

PGDM / PGDM (IB), 2020-22

Financial Econometrics

DM-312 / IB-312

Trimester – III, End-Term Examination: April 2021

Time allowed: 2 Hrs 30 Min
Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the Answer Sheet. All other instructions on the question paper / notifications should be followed meticulously.

Both the questions given below are compulsory. Each of the questions carry 25 marks each. Use R and submit your html or pdf file after analysis. Put all your analysis in # in the file itself.

1. Table 1 (attached) gives data on real rate of return on common stocks at time (RR), output growth in period and inflation, for the US economy for the period 1954-1981. **(CILO 1, 2)**

- A. Regress RR on inflation
- B. Regress RR on output growth and inflation
- C. Comment on these two and explain can we see autocorrelation in cases like this.

2. Table 2 gives the detail of the USA GDP quarterly data from 1947-2007. You are requested to make ARIMA model of the same. Follow the four steps of the model and explain each of them. The steps are identification, estimation, diagnostic checking and forecasting. **(CILO 3, 4)**

Table 12.10

Observatio RR	Growth	Inflation	
1954	53	6.7	-0.4
1955	31.2	2.1	0.4
1956	3.7	1.8	2.9
1957	-13.8	-0.4	3
1958	41.7	6	1.7
1959	10.5	2.1	1.5
1960	-1.3	2.6	1.8
1961	26.1	5.8	0.8
1962	-10.5	4	1.8
1963	21.2	5.3	1.6
1964	15.5	6	1
1965	10.2	6	2.3
1966	-13.3	2.7	3.2
1967	21.3	4.6	2.7
1968	6.8	2.8	4.3
1969	-13.5	-0.2	5
1970	-0.4	3.4	4.4
1971	10.5	5.7	3.8
1972	15.4	5.8	3.6
1973	-22.6	-0.6	7.9
1974	-37.3	-1.2	10.8
1975	31.2	5.4	6
1976	19.1	5.5	4.7
1977	-13.1	5	5.9
1978	-1.3	2.8	7.9
1979	8.6	-0.3	9.8
1980	-22.2	2.6	10.2
1981	-12.2	-1.9	7.3

Year	Quarter	GDP
1947	1	1570.519
1947	2	1568.653
1947	3	1567.966
1947	4	1590.938
1948	1	1616.069
1948	2	1644.637
1948	3	1654.061
1948	4	1657.988
1949	1	1633.249
1949	2	1628.439
1949	3	1646.698
1949	4	1629.911
1950	1	1696.765
1950	2	1747.322
1950	3	1815.845
1950	4	1848.928
1951	1	1871.311
1951	2	1903.118
1951	3	1941.109
1951	4	1944.447
1952	1	1964.67
1952	2	1966.044
1952	3	1978.806
1952	4	2043.795
1953	1	2082.277
1953	2	2098.083
1953	3	2085.419
1953	4	2052.532
1954	1	2042.42
1954	2	2044.286
1954	3	2066.865
1954	4	2107.801
1955	1	2168.47
1955	2	2204.008
1955	3	2233.36
1955	4	2245.337
1956	1	2234.833
1956	2	2252.504
1956	3	2249.755
1956	4	2286.47
1957	1	2300.312
1957	2	2294.618
1957	3	2317.001
1957	4	2292.459
1958	1	2230.219
1958	2	2243.374
1958	3	2295.207
1958	4	2348.023
1959	1	2392.886

1959	2	2455.813
1959	3	2453.948
1959	4	2462.587
1960	1	2517.365
1960	2	2504.8
1960	3	2508.726
1960	4	2476.232
1961	1	2491.154
1961	2	2537.981
1961	3	2579.114
1961	4	2631.831
1962	1	2679.149
1962	2	2708.404
1962	3	2733.339
1962	4	2740.014
1963	1	2775.944
1963	2	2810.598
1963	3	2863.512
1963	4	2885.796
1964	1	2950.49
1964	2	2984.751
1964	3	3025.492
1964	4	3033.64
1965	1	3108.151
1965	2	3150.167
1965	3	3214.076
1965	4	3291.826
1966	1	3372.325
1966	2	3384.007
1966	3	3406.292
1966	4	3433.681
1967	1	3464.114
1967	2	3464.31
1967	3	3491.798
1967	4	3518.205
1968	1	3590.655
1968	2	3651.618
1968	3	3676.455
1968	4	3691.966
1969	1	3750.18
1969	2	3760.881
1969	3	3784.245
1969	4	3766.28
1970	1	3759.997
1970	2	3767.066
1970	3	3800.541
1970	4	3759.801
1971	1	3864.057
1971	2	3885.851
1971	3	3916.676

1971	4	3927.867
1972	1	3997.666
1972	2	4092.105
1972	3	4131.079
1972	4	4198.718
1973	1	4305.33
1973	2	4355.102
1973	3	4331.934
1973	4	4373.263
1974	1	4335.37
1974	2	4347.936
1974	3	4305.821
1974	4	4288.936
1975	1	4237.593
1975	2	4268.614
1975	3	4340.867
1975	4	4397.806
1976	1	4496.761
1976	2	4530.335
1976	3	4552.03
1976	4	4584.623
1977	1	4639.99
1977	2	4731.092
1977	3	4815.812
1977	4	4815.321
1978	1	4830.832
1978	2	5021.183
1978	3	5070.661
1978	4	5137.416
1979	1	5147.43
1979	2	5152.338
1979	3	5189.446
1979	4	5204.662
1980	1	5221.253
1980	2	5115.917
1980	3	5107.376
1980	4	5202.11
1981	1	5307.544
1981	2	5266.117
1981	3	5329.829
1981	4	5263.368
1982	1	5177.077
1982	2	5204.859
1982	3	5185.225
1982	4	5189.839
1983	1	5253.845
1983	2	5372.336
1983	3	5478.36
1983	4	5590.469
1984	1	5699.83

1984	2	5797.902
1984	3	5854.251
1984	4	5902.354
1985	1	5956.937
1985	2	6007.789
1985	3	6101.737
1985	4	6148.564
1986	1	6207.368
1986	2	6232.008
1986	3	6291.695
1986	4	6323.404
1987	1	6365.028
1987	2	6435.023
1987	3	6493.434
1987	4	6606.82
1988	1	6639.118
1988	2	6723.544
1988	3	6759.376
1988	4	6848.612
1989	1	6918.116
1989	2	6963.471
1989	3	7013.144
1989	4	7030.913
1990	1	7112.1
1990	2	7130.261
1990	3	7130.752
1990	4	7076.857
1991	1	7040.828
1991	2	7086.477
1991	3	7120.738
1991	4	7154.116
1992	1	7228.234
1992	2	7297.935
1992	3	7369.5
1992	4	7450.687
1993	1	7459.718
1993	2	7497.514
1993	3	7535.996
1993	4	7637.406
1994	1	7715.058
1994	2	7815.682
1994	3	7859.465
1994	4	7951.647
1995	1	7973.735
1995	2	7987.97
1995	3	8053.056
1995	4	8111.958
1996	1	8169.191
1996	2	8303.094
1996	3	8372.697

1996	4	8470.572
1997	1	8536.051
1997	2	8665.831
1997	3	8773.72
1997	4	8838.414
1998	1	8936.191
1998	2	8995.289
1998	3	9098.858
1998	4	9237.081
1999	1	9315.518
1999	2	9392.581
1999	3	9502.237
1999	4	9671.089
2000	1	9695.631
2000	2	9847.892
2000	3	9836.603
2000	4	9887.749
2001	1	9875.576
2001	2	9905.911
2001	3	9871.06
2001	4	9910.034
2002	1	9977.28
2002	2	10031.57
2002	3	10090.67
2002	4	10095.77
2003	1	10126.01
2003	2	10212.69
2003	3	10398.72
2003	4	10466.95
2004	1	10543.62
2004	2	10634.23
2004	3	10728.67
2004	4	10796.41
2005	1	10878.38
2005	2	10954.07
2005	3	11074.33
2005	4	11107.21
2006	1	11238.66
2006	2	11306.69
2006	3	11336.73
2006	4	11395.54
2007	1	11412.62
2007	2	11520.12
2007	3	11658.93
2007	4	11675.71