

What?

Investors care about financial ratios. However, implications and importance of financial ratios may be dependent on several factors. Therefore, market's perception of each financial ratio changes through time.

For instance, while investors may prefer to invest in companies with large market capitalization (MCap) in certain times, they may prefer to invest in companies with low MCap in certain other times. Our job is to figure out the current investor appetite for large and small MCap companies.

Method

We will create two portfolios based on the MCap. *Portfolio_{LARGE}* will include large MCap companies in the market. *Portfolio_{SMALL}* will include low MCap companies in the market. Then, we will compare these portfolios for the current month. We will statistically evaluate if there is any meaningful differences between these two portfolios.

Portfolios

The Stata code to download the market capitalization for all S&P-500 companies:

```
fetchcomponents, symbol(~GSPC)
levelsof Symbol, local(symbols) clean
fetchyahoostats `symbols'
save SP500_key_stats.dta, replace
```

The file *SP500_key_stats.dta* includes the current key statistics for all companies included in the S&P-500 index. One of these key statistics is the market capitalization.

The Stata code to filter (eliminate companies with no MCap, etc.) the data that we just downloaded:

```
use SP500_key_stats.dta, clear
destring marketCap, replace force
drop if (marketCap==.) | (marketCap==0)
```

The Stata code to get the symbols for companies with the lowest and the highest MCap. Note that we have 503 companies with usable MCap.

```
levelsof symbol if _n<=50, local(low_mcap) clean
levelsof symbol if _n>(503-50), local(high_mcap) clean
```

The Stata code to download the daily prices for the companies with the lowest and the highest MCap:

```
net install http://researchdata.com/stata/203/fetchyahoquotes.pkg, force
fetchyahoquotes `GSPC' `low_mcap' `high_mcap', freq(d) chg(ln) start(01jan2018)
```

The Stata code to create the low MCap and the high MCap portfolios:

```
gen P_low_mcap = 0
foreach aa in `low_mcap' {
    replace P_low_mcap = P_low_mcap + ln`aa' if (ln`aa'!=.)
}
replace P_low_mcap = P_low_mcap / 50

gen P_high_mcap = 0
foreach aa in `high_mcap' {
    replace P_high_mcap = P_high_mcap + ln`aa' if (ln`aa'!=.)
}
replace P_high_mcap = P_high_mcap / 50
```

Let's compare total risk and return for the recent days (i.e. October and November):

```
tabstat P_low_mcap P_high_mcap if (month(date)>8), stat(sd sum) columns(variables)
```

stats	P_low~p	P_high~p
sd	.0098004	.0123181
sum	-.0526104	-.096192

In this table *sd* refers to standard deviation of daily returns for the two months we are testing. *sum* refers to the total return for the two months. **High MCap companies had higher risk and had more losses.**

Let's statistically compare daily returns for the recent days (i.e. October and November):

```
ttest P_low_mcap==P_high_mcap if (month(date)>8)
```

Paired t test						
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
P_low~p	57	-.000923	.0012981	.0098004	-.0035234	.0016774
P_high~p	57	-.0016876	.0016316	.0123181	-.004956	.0015809
diff	57	.0007646	.0006058	.0045736	-.000449	.0019781
mean(diff) = mean(P_low_mcap - P_high_mcap)				t =	1.2621	
Ho: mean(diff) = 0				degrees of freedom =	56	
Ha: mean(diff) < 0		Ha: mean(diff) != 0		Ha: mean(diff) > 0		
Pr(T < t) = 0.8939		Pr(T > t) = 0.2121		Pr(T > t) = 0.1061		

Note that this test is based on average daily returns. While both portfolios, high MCap and low MCap, had negative average returns, high MCap companies had lower returns.

The highlighted *t-test* shows that:

$P_{low_mcap} - P_{high_mcap} > 0$ with 10.61% statistical significance (lower the better).

Where does AAPL stand?

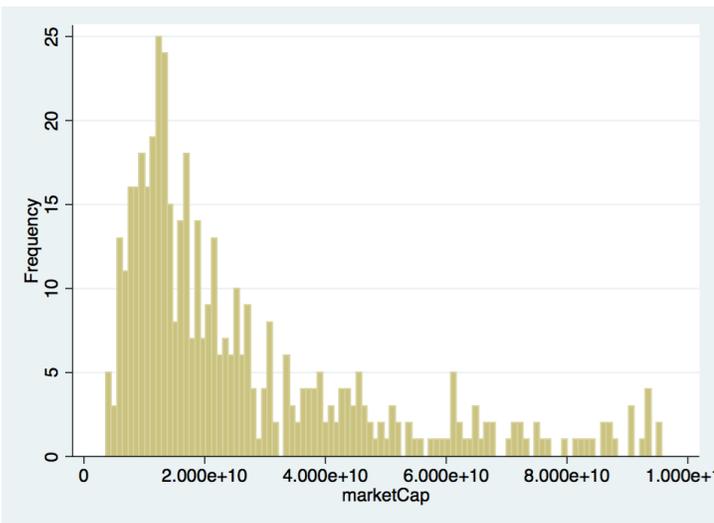
Let's look at the current distribution of MCap for the S&P-500 companies:

```
use SF500_key_stats.dta, clear
destring marketCap, replace force
drop if (marketCap==.) | (marketCap==0)
generate groupMCap=recode(marketCap,1e+10,2.5e+10,5e+10,7.5e+10,1e+11,2.5e+11,5e+11)
tabulate groupMCap, plot
```

groupMCap	Freq.
1.00e+10	80
2.50e+10	211
5.00e+10	102
7.50e+10	37
1.00e+11	24
2.50e+11	36
5.00e+11	13

Note that the cluster of companies' MCap ratios is between \$10B and \$100B. Let's chart the MCap distribution for MCap between \$10B and \$100B.

```
hist marketCap if (marketCap<=1e+11), freq bin(100)
```



Note that the MCap for AAPL is about \$830B as of November 23rd. Current market perception seems to dislike companies with high MCap (ex. AAPL).

Let's compare AAPL price chart to S&P-500 index for October and November.

```
fetchyahoquotes ~GSPC AAPL, freq(d) chg(ln) start(01oct2018)
twoway (line adjclose_AAPL date, yaxis(1)) (line adjclose__GSPC date, yaxis(2))
```

