Appendices

Appendix A.1

```
CALENDER 1991 1 4
ALLOCATE 0 2001:2
OPEN DATA A:SECTORAL.WK1
DATA (ORG=OBS,FORMAT=WKS) / LNAG LNCI LNCR LNCS LNEW LNFB
LNGS LNM1 LNM2 LNM3 LNMF LNMN LNOS LNTR LNWR

* FIRST-DIFFERENCE

SET DAG = LNAG - LNAG{1}
SET DCI = LNCI - LNCI{1}
SET DCR = LNCR - LNCR{1}
SET DCS = LNCS - LNCS{1}
SET DEW = LNEW - LNEW{1}
SET DFB = LNFB - LNFB{1}
SET DGS = LNGS - LNGS{1}
SET DM1 = LNM1 - LNM1{1}
SET DM2 = LNM2 - LNM2{1}
SET DM3 = LNM3 - LNM3{1}
SET DMF = LNMF - LNMF{1}
SET DMN = LNMN - LNMN{1}
SET DOS = LNOS - LNOS{1}
SET DTR = LNTR - LNTR{1}
SET DWR = LNWR - LNWR{1}

* LAG 2+1: M1 DOES NOT GRANGER-CAUSE AG

EQUATION DAGEQ DAG
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DAGEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: AG DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DAGEQ DAG
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DAG{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DAGEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE CS**

```
EQUATION DCSEQ DCS
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DCSEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: CS DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCSEQ DCS
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DCS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DCSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE EW**

```
EQUATION DEWEQ DEW
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DEWEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: EW DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DEWEQ DEW
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DEW{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DEWEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

* LAG 2+1: M1 DOES NOT GRANGER-CAUSE FB

```
EQUATION DFBEQ DFB
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DFBEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: FB DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DFBEQ DFB
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DFB{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DFBEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE GS**

```
EQUATION DGSEQ DGS
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DGSEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: GS DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DGSEQ DGS
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DGS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DGSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE MF**

```
EQUATION DMFEQ DMF
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DMFEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: MF DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DMFEQ DMF
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMF{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DMFEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE MN**

```
EQUATION DMNEQ DMN
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DMNEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: MN DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DMNEQ DMN
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMN{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DMNEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE OS**

```
EQUATION DOSEQ DOS
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DOSEQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: OS DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DOSEQ DOS
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DOS{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DOSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE TR**

```
EQUATION DTREQ DTR
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DTREQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: TR DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DTREQ DTR
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DTR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DTREQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M1 DOES NOT GRANGER-CAUSE WR**

```
EQUATION DWREQ DWR
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM1EQ DM1
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DWREQ
# DM1EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: WR DOES NOT GRANGER-CAUSE M1**

```
EQUATION DM1EQ DM1
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DWREQ DWR
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DWR{1 2 3} DM1{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM1EQ
# DWREQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE AG**

```
EQUATION DAGEQ DAG
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DAGEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: AG DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DAGEQ DAG
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DAG{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DAGEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE CS**

```
EQUATION DCSEQ DCS
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DCSEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: CS DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCSEQ DCS
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DCS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DCSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE EW**

```
EQUATION DEWEQ DEW
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DEWEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: EW DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DEWEQ DEW
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DEW{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DEWEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE FB**

```
EQUATION DFBEQ DFB
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DFBEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

References

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*** LAG 2+1: FB DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DFBEQ DFB
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DFB{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DFBEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE GS**

```
EQUATION DGSEQ DGS
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DGSEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: GS DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DGSEQ DGS
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DGS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DGSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE MF**

```
EQUATION DMFEQ DMF
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DMFEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: MF DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DMFEQ DMF
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMF{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DMFEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE MN**

```
EQUATION DMNEQ DMN
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DMNEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: MN DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DMNEQ DMN
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMN{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DMNEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE OS**

```
EQUATION DOSEQ DOS
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DOSEQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: OS DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DOSEQ DOS
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DOS{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DOSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE TR**

```
EQUATION DTREQ DTR
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DTREQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: TR DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DTREQ DTR
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DTR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DTREQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M2 DOES NOT GRANGER-CAUSE WR**

```
EQUATION DWREQ DWR
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM2EQ DM2
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DWREQ
# DM2EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: WR DOES NOT GRANGER-CAUSE M2**

```
EQUATION DM2EQ DM2
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DWREQ DWR
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DWR{1 2 3} DM2{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM2EQ
# DWREQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE AG**

```
EQUATION DAGEQ DAG
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DAGEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: AG DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DAGEQ DAG
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DAG{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DAGEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE CS**

```
EQUATION DCSEQ DCS
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DCSEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: CS DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCSEQ DCS
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DCS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DCSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE EW**

```
EQUATION DEWEQ DEW
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DEWEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: EW DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DEWEQ DEW
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DEW{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DEWEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE FB**

```
EQUATION DFBEQ DFB
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DFBEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: FB DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DFBEQ DFB
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DFB{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DFBEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE GS**

```
EQUATION DGSEQ DGS
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DGSEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: GS DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DGSEQ DGS
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DGS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DGSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE MF**

```
EQUATION DMFEQ DMF
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DMFEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: MF DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DMFEQ DMF
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMF{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DMFEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE MN**

```
EQUATION DMNEQ DMN
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DMNEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: MN DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DMNEQ DMN
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DMN{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DMNEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE OS**

```
EQUATION DOSEQ DOS
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DOSEQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: OS DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DOSEQ DOS
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DOS{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DOSEQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE TR**

```
EQUATION DTREQ DTR
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DTREQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

*** LAG 2+1: TR DOES NOT GRANGER-CAUSE M3**

```
EQUATION DM3EQ DM3
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DTREQ DTR
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DTR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DM3EQ
# DTREQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 2 3
# 0 0
```

*** LAG 2+1: M3 DOES NOT GRANGER-CAUSE WR**

```
EQUATION DWREQ DWR
# CONSTANT DWR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DM3EQ DM3
# CONSTANT DWR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCREQ DCR
# CONSTANT DWR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

EQUATION DCIEQ DCI
# CONSTANT DWR{1 2 3} DM3{1 2 3} DCR{1 2 3} DCI{1 2 3}

SUR 4
# DWREQ
# DM3EQ
# DCREQ
# DCIEQ
TEST(PRINT)
# 5 6
# 0 0
```

Appendix B- ADF Test Results

ADF Test Statistic	-1.897629	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is **L(LNAG,1)**
Date: 01/06/02 Time: 12:57
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNAG(-1)	-0.259550	0.136776	-1.897629	0.0658
D(LNAG(-1))	-0.030968	0.177636	-0.174335	0.8626
C	2.280560	1.169551	1.949946	0.0590
Trend	0.001197	0.002302	0.520035	0.6062

R-squared	0.168927	Mean dependent var	0.009746
Adjusted R-squared	0.099671	S.D. dependent var	0.100391
S.E. of regression	0.095257	Akaike info criterion	-4.607713
Sum squared resid	0.326660	Schwartz criterion	-4.438825
Log likelihood	39.39673	F-statistic	2.439170
Durbin-Watson stat	1.941456	Prob(F-statistic)	0.080258

ADF Test Statistic	-6.829070	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is **D(LNAG,2)**
Date: 01/06/02 Time: 12:59
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNAG(-1))	-1.526294	0.223500	-6.829070	0.0000
D(LNAG(-1),2)	0.353638	0.150854	2.344241	0.0247
C	0.011104	0.014927	0.743936	0.4617

R-squared	0.643487	Mean dependent var	-0.004340
Adjusted R-squared	0.623681	S.D. dependent var	0.149791
S.E. of regression	0.091889	Akaike info criterion	-4.700540
Sum squared resid	0.303971	Schwartz criterion	-4.572574
Log likelihood	39.32193	F-statistic	32.48904
Durbin-Watson stat	2.123018	Prob(F-statistic)	0.000000

ADF Test Statistic	-1.637643	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is **D(LNCI)**
Date: 01/06/02 Time: 13:01
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNCI(-1)	-0.167396	0.102217	-1.637643	0.1102
D(LNCI(-1))	-0.133858	0.164892	-0.811794	0.4222
C	1.161643	0.682210	1.702765	0.0972
Trend	-0.002184	0.002567	-0.850703	0.4006

R-squared	0.124828	Mean dependent var	-0.001061
Adjusted R-squared	0.051897	S.D. dependent var	0.191226
S.E. of regression	0.186198	Akaike info criterion	-3.267248
Sum squared resid	1.248112	Schwartz criterion	-3.098360
Log likelihood	12.58741	F-statistic	1.711584
Durbin-Watson stat	1.932228	Prob(F-statistic)	0.181938

ADF Test Statistic	-4.387179	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNCI,2)
Date: 01/06/02 Time: 13:02
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNCI(-1))	-1.126082	0.256676	-4.387179	0.0001
D(LNCI(-1),2)	-0.056815	0.165428	-0.343442	0.7333
C	0.003236	0.030893	0.104734	0.9172

R-squared	0.602274	Mean dependent var	0.002069
Adjusted R-squared	0.580178	S.D. dependent var	0.297685
S.E. of regression	0.192881	Akaike info criterion	-3.217563
Sum squared resid	1.339307	Schwartz criterion	-3.089597
Log likelihood	10.40388	F-statistic	27.25728
Durbin-Watson stat	2.017000	Prob(F-statistic)	0.000000

ADF Test Statistic	-0.964491	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNCR)
Date: 01/06/02 Time: 13:04
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNCR(-1)	-0.035363	0.036665	-0.964491	0.3412
D(LNCR(-1))	0.592914	0.144342	4.107701	0.0002
C	0.417874	0.412645	1.012672	0.3180
Trend	0.001041	0.001412	0.737782	0.4654

R-squared	0.377459	Mean dependent var	0.031552
Adjusted R-squared	0.325581	S.D. dependent var	0.026814
S.E. of regression	0.022021	Akaike info criterion	-7.536898
Sum squared resid	0.017457	Schwartz criterion	-7.368010
Log likelihood	97.98041	F-statistic	7.275845
Durbin-Watson stat	2.449687	Prob(F-statistic)	0.000617

ADF Test Statistic	-1.982884	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNCR,2)
Date: 01/06/02 Time: 13:07
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNCR(-1))	-0.281247	0.141837	-1.982884	0.0551
D(LNCR(-1),2)	-0.336847	0.156856	-2.147491	0.0386
C	0.007765	0.005688	1.365157	0.1807

R-squared	0.304517	Mean dependent var	-0.000840
Adjusted R-squared	0.265879	S.D. dependent var	0.024604
S.E. of regression	0.021081	Akaike info criterion	-7.644981
Sum squared resid	0.015998	Schwartz criterion	-7.517015
Log likelihood	96.73853	F-statistic	7.881279
Durbin-Watson stat	2.110019	Prob(F-statistic)	0.001449

ADF Test Statistic	-1.450548	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNCS)
Date: 01/06/02 Time: 13:08
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNCS(-1)	-0.141933	0.097848	-1.450548	0.1556
D(LNCS(-1))	-0.346512	0.157350	-2.202173	0.0341
C	1.164083	0.730680	1.593149	0.1199
Trend	0.000178	0.003041	0.058418	0.9537

R-squared	0.246770	Mean dependent var	0.025117
Adjusted R-squared	0.184001	S.D. dependent var	0.145824
S.E. of regression	0.131727	Akaike info criterion	-3.959414
Sum squared resid	0.624668	Schwartz criterion	-3.790526
Log likelihood	26.43074	F-statistic	3.931394
Durbin-Watson stat	2.122230	Prob(F-statistic)	0.015897

ADF Test Statistic	-5.827985	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNCS,2)
Date: 01/06/02 Time: 13:10
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNCS(-1))	-1.571289	0.269611	-5.827985	0.0000
D(LNCS(-1),2)	0.151700	0.164079	0.924554	0.3614
C	0.035064	0.023011	1.523776	0.1363

R-squared	0.693639	Mean dependent var	-0.001345
Adjusted R-squared	0.676619	S.D. dependent var	0.242400
S.E. of regression	0.137844	Akaike info criterion	-3.889455
Sum squared resid	0.684039	Schwartz criterion	-3.761489
Log likelihood	23.50578	F-statistic	40.75420
Durbin-Watson stat	2.029466	Prob(F-statistic)	0.000000

ADF Test Statistic	-3.582652	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNEW)
Date: 01/06/02 Time: 13:12
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNEW(-1)	-0.815323	0.227575	-3.582652	0.0010
D(LNEW(-1))	-0.086568	0.169253	-0.511471	0.6121
C	5.281494	1.454576	3.630952	0.0009
Trend	0.032832	0.010143	3.237021	0.0026

R-squared	0.447055	Mean dependent var	0.035602
Adjusted R-squared	0.400976	S.D. dependent var	0.334130
S.E. of regression	0.258605	Akaike info criterion	-2.610267
Sum squared resid	2.407558	Schwartz criterion	-2.441379
Log likelihood	-0.552208	F-statistic	9.701969
Durbin-Watson stat	1.995862	Prob(F-statistic)	0.000079

ADF Test Statistic	-7.143246	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNEW,2)
Date: 01/06/02 Time: 13:14
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNEW(-1))	-1.960441	0.274447	-7.143246	0.0000
D(LNEW(-1),2)	0.308609	0.158570	1.946198	0.0595
C	0.069425	0.046988	1.477490	0.1482

R-squared	0.772992	Mean dependent var	-0.000596
Adjusted R-squared	0.760380	S.D. dependent var	0.585911
S.E. of regression	0.286809	Akaike info criterion	-2.424072
Sum squared resid	2.961345	Schwartz criterion	-2.296106
Log likelihood	-5.069202	F-statistic	61.29219
Durbin-Watson stat	2.123016	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.582652	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNFB)
Date: 01/06/02 Time: 13:15
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob
LNFB(-1)	-1.104467	0.250004	-4.417803	0.0001
D(LNFB(-1))	0.062804	0.172380	0.364335	0.7177
C	8.993167	2.012434	4.468802	0.0001
Trend	0.039123	0.011018	3.550971	0.0011

R-squared	0.514320	Mean dependent var	0.029491
Adjusted R-squared	0.473846	S.D. dependent var	0.533456
S.E. of regression	0.386950	Akaike info criterion	-1.804280
Sum squared resid	5.390292	Schwartz criterion	-1.635392
Log likelihood	-16.67194	F-statistic	12.70762
Durbin-Watson stat	1.979631	Prob(F-statistic)	0.000008

ADF Test Statistic	-7.308814	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNFB,2)
Date: 01/06/02 Time: 13:17
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNFB(-1))	-1.987383	0.271916	-7.308814	0.0000
D(LNFB(-1),2)	0.328763	0.157218	2.091121	0.0436
C	0.058392	0.073393	0.795609	0.4315

R-squared	0.775223	Mean dependent var	-0.000182
Adjusted R-squared	0.762735	S.D. dependent var	0.934696
S.E. of regression	0.455289	Akaike info criterion	-1.499842
Sum squared resid	7.462370	Schwartz criterion	-1.371876
Log likelihood	-23.09167	F-statistic	62.07919
Durbin-Watson stat	2.124558	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.394008	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNGS)
Date: 01/06/02 Time: 13:19
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNGS(-1)	-1.288492	0.238875	-5.394008	0.0000
D(LNGS(-1))	0.185935	0.159617	1.164883	0.2517
C	10.24929	1.893903	5.411730	0.0000
Trend	0.022922	0.004476	5.120956	0.0000

R-squared	0.558920	Mean dependent var	0.017089
Adjusted R-squared	0.522163	S.D. dependent var	0.121049
S.E. of regression	0.083676	Akaike info criterion	-4.866960
Sum squared resid	0.252062	Schwartz criterion	-4.698072
Log likelihood	44.58167	F-statistic	15.20594
Durbin-Watson stat	2.011465	Prob(F-statistic)	0.000001

ADF Test Statistic	-7.969814	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNGS,2)
Date: 01/06/02 Time: 13:20
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNGS(-1))	-2.039974	0.255963	-7.969814	0.0000
D(LNGS(-1),2)	0.405336	0.149626	2.708992	0.0103
C	0.036697	0.017110	2.144763	0.0388

R-squared	0.771761	Mean dependent var	0.001846
Adjusted R-squared	0.759081	S.D. dependent var	0.208660
S.E. of regression	0.102418	Akaike info criterion	-4.483591
Sum squared resid	0.377617	Schwartz criterion	-4.355625
Log likelihood	35.09143	F-statistic	60.86473
Durbin-Watson stat	2.390651	Prob(F-statistic)	0.000000

ADF Test Statistic	-1.522576	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNM1)
Date: 01/06/02 Time: 13:22
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNM1(-1)	-0.120684	0.079263	-1.522576	0.1366
D(LNM1(-1))	0.059439	0.166335	0.357347	0.7229
C	1.274195	0.807880	1.577208	0.1235
Trend	0.002331	0.002245	1.038371	0.3060

R-squared	0.090577	Mean dependent var	0.025766
Adjusted R-squared	0.014792	S.D. dependent var	0.056942
S.E. of regression	0.056519	Akaike info criterion	-5.651702
Sum squared resid	0.115000	Schwartz criterion	-5.482814
Log likelihood	60.27649	F-statistic	1.195179
Durbin-Watson stat	2.019049	Prob(F-statistic)	0.325386

ADF Test Statistic	-3.448590	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNM1,2)
Date: 01/06/02 Time: 13:23
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNM1(-1))	-0.824694	0.239139	-3.448590	0.0015
D(LNM1(-1),2)	-0.147349	0.172681	-0.853300	0.3991
C	0.021302	0.011524	1.848568	0.0727

R-squared	0.495009	Mean dependent var	-0.000277
Adjusted R-squared	0.466954	S.D. dependent var	0.080163
S.E. of regression	0.058527	Akaike info criterion	-5.602735
Sum squared resid	0.123314	Schwartz criterion	-5.474768
Log likelihood	56.91472	F-statistic	17.64421
Durbin-Watson stat	1.948455	Prob(F-statistic)	0.000005

ADF Test Statistic	0.048656	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNM2)
Date: 01/06/02 Time: 13:25
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNM2(-1)	0.003141	0.064554	0.048656	0.9615
D(LNM2(-1))	0.087245	0.172343	0.506228	0.6158
C	0.015991	0.731408	0.021863	0.9827
Trend	-0.001067	0.002515	-0.424398	0.6738

R-squared	0.188722	Mean dependent var	0.034332
Adjusted R-squared	0.121115	S.D. dependent var	0.027876
S.E. of regression	0.026134	Akaike info criterion	-7.194413
Sum squared resid	0.024587	Schwartz criterion	-7.025525
Log likelihood	91.13073	F-statistic	2.791470
Durbin-Watson stat	2.036278	Prob(F-statistic)	0.054293

ADF Test Statistic	-3.765760	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNM2,2)
Date: 01/06/02 Time: 13:27
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNM2(-1))	-0.826994	0.219609	-3.765760	0.0006
D(LNM2(-1),2)	0.058539	0.172683	0.338994	0.7366
C	0.028353	0.009000	3.150139	0.0033

R-squared	0.381522	Mean dependent var	-0.000775
Adjusted R-squared	0.347162	S.D. dependent var	0.034987
S.E. of regression	0.028269	Akaike info criterion	-7.058206
Sum squared resid	0.028768	Schwartz criterion	-6.930240
Log likelihood	85.29642	F-statistic	11.10368
Durbin-Watson stat	1.966194	Prob(F-statistic)	0.000175

ADF Test Statistic	-0.506991	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNM3)
Date: 01/06/02 Time: 13:28
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNM3(-1)	-1.120814	0.242718	-4.617757	0.0000
D(LNM3(-1))	0.061490	0.166895	0.368438	0.7147
C	13.13847	2.833090	4.637507	0.0000
Trend	0.039206	0.010177	3.852291	0.0005

R-squared	0.528904	Mean dependent var	0.032854
Adjusted R-squared	0.489645	S.D. dependent var	0.540536
S.E. of regression	0.386154	Akaike info criterion	-1.808398
Sum squared resid	5.368139	Schwartz criterion	-1.639510
Log likelihood	-16.58958	F-statistic	13.47249
Durbin-Watson stat	2.004623	Prob(F-statistic)	0.000005

ADF Test Statistic	-7.343192	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNM3,2)
Date: 01/06/02 Time: 13:29
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNM3(-1))	-1.998902	0.272212	-7.343192	0.0000
D(LNM3(-1),2)	0.333043	0.157183	2.118821	0.0411
C	0.066347	0.074166	0.894585	0.3770

R-squared	0.777464	Mean dependent var	-0.001022
Adjusted R-squared	0.765101	S.D. dependent var	0.948277
S.E. of regression	0.459595	Akaike info criterion	-1.481014
Sum squared resid	7.604207	Schwartz criterion	-1.353048
Log likelihood	-23.45883	F-statistic	62.88581
Durbin-Watson stat	2.165134	Prob(F-statistic)	0.000000

ADF Test Statistic	-3.137569	1% Critical Value*	-4.2023
		% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNMF)
Date: 01/06/02 Time: 13:30
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNMF(-1)	-0.625624	0.163026	-3.837569	0.0005
D(LNMF(-1))	0.451006	0.166650	2.706313	0.0103
C	5.652332	1.461772	3.866768	0.0004
Trend	0.019734	0.005387	3.663358	0.0008

R-squared	0.320745	Mean dependent var	0.029531
Adjusted R-squared	0.264140	S.D. dependent var	0.055293
S.E. of regression	0.047432	Akaike info criterion	-6.002288
Sum squared resid	0.080992	Schwartz criterion	-5.833400
Log likelihood	67.28821	F-statistic	5.666411
Durbin-Watson stat	1.639067	Prob(F-statistic)	0.002761

ADF Test Statistic	-6.598571	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNMF,2)
Date: 01/06/02 Time: 13:32
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNMF(-1))	-1.344183	0.203708	-6.598571	0.0000
D(LNMF(-1),2)	0.514543	0.153244	3.357681	0.0019
C	0.039394	0.010178	3.870616	0.0004

R-squared	0.568584	Mean dependent var	-0.004133
Adjusted R-squared	0.544617	S.D. dependent var	0.071000
S.E. of regression	0.047912	Akaike info criterion	-6.002963
Sum squared resid	0.082641	Schwartz criterion	-5.874996
Log likelihood	64.71917	F-statistic	23.72312
Durbin-Watson stat	1.825144	Prob(F-statistic)	0.000000

ADF Test Statistic	-2.214724	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNMN)
Date: 01/06/02 Time: 13:33
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNMN(-1)	-0.199936	0.090276	-2.214724	0.0332
D(LNMN(-1))	0.243465	0.150303	1.619826	0.1140
C	.552612	0.699351	2.220074	0.0328
Trend	0.006170	0.002892	2.133729	0.0397

R-squared	0.159733	Mean dependent var	0.027424
Adjusted R-squared	0.089711	S.D. dependent var	0.118981
S.E. of regression	0.113519	Akaike info criterion	-4.256938
Sum squared resid	0.463913	Schwartz criterion	-4.088050
Log likelihood	32.38123	F-statistic	2.281178
Durbin-Watson stat	1.502130	Prob(F-statistic)	0.095767

ADF Test Statistic	-5.230161	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNMN,2)
Date: 01/06/02 Time: 13:34
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNMN(-1))	-0.958279	0.183222	-5.230161	0.0000
D(LNMN(-1),2)	0.315766	0.139443	2.264482	0.0297
C	0.020833	0.017991	1.157962	0.2545

R-squared	0.443005	Mean dependent var	-0.004899
Adjusted R-squared	0.412061	S.D. dependent var	0.141145
S.E. of regression	0.108226	Akaike info criterion	-4.373270
Sum squared resid	0.421661	Schwartz criterion	-4.245303
Log likelihood	32.94015	F-statistic	14.31628
Durbin-Watson stat	1.731392	Prob(F-statistic)	0.000027

ADF Test Statistic	-0.092253	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNOS)
Date: 01/06/02 Time: 13:35
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNOS(-1)	-0.007222	0.078286	-0.092253	0.9270
D(LNOS(-1))	-0.302681	0.166860	-1.813980	0.0780
C	0.107256	0.600301	0.178670	0.8592
Trend	-0.000779	0.002098	-0.371134	0.7127

R-squared	0.181732	Mean dependent var	0.023633
Adjusted R-squared	0.113543	S.D. dependent var	0.029847
S.E. of regression	0.028102	Akaike info criterion	-7.049200
Sum squared resid	0.028430	Schwartz criterion	-6.880312
Log likelihood	88.22646	F-statistic	2.665118
Durbin-Watson stat	2.178904	Prob(F-statistic)	0.062429

ADF Test Statistic	-5.172414	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNOS,2)
Date: 01/06/02 Time: 13:36
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNOS(-1))	-1.343552	0.259753	-5.172414	0.0000
D(LNOS(-1),2)	0.095872	0.166881	0.574491	0.5692
C	0.032495	0.007908	4.109017	0.0002

R-squared	0.611275	Mean dependent var	-0.000384
Adjusted R-squared	0.589679	S.D. dependent var	0.046776
S.E. of regression	0.029963	Akaike info criterion	-6.941791
Sum squared resid	0.032320	Schwartz criterion	-6.813825
Log likelihood	83.02632	F-statistic	28.30522
Durbin-Watson stat	1.947034	Prob(F-statistic)	0.000000

ADF Test Statistic	-1.095387	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNTR)
Date: 01/06/02 Time: 13:38
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNTR(-1)	-0.104546	0.095442	-1.095387	0.2806
D(LNTR(-1))	-0.184078	0.168468	-1.092660	0.2818
C	0.846101	0.727160	1.163569	0.2523
Trend	0.002097	0.002713	0.772906	0.4446

R-squared	0.120131	Mean dependent var	0.025823
Adjusted R-squared	0.046808	S.D. dependent var	0.040800
S.E. of regression	0.039833	Akaike info criterion	-6.351456
Sum squared resid	0.057121	Schwartz criterion	-6.182568
Log likelihood	74.27158	F-statistic	1.638389
Durbin-Watson stat	2.077865	Prob(F-statistic)	0.197625

ADF Test Statistic	-5.673607	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNTR,2)
Date: 01/06/02 Time: 13:38
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNTR(-1))	-1.439441	0.253708	-5.673607	0.0000
D(LNTR(-1),2)	0.198106	0.164387	1.205121	0.2360
C	0.037266	0.009394	3.967013	0.0003

R-squared	0.616794	Mean dependent var	-0.000195
Adjusted R-squared	0.595505	S.D. dependent var	0.064073
S.E. of regression	0.040751	Akaike info criterion	-6.326771
Sum squared resid	0.059782	Schwartz criterion	-6.198804
Log likelihood	71.03343	F-statistic	28.97209
Durbin-Watson stat	2.092399	Prob(F-statistic)	0.000000

ADF Test Statistic	-1.677632	1% Critical Value*	-4.2023
		5% Critical Value	-3.5247
		10% Critical Value	-3.3803

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNWR)
Date: 01/06/02 Time: 13:40
Sample: 1991:3 2001:2
Included observations: 40
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LNWR(-1)	-0.151319	0.090198	-1.677632	0.1021
D(LNWR(-1))	-0.079580	0.162039	-0.491115	0.6263
C	1.346197	0.767542	1.753907	0.0880
Trend	0.002223	0.002276	0.976858	0.3352

R-squared	0.192780	Mean dependent var	0.023768
Adjusted R-squared	0.125511	S.D. dependent var	0.046481
S.E. of regression	0.043467	Akaike info criterion	-6.176886
Sum squared resid	0.068016	Schwartz criterion	-6.007998
Log likelihood	70.78018	F-statistic	2.865827
Durbin-Watson stat	1.904163	Prob(F-statistic)	0.050024

ADF Test Statistic	-7.219321	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
LS // Dependent Variable is D(LNWR,2)
Date: 01/06/02 Time: 13:41
Sample: 1991:4 2001:2
Included observations: 39
Excluded observations: 0 after adjusting endpoints

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(LNWR(-1))	-1.480808	0.205117	-7.219321	0.0000
D(LNWR(-1),2)	0.426156	0.139384	3.057418	0.0042
C	0.032830	0.008135	4.035780	0.0003

R-squared	0.638438	Mean dependent var	-0.003351
Adjusted R-squared	0.618351	S.D. dependent var	0.064695
S.E. of regression	0.039967	Akaike info criterion	-6.365595
Sum squared resid	0.057505	Schwartz criterion	-6.237629
Log likelihood	71.79050	F-statistic	31.78393
Durbin-Watson stat	2.140566	Prob(F-statistic)	0.000000

Appendix C- PP Test Results

PP Test Statistic	**-1.771574**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.008126
Residual variance with correction	0.005827

Phillips-Perron Test Equation
Dependent Variable: D(LNAG)
Method: Least Squares
Date: 01/04/02 Time: 19:46
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNAG(-1)	-0.245184	0.114572	-2.140009	0.0388
C	2.147786	0.981098	2.189166	0.0348
@TREND(1991:1)	0.001363	0.001949	0.699207	0.4887

R-squared	0.152746	Mean dependent var	0.010082
Adjusted R-squared	0.108153	S.D. dependent var	0.099152
S.E. of regression	0.093637	Akaike info criterion	-1.828433
Sum squared resid	0.333178	Schwarz criterion	-1.703050
Log likelihood	40.48289	F-statistic	3.425379
Durbin-Watson stat	2.072603	Prob(F-statistic)	0.042881

PP Test Statistic	**-7.454660**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.009675
Residual variance with correction	0.005537

Phillips-Perron Test Equation
Dependent Variable: D(LNAG,2)
Method: Least Squares
Date: 01/04/02 Time: 19:48
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNAG(-1))	-1.124027	0.160997	-6.981672	0.0000
C	0.010942	0.016032	0.682511	0.4991

R-squared	0.561928	Mean dependent var	0.000105
Adjusted R-squared	0.550400	S.D. dependent var	0.150508
S.E. of regression	0.100919	Akaike info criterion	-1.700295
Sum squared resid	0.387015	Schwarz criterion	-1.615851
Log likelihood	36.00591	F-statistic	48.74375
Durbin-Watson stat	2.005454	Prob(F-statistic)	0.000000

PP Test Statistic	**-2.062285**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.031037
Residual variance with correction	0.033266

Phillips-Perron Test Equation
Dependent Variable: D(LNCI)
Method: Least Squares
Date: 01/04/02 Time: 19:49
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCI(-1)	-0.189575	0.094752	-2.000753	0.0526
C	1.300015	0.631611	2.058254	0.0465
@TREND(1991:1)	-0.001804	0.002417	-0.746543	0.4599

R-squared	0.109463	Mean dependent var	0.000246
Adjusted R-squared	0.062593	S.D. dependent var	0.189006
S.E. of regression	0.182995	Akaike info criterion	-0.488358
Sum squared resid	1.272515	Schwarz criterion	-0.362975
Log likelihood	13.01134	F-statistic	2.335444
Durbin-Watson stat	2.216477	Prob(F-statistic)	0.110506

PP Test Statistic	**-7.438278**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.034230
Residual variance with correction	0.042303

Phillips-Perron Test Equation
Dependent Variable: D(LNCI,2)
Method: Least Squares
Date: 01/04/02 Time: 19:49
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCI(-1))	-1.200173	0.159239	-7.536930	0.0000
C	-0.000570	0.030016	-0.019002	0.9849

R-squared	0.599179	Mean dependent var	-0.003510
Adjusted R-squared	0.588631	S.D. dependent var	0.295955
S.E. of regression	0.189820	Akaike info criterion	-0.436779
Sum squared resid	1.369196	Schwarz criterion	-0.352335
Log likelihood	10.73558	F-statistic	56.80532
Durbin-Watson stat	1.940510	Prob(F-statistic)	0.000000

PP Test Statistic	**-0.640574**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 3	
Residual variance with no correction	0.000625
Residual variance with correction	0.001615

Phillips-Perron Test Equation
Dependent Variable: D(LNCR)
Method: Least Squares
Date: 01/04/02 Time: 19:49
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCR(-1)	0.010579	0.041190	0.256834	0.7987
C	-0.073595	0.465851	-0.157979	0.8753
@TREND(1991:1)	-0.001060	0.001550	-0.683836	0.4982

R-squared	0.093129	Mean dependent var	0.031930
Adjusted R-squared	0.045399	S.D. dependent var	0.026587
S.E. of regression	0.025977	Akaike info criterion	-4.392875
Sum squared resid	0.025642	Schwarz criterion	-4.267492
Log likelihood	93.05394	F-statistic	1.951165
Durbin-Watson stat	0.910502	Prob(F-statistic)	0.156086

PP Test Statistic	**-3.144625**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.000458
Residual variance with correction	0.000453

Phillips-Perron Test Equation
Dependent Variable: D(LNCR,2)
Method: Least Squares
Date: 01/04/02 Time: 19:50
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCR(-1))	-0.412332	0.130696	-3.154886	0.0031
C	0.012660	0.005449	2.323329	0.0256

R-squared	0.207562	Mean dependent var	-0.000595
Adjusted R-squared	0.186709	S.D. dependent var	0.024336
S.E. of regression	0.021947	Akaike info criterion	-4.751681
Sum squared resid	0.018303	Schwarz criterion	-4.667237
Log likelihood	97.03363	F-statistic	9.953306
Durbin-Watson stat	2.392632	Prob(F-statistic)	0.003135

PP Test Statistic	**-1.762570**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.017666
Residual variance with correction	0.011619

Phillips-Perron Test Equation
Dependent Variable: D(LNCS)
Method: Least Squares
Date: 01/04/02 Time: 19:50
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCS(-1)	-0.195632	0.094582	-2.068387	0.0455
C	1.527443	0.707236	2.159735	0.0372
@TREND(1991:1)	0.002752	0.002946	0.933961	0.3562

R-squared	0.126996	Mean dependent var	0.024650
Adjusted R-squared	0.081049	S.D. dependent var	0.144021
S.E. of regression	0.138061	Akaike info criterion	-1.051887
Sum squared resid	0.724312	Schwarz criterion	-0.926504
Log likelihood	24.56368	F-statistic	2.763940
Durbin-Watson stat	2.552805	Prob(F-statistic)	0.075737

PP Test Statistic	**-9.339056**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.017947
Residual variance with correction	0.015025

Phillips-Perron Test Equation
Dependent Variable: D(LNCS,2)
Method: Least Squares
Date: 01/04/02 Time: 19:50
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCS(-1))	-1.368141	0.151576	-9.026122	0.0000
C	0.033409	0.021999	1.518673	0.1371

R-squared	0.681931	Mean dependent var	0.002594
Adjusted R-squared	0.673561	S.D. dependent var	0.240565
S.E. of regression	0.137447	Akaike info criterion	-1.082455
Sum squared resid	0.717880	Schwarz criterion	-0.998011
Log likelihood	23.64909	F-statistic	81.47088
Durbin-Watson stat	2.077259	Prob(F-statistic)	0.000000

PP Test Statistic	**-2.537666**	1%	Critical Value*	-4.1958
		5%	Critical Value	-3.5217
		10%	Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 3	
Residual variance with no correction	0.059148
Residual variance with correction	0.064375

Phillips-Perron Test Equation
Dependent Variable: D(LNEW)
Method: Least Squares
Date: 01/04/02 Time: 19:51
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEW(-1)	-0.894572	0.162852	-5.493152	0.0000
C	5.784040	1.046644	5.526270	0.0000
@TREND(1991:1)	0.036201	0.007509	4.820902	0.0000

R-squared	0.443031	Mean dependent var	0.035711
Adjusted R-squared	0.413717	S.D. dependent var	0.329927
S.E. of regression	0.252622	Akaike info criterion	0.156514
Sum squared resid	2.425087	Schwarz criterion	0.281897
Log likelihood	-0.208531	F-statistic	15.11323
Durbin-Watson stat	2.004262	Prob(F-statistic)	0.000015

PP Test Statistic	**-13.33185**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.081845
Residual variance with correction	0.039139

Phillips-Perron Test Equation
Dependent Variable: D(LNEW,2)
Method: Least Squares
Date: 01/04/02 Time: 19:51
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNEW(-1))	-1.498097	0.140666	-10.65006	0.0000
C	0.053340	0.046679	1.142709	0.2603

R-squared	0.749049	Mean dependent var	-9.52E-06
Adjusted R-squared	0.742445	S.D. dependent var	0.578362
S.E. of regression	0.293518	Akaike info criterion	0.434953
Sum squared resid	3.273815	Schwarz criterion	0.519397
Log likelihood	-6.699069	F-statistic	113.4239
Durbin-Watson stat	2.306888	Prob(F-statistic)	0.000000

PP Test Statistic	**-2.276861**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 3	
Residual variance with no correction	0.132690
Residual variance with correction	0.115760

Phillips-Perron Test Equation
Dependent Variable: D(LNFB)
Method: Least Squares
Date: 01/04/02 Time: 19:52
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFB(-1)	-1.029387	0.164025	-6.275798	0.0000
C	8.374594	1.326589	6.312875	0.0000
@TREND(1991:1)	0.036789	0.008000	4.598638	0.0000

R-squared	0.510453	Mean dependent var	0.032459
Adjusted R-squared	0.484688	S.D. dependent var	0.527088
S.E. of regression	0.378372	Akaike info criterion	0.964477
Sum squared resid	5.440278	Schwarz criterion	1.089860
Log likelihood	-16.77177	F-statistic	19.81140
Durbin-Watson stat	1.982718	Prob(F-statistic)	0.000001

PP Test Statistic	**-13.43225**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 3	
Residual variance with no correction	0.209464
Residual variance with correction	0.096891

Phillips-Perron Test Equation
Dependent Variable: D(LNFB,2)
Method: Least Squares
Date: 01/04/02 Time: 19:52
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNFB(-1))	-1.494740	0.140863	-10.61132	0.0000
C	0.045198	0.074379	0.607679	0.5470

R-squared	0.747676	Mean dependent var	-0.002258
Adjusted R-squared	0.741036	S.D. dependent var	0.922728
S.E. of regression	0.469562	Akaike info criterion	1.374675
Sum squared resid	8.378571	Schwarz criterion	1.459119
Log likelihood	-25.49350	F-statistic	112.6002
Durbin-Watson stat	2.326620	Prob(F-statistic)	0.000000

PP Test Statistic	-2.078575	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.006381
Residual variance with correction	0.005037

Phillips-Perron Test Equation
Dependent Variable: D(LNGS)
Method: Least Squares
Date: 01/04/02 Time: 19:52
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGS(-1)	-1.081316	0.155876	-6.937046	0.0000
C	8.609304	1.236548	6.962367	0.0000
@TREND(1991:1)	0.019128	0.003046	6.279444	0.0000

R-squared	0.560251	Mean dependent var	0.020872
Adjusted R-squared	0.537107	S.D. dependent var	0.121956
S.E. of regression	0.082974	Akaike info criterion	-2.070220
Sum squared resid	0.261619	Schwarz criterion	-1.944837
Log likelihood	45.43951	F-statistic	24.20650
Durbin-Watson stat	2.037195	Prob(F-statistic)	0.000000

PP Test Statistic	**-16.55330**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 3	
Residual variance with no correction	0.011417
Residual variance with correction	0.002656

Phillips-Perron Test Equation
Dependent Variable: D(LNGS,2)
Method: Least Squares
Date: 01/04/02 Time: 19:52
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNGS(-1))	-1.440027	0.142381	-10.11390	0.0000
C	0.025775	0.017560	1.467849	0.1504

R-squared	0.729135	Mean dependent var	-0.002650
Adjusted R-squared	0.722006	S.D. dependent var	0.207920
S.E. of regression	0.109626	Akaike info criterion	-1.534774
Sum squared resid	0.456680	Schwarz criterion	-1.450330
Log likelihood	32.69548	F-statistic	102.2910
Durbin-Watson stat	2.385778	Prob(F-statistic)	0.000000

PP Test Statistic	**-1.586275**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.002831
Residual variance with correction	0.003330

Phillips-Perron Test Equation
Dependent Variable: D(LNM1)
Method: Least Squares
Date: 01/04/02 Time: 19:53
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNM1(-1)	-0.108941	0.074558	-1.461167	0.1522
C	1.154199	0.760667	1.517350	0.1375
@TREND(1991:1)	0.002073	0.002110	0.982787	0.3319

R-squared	0.082023	Mean dependent var	0.025835
Adjusted R-squared	0.033708	S.D. dependent var	0.056228
S.E. of regression	0.055272	Akaike info criterion	-2.882753
Sum squared resid	0.116089	Schwarz criterion	-2.757370
Log likelihood	62.09644	F-statistic	1.697684
Durbin-Watson stat	1.893162	Prob(F-statistic)	0.196700

PP Test Statistic	**-5.202690**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.002934
Residual variance with correction	0.001874

Phillips-Perron Test Equation
Dependent Variable: D(LNMF,2)
Method: Least Squares
Date: 01/04/02 Time: 19:55
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNMF(-1))	-0.872706	0.164213	-5.314476	0.0000
C	0.025614	0.010137	2.526807	0.0158

R-squared	0.426360	Mean dependent var	-0.001239
Adjusted R-squared	0.411264	S.D. dependent var	0.072434
S.E. of regression	0.055578	Akaike info criterion	-2.893341
Sum squared resid	0.117380	Schwarz criterion	-2.808898
Log likelihood	59.86683	F-statistic	28.24366
Durbin-Watson stat	1.756712	Prob(F-statistic)	0.000005

PP Test Statistic	**-2.496244**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.002432
Residual variance with correction	0.002347

Phillips-Perron Test Equation
Dependent Variable: D(LNMF)
Method: Least Squares
Date: 01/04/02 Time: 19:55
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNMF(-1)	-0.379281	0.148432	-2.555247	0.0147
C	3.451826	1.333852	2.587862	0.0136
@TREND(1991:1)	0.011675	0.004891	2.386993	0.0221

R-squared	0.166847	Mean dependent var	0.028998
Adjusted R-squared	0.122997	S.D. dependent var	0.054704
S.E. of regression	0.051230	Akaike info criterion	-3.034642
Sum squared resid	0.099730	Schwarz criterion	-2.909258
Log likelihood	65.21015	F-statistic	3.804928
Durbin-Watson stat	1.457245	Prob(F-statistic)	0.031173

PP Test Statistic	**-14.04771**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3) 3	
Residual variance with no correction	0.213814
Residual variance with correction	0.089177

Phillips-Perron Test Equation
Dependent Variable: D(LNM3,2)
Method: Least Squares
Date: 01/04/02 Time: 19:54
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNM3(-1))	-1.499443	0.140539	-10.66919	0.0000
C	0.049251	0.075153	0.655340	0.5162

R-squared	0.749723	Mean dependent var	2.39E-05
Adjusted R-squared	0.743137	S.D. dependent var	0.936064
S.E. of regression	0.474413	Akaike info criterion	1.395230
Sum squared resid	8.552571	Schwarz criterion	1.479674
Log likelihood	-25.90459	F-statistic	113.8317
Durbin-Watson stat	2.332279	Prob(F-statistic)	0.000000

PP Test Statistic	**-2.520074**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: 3	(Newey-West suggests: 3)
Residual variance with no correction	0.131487
Residual variance with correction	0.117984

Phillips-Perron Test Equation
Dependent Variable: D(LNM3)
Method: Least Squares
Date: 01/04/02 Time: 19:54
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNM3(-1)	-1.055651	0.162280	-6.505121	0.0000
C	12.37467	1.899393	6.515062	0.0000
@TREND(1991:1)	0.037045	0.007623	4.859752	0.0000

R-squared	0.526943	Mean dependent var	0.032049
Adjusted R-squared	0.502045	S.D. dependent var	0.533761
S.E. of regression	0.376654	Akaike info criterion	0.955374
Sum squared resid	5.390980	Schwarz criterion	1.080757
Log likelihood	-16.58516	F-statistic	21.16431
Durbin-Watson stat	2.002802	Prob(F-statistic)	0.000001

PP Test Statistic	**-4.970191**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.000722
Residual variance with correction	0.000741

Phillips-Perron Test Equation
Dependent Variable: D(LNM2,2)
Method: Least Squares
Date: 01/04/02 Time: 19:54
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNM2(-1))	-0.783339	0.158125	-4.953934	0.0000
C	0.026901	0.006958	3.866108	0.0004

R-squared	0.392403	Mean dependent var	3.27E-05
Adjusted R-squared	0.376414	S.D. dependent var	0.034911
S.E. of regression	0.027568	Akaike info criterion	-4.295617
Sum squared resid	0.028880	Schwarz criterion	-4.211173
Log likelihood	87.91233	F-statistic	24.54146
Durbin-Watson stat	1.948862	Prob(F-statistic)	0.000015

PP Test Statistic	**0.526231**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.000671
Residual variance with correction	0.000611

Phillips-Perron Test Equation
Dependent Variable: D(LNM2)
Method: Least Squares
Date: 01/04/02 Time: 19:53
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNM2(-1)	0.024107	0.060817	0.396378	0.6940
C	-0.223579	0.692122	-0.323035	0.7484
@TREND(1991:1)	-0.001734	0.002327	-0.744802	0.4610

R-squared	0.126726	Mean dependent var	0.033485
Adjusted R-squared	0.080765	S.D. dependent var	0.028055
S.E. of regression	0.026898	Akaike info criterion	-4.323174
Sum squared resid	0.027493	Schwarz criterion	-4.197791
Log likelihood	91.62507	F-statistic	2.757211
Durbin-Watson stat	1.772520	Prob(F-statistic)	0.076183

PP Test Statistic	**-5.991865**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.003159
Residual variance with correction	0.003452

Phillips-Perron Test Equation
Dependent Variable: D(LNM1,2)
Method: Least Squares
Date: 01/04/02 Time: 19:53
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNM1(-1))	-0.972463	0.162920	-5.968962	0.0000
C	0.025032	0.010101	2.478118	0.0178

R-squared	0.483896	Mean dependent var	-0.000918
Adjusted R-squared	0.470314	S.D. dependent var	0.079232
S.E. of regression	0.057665	Akaike info criterion	-2.819631
Sum squared resid	0.126359	Schwarz criterion	-2.735187
Log likelihood	58.39262	F-statistic	35.62851
Durbin-Watson stat	1.994453	Prob(F-statistic)	0.000001

PP Test Statistic	**-1.586275**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.002831
Residual variance with correction	0.003330

Phillips-Perron Test Equation
Dependent Variable: D(LNM1)
Method: Least Squares
Date: 01/04/02 Time: 19:53
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNM1(-1)	-0.108941	0.074558	-1.461167	0.1522
C	1.154199	0.760667	1.517350	0.1375
@TREND(1991:1)	0.002073	0.002110	0.982787	0.3319

R-squared	0.082023	Mean dependent var	0.025835
Adjusted R-squared	0.033708	S.D. dependent var	0.056228
S.E. of regression	0.055272	Akaike info criterion	-2.882753
Sum squared resid	0.116089	Schwarz criterion	-2.757370
Log likelihood	62.09644	F-statistic	1.697684
Durbin-Watson stat	1.893162	Prob(F-statistic)	0.196700

PP Test Statistic	**-7.069831**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.002096
Residual variance with correction	0.001180

Phillips-Perron Test Equation
Dependent Variable: D(LNWR,2)
Method: Least Squares
Date: 01/04/02 Time: 19:57
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNWR(-1))	-1.071507	0.160576	-6.672876	0.0000
C	0.025433	0.008314	3.059108	0.0041

R-squared	0.539546	Mean dependent var	0.000489
Adjusted R-squared	0.527429	S.D. dependent var	0.068321
S.E. of regression	0.046967	Akaike info criterion	-3.230056
Sum squared resid	0.083823	Schwarz criterion	-3.145612
Log likelihood	66.60111	F-statistic	44.52728
Durbin-Watson stat	1.815516	Prob(F-statistic)	0.000000

PP Test Statistic	**-0.721754**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.001841
Residual variance with correction	0.000713

Phillips-Perron Test Equation
Dependent Variable: D(LNWR)
Method: Least Squares
Date: 01/04/02 Time: 19:57
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNWR(-1)	-0.126406	0.085336	-1.481265	0.1468
C	1.121634	0.727268	1.542256	0.1313
@TREND(1991:1)	0.002013	0.002143	0.939115	0.3536

R-squared	0.122799	Mean dependent var	0.022720
Adjusted R-squared	0.076630	S.D. dependent var	0.046385
S.E. of regression	0.044572	Akaike info criterion	-3.313061
Sum squared resid	0.075494	Schwarz criterion	-3.187677
Log likelihood	70.91774	F-statistic	2.659790
Durbin-Watson stat	2.123577	Prob(F-statistic)	0.082964

PP Test Statistic	**-7.991682**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)

3

Residual variance with no correction	0.001560
Residual variance with correction	0.001048

Phillips-Perron Test Equation
Dependent Variable: D(LNTR,2)
Method: Least Squares
Date: 01/04/02 Time: 19:57
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNTR(-1))	-1.196707	0.158229	-7.563127	0.0000
C	0.031024	0.007652	4.054545	0.0002

R-squared	0.600844	Mean dependent var	-0.000621
Adjusted R-squared	0.590340	S.D. dependent var	0.063304
S.E. of regression	0.040517	Akaike info criterion	-3.525463
Sum squared resid	0.062383	Schwarz criterion	-3.441019
Log likelihood	72.50925	F-statistic	57.20090
Durbin-Watson stat	2.083967	Prob(F-statistic)	0.000000

PP Test Statistic	**-1.171998**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.001439
Residual variance with correction	0.000884

Phillips-Perron Test Equation
Dependent Variable: D(LNTR)
Method: Least Squares
Date: 01/04/02 Time: 19:56
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNTR(-1)	-0.139645	0.087922	-1.588274	0.1205
C	1.106752	0.671334	1.648588	0.1075
@TREND(1991:1)	0.003186	0.002488	1.280885	0.2080

R-squared	0.099914	Mean dependent var	0.026452
Adjusted R-squared	0.052541	S.D. dependent var	0.040488
S.E. of regression	0.039410	Akaike info criterion	-3.559242
Sum squared resid	0.059019	Schwarz criterion	-3.433858
Log likelihood	75.96445	F-statistic	2.109102
Durbin-Watson stat	2.298416	Prob(F-statistic)	0.135330

PP Test Statistic	**-7.592605**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.000829
Residual variance with correction	0.000801

Phillips-Perron Test Equation
Dependent Variable: D(LNOS,2)
Method: Least Squares
Date: 01/04/02 Time: 19:56
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNOS(-1))	-1.216585	0.160722	-7.569488	0.0000
C	0.028855	0.006069	4.754451	0.0000

R-squared	0.601247	Mean dependent var	-0.000479
Adjusted R-squared	0.590754	S.D. dependent var	0.046176
S.E. of regression	0.029540	Akaike info criterion	-4.157439
Sum squared resid	0.033159	Schwarz criterion	-4.072995
Log likelihood	85.14878	F-statistic	57.29715
Durbin-Watson stat	2.012839	Prob(F-statistic)	0.000000

PP Test Statistic	**0.151385**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)	
3	
Residual variance with no correction	0.000782
Residual variance with correction	0.000412

Phillips-Perron Test Equation
Dependent Variable: D(LNOS)
Method: Least Squares
Date: 01/04/02 Time: 19:56
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNOS(-1)	-0.045467	0.075872	-0.599261	0.5526
C	0.387036	0.583434	0.663377	0.5111
@TREND(1991:1)	0.000509	0.002013	0.252621	0.8019

R-squared	0.083620	Mean dependent var	0.023259
Adjusted R-squared	0.035389	S.D. dependent var	0.029569
S.E. of regression	0.029041	Akaike info criterion	-4.169865
Sum squared resid	0.032048	Schwarz criterion	-4.044482
Log likelihood	88.48223	F-statistic	1.733750
Durbin-Watson stat	2.480330	Prob(F-statistic)	0.190300

PP Test Statistic	**-5.496321**	1% Critical Value*	-3.6019
		5% Critical Value	-2.9358
		10% Critical Value	-2.6059

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.013265
Residual variance with correction	0.012331

Phillips-Perron Test Equation
Dependent Variable: D(LNMN,2)
Method: Least Squares
Date: 01/04/02 Time: 19:55
Sample(adjusted): 1991:3 2001:2
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNMN(-1))	-0.816008	0.148289	-5.502824	0.0000
C	0.023541	0.018944	1.242677	0.2216

R-squared	0.443477	Mean dependent var	0.006321
Adjusted R-squared	0.428831	S.D. dependent var	0.156355
S.E. of regression	0.118166	Akaike info criterion	-1.384739
Sum squared resid	0.530605	Schwarz criterion	-1.300295
Log likelihood	29.69479	F-statistic	30.28107
Durbin-Watson stat	1.572540	Prob(F-statistic)	0.000003

PP Test Statistic	**-2.497552**	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Lag truncation for Bartlett kernel: (Newey-West suggests: 3)
3

Residual variance with no correction	0.012861
Residual variance with correction	0.014719

Phillips-Perron Test Equation
Dependent Variable: D(LNMN)
Method: Least Squares
Date: 01/04/02 Time: 19:55
Sample(adjusted): 1991:2 2001:2
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNMN(-1)	-0.209265	0.086262	-2.425924	0.0201
C	1.600171	0.671146	2.384236	0.0222
@TREND(1991:1)	0.007626	0.002732	2.791364	0.0082

R-squared	0.171110	Mean dependent var	0.020265
Adjusted R-squared	0.127484	S.D. dependent var	0.126110
S.E. of regression	0.117797	Akaike info criterion	-1.369350
Sum squared resid	0.527294	Schwarz criterion	-1.243967
Log likelihood	31.07167	F-statistic	3.922223
Durbin-Watson stat	1.450344	Prob(F-statistic)	0.028277

Appendix D-JJ test results

Date: 01/15/02 Time: 17:10
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNAG LNCI LNCR M1**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.562917	77.41258	47.21	54.46
At most 1 **	0.517800	45.13490	29.68	35.65
At most 2 *	0.308491	16.68842	15.41	20.04
At most 3	0.057320	2.302123	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 3 cointegrating equation(s) at the 5% level
Trace test indicates 2 cointegrating equation(s) at the 1% level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.562917	32.27768	27.07	32.24
At most 1 **	0.517800	28.44649	20.97	25.52
At most 2 *	0.308491	14.38629	14.07	18.63
At most 3	0.057320	2.302123	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 3 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates 2 cointegrating equation(s) at the 1% level

Date: 01/15/02 Time: 17:11
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNMN LNM1 LNCI LNCR**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.503988	45.97153	47.21	54.46
At most 1	0.209511	18.62647	29.68	35.65
At most 2	0.194683	9.457452	15.41	20.04
At most 3	0.025645	1.013189	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates no cointegration at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.503988	27.34505	27.07	32.24
At most 1	0.209511	9.169021	20.97	25.52
At most 2	0.194683	8.444263	14.07	18.63
At most 3	0.025645	1.013189	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates no cointegration at the 1% level

Date: 01/15/02 Time: 17:12
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNMF LNCI LNCR LNM1**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.413093	47.95831	47.21	54.46
At most 1	0.334270	29.98618	29.68	35.65
At most 2	0.236403	15.608726	15.41	20.04
At most 3	0.067141	2.710546	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates no cointegration at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.413093	31.94213	27.07	32.24
At most 1	0.334270	20.07146	20.97	25.52
At most 2	0.236403	15.20180	14.07	18.63
At most 3	0.067141	2.710546	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels
Date: 01/15/02 Time: 17:13
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNCI LNCR LNCS LNM1**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.477389	50.37202	47.21	54.46
At most 1	0.391080	35.06420	29.68	35.65
At most 2	0.093647	16.37950	15.41	20.04
At most 3	0.038835	1.544769	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at the 5% level
Trace test indicates no cointegration at the 1% level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None	0.477389	30.30782	27.07	32.24
At most 1	0.391080	22.81470	20.97	25.52
At most 2	0.093647	3.834733	14.07	18.63
At most 3	0.038835	1.544769	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates no cointegration at both 5% and 1% levels

Date: 01/15/02 Time: 17:14
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNEW LNM1 LNCI LNCR**
Lags interval (in first differences): 1 to **2**

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.559215	55.33138	47.21	54.46
At most 1	0.312969	23.38269	29.68	35.65
At most 2	0.131551	8.743034	15.41	20.04
At most 3	0.079772	3.242208	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.559215	25.96169	27.07	32.24
At most 1	0.312969	14.63965	20.97	25.52
At most 2	0.131551	5.500826	14.07	18.63
At most 3	0.079772	3.242208	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates no cointegration at the 1% level

Date: 01/15/02 Time: 17:15
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNTR LNM1 LNCI LNCR**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.664040	67.16809	47.21	54.46
At most 1	0.382340	29.89833	29.68	35.65
At most 2	0.177725	12.01414	15.41	20.04
At most 3 *	0.106290	3.0482581	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.664040	42.53976	27.07	32.24
At most 1	0.382340	12.61420	20.97	25.52
At most 2	0.177725	7.631555	14.07	18.63
At most 3 *	0.106290	2.912581	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Date: 01/15/02 Time: 17:16
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNWR LNCI LNCR LNM1**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.412867	54.28963	47.21	54.46
At most 1	0.334177	29.83043	29.68	35.65
At most 2	0.307651	16.04950	15.41	20.04
At most 3	0.072357	2.929213	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.412867	35.31920	27.07	32.24
At most 1	0.334177	24.78094	20.97	25.52
At most 2	0.307651	15.120283	14.07	18.63
At most 3	0.072357	2.929213	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Date: 01/15/02 Time: 17:16
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNFB LNCI LNCR LNM1**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.572531	63.53057	47.21	54.46
At most 1 *	0.337168	30.38547	29.68	35.65
At most 2	0.302221	19.34736	15.41	20.04
At most 3	0.091460	3.740744	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 2 cointegrating equation(s) at the 5% level
Trace test indicates 1 cointegrating equation(s) at the 1% level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.572531	33.14510	27.07	32.24
At most 1	0.337168	21.03811	20.97	25.52
At most 2	0.302221	14.60662	14.07	18.63
At most 3	0.091460	3.740744	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Date: 01/15/02 Time: 17:17
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNGS LNM1 LNCI LNCR**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.543465	59.44364	47.21	54.46
At most 1	0.387176	28.86413	29.68	35.65
At most 2	0.152315	9.766683	15.41	20.04
At most 3	0.081655	3.322104	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.543465	30.57952	27.07	32.24
At most 1	0.387176	19.09744	20.97	25.52
At most 2	0.152315	6.444579	14.07	18.63
At most 3	0.081655	3.322104	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates no cointegration at the 1% level

Date: 01/15/02 Time: 17:18
Sample(adjusted): 1991:4 2001:2
Included observations: 39 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: **LNOS LNM1 LNCR LNCI**
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.625295	74.83667	47.21	54.46
At most 1 **	0.431162	36.55359	29.68	35.65
At most 2	0.234043	14.55134	15.41	20.04
At most 3 *	0.101009	3.152813	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 2 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.625295	38.28308	27.07	32.24
At most 1 *	0.431162	22.00226	20.97	25.52
At most 2	0.234043	10.39852	14.07	18.63
At most 3 *	0.101009	3.152813	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 2 cointegrating equation(s) at the 5% level
Max-eigenvalue test indicates 1 cointegrating equation(s) at the 1% level