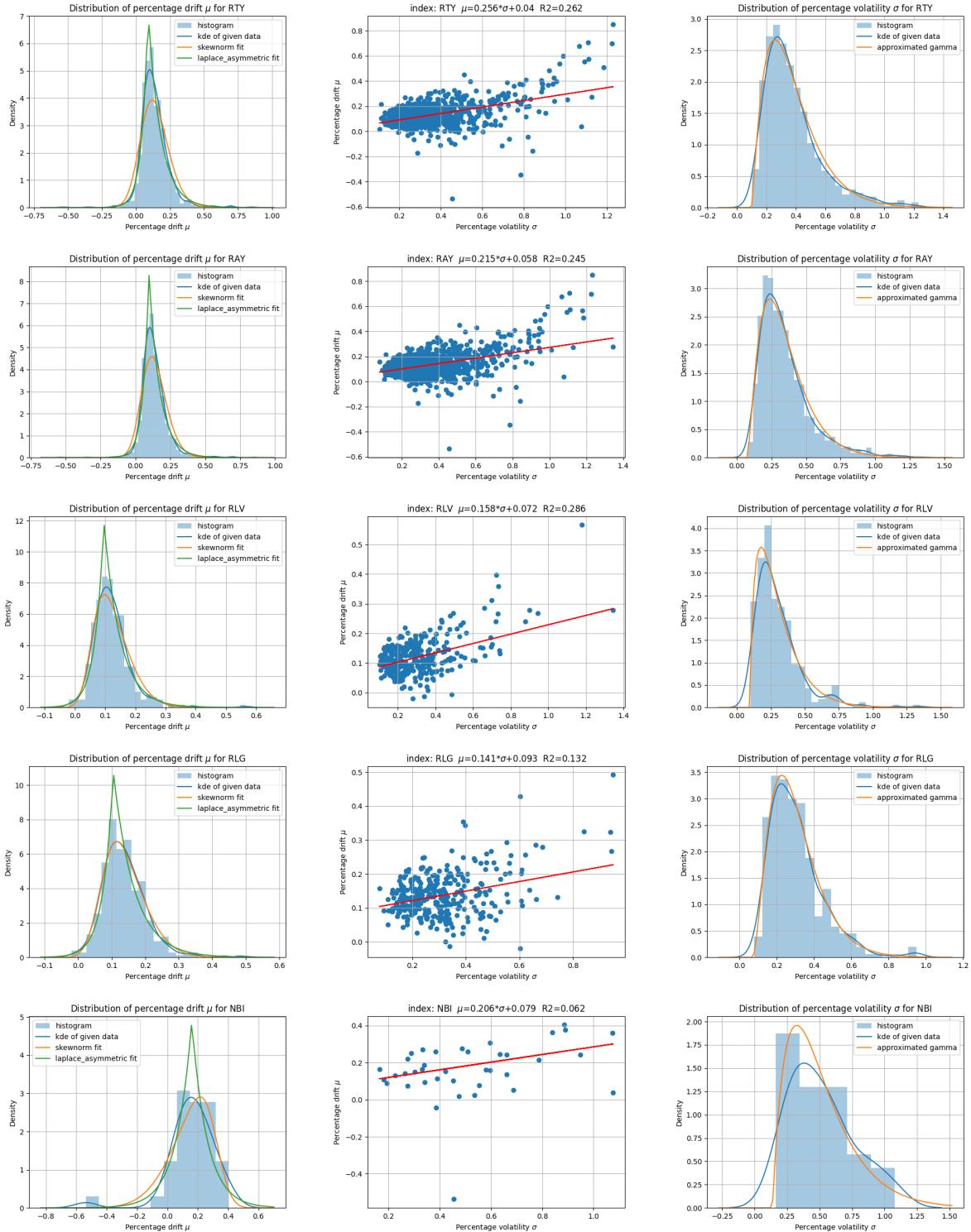
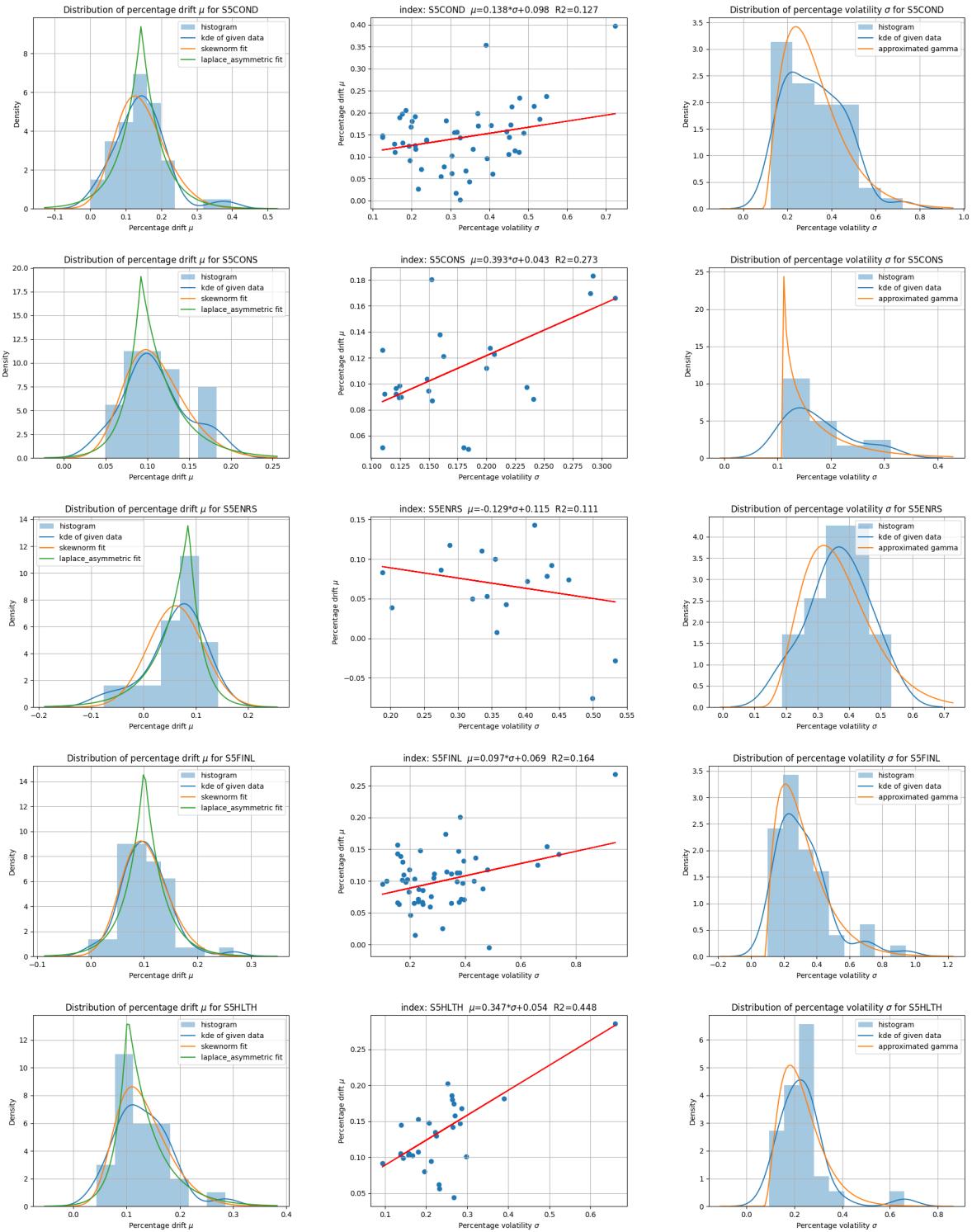
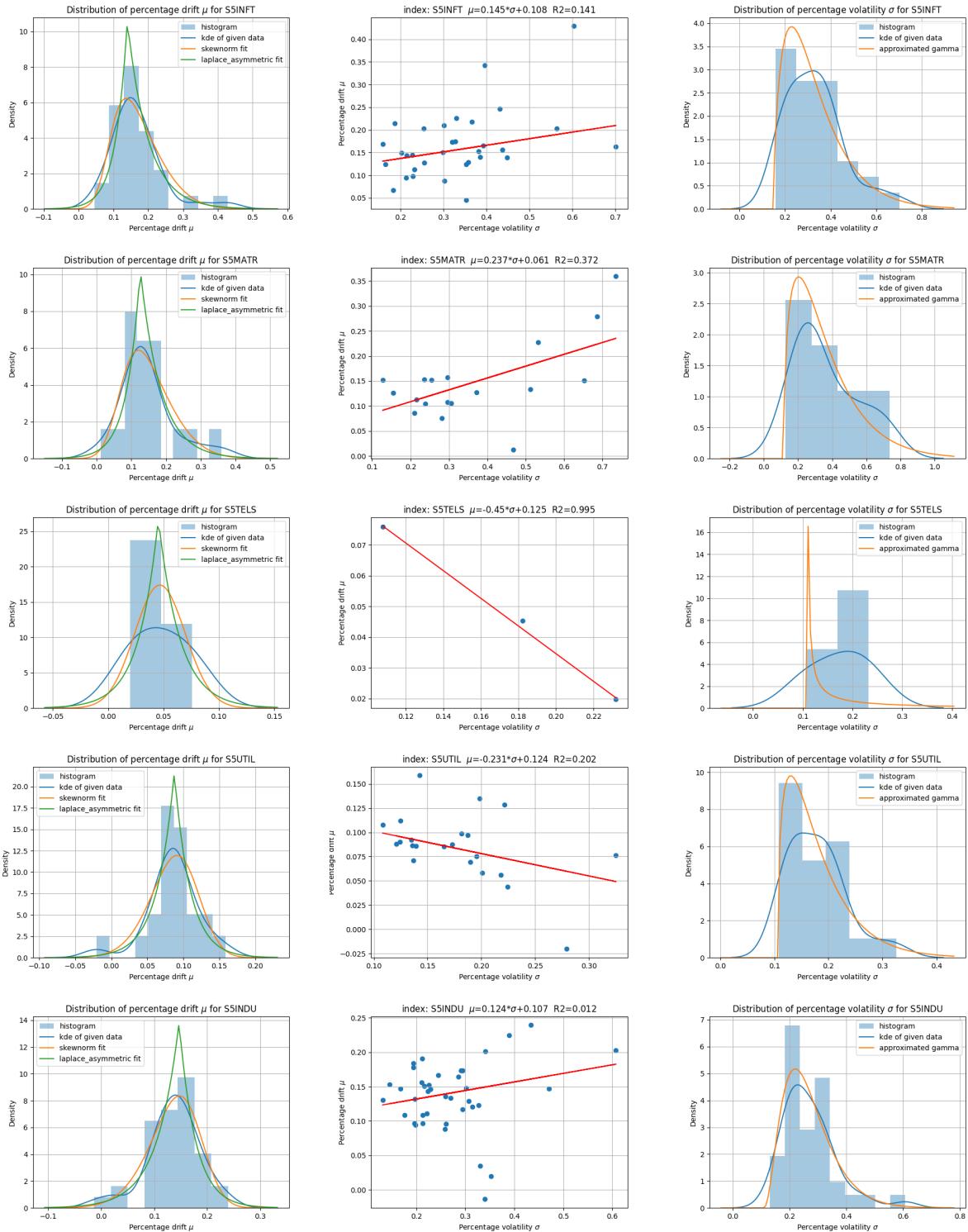


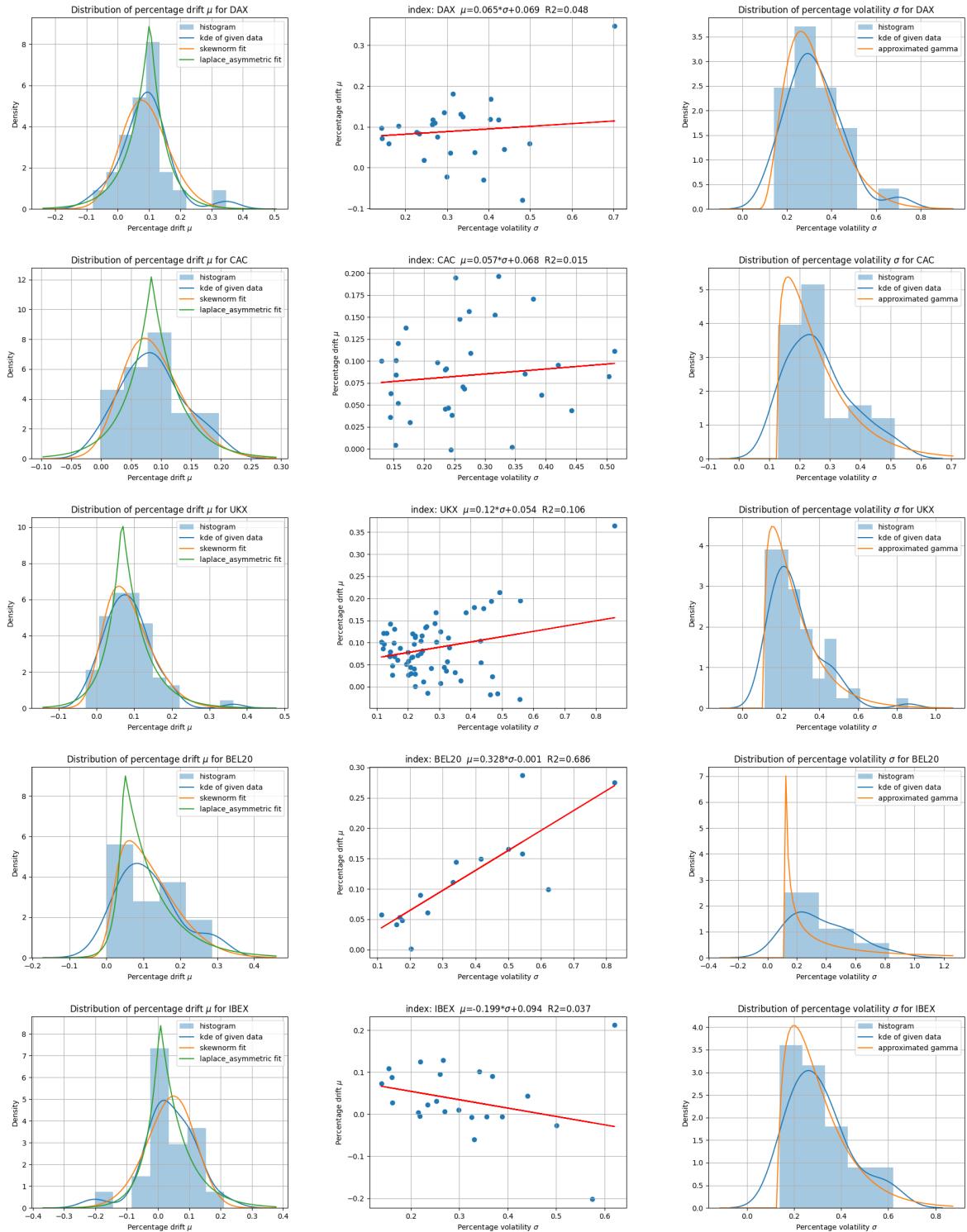
Figure S1: Total return histogram for all indexes. The histogram consists of the distribution body (blue bins), as well as the left and right tails grouped into single red bins. The left tail bin includes all stocks with $\ln(\rho) < -2$. The right tail bin takes in all stocks with the top 5% returns.

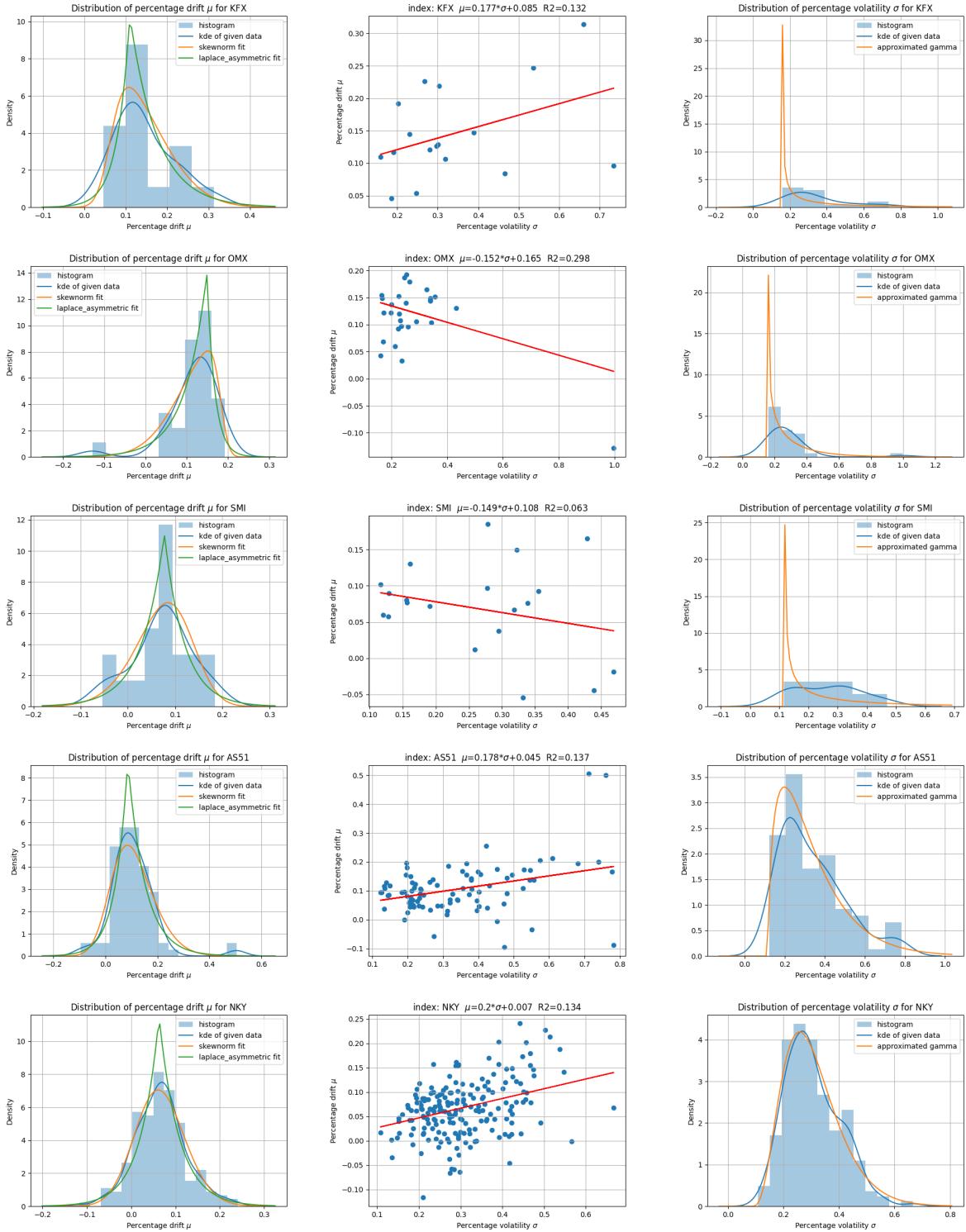


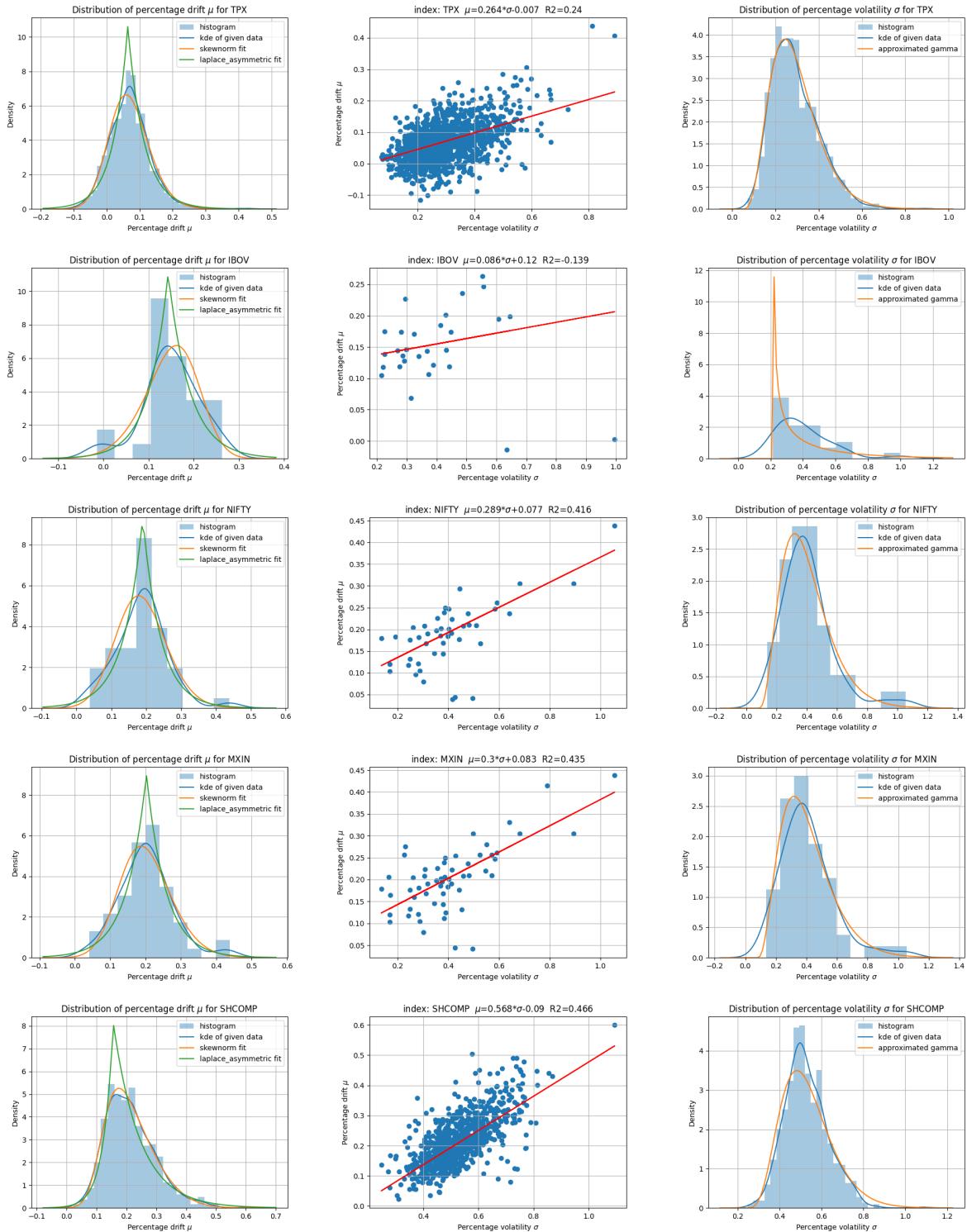












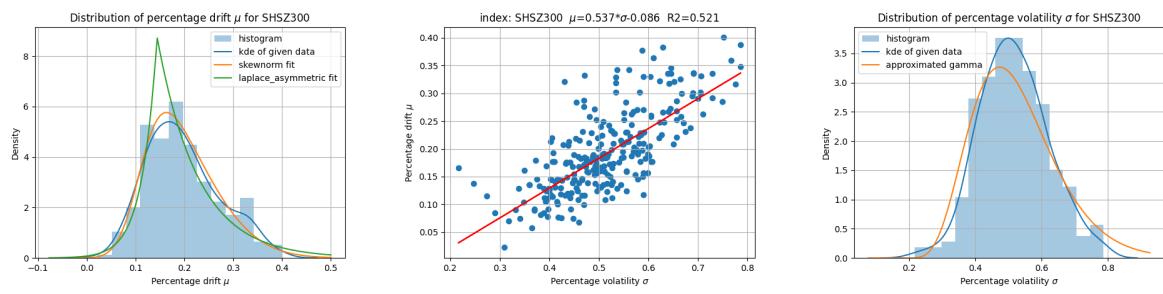


Figure S2: Geometrical Brownian motion drift and volatility empirical distributions (left and right panels), as well as their scatter plot with the linear fit estimation (middle panel) for all indexes studied in this work.