

1. As a new analyst, you have calculated the following annual rate of return for Lauren Industries and Kayleigh Industries.

	Lauren	Kayleigh	L-Average	K - Average	
1996	5	5	-0.6	0.6	-0.36
1997	12	15	6.4	10.6	67.84
1998	-11	5	-16.6	0.6	-9.96
1999	10	7	4.4	2.6	11.44
2000	12	-10	6.4	-14.4	-92.16

Your manager suggests that because these companies produce similar products, you should include them in your analysis by computing their covariance. Show all calculations.

2. You decide to go an extra step by calculating the coefficient of correlation. Show all calculations. Is the combination of Lauren and Kayleigh Industries good for diversification?

mean	5.6	4.4	cov	-4.64
variance	75.44	65.44	correlation	-0.066038241
standard deviation	8.6856203	8.089499366		

1. Considering the world economic outlook for the coming year, you expect the rate of return for the pharmaceutical industry to be between -20 percent and +40 percent with the following probabilities.

Compute the expected rate of return $[E(R_i)]$ for the pharmaceutical industry.

probability	possible return	
0.1	-0.2	E R 0.11
0.15	-0.05	
0.2	0.1	
0.25	0.15	
0.2	0.2	
0.1	0.4	

2. Given the following market values of stocks in your portfolio and the expected rate of return for each stock, what is the expected rate of return for your common stock portfolio?

Stock	Market Value \$	ME ri	w	
Morgan Stanley	15000	0.14	0.15957447	0.022340426
Starbuck	17000	-0.04	0.18085106	-0.007234043
General Electric	32000	0.18	0.34042553	0.061276596
Intel	23000	0.16	0.24468085	0.039148936
Walgreens	7000	0.12	0.07446809	0.00893617

total value of portf 94000

total return o 0.124468085

3. The following are the monthly rates of return for Madison Soft during a six-month period.

3

Madison Software C Kayleigh Electric

1	-0.04	0.07	0.056667	-0.05333333	0.003211111
2	0.06	-0.02	-0.04333	0.03666667	0.001877778
3	-0.07	-0.1	0.086667	0.11666667	0.007511111
4	0.12	0.15	-0.10333	-0.13333333	0.010677778
5	-0.02	-0.06	0.036667	0.07666667	0.001344444
6	0.05	0.02	-0.03333	-0.00333333	0.001111111

Expected r 0.01666667
variance 0.004288889
standard c 0.065489609

0.01
0.006911111
0.083133093

cov 0.0037
correlation 0.679603159

4

	risk	w	
E R1	0.15	0.1	0.5
E R2	0.2	0.2	0.5
correlation	0.4	-0.6	

mean 0.175 0.175
variance 0.0165 0.0065
standard c 0.128452326 0.080622577

5

E R1	0.1	return 0.12	variance 0.001444	standard deviation 0.038
E R2	0.15		0.001264	0.035552778
sigma 1	0.03		0.000904	0.030066593
sigma 2	0.05		0.000724	0.026907248
w1	0.6		0.000544	0.023323808
w2	0.4		0.000184	0.01356466
r1	1		4E-06	0.002

w1	1	w2	0	r12	0.7
	0.75		0.25		
	0.5		0.5		
	0.25		0.75		
	0.05		0.95		

month	DJIA	S&P 500	Russell 2000	Nikkei	DJIA	
1		0.03	0.02	0.04	0.04	0.000277778
2		0.07	0.06	0.1	-0.02	0.003211111
3		-0.02	-0.01	-0.04	0.07	0.001111111
4		0.01	0.03	0.03	0.02	1.11111E-05
5		0.05	0.04	0.11	0.02	0.001344444
6		-0.06	-0.04	-0.08	0.06	0.005377778
rate of return	0.013333333	0.016666667	0.026667	0.03166667		0.001888889
standard deviation	0.043461349	0.032998316	0.068718	0.02967416		

return of portfolio 0.021666667
variance of portfolio 0.002738889 **standard deviation of portfolio** 0.052334

return of portfolio
variance of portfolio

	8
standard deviation	19
	14
covariance	100

correlation coefficient 0.37593985

es of return for both Lauren Corpora-

0.36	0.36
40.96	112.36
275.56	0.36
19.36	6.76
40.96	207.36

similar products, you should continue
ions.

correlation using the data provided in
ain how to interpret the results. Would
ation?

er and estimates of sales and earnings for
r Lauren Labs common stock to range
abilities:

er Lauren Labs.

and their expected rates of return, what
?

ware Corp. and for Kayleigh Electric

0.002844444	-0.05667	0.053333333	-0.003022222
0.001344444	0.043333	-0.036666667	-0.001588889
0.013611111	-0.08667	-0.116666667	0.010111111
0.017777778	0.103333	0.133333333	0.013777778
0.005877778	-0.03667	-0.076666667	0.002811111
1.11111E-05	0.033333	0.003333333	0.000111111

Compute the following:

- Expected monthly rate of return $[E(R_i)]$ for each stock
- Standard deviation of returns for each stock
- The covariance between the rates of return
- The correlation coefficient between the rates of return

What level of correlation did you expect? How did your expected correlation compare to the actual correlation? Would these two stocks offer a good chance for diversification?

mean	variance	standard deviation
0.1	0.0009	0.03
0.1125	0.00105625	0.0325
0.125	0.001375	0.037080992
0.1375	0.00185625	0.04308422

0.1475 0.00235825 0.048561816

S&P 500	Russell 2000	Nikkei	DJIA	S&P500	DJIA*S&P500
1.11111E-05	0.000178	6.94444E-05	0.016666667	0.003333333	5.55556E-05
0.001877778	0.005378	0.002669444	0.056666667	0.043333333	0.002455556
0.000711111	0.004444	0.001469444	-0.033333333	-0.026666667	0.000888889
0.000177778	1.11E-05	0.000136111	-0.003333333	0.013333333	-4.44444E-05
0.000544444	0.006944	0.000136111	0.036666667	0.023333333	0.000855556
0.003211111	0.011378	0.000802778	-0.073333333	-0.056666667	0.004155556
0.001088889	0.004722	0.000880556			

0.024166667
0.000491931 standard c 0.022179526

Expectations compare with the computed
return for diversification? Why or why not?

cov 0.001394444	Russell	S&P500*Russe	cov 0.002172222	Nikkei	S&P500*Nikke	cov -0.00087778
	0.013333	4.44444E-05		0.008333	2.77778E-05	
	0.073333	0.003177778		-0.05167	-0.002238889	
	-0.06667	0.001777778		0.038333	-0.001022222	
	0.003333	4.44444E-05		-0.01167	-0.000155556	
correlation 0.972313302	0.083333	0.001944444	correlation 0.957942097	-0.01167	-0.000272222	correlation -0.89642595
	-0.10667	0.006044444		0.028333	-0.001605556	

Russell*Nil	cov
0.000111	-0.0017111
-0.00379	
-0.00256	
-3.9E-05	
-0.00097	correlation
-0.00302	-0.8391249