

```

In[1]:= NormalizeData[symbol_, start_, end_] := FinancialData[symbol, {start, end}] //
Transpose@{#[[All, 1]], #[[All, 2]] / First@#[[All, 2]]} &
WeightedMean[data_, weightList_] := Total[weightList / Total@weightList * data]
FinancialChart[symbols_, start_, end_, weightList_: Nothing] :=
Module[{lists, allDates, ruleLists,
  listsWithMissing, mean, weighted, data, table, ts, headings},
  lists = NormalizeData[#, start, end] & /@ symbols;
  allDates = Table[#, {i, {stock, lists}}, {i, stock}] // Fold[Union, #] &;
  ruleLists = Table[#, {i, {stock, lists}}, {i, stock}];
  listsWithMissing = Table[Module[{association},
    association = Association@a;
    Table[k -> association[k], {k, allDates}]], {a, ruleLists}];
  mean = Normal@Merge[listsWithMissing, Mean];
  weighted = If[TrueQ[weightList == Nothing], Nothing,
    Normal@Merge[listsWithMissing, WeightedMean[#, weightList] &]];
  data = listsWithMissing ~Join~ {mean, weighted};
  table = Table[Select[Values@d, NumberQ] // {Last@#, StandardDeviation@#} & //
    {#1, #2, #1 / #2} & @ # &, {d, data}];
  ts = Transpose@{Keys@#, Values@#} & /@ data;
  headings =
    symbols ~Join~ {"Mean", If[TrueQ[weightList == Nothing], Nothing, "Weighted Mean"]};
  TableForm@{DateListPlot[ts, PlotLegends -> headings,
    PlotTheme -> "Detailed", ImageSize -> Large, BaseStyle -> {FontSize -> 20},
    PlotRange -> All, PlotLabel -> DateString@end], TableForm[table,
    TableHeadings -> {headings, {"Return", "Standard Deviation", "Return/SD"}}]}
]

```

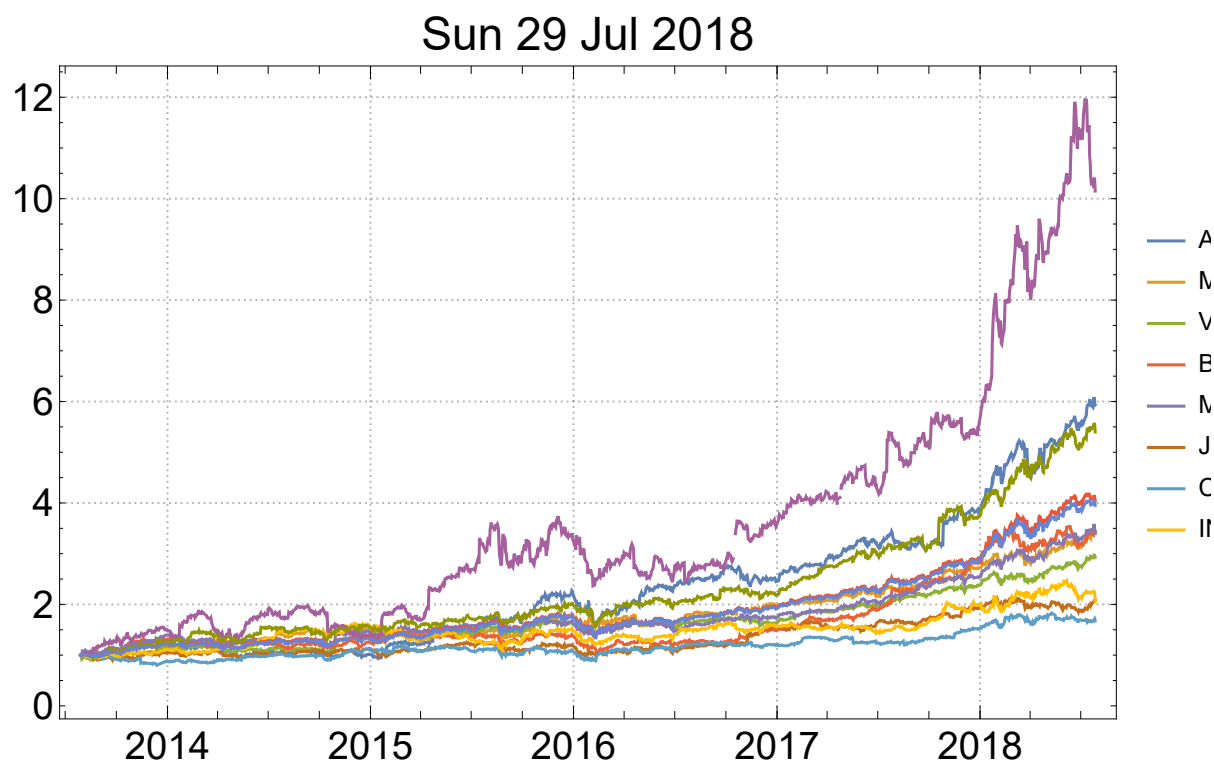
```

In[4]:= json = Import[
  "https://www.ishares.com/us/products/251614/ishares-msci-usa-momentum-factor-etf/
  1467271812596.ajax?tab=top&fileType=json", "String"] //
  ImportString[StringDrop[#, 3], "JSON"] &;
{symbols, weights} = Table[First@i → Last@Last@i[[6]], {i, Last@First@json}] //
  {Keys@#, Values@#} &
start = DatePlus[Today, -Quantity[5, "Years"]];
end = Today;
chart = FinancialChart[symbols, start, end, weights]
Export[FileNameJoin[{NotebookDirectory[], "chart.svg"}], chart];

Out[5]= {{AMZN, MSFT, V, BA, MA, JPM, CSCO, INTC, NFLX, ADBE}, {5.50492, 5.42186,
  4.9617, 4.76633, 4.55376, 4.37947, 3.69114, 3.49097, 3.36582, 2.99286}}

```

Out[8]//TableForm=



	Return	Standard Deviation	Return/SD
AMZN	5.93685	1.28334	4.6261
MSFT	3.41408	0.589292	5.79353
V	2.93192	0.498502	5.88145
BA	3.44099	0.685458	5.01999
MA	3.39922	0.577349	5.88763
JPM	2.0835	0.343896	6.05851
CSCO	1.68062	0.238414	7.04914
INTC	2.05164	0.325738	6.29842
NFLX	10.1505	2.38485	4.25625
ADBE	5.40195	1.11533	4.84336
Mean	4.04913	0.789282	5.13014
Weighted Mean	3.95193	0.762617	5.18207

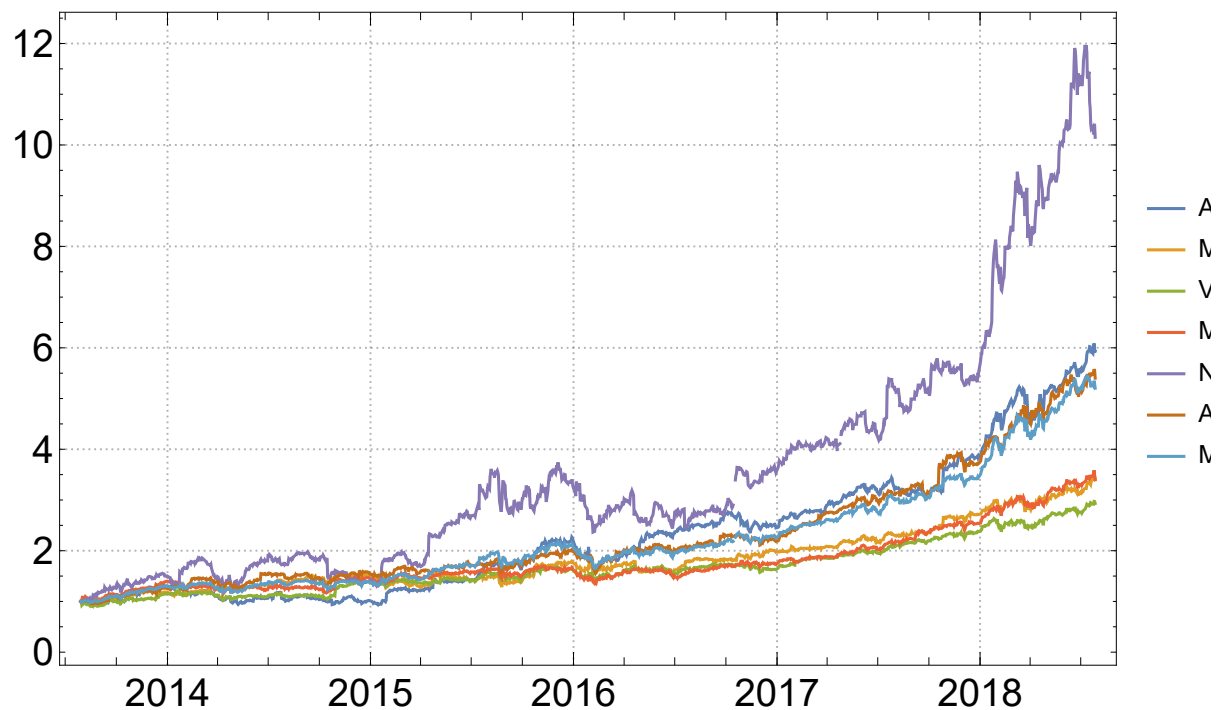
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In[10]:= (*weights={5.5,5.42,4.96,4.77,4.55,4.38,3.69,3.49,3.37,2.99};
symbols={"AMZN","MSFT","V","BA","MA","JPM","CSCO","INTC","NFLX","ADBE"};*)
symbols2 = {"AMZN", "MSFT", "V", "MA", "NFLX", "ADBE"};
FinancialChart[symbols2, start, end]

```

Out[11]//TableForm=

Sun 29 Jul 2018



	Return	Standard Deviation	Return/SD
AMZN	5.93685	1.28334	4.6261
MSFT	3.41408	0.589292	5.79353
V	2.93192	0.498502	5.88145
MA	3.39922	0.577349	5.88763
NFLX	10.1505	2.38485	4.25625
ADBE	5.40195	1.11533	4.84336
Mean	5.20575	1.06404	4.89243

```

In[12]:= PortfolioChart[stocks_, start_, end_] := Module[{s, mean, data, symbols, std, return},
  s = NormalizeData[#, start, end] & /@ stocks;
  mean = Transpose[{s[[1]][[All, 1]], Mean /@ Transpose[#[[All, 2]] & /@ s]};
  data = s ~Join~ {mean};
  symbols = stocks ~Join~ {"mean"};
  std = StandardDeviation@mean[[All, 2]];
  return = Last@mean[[All, 2]];
  TableForm@{DateListPlot[data, PlotLegends -> symbols,
    PlotTheme -> "Detailed", ImageSize -> Large, BaseStyle -> {FontSize -> 20},
    PlotRange -> All, PlotLabel -> DateString@end], {return, std, return/std} //
    TableForm[#, TableHeadings -> {{"Return", "SD", "Return/SD"}, Automatic}] &
]

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```
In[13]:= PortfolioChart[{"VTI", "EDV"}, start, end]
```

```
Out[13]//TableForm=
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Sun 29 Jul 2018

