

Comments on Quiz #3

Please use the Excel average() function.

	A	B	C	D	E
13					
14					
15	part 2				
16	1)	actual	forcasted	difference	squared
17	12/1/2015	1.4746			
18	3/1/2016	1.4381			
19	6/1/2016	1.3242	1.45635	-0.13215	0.01746362
20	9/1/2016	1.3015	1.38115	-0.07965	0.00634412
21	12/1/2016	1.2337	1.31285	-0.07915	0.00626472
22	3/1/2017	1.2537	1.2676	-0.0139	0.00019321
23	6/1/2017	1.2995	1.2437	0.0558	0.00311364
24	9/1/2017	1.3402	1.2766	0.0636	0.00404496
25	12/1/2017	1.3529	1.31985	0.03305	0.0010923
26	3/1/2018	1.4027	1.34655	0.05615	0.00315282

For Q2, your z value is negative. VaR should be for a 3-month period.

	A	B	C	D	E	F	G	H
1	1 Risk is that value of the pound will depreciate before we receive the receivable							
2								
3				pos	10,000,000			
4	DATE "EXUS	EU"	change	mean	-0.002%			
5	1/1/1999	1.1591		alpha	0.01			
6	2/1/1999	1.1203	-3.35%	z	-2.32634787	2.32634787		
7	3/1/1999	1.0886	-2.83%	sigma	0.022311306			
8	4/1/1999	1.0701	-1.70%					
9	5/1/1999	1.063	-0.66%	var	-519281.525			
10	6/1/1999	1.0377	-2.38%	var no mean	-519038.584			
11	7/1/1999	1.037	-0.07%					
12	8/1/1999	1.0605	2.27%					
13	9/1/1999	1.0497	-1.02%					
14	10/1/1999	1.0706	1.99%					
15	11/1/1999	1.0328	-3.53%					

E6				=STDEV(D5,D6)				
	A	B	C	D	E	F	G	H
4			observation_date	DEXUSEU	Standard Deviation	VAR		
5			1999-01-01	1.1591				
6			1999-02-01	1.1203	0.027435743	0.640332		
7			1999-03-01	1.0886	0.022415285	0.602675		
8			1999-04-01	1.0701	0.013081475	0.57837		
9			1999-05-01	1.0630	0.005020458	0.567197		
10			1999-06-01	1.0377	0.017889802	0.546128		
11			1999-07-01	1.0370	0.000494975	0.537897		
12			1999-08-01	1.0605	0.016617009	0.520591		
13			1999-09-01	1.0497	0.007636753	0.554261		
14			1999-10-01	1.0706	0.014778532	0.535531		
15			1999-11-01	1.0328	0.026728636	0.544834		
16			1999-12-01	1.0110	0.015414928	0.517536		
17			2000-01-01	1.0131	0.001484924	0.50956		
18			2000-02-01	0.9834	0.021001071	0.49213		
19			2000-03-01	0.9643	0.01350574	0.470347		

For Q1, calculate the forecast values first, then calculate related forecasting errors (deviations), square them, then estimate mean.

Part 2	DATE	DEXUSUK	2 quarters method 1	4 quarters mthead 2	abs error 1	abs error 2	sqr error 1	sqr error 2
1	12/1/2015	1.4746						
	3/1/2016	1.4381						
	6/1/2016	1.3242	1.45635		0.13215		0.01746362	
	9/1/2016	1.3015	1.38115		0.07965		0.00634412	
	12/1/2016	1.2337	1.31285	1.3846	0.07915	0.1509	0.00626472	0.02277081
	3/1/2017	1.2537	1.2676	1.324375	0.0139	0.070675	0.00019321	0.00499496
	6/1/2017	1.2995	1.2437	1.278275	0.0558	0.021225	0.00311364	0.0004505
	9/1/2017	1.3402	1.2766	1.2721	0.0636	0.0681	0.00404496	0.00463761
	12/1/2017	1.3529	1.31985	1.281775	0.03305	0.071125	0.0010923	0.00505877
	3/1/2018	1.4027	1.34655	1.311575	0.05615	0.091125	0.00315282	0.00830377
	6/1/2018	1.3197	1.3778	1.348825	0.0581	0.029125	0.00337561	0.00084827
	9/1/2018	1.3053	1.3612	1.353875	0.0559	0.048575	0.00312481	0.00235953
	12/1/2018	1.2763	1.3125	1.34515	0.0362	0.06885	0.00131044	0.00474032
	3/1/2019	1.3032	1.2908	1.326	0.0124	0.0228	0.00015376	0.00051984
	6/1/2019	1.2704	1.28975	1.301125	0.01935	0.030725	0.00037442	0.00094403
	9/1/2019	1.2305	1.2868	1.2888	0.0563	0.0583	0.00316969	0.00339889
	12/1/2019	1.3269	1.25045	1.2701	0.07645	0.0568	0.0058446	0.00322624
	3/1/2020	1.2454	1.2787	1.28275	0.0333	0.03735	0.00110889	0.00139502
	6/1/2020	1.2369	1.28615	1.2683	0.04925	0.0314	0.00242556	0.00098596
	9/1/2020	1.2921	1.24115	1.259925	0.05095	0.032175	0.0025959	0.00103523

method 2 is better based on their higher abs error and sqr error

For Q1, the mean squared error should be used as the basis for comparison. For Q2, you didn't process the data properly.

2	DATE "EXUSEU"					
	1999-01-01 1.1591		VaR = position * z score * standard deviation		RISK	
	1999-02-01 1.1203					
	1999-03-01 1.0886	month 1	1.1591			
	1999-04-01 1.0701	month 2	1.1203			
	1999-05-01 1.063	month 3	1.0886			
	1999-06-01 1.0377		1.12266667			
	1999-07-01 1.037					
	1999-08-01 1.0605	position	\$ 11,226,667	=10000000*E44		
	1999-09-01 1.0497					
	1999-10-01 1.0706	VaR	\$ 29,366,864	=E46*2.33*E44		
	1999-11-01 1.0328		USD			
	1999-12-01 1.011					
	2000-01-01 1.0131	z score at				
	2000-02-01 0.9834	99% is 2.33				
	2000-03-01 0.9643					
	2000-04-01 0.9449					
	2000-05-01 0.9059					
	2000-06-01 0.9505					

Our risk that we would face is the potential loss if the British pound depreciates against our USD over the next 3 months

For Q1, the frequency of your data is monthly. Thus, it is difficult to estimate the quarterly average.

C12				=AVERAGE(B13:B14)
	A	B	C	D
2	Federal Reserve Economic Data			
3	Link: https://fred.stlouisfed.org			
4	Help: https://fredhelp.stlouisfed.org			
5	Economic Research Division			
6	Federal Reserve Bank of St. Louis			
7				
8	EXJPUS	Japanese Yen to U.S. Dollar Spot Exchange Rate, Japanese Yen		
9				
10	Frequency: Monthly		=AVERAGE(B13:B14)	=AVERAGE(B
11	observation_date	EXJPUS	2 quarter avg	4 quarter av
12	1971-01-01	358.00	357.5319	
13	1971-02-01	357.5450	357.5110	
14	1971-03-01	357.5187	357.4581	
15	1971-04-01	357.5032	357.4124	
16	1971-05-01	357.4130	357.4081	
17	1971-06-01	357.4118	356.5922	

For Q2, how to calculate a return?

D21		fx		=(C21-C22)/C21	
	A	B	C	D	E
4	1	Risk:	The risk is the potential loss that may be faced due to		
5					
6	2	VaR:			
7		z score (95%)	1.645		
8					
9					
10		FRED Graph Observations			
11		Federal Reserve Economic Data			
12		Link: https://fred.stlouisfed.org			
13		Help: https://fredhelp.stlouisfed.org			
14		Economic Research Division			
15		Federal Reserve Bank of St. Louis			
16					
17		EXJPUS	Japanese Yen to U.S. Dollar Spot Exchange Rate, Japan		
18					
19		Frequency: Monthly	= (C21-C22)/C21	=STDEV.S(D21:D647)	=E21
20		observation_	EXJPUS	daily ret	Std daily returns
21		1/1/1971	358.02	0.001326742	0.047504021
22		2/1/1971	357.545	7.35572E-05	
23		3/1/1971	357.5187	4.33544E-05	
24		4/1/1971	357.5032	0.000252305	
25		5/1/1971	357.413	3.35746E-06	
26		6/1/1971	357.4118	2.09842E-05	
27		7/1/1971	357.4012	0.001511712	

For Q1, direct vs. indirect quotations. Please use the Excel average function.