REVISIONS GENERALES

Etude de la masse monétaire M1 en volume aux uSA en données trimestrielles de 1960 à 1991
Variables exogènes :
P inflation
TC le taux d'intérêt à court terme
R3 le taux d'intérêt à 3 ans
R10 le taux des emprunts d'Etat à 10 ans
GOV les dépenses de l'Etat en volume
Notations :
L pour les variables en log , RES pour les résidus, dp pour l'écart des prix (idem pour les autres variables)

1 Comparer ces quatre modèles

```
Linear Regression - Estimation by Least Squares           MODELE 1
Dependent Variable LM1
Quarterly Data From 61:02 To 91:04
Usable Observations    123      Degrees of Freedom   117
Centered R**2     0.885305      R Bar **2   0.880403
Uncentered R**2   0.999934      T x R**2     122.992
Mean of Dependent Variable      4.0588662343
Std Error of Dependent Variable 0.0981343268
Standard Error of Estimate      0.0339375712
Sum of Squared Residuals        0.1347557727
Regression F(5,117)                 180.6188
Significance Level of F           0.00000000
Log Likelihood                     244.68381
Durbin-Watson Statistic             0.912732
Q(32)  251.07  niveau de significativite 0.0000
   Variable                    Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  Constant                3.470334624  0.102255943     33.93773  0.00000000
2.  LR3                     0.218710556  0.117649003      1.85901  0.06553849
3.  LR10                   -0.457732751  0.096024877     -4.76681  0.00000543
4.  LP                      0.016265767  0.022475705      0.72370  0.47069171
5.  LTC                    -0.044302208  0.038975320     -1.13667  0.25799758
6.  LGOV                    0.635871161  0.043176748     14.72717  0.00000000

Linear Regression - Estimation by Least Squares         MODELE 2
Dependent Variable M1
Quarterly Data From 61:02 To 91:04
Usable Observations    123      Degrees of Freedom   117
Centered R**2     0.895920      R Bar **2   0.891472
Uncentered R**2   0.998918      T x R**2     122.867
Mean of Dependent Variable      58.194676061
Std Error of Dependent Variable  5.988374915
Standard Error of Estimate       1.972784148
Sum of Squared Residuals        455.34964341
Regression F(5,117)                 201.4271
Significance Level of F           0.00000000
Log Likelihood                    -255.02563
Durbin-Watson Statistic             0.954453
Q(32) 210.62   niveau de significativite 0.0000
   Variable                    Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  Constant                37.67798828   1.76510627     21.34602  0.00000000
```

```
2.  R3                        2.39645804   0.94761754      2.52893  0.01277234
3.  R10                      -3.60821611   0.73674534     -4.89751  0.00000314
4.  P                         2.12169710   2.07226076      1.02386  0.30801544
5.  TC                       -0.54855823   0.34213947     -1.60332  0.11156080
6.  GOV                       5.15416807   0.43561016     11.83207  0.00000000

Linear Regression - Estimation by Least Squares           MODELE 3
Dependent Variable M1
Quarterly Data From 61:02 To 91:04
Usable Observations    123      Degrees of Freedom   117
Centered R**2     0.899008      R Bar **2   0.894692
Uncentered R**2   0.998950      T x R**2     122.871
Mean of Dependent Variable      58.194676061
Std Error of Dependent Variable  5.988374915
Standard Error of Estimate       1.943297397
Sum of Squared Residuals        441.83935850
Regression F(5,117)                 208.3017
Significance Level of F           0.00000000
Log Likelihood                    -253.17330
Durbin-Watson Statistic             0.980167
Q(32 )   205.78    Niveau de significativite  0.0000
   Variable                     Coeff       Std Error      T-Stat     Signif
********************************************************************************
1.  Constant                   35.2805080    0.9427566     37.42271  0.00000000
2.  R3                          1.6763283    0.9260677      1.81016  0.07283806
3.  R10                        -3.0091307    0.7004596     -4.29594  0.00003613
4.  DP                       -143.7848044   66.6221276     -2.15821  0.03295442
5.  TC                         -0.1767365    0.3662403     -0.48257  0.63030281
6.  GOV                         5.6615807    0.1939619     29.18914  0.00000000

Linear Regression - Estimation by Least Squares              MODELE 4
Dependent Variable M1
Quarterly Data From 61:02 To 91:04
Usable Observations    123      Degrees of Freedom   118
Centered R**2     0.898807      R Bar **2   0.895377
Uncentered R**2   0.998948      T x R**2     122.871
Mean of Dependent Variable      58.194676061
Std Error of Dependent Variable  5.988374915
Standard Error of Estimate       1.936970341
Sum of Squared Residuals        442.71878382
Regression F(4,118)                 262.0224
Significance Level of F           0.00000000
Log Likelihood                    -253.29559
Durbin-Watson Statistic             0.981603
Q(32) 204.5               niveau de significativite 0.0000
   Variable                     Coeff       Std Error      T-Stat     Signif
********************************************************************************
1.  Constant                   35.2478953    0.9372696     37.60700  0.00000000
2.  R3                          1.2826007    0.4366523      2.93735  0.00398164
3.  R10                        -2.7530175    0.4556461     -6.04201  0.00000002
4.  DP                       -156.9856448   60.5492001     -2.59270  0.01072657
5.  GOV                         5.6531267    0.1925402     29.36076  0.00000000
```

2 Etude du modèle 4

2.1 Etude de la normalité des erreurs

```
Statistics on Series RES
Quarterly Data From 61:02 To 91:04
Observations               123
Sample Mean          -0.000000      Variance            3.628842
Standard Error        1.904952      of Sample Mean      0.171764
t-Statistic (Mean=0) -0.000000      Signif Level        1.000000
Skewness              0.362338      Signif Level (Sk=0) 0.105117
Kurtosis (excess)    -0.056510      Signif Level (Ku=0) 0.901067
Jarque-Bera           2.707791      Signif Level (JB=0) 0.258232
```

2.2 Etude de l'autocorrélation des erreurs

Voir le résultat de la régression du modèle 4

2.3 Etude de l'homoscédasticité des erreurs

```
Performing White's Test for Heteroskedasticity on RES
  using the regressors, their squares, and non-redundant cross-products
Linear Regression - Estimation by Least Squares
Dependent Variable RES^2
Quarterly Data From 61:02 To 91:04
Usable Observations    123      Degrees of Freedom   108
Centered R**2     0.241189      R Bar **2   0.142825
Uncentered R**2   0.503085      T x R**2      61.879
Mean of Dependent Variable      3.5993397059
Std Error of Dependent Variable 4.9781959374
Standard Error of Estimate      4.6090015466
Sum of Squared Residuals        2294.2326877
Regression F(14,108)                 2.4520
Significance Level of F           0.00486019
Log Likelihood                    -354.47656
Durbin-Watson Statistic             2.039716

   Variable                     Coeff       Std Error      T-Stat     Signif
********************************************************************************
1.  Constant                  -12.58957     16.24993     -0.77475  0.44018248
2.  R3                          3.32526      7.41841      0.44824  0.65487448
3.  R10                       -12.48116      8.43963     -1.47887  0.14208454
4.  DP                        393.12707   1415.51806      0.27773  0.78175317
5.  GOV                        13.23857      7.42992      1.78179  0.07759380
6.  R3^2                       -4.78222      2.36791     -2.01960  0.04590153
7.  R10^2                      -6.93106      2.80779     -2.46851  0.01513573
8.  DP^2                   -49136.01324  42789.62851     -1.14832  0.25337523
9.  GOV^2                      -1.76736      0.80981     -2.18244  0.03124341
10. R3*R10                     11.42563      5.06634      2.25520  0.02613672
11. R3*DP                    -376.60951    420.00248     -0.89668  0.37188197
12. R3*GOV                     -2.77494      1.57878     -1.75765  0.08164099
13. R10*DP                    579.12589    439.15381      1.31873  0.19004850
14. R10*GOV                     4.60908      1.92172      2.39842  0.01818054
15. DP*GOV                   -199.20681    240.40470     -0.82863  0.40914072
```

2.4 Etude de la colinéarité

```
VALS PROPRES DE XtX      VALS SINGS DE X     INDICES DE CONDI
          4.76395                 2.18265             1.00000
          0.17136                 0.41396             5.27262
          0.04645                 0.21552            10.12715
          0.01708                 0.13070            16.69999
          0.00115                 0.03398            64.23603

TABLEAU DE DECOMPOSITION DE LA VARIANCE
***************************************
indice      tableau de decomposition de la variance
           cons  R3    R10   DP    GOV
   1.0     0.001 0.000 0.000 0.004 0.001
   5.3     0.069 0.000 0.000 0.300 0.012
  10.1     0.059 0.017 0.012 0.519 0.042
  16.7     0.782 0.001 0.001 0.125 0.653
  64.2     0.090 0.981 0.987 0.053 0.292
```

3 Intégration de la série P

```
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************************************************
ETUDE DE L INTEGRATION DE LA SERIE  P
************************************************
********* avec tendance et constante

Linear Regression - Estimation by Least Squares
Dependent Variable dP
Quarterly Data From 62:02 To 91:04
Usable Observations    119      Degrees of Freedom   113
Centered R**2     0.796565      R Bar **2   0.787564
Uncentered R**2   0.946012      T x R**2     112.575
Mean of Dependent Variable      0.0081226891
Std Error of Dependent Variable 0.0049027048
Standard Error of Estimate      0.0022596951
Sum of Squared Residuals        0.0005770031
Regression F(5,113)                  88.4923
Significance Level of F           0.00000000
Log Likelihood                     559.23511
Durbin-Watson Statistic             1.940717

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  P{1}                    -0.009586444  0.003452559     -2.77662  0.00643148
2.  Constant                 0.001017136  0.000495359      2.05333  0.04234920
3.  TENDANCE                 0.000096629  0.000034582      2.79421  0.00611350
4.  dP{1}                    0.333225429  0.092089117      3.61851  0.00044460
5.  dP{2}                    0.302388872  0.092788674      3.25890  0.00147781
6.  dP{3}                    0.195080726  0.091800735      2.12505  0.03576165

valeur de la statistique de Durbin   h=      NA

dans le modele residu en fonction de residu{1} et des variables explicatives du
modele on regarde le t de student de residu{1}      t=       0.44222

 statistique Q( 21 )=       22.13197   niveau de significativite   0.3919
 stat. modifiee  Q( 21 - 3  22.13197   niveau de significativite   0.2262

   calcul de phi3 avec H0 (a,0,1) :       3.94709

*****modele sans le tendance avec la constante

Linear Regression - Estimation by Least Squares
Dependent Variable dP
Quarterly Data From 62:02 To 91:04
Usable Observations    119      Degrees of Freedom   114
Centered R**2     0.782509      R Bar **2   0.774878
Uncentered R**2   0.942282      T x R**2     112.132
Mean of Dependent Variable      0.0081226891
Std Error of Dependent Variable 0.0049027048
Standard Error of Estimate      0.0023261865
Sum of Squared Residuals        0.0006168704
Regression F(4,114)                  102.5402
Significance Level of F           0.00000000
Log Likelihood                     555.25983
Durbin-Watson Statistic             1.935873

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  P{1}                    -0.000259630  0.000908303     -0.28584  0.77551926
```

```
2.  Constant                  0.000778441  0.000502295      1.54977  0.12396937
3.  dP{1}                     0.389064439  0.092539818      4.20429  0.00005233
4.  dP{2}                     0.337139903  0.094657089      3.56170  0.00053889
5.  dP{3}                     0.206307361  0.094411415      2.18520  0.03092037


 statistique Q( 21 )=       22.00904   niveau de significativite   0.3990
 stat. modifiee Q( 21 - 3 ) 22.00904   niveau de significativite   0.2316

 calcul de phi1 avec H0 (0,0,1) :       1.40913

 ******** sans tendance ni constante

Linear Regression - Estimation by Least Squares
Dependent Variable dP
Quarterly Data From 62:02 To 91:04
Usable Observations    119      Degrees of Freedom   115
Centered R**2     0.777927      R Bar **2   0.772134
Uncentered R**2   0.941066      T x R**2     111.987
Mean of Dependent Variable      0.0081226891
Std Error of Dependent Variable 0.0049027048
Standard Error of Estimate      0.0023403209
Sum of Squared Residuals        0.0006298667
Log Likelihood                     554.01930
Durbin-Watson Statistic             1.932856

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  P{1}                    0.0004948617 0.0007714706      0.64145  0.52250516
2.  dP{1}                   0.4067862318 0.0923885627      4.40299  0.00002404
3.  dP{2}                   0.3420251154 0.0951794257      3.59348  0.00048161
4.  dP{3}                   0.2016825225 0.0949376171      2.12437  0.03578123


 statistique Q( 21 )=       20.98384   niveau de significativite   0.4599
 stat. modifiee Q( 21 - 3 ) 20.98384   niveau de significativite   0.2802


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**************************************************
ETUDE DE L INTEGRATION DE LA SERIE  DP
**************************************************
********* avec tendance et constante

Linear Regression - Estimation by Least Squares
Dependent Variable dDP
Quarterly Data From 62:01 To 91:04
Usable Observations    120      Degrees of Freedom   115
Centered R**2     0.283916      R Bar **2   0.259009
Uncentered R**2   0.284033      T x R**2      34.084
Mean of Dependent Variable      0.0000341667
Std Error of Dependent Variable 0.0026900531
Standard Error of Estimate      0.0023156200
Sum of Squared Residuals        0.0006166410
Regression F(4,115)                 11.3989
Significance Level of F           0.00000008
Log Likelihood                     560.45029
Durbin-Watson Statistic             1.934523

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  DP{1}                        -0.0995       0.0662     -1.50191  0.13586104
2.  Constant                   6.2217e-04   4.7578e-04      1.30767  0.19359231
3.  TENDANCE                   3.5956e-06   9.0122e-06      0.39897  0.69065693
4.  dDP{1}                       -0.5180       0.1018     -5.08701  0.00000143
5.  dDP{2}                       -0.1919       0.0941     -2.04009  0.04363170

valeur de la statistique de Durbin   h=      NA
```

```
dans le modele residu en fonction de residu{1} et des variables explicatives du
modele on regarde le t de student de residu{1}      t=       0.64102

 statistique Q( 21 )=       21.23664   niveau de significativite   0.4446
 stat. modifiee  Q( 21 - 2  21.23664   niveau de significativite   0.3239

   calcul de phi3 avec H0 (a,0,1) :       1.66655

*****modele sans le tendance avec la constante

Linear Regression - Estimation by Least Squares
Dependent Variable dDP
Quarterly Data From 62:01 To 91:04
Usable Observations    120      Degrees of Freedom   116
Centered R**2     0.282925      R Bar **2   0.264380
Uncentered R**2   0.283042      T x R**2      33.965
Mean of Dependent Variable      0.0000341667
Std Error of Dependent Variable 0.0026900531
Standard Error of Estimate      0.0023072123
Sum of Squared Residuals        0.0006174945
Regression F(3,116)                  15.2561
Significance Level of F           0.00000002
Log Likelihood                       560.36730
Durbin-Watson Statistic               1.937953

   Variable                     Coeff       Std Error      T-Stat     Signif
********************************************************************************
1.  DP{1}                    -0.080062135  0.044776382     -1.78804  0.07637966
2.  Constant                  0.000713568  0.000415485      1.71744  0.08856824
3.  dDP{1}                   -0.533214696  0.094106546     -5.66607  0.00000011
4.  dDP{2}                   -0.200262289  0.091336289     -2.19258  0.03033377


 statistique Q( 21 )=       21.73787   niveau de significativite   0.4147
 stat. modifiee Q( 21 - 2 ) 21.73787   niveau de significativite   0.2975

 calcul de phi1 avec H0 (0,0,1) :       1.65913

 ******** sans tendance ni constante

Linear Regression - Estimation by Least Squares
Dependent Variable dDP
Quarterly Data From 62:01 To 91:04
Usable Observations    120      Degrees of Freedom   117
Centered R**2     0.264692      R Bar **2   0.252122
Uncentered R**2   0.264811      T x R**2      31.777
Mean of Dependent Variable      0.0000341667
Std Error of Dependent Variable 0.0026900531
Standard Error of Estimate      0.0023263556
Sum of Squared Residuals        0.0006331958
Log Likelihood                    558.86073
Durbin-Watson Statistic               1.939669

   Variable                     Coeff       Std Error      T-Stat     Signif
********************************************************************************
1.  DP{1}                    -0.013793196  0.022905121     -0.60219  0.54821406
2.  dDP{1}                   -0.571804699  0.092142919     -6.20563  0.00000001
3.  dDP{2}                   -0.216811331  0.091580176     -2.36745  0.01955211


 statistique Q( 21 )=       22.13339   niveau de significativite   0.3919
 stat. modifiee Q( 21 - 2 ) 22.13339   niveau de significativite   0.2777


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************************************************
ETUDE DE L INTEGRATION DE LA SERIE  DDP
************************************************
********* avec tendance et constante
```

```
Linear Regression - Estimation by Least Squares
Dependent Variable dDDP
Quarterly Data From 61:04 To 91:04
Usable Observations    121      Degrees of Freedom   117
Centered R**2     0.751970      R Bar **2   0.745610
Uncentered R**2   0.751972      T x R**2      90.989
Mean of Dependent Variable      -0.000014050
Std Error of Dependent Variable  0.004598139
Standard Error of Estimate       0.002319167
Sum of Squared Residuals        0.0006292885
Regression F(3,117)                 118.2390
Significance Level of F           0.00000000
Log Likelihood                     564.39447
Durbin-Watson Statistic             1.945081

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  DDP{1}                   -1.818922295  0.156280005    -11.63887  0.00000000
2.  Constant                  0.000482036  0.000463043      1.04102  0.30001414
3.  TENDANCE                 -0.000006045  0.000006051     -0.99895  0.31988039
4.  dDDP{1}                   0.229944959  0.090859932      2.53076  0.01270929

 statistique Q( 22 )=       23.62284   niveau de significativite   0.3673
 stat. modifiee  Q( 22 - 1  23.62284   niveau de significativite   0.3117

   calcul de phi3 avec H0 (a,0,1) :      67.74728

*****modele sans le tendance avec la constante

Linear Regression - Estimation by Least Squares
Dependent Variable dDDP
Quarterly Data From 61:04 To 91:04
Usable Observations    121      Degrees of Freedom   118
Centered R**2     0.749854      R Bar **2   0.745615
Uncentered R**2   0.749857      T x R**2      90.733
Mean of Dependent Variable      -0.000014050
Std Error of Dependent Variable  0.004598139
Standard Error of Estimate       0.002319146
Sum of Squared Residuals        0.0006346557
Regression F(2,118)                 176.8627
Significance Level of F           0.00000000
Log Likelihood                     563.88065
Durbin-Watson Statistic             1.940946

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  DDP{1}                   -1.807891290  0.155888001    -11.59737  0.00000000
2.  Constant                  0.000070319  0.000211048      0.33319  0.73958148
3.  dDDP{1}                   0.224634099  0.090703452      2.47658  0.01468249


 statistique Q( 22 )=       21.93793   niveau de significativite   0.4636
 stat. modifiee Q( 22 - 1 ) 21.93793   niveau de significativite   0.4031

 calcul de phi1 avec H0 (0,0,1) :      67.26650

 ******** sans tendance ni constante

Linear Regression - Estimation by Least Squares
Dependent Variable dDDP
Quarterly Data From 61:04 To 91:04
Usable Observations    121      Degrees of Freedom   119
Centered R**2     0.749619      R Bar **2   0.747515
Uncentered R**2   0.749622      T x R**2      90.704
Mean of Dependent Variable      -0.000014050
Std Error of Dependent Variable  0.004598139
Standard Error of Estimate       0.002310467
Sum of Squared Residuals        0.0006352528
Log Likelihood                     563.82376
```

```
Durbin-Watson Statistic             1.941395

   Variable                      Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  DDP{1}                   -1.805574858  0.155150108    -11.63760  0.00000000
2.  dDDP{1}                   0.223351135  0.090282557      2.47391  0.01477470


 statistique Q( 22 )=       21.96952   niveau de significativite   0.4617
 stat. modifiee Q( 22 - 1 ) 21.96952   niveau de significativite   0.4013
```

4 Peut-on construire une relation de long terme entre les séries?

On fait l'hypothèse que toutes les autres séries sont intégrées d'ordre 1
On prend toujours le modèle 4 avec les séries I(1) et dP.

```
***********************************************
ETUDE DE L INTEGRATION DE LA SERIE  RESDF
***********************************************

*****modele sans le tendance avec la constante
Linear Regression - Estimation by Least Squares
Dependent Variable DRESDF
Quarterly Data From 61:03 To 91:04
Usable Observations    109      Degrees of Freedom    94
 Total Observations    122      Skipped/Missing       13
Centered R**2     0.698377      R Bar **2   0.653454
Uncentered R**2   0.698427      T x R**2      76.129
Mean of Dependent Variable      0.0249378938
Std Error of Dependent Variable 1.9407430834
Standard Error of Estimate      1.1424791103
Sum of Squared Residuals        122.69430063
Regression F(14,94)                  15.5462
Significance Level of F           0.00000000
Log Likelihood                    -161.11427
Durbin-Watson Statistic             1.965802

   Variable                      Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  Constant                 13.17553465   4.44164446      2.96636  0.00382054
2.  RESDF{1}                 -0.37444819   0.12602273     -2.97127  0.00376520
3.  DRESDF{1}                 0.03927673   0.14080154      0.27895  0.78089523
4.  DRESDF{2}                 0.24678957   0.14183248      1.74001  0.08513056
5.  DRESDF{3}                 0.10233686   0.13472675      0.75959  0.44940148
6.  DRESDF{4}                 0.36431947   0.12574651      2.89725  0.00468328
7.  DRESDF{5}                 0.04812180   0.12632049      0.38095  0.70409993
8.  DRESDF{6}                 0.06545681   0.12287387      0.53272  0.59548767
9.  DRESDF{7}                 0.04575785   0.11796385      0.38790  0.69896909
10. DRESDF{8}                 0.16200647   0.11328635      1.43006  0.15601483
11. DRESDF{9}                -0.08372408   0.10820931     -0.77372  0.44103590
12. DRESDF{10}               -0.13836750   0.11000409     -1.25784  0.21156550
13. DRESDF{11}               -0.13064827   0.11006468     -1.18701  0.23821340
14. DRESDF{12}                0.33804034   0.11194205      3.01978  0.00325699
15. DRESDF{13}                0.23711674   0.11269520      2.10405  0.03804310

LE MODELE EST AUTOREGRESSIF et LE PREMIER RETARD SUR L ENDOGENE EST DRESDF{ 1 }

VALEUR DE STATISTIQUE DE DURBIN   H=      NA
on regarde le t de student de res{1}      t=      -0.16734
ou bien nR2=       0.06858 suit un khi2 a 1 degre de liberte sous H0
```

```
Chi-Squared(1)=      0.068580 with Significance Level 0.79341509

TEST DE LJUNG-BOX
 statistique Q( 20 - 13 )   10.74643   niveau de significativite   0.1501
```

Donner la définition de RESDF et faire le test de Dickey-Fuller.
Conclusion.
Peut-on construire une équation de court terme ?

5 Equation de court terme

On construit une équation de court terme entre les variables I(0) donc les écarts des variables, qui donnera par construction une erreur I(0)
Pour déterminer les retards on utilise la procédure retards.src

5.1 Recherche des retards

```
CRITERES AVEC DES RETARDS SUR L ENDOGENE ET 4 VARIABLE(S) EXOGENE(S)

on donne les deux meilleurs resultats pour chaque critere

       avec le retard max de schwert = int(12*(n/100)**.25)=  12

       ATTENTION NE PRNDRE CE RETARD MAX QUE SI n EST GRAND

*************************************************************************

   AIC    -0.5963  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              3              0              0              1

   AIC    -0.5885  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              6              9              8              5

   AICc    0.5253  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              3              0              0              1

   AICc    0.5384  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              2              0              0              1

   BIC    -0.0849  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              2              0              0              1

   BIC    -0.0837  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              3              0              0              1

   HQ     -0.3884  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              3              0              0              1

   HQ     -0.3751  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             12              2              0              0              1

*************************************************************************

CRITERE AIC AVEC DES RETARDS SUR L ENDOGENE ET 4 VARIABLE(S) EXOGENE(S)

        avec le retard max de schwert = int(4*(n/100)**.25)=  4

*************************************************************************
```

```
   AIC    -0.4626  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              3              0

   AIC    -0.4509  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              3              1

   AICc    0.5991  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              3              0

   AICc    0.6168  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              3              1

   BIC    -0.1368  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              0              0

   BIC    -0.1122  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              3              0

   HQ     -0.3203  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              3              0

   HQ     -0.3033  retards sur DM1          sur DR3        sur DR10       sur DDP        sur DGOV
                             4               3              0              0              0

*******************************************************************************
```

5.2 Construction d'un modèle de court terme

```
Linear Regression - Estimation by Least Squares
Dependent Variable DM1
Quarterly Data From 61:02 To 91:04
Usable Observations    115      Degrees of Freedom    94
 Total Observations    123      Skipped/Missing        8
Centered R**2     0.890147      R Bar **2   0.866774
Uncentered R**2   0.891330      T x R**2     102.503
Mean of Dependent Variable      0.1918310269
Std Error of Dependent Variable 1.8462724841
Standard Error of Estimate      0.6738918503
Sum of Squared Residuals        42.688241239
Regression F(20,94)                  38.0845
Significance Level of F            0.00000000
Log Likelihood                     -106.19494
Durbin-Watson Statistic              1.951116

   Variable                     Coeff       Std Error      T-Stat     Signif
*******************************************************************************
1.  Constant                  0.10841208   0.08489463      1.27702  0.20474089
2.  DM1{1}                   -0.23787612   0.09789148     -2.43000  0.01699764
3.  DM1{2}                   -0.00898803   0.09266750     -0.09699  0.92293908
4.  DM1{3}                   -0.00503886   0.08144800     -0.06187  0.95080088
5.  DM1{4}                    0.38301365   0.07737768      4.94992  0.00000325
6.  DM1{5}                    0.14575621   0.08483227      1.71817  0.08905805
7.  DM1{6}                    0.05742468   0.08366515      0.68636  0.49417372
8.  DM1{7}                   -0.05198568   0.08328741     -0.62417  0.53402652
9.  DM1{8}                    0.23223708   0.08289341      2.80164  0.00617368
10. DM1{9}                   -0.09873606   0.08200486     -1.20403  0.23160230
11. DM1{10}                  -0.28082765   0.08245423     -3.40586  0.00097176
12. DM1{11}                  -0.21373009   0.08462476     -2.52562  0.01322252
13. DM1{12}                   0.18071146   0.08750743      2.06510  0.04166703
14. DR3                       0.08091547   0.30752944      0.26311  0.79303817
15. DR3{1}                   -0.51245237   0.10104195     -5.07168  0.00000198
16. DR3{2}                   -0.29537675   0.11221652     -2.63220  0.00991672
17. DR3{3}                   -0.22522692   0.11664717     -1.93084  0.05651633
```

```
18. DR10                      -0.41048098   0.40610701     -1.01077  0.31472105
19. DDP                      -31.64811196  26.32544200     -1.20219  0.23231071
20. DGOV                       0.16283416   0.93476086      0.17420  0.86208390
21. DGOV{1}                    2.15262195   0.95403604      2.25633  0.02636734

LE MODELE EST AUTOREGRESSIF et LE PREMIER RETARD SUR L ENDOGENE EST DM1{ 1 }

VALEUR DE STATISTIQUE DE DURBIN   H=      NA
LE TEST DE DURBIN N ETANT PAS UTILISABLE ON FAIT LE TEST SUIVANT
******************** TEST DE GOLDFREY ET BREUSCH****************

Linear Regression - Estimation by Least Squares
Dependent Variable RESAUTOCOR
Quarterly Data From 63:03 To 91:04
Usable Observations    114      Degrees of Freedom    92
Centered R**2     0.002366      R Bar **2  -0.225354
Uncentered R**2   0.002473      T x R**2       0.282
Mean of Dependent Variable      -0.006276524
Std Error of Dependent Variable  0.610902249
Standard Error of Estimate       0.676242644
Sum of Squared Residuals        42.071978447
Regression F(21,92)                   0.0104
Significance Level of F           1.00000000
Log Likelihood                    -104.94045
Durbin-Watson Statistic             1.998003

   Variable                     Coeff       Std Error      T-Stat     Signif
********************************************************************************
1.  RESAUTOCOR{1}              0.10504701   0.26684105      0.39367  0.69473642
2.  Constant                   0.00550161   0.09379728      0.05865  0.95335475
3.  DM1{1}                    -0.09357331   0.24439866     -0.38287  0.70269815
4.  DM1{2}                    -0.01748598   0.10139563     -0.17245  0.86346023
5.  DM1{3}                     0.01019040   0.08245663      0.12358  0.90191353
6.  DM1{4}                    -0.00332704   0.07773061     -0.04280  0.96595195
7.  DM1{5}                     0.04734123   0.12794091      0.37002  0.71221496
8.  DM1{6}                     0.00566951   0.08696194      0.06520  0.94816000
9.  DM1{7}                     0.00240149   0.08371903      0.02869  0.97717781
10. DM1{8}                    -0.00965942   0.08556076     -0.11290  0.91035942
11. DM1{9}                     0.03154295   0.11400941      0.27667  0.78265435
12. DM1{10}                   -0.01078264   0.08698720     -0.12396  0.90161999
13. DM1{11}                   -0.03526614   0.10607402     -0.33247  0.74029280
14. DM1{12}                   -0.00548277   0.09531208     -0.05752  0.95425225
15. DR3                       -0.00594377   0.30865221     -0.01926  0.98467766
16. DR3{1}                    -0.02343772   0.11665806     -0.20091  0.84121281
17. DR3{2}                    -0.04907435   0.16033052     -0.30608  0.76023348
18. DR3{3}                    -0.02883649   0.14007610     -0.20586  0.83735280
19. DR10                       0.00027794   0.40831184  6.80697e-04  0.99945836
20. DDP                       -1.06660829  26.43628300     -0.04035  0.96790441
21. DGOV                      -0.02244155   0.93951628     -0.02389  0.98099505
22. DGOV{1}                    0.14984526   0.97770840      0.15326  0.87852755

on regarde le t de student de res{1}      t=       0.39367
ou bien nR2=       0.28189 suit un khi2 a 1 degre de liberte sous H0
Chi-Squared(1)=      0.281886 with Significance Level 0.59546780

TEST DE LJUNG-BOX
 statistique Q( 21 - 12 )    9.26694   niveau de significativite   0.4130
```

6 Conclure l'étude