November 30, 2018
Finance 9770
Frank Bradley, Hannah Godlove, Graam Liu, Marcy Pritchard

Quantitative Extra Credit Project Questions

Security	**sigma**	**alpha**	**beta**	**R-Squared**	**SEE**
F	0.05483	-0.01381184651	0.8295125834	0.184733672	0.0499288228
BAC	0.07289	0.001948653041	1.210219365	0.2225065512	0.06481756215
INTC	0.06098	0.007191842325	0.8484374966	0.1562615316	0.05648711149
JNJ	0.03651	0.003527638653	0.6008985672	0.2186441447	0.03254680074
XOM	0.04538	-0.005012593924	0.7231753872	0.204964294	0.04080839131
SPLV ETF	0.02439	0.002446630697	0.6392020331	0.5543124189	0.01642206385
Mean of the 5 securities & SPLV ETF	0.04916333	-0.0006183	0.80857424	(mean of 5 stocks ONLY) 19.74%	0.04350179

1.1 *What is the average Beta?*
The average Beta is *0.80857424.*

1.2 I*s this close to what you would have expected for a randomly chosen stock?*
The average beta is close to 1.0 (the market), and this is slightly lower than expected but still within the range for a randomly chosen stock.

1.3 Are the Betas different from zero in a statistically significant way?
The P Values for the 6 individual betas are all less than .05 therefore we can say with 95% confidence they are statistically different from 0.

2. *Are the Alphas significantly different from zero?*
The Ford Alpha's P Value is 0.04785717, so with 95% confidence Ford's Alpha is significantly different from 0, but the remaining Alphas' P Values and the mean P Value are all above 0.05. Therefore, we cannot say with 95% confidence that those Alphas with P Values greater than 0.05 are statistically different from 0.

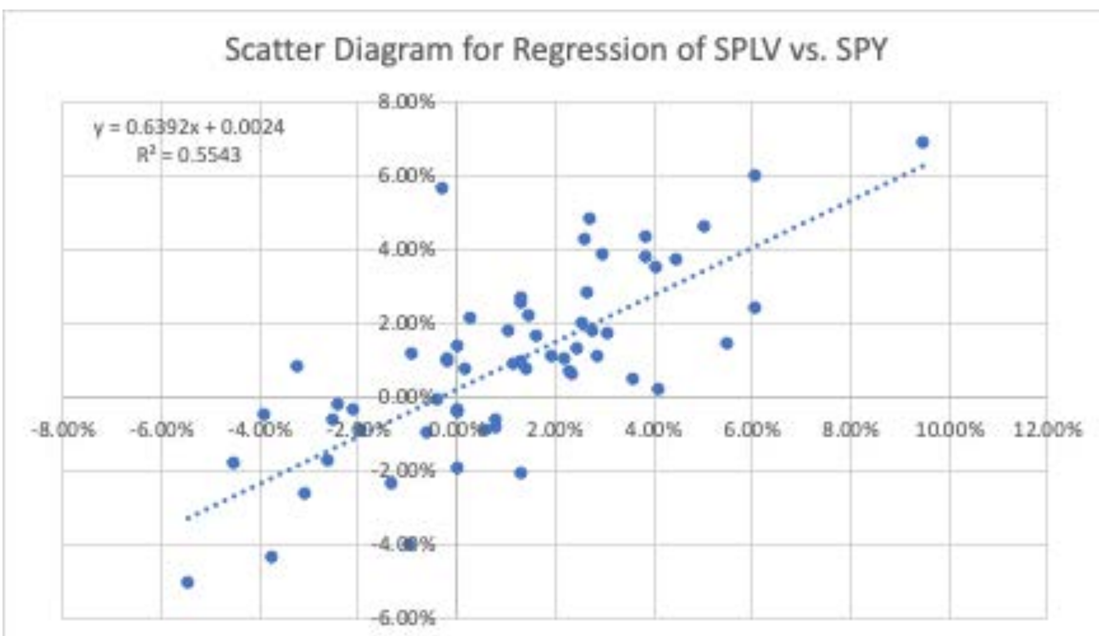
3. *On average what percentage of the variance of the five stocks is explained by the market factor?*
The mean R squared of the five stocks is *19.74%*, the percentage of the variance of the five stocks explained by the market factor.

4.1 *The SPLV ETF (SP Low volatility ETF) was designed to provide lower risk (in terms of both lower beta and lower standard deviation of return) than "the market". It is also designed to be more diversified (more correlated) to the market than the typical single stock. Do you see any evidence that this is true.*

According to our analysis in the Excel exhibits, SPLV ETF has both a lower beta of .64 and lower standard deviation at .024 than SPY (the market), which has a market beta of 1 and a standard deviation of .028. However, SPLV has a lower average monthly return of 1.01% compared to SPY's 1.15% average monthly return. SPLV's lower beta, lower standard deviation and lower average monthly return indicate that it has less risk than SPY, the market.

SPLV has a correlation of .74, and this higher value suggests a more correlated relationship to the market. This also indicates that SPLV is more diversified to the market compared to a typical single stock.

5. *Provide a scatter diagram for the regression of SPLV vs SPY*
Contained below and in the Excel exhibits.



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Quantitative Project		Graam Liu
		Marcy Pritchard

At Specified Date	Adj Close	Monthly Return SPY	Market Return - Risk Free (X)		**SPY**
8/1/2013	147.55				
9/1/2013	151.48	2.66%	2.58%		
10/1/2013	159.27	5.14%	5.06%		
11/1/2013	163.99	2.96%	2.88%		
12/1/2013	167.33	2.04%	1.96%		
1/1/2014	162.31	-3.00%	-3.08%		
2/1/2014	169.70	4.55%	4.47%		
3/1/2014	170.36	0.39%	0.30%		
4/1/2014	172.30	1.14%	1.06%		
5/1/2014	176.30	2.32%	2.24%		
6/1/2014	179.08	1.58%	1.49%		
7/1/2014	177.52	-0.87%	-0.95%		
8/1/2014	184.52	3.95%	3.86%		
9/1/2014	181.13	-1.84%	-1.92%		
10/1/2014	186.26	2.83%	2.75%		
11/1/2014	191.38	2.75%	2.66%		
12/1/2014	189.85	-0.80%	-0.88%		
1/1/2015	185.24	-2.43%	-2.51%		
2/1/2015	195.65	5.62%	5.54%		
3/1/2015	191.72	-2.01%	-2.09%		
4/1/2015	194.47	1.43%	1.35%		
5/1/2015	196.97	1.29%	1.20%		
6/1/2015	192.07	-2.49%	-2.57%		
7/1/2015	197.28	2.71%	2.63%		
8/1/2015	186.70	-5.36%	-5.45%		
9/1/2015	179.60	-3.80%	-3.88%		
10/1/2015	196.84	9.60%	9.51%		
11/1/2015	196.65	-0.10%	-0.18%		
12/1/2015	192.11	-2.31%	-2.39%		
1/1/2016	183.63	-4.41%	-4.50%		
2/1/2016	183.48	-0.08%	-0.17%		
3/1/2016	194.81	6.18%	6.10%		
4/1/2016	196.59	0.91%	0.83%		
5/1/2016	199.93	1.70%	1.62%		
6/1/2016	199.59	-0.17%	-0.25%		
7/1/2016	207.95	4.19%	4.10%		
8/1/2016	208.20	0.12%	0.04%		
9/1/2016	207.16	-0.50%	-0.58%		
10/1/2016	204.60	-1.24%	-1.32%		
11/1/2016	212.14	3.68%	3.60%		
12/1/2016	215.17	1.43%	1.35%		
1/1/2017	220.31	2.39%	2.31%		
2/1/2017	228.97	3.93%	3.85%		
3/1/2017	228.26	-0.31%	-0.39%		
4/1/2017	231.53	1.43%	1.35%		
5/1/2017	234.80	1.41%	1.33%		
6/1/2017	235.15	0.15%	0.07%		
7/1/2017	241.15	2.55%	2.47%		
8/1/2017	241.85	0.29%	0.21%		
9/1/2017	245.51	1.51%	1.43%		
10/1/2017	252.54	2.86%	2.78%		
11/1/2017	260.26	3.06%	2.97%		
12/1/2017	262.08	0.70%	0.61%		
1/1/2018	278.26	6.18%	6.09%		
2/1/2018	268.14	-3.64%	-3.72%		
3/1/2018	259.75	-3.13%	-3.21%		
4/1/2018	262.14	0.92%	0.84%		
5/1/2018	268.51	2.43%	2.35%		
6/1/2018	268.85	0.13%	0.04%		
7/1/2018	280.06	4.17%	4.09%		
8/1/2018	289.00	3.19%	3.11%		
9/1/2018	289.41	0.14%	0.06%		
	SPY Mean Monthly Re	1.15%			
	SPY Standard Deviati	**0.02841**			
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Finance 9770		Hannah Godlove			
Quantitative Project		Graam Liu			
		Marcy Pritchard			

Date	Adj Close	Monthly Return SPLV	Return SPLV-Risk Free Rate (Y)	**SPLV**	Risk Free Rate	0.0008333333333
8/1/2013	$ 27.16					
9/1/2013	$ 27.71	2.02%	1.94%			
10/1/2013	$ 29.00	4.64%	4.56%			
11/1/2013	$ 29.33	1.13%	1.05%			
12/1/2013	$ 29.66	1.13%	1.05%			
1/1/2014	$ 28.90	-2.57%	-2.65%			
2/1/2014	$ 29.99	3.78%	3.70%			
3/1/2014	$ 30.63	2.14%	2.06%			
4/1/2014	$ 31.20	1.86%	1.77%			
5/1/2014	$ 31.54	1.07%	0.99%			
6/1/2014	$ 32.24	2.21%	2.13%			
7/1/2014	$ 30.95	-4.00%	-4.08%			
8/1/2014	$ 32.14	3.84%	3.76%			
9/1/2014	$ 31.87	-0.84%	-0.93%			
10/1/2014	$ 33.42	4.88%	4.80%			
11/1/2014	$ 34.38	2.87%	2.79%			
12/1/2014	$ 34.79	1.19%	1.11%			
1/1/2015	$ 34.60	-0.56%	-0.65%			
2/1/2015	$ 35.10	1.45%	1.37%			
3/1/2015	$ 34.98	-0.34%	-0.43%			
4/1/2015	$ 34.26	-2.04%	-2.13%			
5/1/2015	$ 34.58	0.94%	0.85%			
6/1/2015	$ 34.00	-1.69%	-1.78%			
7/1/2015	$ 35.46	4.29%	4.21%			
8/1/2015	$ 33.68	-5.01%	-5.10%			
9/1/2015	$ 33.54	-0.42%	-0.50%			
10/1/2015	$ 35.86	6.94%	6.85%			
11/1/2015	$ 36.25	1.08%	1.00%			
12/1/2015	$ 36.19	-0.16%	-0.24%			
1/1/2016	$ 35.55	-1.77%	-1.85%			
2/1/2016	$ 35.90	0.99%	0.90%			
3/1/2016	$ 38.06	6.00%	5.92%			
4/1/2016	$ 37.76	-0.79%	-0.87%			
5/1/2016	$ 38.39	1.68%	1.59%			
6/1/2016	$ 40.59	5.71%	5.63%			
7/1/2016	$ 40.70	0.27%	0.19%			
8/1/2016	$ 39.92	-1.91%	-1.99%			
9/1/2016	$ 39.56	-0.90%	-0.98%			
10/1/2016	$ 38.64	-2.33%	-2.41%			
11/1/2016	$ 38.84	0.51%	0.43%			
12/1/2016	$ 39.85	2.60%	2.51%			
1/1/2017	$ 40.15	0.75%	0.67%			
2/1/2017	$ 41.89	4.35%	4.27%			
3/1/2017	$ 41.88	-0.02%	-0.11%			
4/1/2017	$ 42.32	1.03%	0.95%			
5/1/2017	$ 43.47	2.72%	2.64%			
6/1/2017	$ 43.34	-0.30%	-0.38%			
7/1/2017	$ 43.93	1.37%	1.29%			
8/1/2017	$ 44.26	0.76%	0.68%			
9/1/2017	$ 44.61	0.78%	0.70%			
10/1/2017	$ 45.41	1.80%	1.72%			
11/1/2017	$ 47.18	3.88%	3.80%			
12/1/2017	$ 46.76	-0.88%	-0.96%			
1/1/2018	$ 47.90	2.44%	2.36%			
2/1/2018	$ 45.83	-4.34%	-4.42%			
3/1/2018	$ 46.22	0.87%	0.79%			
4/1/2018	$ 45.94	-0.61%	-0.69%			
5/1/2018	$ 46.24	0.65%	0.57%			
6/1/2018	$ 46.91	1.44%	1.36%			
7/1/2018	$ 48.57	3.55%	3.46%			
8/1/2018	$ 49.44	1.78%	1.69%			
9/1/2018	$ 49.26	-0.35%	-0.43%			
	SPLV Mean Monthly	1.01%				
	SPLV Standard Devi	**0.02439**				
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		Marcy Pritchard				

SUMMARY OUTPUT	SPLV
Regression Statistics	
Multiple R	0.744521604
R Square	**0.5543124189**
Adjusted R Square	0.5467583921
Standard Error	**0.01642206385**
Observations	**61**

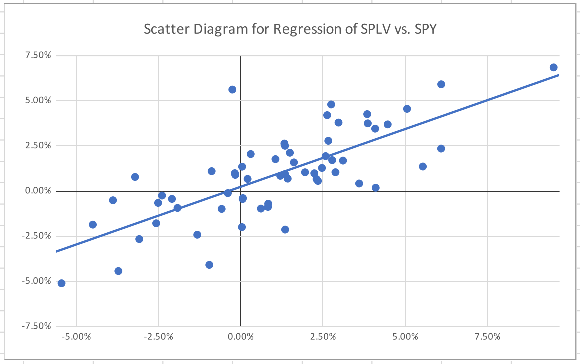
ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.0197893	0.0197893	73.379726	0
Residual	59	0.0159113	0.0002696		
Total	60	0.0357007			

	Coefficients	*andard Err*	*t Stat*	***P-value***	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Ipper 95.0%*
Intercept Alpha	**0.002446630697**	0.0022481	1.0882824	**0.2808960**	-0.002051922	0.0069451	-0.002051	0.0069451
X Variable Beta	**0.6392020331**	0.0746191	8.5661967	**0**	0.4898895254	0.7885145	0.4898895	0.7885145

SPLV Standard Deviation (Sigma	**0.02439**
Correlation	0.7445

Market Return - Risk Free (X)	Return SPLV-Risk Free Rate (Y)
2.58%	1.94%
5.06%	4.56%
2.88%	1.05%
1.96%	1.05%
-3.08%	-2.65%
4.47%	3.70%
0.30%	2.06%
1.06%	1.77%
2.24%	0.99%
1.49%	2.13%
-0.95%	-4.08%
3.86%	3.76%
-1.92%	-0.93%
2.75%	4.80%
2.66%	2.79%
-0.88%	1.11%
-2.51%	-0.65%
5.54%	1.37%
-2.09%	-0.43%
1.35%	-2.13%
1.20%	0.85%
-2.57%	-1.78%
2.63%	4.21%
-5.45%	-5.10%
-3.88%	-0.50%
9.51%	6.85%
-0.18%	1.00%
-2.39%	-0.24%
-4.50%	-1.85%
-0.17%	0.90%
6.10%	5.92%
0.83%	-0.87%
1.62%	1.59%
-0.25%	5.63%
4.10%	0.19%
0.04%	-1.99%
-0.58%	-0.98%
-1.32%	-2.41%
3.60%	0.43%
1.35%	2.51%
2.31%	0.67%
3.85%	4.27%
-0.39%	-0.11%
1.35%	0.95%
1.33%	2.64%
0.07%	-0.38%
2.47%	1.29%
0.21%	0.68%
1.43%	0.70%
2.78%	1.72%
2.97%	3.80%
0.61%	-0.96%
6.09%	2.36%
-3.72%	-4.42%
-3.21%	0.79%
0.84%	-0.69%
2.35%	0.57%
0.04%	1.36%
4.09%	3.46%
3.11%	1.69%
0.06%	-0.43%



FORD MOTOR CO (F)

Date	Adj Close	Monthly Return	Monthly Return (F) - Risk Free Rate = (Y	Market Return - Risk Free = (X)
8/1/2013	12.833052			
9/1/2013	13.372057	0.04200131	4.12%	2.58%
10/1/2013	13.562295	0.014226532	1.34%	5.06%
11/1/2013	13.615832	0.003947488	0.31%	2.88%
12/1/2013	12.300487	-0.096604086	-9.74%	1.96%
1/1/2014	11.92581	-0.030460339	-3.13%	-3.08%
2/1/2014	12.366936	0.036989186	3.62%	4.47%
3/1/2014	12.535686	0.013645255	1.28%	0.30%
4/1/2014	12.977647	0.035256228	3.44%	1.06%
5/1/2014	13.313924	0.025912016	2.51%	2.24%
6/1/2014	13.961802	0.048661687	4.78%	1.49%
7/1/2014	13.783636	-0.01276096	-1.36%	-0.95%
8/1/2014	14.200507	0.030243907	2.94%	3.86%
9/1/2014	12.063498	-0.150488218	-15.13%	-1.92%
10/1/2014	11.492543	-0.047329141	-4.82%	2.75%
11/1/2014	12.94448	0.126337313	12.55%	2.66%
12/1/2014	12.75521	-0.014621677	-1.55%	-0.88%
1/1/2015	12.105103	-0.050967957	-5.18%	-2.51%
2/1/2015	13.583669	0.122144025	12.13%	5.54%
3/1/2015	13.417406	-0.012239918	-1.31%	-2.09%
4/1/2015	13.13476	-0.021065622	-2.19%	1.35%
5/1/2015	12.729929	-0.030821347	-3.17%	1.20%
6/1/2015	12.595666	-0.010547034	-1.14%	-2.57%
7/1/2015	12.444617	-0.011992141	-1.28%	2.63%
8/1/2015	11.75796	-0.05517703	-5.60%	-5.45%
9/1/2015	11.50364	-0.021629602	-2.25%	-3.88%
10/1/2015	12.554821	0.09137812	9.05%	9.51%
11/1/2015	12.271536	-0.022563842	-2.34%	-0.18%
12/1/2015	12.066011	-0.016748107	-1.76%	-2.39%
1/1/2016	10.224852	-0.152590529	-15.34%	-4.50%
2/1/2016	10.845669	0.060716478	5.99%	-0.17%
3/1/2016	11.703959	0.079136658	7.83%	6.10%
4/1/2016	11.755977	0.004444479	0.36%	0.83%
5/1/2016	11.824283	0.005810321	0.50%	1.62%
6/1/2016	11.017881	-0.068198807	-6.90%	-0.25%
7/1/2016	11.096768	0.007159907	0.63%	4.10%
8/1/2016	11.165276	0.006173689	0.53%	0.04%
9/1/2016	10.695625	-0.042063537	-4.29%	-0.58%
10/1/2016	10.4032	-0.027340618	-2.82%	-1.32%
11/1/2016	10.730187	0.031431386	3.06%	3.60%
12/1/2016	10.882707	0.014214105	1.34%	1.35%
1/1/2017	11.089056	0.018961183	1.81%	2.31%
2/1/2017	11.376906	0.025958026	2.51%	3.85%
3/1/2017	10.56881	-0.071029505	-7.19%	-0.39%
4/1/2017	10.414455	-0.014604766	-1.54%	1.35%
5/1/2017	10.232738	-0.017448537	-1.83%	1.33%
6/1/2017	10.297153	0.006294992	0.55%	0.07%
7/1/2017	10.324759	0.002680935	0.18%	2.47%
8/1/2017	10.280269	-0.004309059	-0.51%	0.21%
9/1/2017	11.156376	0.085222186	8.44%	1.43%
10/1/2017	11.435985	0.025062709	2.42%	2.78%
11/1/2017	11.813888	0.033045077	3.22%	2.97%
12/1/2017	11.785579	-0.002396248	-0.32%	0.61%
1/1/2018	10.351305	-0.121697373	-12.25%	6.09%
2/1/2018	10.142195	-0.020201318	-2.10%	-3.72%
3/1/2018	10.591472	0.044297807	4.35%	-3.21%
4/1/2018	10.744417	0.014440391	1.36%	0.84%
5/1/2018	11.188882	0.041367065	4.05%	2.35%
6/1/2018	10.723889	-0.041558486	-4.24%	0.04%
7/1/2018	9.726092	-0.093044324	-9.39%	4.09%
8/1/2018	9.312705	-0.042502888	-4.33%	3.11%
9/1/2018	9.086764	-0.024261587	-2.51%	0.06%

Mean Monthly Return:	-0.41%
Standard Deviation of Monthly Return	0.05483

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		Marcy Pritchard

SUMMARY OUTPUT		FORD						
Regression Statistics								
Multiple R	0.429806551							
R Square	**0.184733672**							
Adjusted R Square	0.170915598							
Standard Error	**0.049928822**							
Observations	**61**							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	0.033327383	0.033327383	13.3689890§	0.000546403			
Residual	59	0.147080353	0.002492887					
Total	60	0.180407737						
	Coefficients	*Standard Erro*	*t Stat*	***P-value***	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept Alpha	-0.01381184	0.006835186	-2.02069771	**0.047857170**	-0.02748902	-0.00013466	-0.02748902	-0.00013466
X Variable Beta	0.829512583	0.226868235	3.656362823	**0.000546403**	0.375550291	1.283474875	0.375550291	1.283474875
Ford Sigma (SD)	#ERROR!							

BANK OF AMERICA (BAC)

Date	Adj Close	Mean Monthly Return	Monthly Return (BAC) - RF = (Y)	Market Return - Risk Free = (X)
8/1/2013	13.236951			
9/1/2013	12.936962	-0.022662998	-2.35%	2.58%
10/1/2013	13.105528	0.013029798	1.22%	5.06%
11/1/2013	14.841048	0.132426561	13.16%	2.88%
12/1/2013	14.606521	-0.01580259	-1.66%	1.96%
1/1/2014	15.723619	0.076479403	7.56%	-3.08%
2/1/2014	15.517101	-0.013134254	-1.40%	4.47%
3/1/2014	16.146044	0.040532249	3.97%	0.30%
4/1/2014	14.220774	-0.119240973	-12.01%	1.06%
5/1/2014	14.220774	0	-0.08%	2.24%
6/1/2014	14.436809	0.015191508	1.44%	1.49%
7/1/2014	14.333312	-0.007168966	-0.80%	-0.95%
8/1/2014	15.122818	0.055081896	5.42%	3.86%
9/1/2014	16.025112	0.059664409	5.88%	-1.92%
10/1/2014	16.178221	0.009554317	0.87%	2.75%
11/1/2014	16.065084	-0.006993167	-0.78%	2.66%
12/1/2014	16.866451	0.049882528	4.90%	-0.88%
1/1/2015	14.324981	-0.150681966	-15.15%	-2.51%
2/1/2015	14.949041	0.043564456	4.27%	5.54%
3/1/2015	14.551911	-0.026565584	-2.74%	-2.09%
4/1/2015	15.109606	0.03832452	3.75%	1.35%
5/1/2015	15.650249	0.03578141	3.49%	1.20%
6/1/2015	16.143471	0.031515281	3.07%	-2.57%
7/1/2015	17.010046	0.053679596	5.28%	2.63%
8/1/2015	15.640108	-0.080536996	-8.14%	-5.45%
9/1/2015	14.821954	-0.052311276	-5.31%	-3.88%
10/1/2015	16.014965	0.080489455	7.97%	9.51%
11/1/2015	16.63533	0.038736582	3.79%	-0.18%
12/1/2015	16.062685	-0.034423423	-3.53%	-2.39%
1/1/2016	13.533323	-0.157468194	-15.83%	-4.50%
2/1/2016	11.982829	-0.11456861	-11.54%	-0.17%
3/1/2016	12.939922	0.07987204	7.90%	6.10%
4/1/2016	13.988327	0.081020968	8.02%	0.83%
5/1/2016	14.209296	0.015796671	1.50%	1.62%
6/1/2016	12.748977	-0.102772087	-10.36%	-0.25%
7/1/2016	13.968297	0.095640615	9.48%	4.10%
8/1/2016	15.55889	0.113871648	11.30%	0.04%
9/1/2016	15.156744	-0.025846702	-2.67%	-0.58%
10/1/2016	15.979956	0.054313248	5.35%	-1.32%
11/1/2016	20.454342	0.279999895	27.92%	3.60%
12/1/2016	22.445221	0.09733283	9.65%	1.35%
1/1/2017	22.007786	-0.019489004	-2.03%	2.31%
2/1/2017	23.990818	0.090105929	8.93%	3.85%
3/1/2017	22.931253	-0.044165439	-4.50%	-0.39%
4/1/2017	22.757397	-0.007581618	-0.84%	1.35%
5/1/2017	21.850609	-0.039845858	-4.07%	1.33%
6/1/2017	23.732119	0.086107897	8.53%	0.07%
7/1/2017	23.595167	-0.005770745	-0.66%	2.47%
8/1/2017	23.370169	-0.009535766	-1.04%	0.21%
9/1/2017	24.915417	0.066120532	6.53%	1.43%
10/1/2017	26.931065	0.080899629	8.01%	2.78%
11/1/2017	27.697996	0.028477559	2.76%	2.97%
12/1/2017	29.149065	0.052388953	5.16%	0.61%
1/1/2018	31.597902	0.084010825	8.32%	6.09%
2/1/2018	31.696646	0.003125018	0.23%	-3.72%
3/1/2018	29.613159	-0.065732097	-6.66%	-3.21%
4/1/2018	29.6549	0.001409542	0.06%	0.84%
5/1/2018	28.782698	-0.029411733	-3.02%	2.35%
6/1/2018	28.054386	-0.025303813	-2.61%	0.04%
7/1/2018	30.731443	0.095423831	9.46%	4.09%
8/1/2018	30.781204	0.001619221	0.08%	3.11%
9/1/2018	29.318274	-0.047526731	-4.84%	0.06%
	Mean Monthly Return:	1.57%		
	Standard Deviation of M	0.07289		

30-Nov-18	TEAM:	Frank Bradley
Finance 9770		Hannah Godlove
Quantitative Project		Graam Liu
		Marcy Pritchard

SUMMARY OUTPUT	BAC

Regression Statistics	
Multiple R	0.471706000
R Square	**0.222506551**
Adjusted R Square	0.209328696
Standard Error	**0.064817562**
Observations	61

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.070938738	0.070938738	16.88488378	0.000124289
Residual	59	0.247877665	0.004201316		
Total	60	0.318816403			

	Coefficients	*Standard Erro*	*t Stat*	***P-value***	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept Alpha	0.001948653	0.008873434	0.219605271	**0.826936606**	-0.01580704	0.019704354	-0.01580704	0.019704354
X Variable Beta	1.210219365	0.294520182	4.109122021	**0.000124289**	0.620885842	1.799552888	0.620885842	1.799552888

BAC Sigma (SD)	#ERROR!

JNJ

Date	Adj Close	Monthly Return	Monthly Return (F) - Risk Free Rate = (Y)	Market Return - Risk Free = (X)
8/1/2013	74.750031			
9/1/2013	75.557259	0.01079903231	1.00%	2.58%
10/1/2013	80.716995	0.06828908391	6.75%	5.06%
11/1/2013	82.503738	0.02213589592	2.13%	2.88%
12/1/2013	80.385292	-0.02567696993	-2.65%	1.96%
1/1/2014	77.646973	-0.03406492571	-3.49%	-3.08%
2/1/2014	80.850464	0.04125712666	4.04%	4.47%
3/1/2014	86.833359	0.07399951347	7.32%	0.30%
4/1/2014	89.538322	0.03115119617	3.03%	1.06%
5/1/2014	89.688591	0.001678264643	0.08%	2.24%
6/1/2014	93.126511	0.03833174277	3.75%	1.49%
7/1/2014	89.094185	-0.04329944241	-4.41%	-0.95%
8/1/2014	92.334305	0.03636735664	3.55%	3.86%
9/1/2014	95.521851	0.03452179556	3.37%	-1.92%
10/1/2014	96.588295	0.0111643984	1.03%	2.75%
11/1/2014	97.009499	0.004360818254	0.35%	2.66%
12/1/2014	94.321945	-0.02770402927	-2.85%	-0.88%
1/1/2015	90.326103	-0.04236386347	-4.32%	-2.51%
2/1/2015	92.463821	0.0236666692	2.28%	5.54%
3/1/2015	91.376205	-0.01176261145	-1.26%	-2.09%
4/1/2015	90.104553	-0.01391666463	-1.47%	1.35%
5/1/2015	90.958359	0.009475725383	0.86%	1.20%
6/1/2015	89.16964	-0.01966525144	-2.05%	-2.57%
7/1/2015	91.685699	0.02821654321	2.74%	2.63%
8/1/2015	85.985664	-0.06216929207	-6.30%	-5.45%
9/1/2015	86.062622	0.0008950096611	0.01%	-3.88%
10/1/2015	93.143089	0.08227110487	8.14%	9.51%
11/1/2015	93.336678	0.002078404336	0.12%	-0.18%
12/1/2015	95.399261	0.02209831166	2.13%	-2.39%
1/1/2016	96.996674	0.01674450078	1.59%	-4.50%
2/1/2016	97.7118	0.007372685789	0.65%	-0.17%
3/1/2016	101.216965	0.03587248418	3.50%	6.10%
4/1/2016	104.846542	0.03585937397	3.50%	0.83%
5/1/2016	105.417183	0.005442630621	0.46%	1.62%
6/1/2016	114.281662	0.0840895075	8.33%	-0.25%
7/1/2016	117.984268	0.03239895129	3.16%	4.10%
8/1/2016	112.435066	-0.04703340618	-4.79%	0.04%
9/1/2016	112.037537	-0.003535631846	-0.44%	-0.58%
10/1/2016	110.007904	-0.01811565172	-1.89%	-1.32%
11/1/2016	105.559799	-0.04043441279	-4.13%	3.60%
12/1/2016	110.023193	0.04228308544	4.14%	1.35%
1/1/2017	108.151436	-0.01701238574	-1.78%	2.31%
2/1/2017	116.708054	0.07911700775	7.83%	3.85%
3/1/2017	119.729759	0.02589114373	2.51%	-0.39%
4/1/2017	118.691551	-0.008671261086	-0.95%	1.35%
5/1/2017	123.28656	0.03871386768	3.79%	1.33%
6/1/2017	128.013535	0.03834136503	3.75%	0.07%
7/1/2017	128.429642	0.003250492223	0.24%	2.47%
8/1/2017	128.090942	-0.002637241642	-0.35%	0.21%
9/1/2017	126.607521	-0.01158099844	-1.24%	1.43%
10/1/2017	135.76152	0.0723021739	7.15%	2.78%
11/1/2017	135.683609	-0.0005738813178	-0.14%	2.97%
12/1/2017	136.896637	0.008940121868	0.81%	0.61%
1/1/2018	135.397552	-0.01095048814	-1.18%	6.09%
2/1/2018	127.25547	-0.06013463227	-6.10%	-3.72%
3/1/2018	126.364433	-0.007001954415	-0.78%	-3.21%
4/1/2018	124.72757	-0.01295351042	-1.38%	0.84%
5/1/2018	117.9533	-0.0543125309	-5.51%	2.35%
6/1/2018	120.536713	0.0219019985	2.11%	0.04%
7/1/2018	131.6427	0.0921377954	9.13%	4.09%
8/1/2018	133.79834	0.01637493002	1.55%	3.11%
9/1/2018	138.169998	0.03267348459	3.18%	0.06%

Mean Monthly Return:		1.08%
Standard Deviation of Monthly Return:		0.03651

30-Nov-18	TEAM:	Frank Bradley
Finance 9770		Hannah Godlove
Quantitative Project		Graam Liu
		Marcy Pritchard

SUMMARY OUTPUT	JNJ

Regression Statistics	
Multiple R	0.467593995
R Square	0.218644144
Adjusted R S	0.205400825
Standard Err	0.032546800
Observation:	61

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.017488702	0.017488702	16.50976882	0.000144969
Residual	59	0.062498360	0.001059294		
Total	60	0.079987063			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.003527638	0.004455612	0.791729306	0.431690173	-0.00538802	0.012443297	-0.00538802	0.012443297
X Variable 1	0.600898567	0.147887229	4.063221482	0.000144969	0.304976904	0.896820229	0.304976904	0.896820229

INTC

Date	Adj Close	Monthly Return	Monthly Return (F) - Risk Free Rate = (Y	Market Return - Risk Free = (X)
8/1/2013	18.634884			
9/1/2013	19.621964	0.05296947381	5.21%	2.58%
10/1/2013	20.948925	0.06762630897	6.68%	5.06%
11/1/2013	20.40958	-0.02574571249	-2.66%	2.88%
12/1/2013	22.432579	0.09912007008	9.83%	1.96%
1/1/2014	21.205528	-0.05469950646	-5.55%	-3.08%
2/1/2014	21.39563	0.008964737874	0.81%	4.47%
3/1/2014	22.51564	0.05234760556	5.15%	0.30%
4/1/2014	23.283318	0.03409532218	3.33%	1.06%
5/1/2014	23.832905	0.02360432478	2.28%	2.24%
6/1/2014	27.187578	0.1407580402	13.99%	1.49%
7/1/2014	29.818352	0.09676382354	9.59%	-0.95%
8/1/2014	30.7246	0.03039228996	2.96%	3.86%
9/1/2014	30.84041	0.003769292359	0.29%	-1.92%
10/1/2014	30.122988	-0.02326240151	-2.41%	2.75%
11/1/2014	32.992687	0.09526608051	9.44%	2.66%
12/1/2014	32.353165	-0.0193837501	-2.02%	-0.88%
1/1/2015	29.45573	-0.08955646225	-9.04%	-2.51%
2/1/2015	29.642948	0.006355911057	0.55%	5.54%
3/1/2015	28.077702	-0.05280331767	-5.36%	-2.09%
4/1/2015	29.227032	0.04093390549	4.01%	1.35%
5/1/2015	30.942039	0.05867879434	5.78%	1.20%
6/1/2015	27.511993	-0.1108539098	-11.17%	-2.57%
7/1/2015	26.182518	-0.04832347115	-4.92%	2.63%
8/1/2015	25.811712	-0.01416235062	-1.50%	-5.45%
9/1/2015	27.485205	0.06483463786	6.40%	-3.88%
10/1/2015	30.877542	0.1234241113	12.26%	9.51%
11/1/2015	31.70739	0.02687545531	2.60%	-0.18%
12/1/2015	31.636873	-0.002223992577	-0.31%	-2.39%
1/1/2016	28.486963	-0.09956451764	-10.04%	-4.50%
2/1/2016	27.173738	-0.04609915771	-4.69%	-0.17%
3/1/2016	29.969839	0.1028971796	10.21%	6.10%
4/1/2016	28.052139	-0.0639876644	-6.48%	0.83%
5/1/2016	29.265755	0.04326286848	4.24%	1.62%
6/1/2016	30.649206	0.04727200785	4.64%	-0.25%
7/1/2016	32.57412	0.06280469386	6.20%	4.10%
8/1/2016	33.536583	0.02954686113	2.87%	0.04%
9/1/2016	35.542004	0.05979801222	5.90%	-0.58%
10/1/2016	32.830456	-0.076291365	-7.71%	-1.32%
11/1/2016	32.670403	-0.00487513789	-0.57%	3.60%
12/1/2016	34.40712	0.05315872596	5.23%	1.35%
1/1/2017	34.928875	0.01516415788	1.43%	2.31%
2/1/2017	34.340721	-0.01683861848	-1.77%	3.85%
3/1/2017	34.46167	0.003522028556	0.27%	-0.39%
4/1/2017	34.538105	0.002217971445	0.14%	1.35%
5/1/2017	34.499882	-0.001106690712	-0.19%	1.33%
6/1/2017	32.47493	-0.05869446162	-5.95%	0.07%
7/1/2017	34.140064	0.05127444463	5.04%	2.47%
8/1/2017	33.755062	-0.01127713176	-1.21%	0.21%
9/1/2017	36.926838	0.09396445487	9.31%	1.43%
10/1/2017	44.112446	0.1945903952	19.38%	2.78%
11/1/2017	43.482128	-0.01428889253	-1.51%	2.97%
12/1/2017	45.026932	0.03552733206	3.47%	0.61%
1/1/2018	46.958332	0.04289432822	4.21%	6.09%
2/1/2018	48.080101	0.02388860405	2.31%	-3.72%
3/1/2018	51.146271	0.06377212061	6.29%	-3.21%
4/1/2018	50.694511	-0.008832706494	-0.97%	0.84%
5/1/2018	54.210331	0.06935307059	6.85%	2.35%
6/1/2018	49.10051	-0.09425917359	-9.51%	0.04%
7/1/2018	47.510254	-0.0323877695	-3.32%	4.09%
8/1/2018	47.836208	0.006860708427	0.60%	3.11%
9/1/2018	46.994255	-0.01760074712	-1.84%	0.06%

Mean Monthly Return:		1.71%
Standard Deviation of Monthly Retur		0.06098

30-Nov-18	TEAM:	Frank Bradley
Finance 9770		Hannah Godlove
Quantitative Project		Graam Liu
		Marcy Pritchard

SUMMARY OUTPUT	**INTC**

Regression Statistics	
Multiple R	0.39529929Ǝ
R Square	0.156261531
Adjusted R S	0.14196087Չ
Standard Err	0.056487111
Observation:	61

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.034865425	0.034865425	10.9268816ƨ	0.00161597Ɂ
Residual	59	0.18825683ƨ	0.00319079Ǝ		
Total	60	0.22312225Ⅰ			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.00719184ƨ	0.00773300Ⅰ	0.93001879(	0.35615108ϵ	-0.00828187	0.02266555Ɂ	-0.00828187	0.02266555Ɂ
X Variable 1	0.84843749ϵ	0.25666800Ɂ	3.30558340ƨ	0.00161597Ɂ	0.33484600Ƽ	1.36202898Ȣ	0.33484600Ƽ	1.36202898Ȣ

EXXON MOBIL (XOM)

Date	Adj Close	Monthly Return	Monthly Return (F) - Risk Free Rate = (Y	Market Return - Risk Free = (X)
8/1/2013	72.219475			
9/1/2013	71.784187	-0.006027293884	-0.69%	2.58%
10/1/2013	74.771034	0.04160870416	4.08%	5.06%
11/1/2013	77.991486	0.04307085014	4.22%	2.88%
12/1/2013	85.006851	0.08995039535	8.91%	1.96%
1/1/2014	77.413353	-0.08932807075	-9.02%	-3.08%
2/1/2014	80.865715	0.04459646645	4.38%	4.47%
3/1/2014	82.631218	0.02183252816	2.10%	0.30%
4/1/2014	86.632515	0.04842355101	4.76%	1.06%
5/1/2014	85.042137	-0.0183577494	-1.92%	2.24%
6/1/2014	85.747284	0.008291736601	0.75%	1.49%
7/1/2014	84.265358	-0.01728248326	-1.81%	-0.95%
8/1/2014	84.708221	0.005255576081	0.44%	3.86%
9/1/2014	80.658623	-0.04780643428	-4.86%	-1.92%
10/1/2014	82.939896	0.02828306404	2.74%	2.75%
11/1/2014	77.648407	-0.06379907928	-6.46%	2.66%
12/1/2014	79.858887	0.02846780875	2.76%	-0.88%
1/1/2015	75.513939	-0.05440782063	-5.52%	-2.51%
2/1/2015	76.481422	0.01281197899	1.20%	5.54%
3/1/2015	73.976189	-0.0327560986	-3.36%	-2.09%
4/1/2015	76.038826	0.02788244471	2.70%	1.35%
5/1/2015	74.150253	-0.02483695632	-2.57%	1.20%
6/1/2015	73.008537	-0.01539733115	-1.62%	-2.57%
7/1/2015	69.507294	-0.04795662458	-4.88%	2.63%
8/1/2015	66.02359	-0.05011997734	-5.10%	-5.45%
9/1/2015	65.853043	-0.002583122184	-0.34%	-3.88%
10/1/2015	73.28421	0.1128447018	11.20%	9.51%
11/1/2015	72.327644	-0.01305282543	-1.39%	-0.18%
12/1/2015	69.643501	-0.03711088668	-3.79%	-2.39%
1/1/2016	69.554161	-0.001282818909	-0.21%	-4.50%
2/1/2016	71.60907	0.02954401247	2.87%	-0.17%
3/1/2016	75.360321	0.0523851378	5.16%	6.10%
4/1/2016	79.696762	0.05754276179	5.67%	0.83%
5/1/2016	80.255722	0.007013584818	0.62%	1.62%
6/1/2016	85.221298	0.06187192485	6.10%	-0.25%
7/1/2016	80.866577	-0.05109897528	-5.19%	4.10%
8/1/2016	79.221069	-0.02034843147	-2.12%	0.04%
9/1/2016	80.024986	0.01014776763	0.93%	-0.58%
10/1/2016	76.394165	-0.04537109197	-4.62%	-1.32%
11/1/2016	80.043335	0.04776765346	4.69%	3.60%
12/1/2016	83.490082	0.04306101189	4.22%	1.35%
1/1/2017	77.597862	-0.07057389164	-7.14%	2.31%
2/1/2017	75.220627	-0.0306353157	-3.15%	3.85%
3/1/2017	76.552551	0.0177068984	1.69%	-0.39%
4/1/2017	76.216499	-0.004389821052	-0.52%	1.35%
5/1/2017	75.143028	-0.01408449632	-1.49%	1.33%
6/1/2017	76.069344	0.01232737121	1.15%	0.07%
7/1/2017	75.419182	-0.008546964727	-0.94%	2.47%
8/1/2017	71.923355	-0.04635196123	-4.72%	0.21%
9/1/2017	77.995926	0.08443114201	8.36%	1.43%
10/1/2017	79.299339	0.01671129592	1.59%	2.78%
11/1/2017	79.242249	-0.000719930338	-0.16%	2.97%
12/1/2017	80.311699	0.01349595719	1.27%	0.61%
1/1/2018	83.826057	0.04375897962	4.29%	6.09%
2/1/2018	72.726059	-0.1324170359	-13.33%	-3.72%
3/1/2018	72.373619	-0.004846130876	-0.57%	-3.21%
4/1/2018	75.419487	0.04208533499	4.13%	0.84%
5/1/2018	78.804878	0.04488748379	4.41%	2.35%
6/1/2018	81.063637	0.02866267999	2.78%	0.04%
7/1/2018	79.86821	-0.01474677234	-1.56%	4.09%
8/1/2018	78.555199	-0.01643971988	-1.73%	3.11%
9/1/2018	84.166779	0.07143486455	7.06%	0.06%

Mean Monthly Return:		0.35%
Standard Deviation of Monthly Retu		0.04538

30-Nov-18	TEAM:	Frank Bradley
Finance 9770		Hannah Godlove
Quantitative Project		Graam Liu
		Marcy Pritchard

SUMMARY OUTPUT **XOM**

Regression Statistics	
Multiple R	0.452729824
R Square	0.204964294
Adjusted R S	0.191489112
Standard Err	0.040808391
Observations	61

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.025330428	0.025330428	15.21050344	0.000248859
Residual	59	0.098254163	0.001665324		
Total	60	0.123584591			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.00501259	0.005586612	-0.89725106	0.373231726	-0.01619137	0.006166191	-0.01619137	0.006166191
X Variable 1	0.723175387	0.185426517	3.900064544	0.000248859	0.352137782	1.094212992	0.352137782	1.094212992