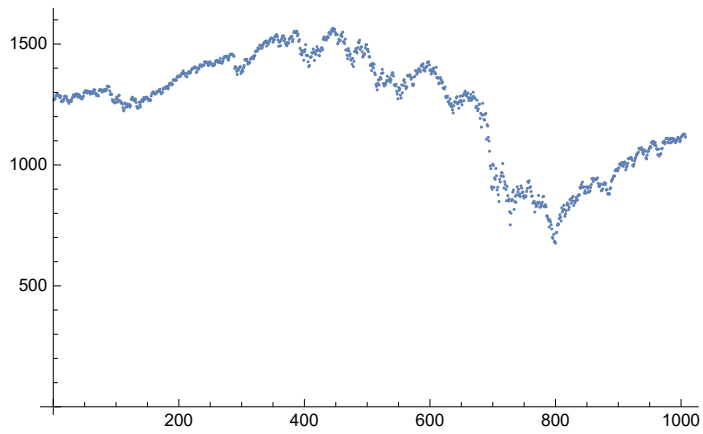


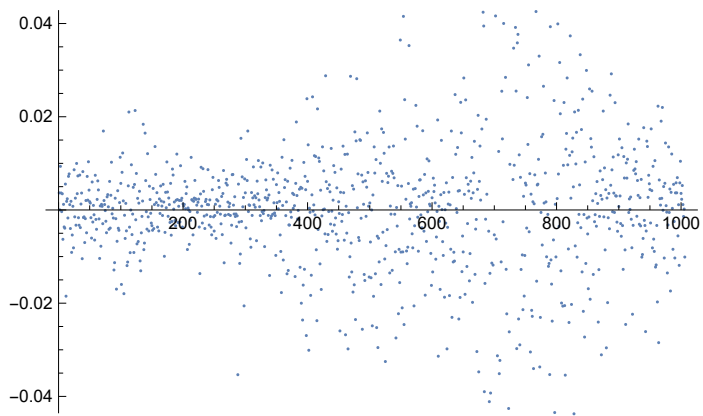
(*1*)

```
ListPlot[FinancialData["SP500", {{2006}, {2010}}, "Value"]]
```



(*2*)

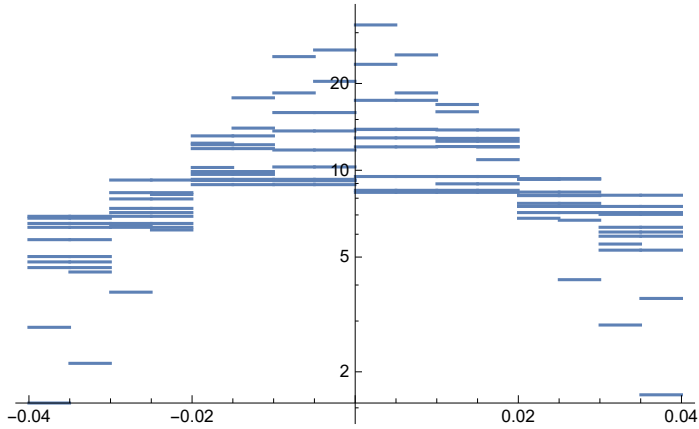
```
data = Differences[Log[FinancialData["SP500", {{2006}, {2010}}, "Value"]]];
ListPlot[data, PlotLegends -> Automatic]
```



```

(*2*)
price = Log[FinancialData["IBM", {{1980}, {2010}}, "Value"]];
dists = Table[HistogramDistribution@Differences[price[[1 ;; i]]], {i, 10}];
distpdfs = (PDF[#, x]) & /@ dists;
LogPlot[distpdfs, {x, -0.04, 0.04}]

```



```

means = Mean /@ dists
stds = StandardDeviation /@ dists
maximums = NMaxValue[#, x] & /@ distpdfs
ListLogLogPlot[means]
ListLogLogPlot[stds]
ListLogLogPlot[maximums]

```

```

{0.000456407, 0.00080251, 0.00122275, 0.00146406, 0.00195509,
 0.00236717, 0.00259482, 0.00300211, 0.00348395, 0.00389696}

```

```

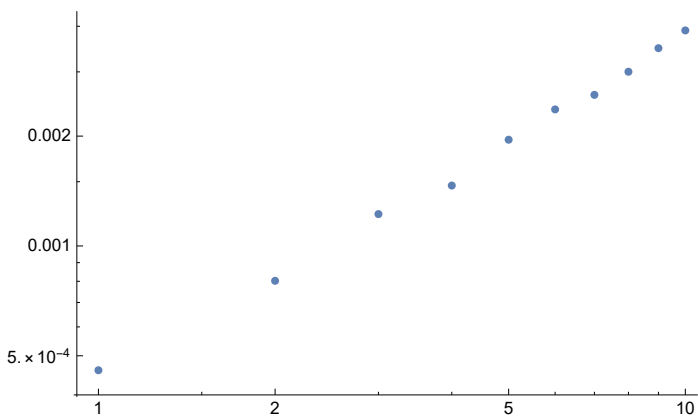
{0.0180073, 0.0250062, 0.0308303, 0.0346609,
 0.0384601, 0.0430993, 0.0460096, 0.0488169, 0.0542895, 0.0546858}

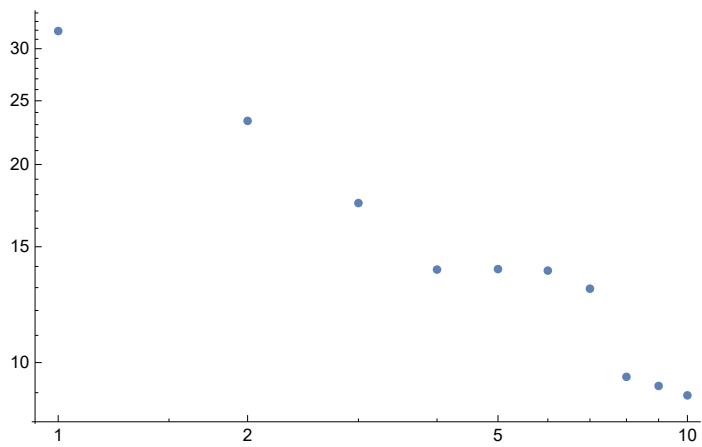
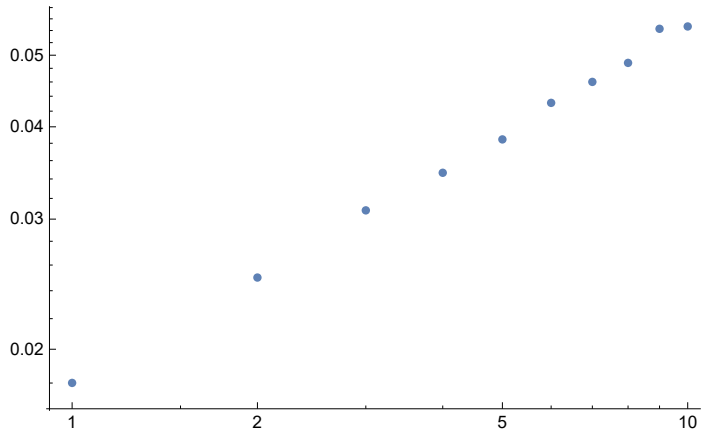
```

```

{31.9155, 23.3025, 17.4792, 13.8478, 13.8705, 13.7986, 12.951, 9.51374, 9.21522, 8.91678}

```





```

FindFit[means, a xα, {a, α}, x]
FindFit[stds, a xβ, {a, β}, x]
FindFit[maximums, a xγ, {a, γ}, x]
{a → 0.000393877, α → 0.988172}
{a → 0.0176608, β → 0.495501}
{a → 32.227, γ → -0.535534}

```

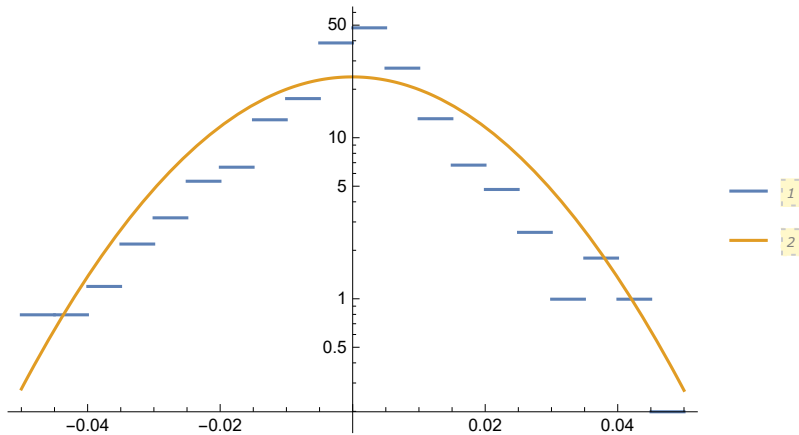
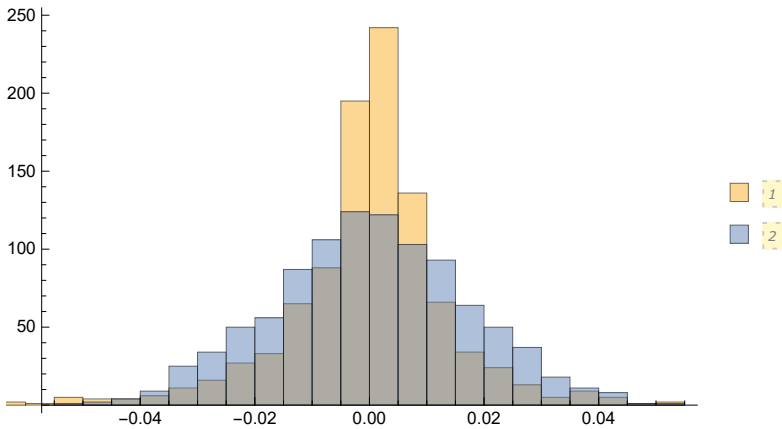
```

(*3*)
n = Length[data];
dist = HistogramDistribution[data];
 $\mu$  = Mean@dist
 $\sigma$  = StandardDeviation@dist
(*N@StandardDeviation@
  WeightedData[MovingMedian[HistogramList[data][[1]],2],HistogramList[data][[2]]]*)
fitdist = NormalDistribution[ $\mu$ ,  $\sigma$ ];
fitdata = RandomVariate[fitdist, n];
Histogram[{data(*,RandomVariate[dist,n]*), fitdata}, ChartLegends -> Automatic]
LogPlot[{PDF[dist, x], PDF[fitdist, x]}, {x, -0.05, 0.05}, PlotLegends -> Automatic]

```

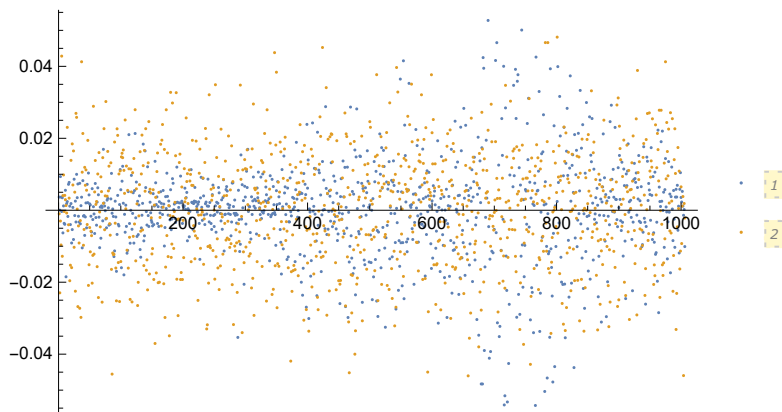
-0.000054672

0.0167198



(*4*)

```
ListPlot[{data, fitdata}, PlotLegends → Automatic]
```



(*5*)

```
ListPlot[Accumulate[fitdata]]
```

