

أثر نمو عرض النقود على نمو القطاع الخاص
في المملكة العربية السعودية
دراسة تطبيقية باستخدام تحليلات التكامل المشترك

Ω Ο Ζ Φ γ π λ ς Ψ π γ λ Ρ Ψ π λ 0t

πΩ

δ ≡ ρ ύ Γ θ Ζ ~ γ

ψ⁻

σΚλΩ σπ λ κ Υ

. ρ . / / γ / / Η ξ '1

λ \$ ΣΨt

(γ) σ π ΚΚΩ Ψ κ Γ .

.....

(πΣΨ) κ Γ Ψ Γ π Γ Ψ . .t

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(πΣΨ) ρύ ύ κ Γ κ νύ ύΨ .

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OZ

Ÿ ϕ ŸΘ ε È Ψ Υ ε Υ ι ι ι
 ÞΕ β ι ϕ ό ϕ Α ε Τ Τ Ω Ÿη ε
 ι . Ÿ ϕ Ε Ÿ ϕ ι ι η ϕ
 .ž η ϕ ŸΘ τ ε Ω È ε ϕ
 Ρ Θ Ψ Φε τ ε Τ Ω τ ξ ι
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) Ir Ε β ÞBc (Τ ό) ϕ ÞM1 ε Τ
 .(ρ ΩÈΩ Ε ϕ γ ϕ ϕη ι Ω τ Ε β
 Ÿ η Θ Þ η Ε ι Θ ŸΩ Ω ε γ ϕ Θ
 ε ϕ Θ Ÿ η Þ Ÿ ε ϕ Θ
 Ε ρ Ÿ ι τ ž ÞΦΘ Δ Ω
 .ι žε (- éě) Ε β
 ι ί Τ Ε ι Θ Θ ό Α ΔΥ
 σ (η ή) Ε ε ή ϕρ ϕ Ε τ
 ϕ β ΤΦ Ε τ ι γ β Θ Ε ε ι ί ξ Δ ϕ
 Ρ- - Θ ϕ Υ Ω σ ΤΦό Ε ϕ ÞDF ϕη Θ
 ι Ÿ ε ϕ Ÿ η Θ ι ί Ψ ΥΘ ε .Ρ
 ΑDF Ÿ ϕη Θ Θ e_t ϕ η Θ ϕ . ΦΘ
 ÞΕ ϕ Θ τ Ÿ ι (Ε ε) η ρ
 .τ ι ι ί Ÿ η ϕ
 Ÿ η β ο ο ε ϕ Ÿ η Θ Α ι Ω
 Ÿ ι ί Ÿ η τ η̄ Þι ί
 Ÿ ι Φ È β ϕ Ε ΦΘ Δ ε ρΧ .
 ρ ι Ω ÞŸ ι Φ È ι ί . Ÿ ι ί
 .,Ě Δ Ÿ È τ Ε τ

Abstract

Most of early studies and research work have extensively dealt with the subject of the relationship between money and national income within developed countries. Whereas, less attention has been paid to such relationship in developing economies. In the case of Saudi Arabia, empirical studies for such a relationship or the effect of money on income are very limited in number and methodology.

The objective of this study is to investigate the impact of the growth of money supply on the growth of the private sector in the Kingdom of Saudi Arabia. The variables used in the study are: growth of the private sector (Ps), growth of money supply, growth of banking credit (Bc), and interest rate (Ir) (inter-bank interest rate on three-month US dollar denominated deposits in London Stock Exchange). Conventional and modern methods have been applied such as the Unit Root tests of stationarity, Engel-Granger Two-Step test for Co-integration, Johansen Co-integration Test. The study has relied on annual data obtained from domestic and international sources for the period 1970-2002.

Statistical findings based on the Unit Root tests have indicated that the variables used in this study are not stationary at levels; however, these variables are stationary in first difference at a zero lag period in Dieky-Fuller (DF) test and at lag period of the third level in Phillips-Perron test (PP). This means that they are integrated of the first order. This has been followed by subjecting variables to the Engel-Granger Two Step Co-integration test, which has shown that variables are cointegrated of the same order. The residuals stationarity has been tested by applying ADF test which has indicated that they are stationary at levels. This indicates the existence of co-integration between the variables in question.

Also Johansen co-integration test has shown that there is a single co-integrating vector. Thus, we conclude the presence of cointegration among the four variables.

The findings of the Error Correction model show the behavior of the long-run dynamic between private sector, money supply, banking credit, and interest rate. For instance, if the money supply deviate from the long-run equilibrium, private sector and banking credit tends to deviate in the same direction while interest rate moves in the opposite direction. In essence, the change in the four variables should converge to their existing the long-run equilibrium with a magnitude of error correction equals 0.622.

Λ ύούύ

[illegible]

$\Phi\pi\Sigma\pi$

d'd'σ πΩ πγλ P ψ :X þ ù

..... φ ε $\top$ -

È φ ε T 'l η d-

đ η φ ε ' -

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đ ε T ' Ě-

đ ϕ ε T ϕ E Q̃ ÿ ě-

$$\mathbf{d}\mathbf{\ddot{E}} \quad \dots\dots\dots \varphi \quad \varepsilon \quad ' \quad \Phi \quad \dot{\mathbf{E}}-$$

..... ÈΘ è-

đē **O Z Φ γ** **ï** **Г** **Ω λ** **:Λ** **Z** **þ** **û**

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..... P θ ψ φε -

..... P Θ Ψ Φε ρ ó ρ A 'l Φ đ-

.....φ ó φ A P θ ψ φε -

.....φ ó φ A ε T È -

È È- È-

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ÈΥ Αρ -Έ

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Γϑ					
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ě		φ	ε	T	(-) ÿ
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đ		φ	ε	T	1 η (-) ÿ
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đĚ					
	ψ φε)	φ	ε	ÿ	(Ě-) ÿ
đ		(φφβ ή			
đ	.(	ĩ)	P θ	ψ φε φ	A φ (-) ÿ
Ěě		DF	φη	θ	(-Ě) ÿ
ě		P-P	-	θ	(-Ě) ÿ
ě	ξ	Ωφ ε	τ	(đ-Ě)	ÿ
ěĚ		φθ Δ	ε	1	(-Ě) ÿ

λ ρ Ξ ψ Λ ο

θ
Γϑ

ΦπΣπ

đěM3 ε T (-) φ ÿη
 đĚ ε T '1 η (-) φ ÿη
 φ ε T φ Ε Ω̃ ÿ (đ-) φ ÿη

 φ ε T φ Ε Ω̃ ÿ (đ-) φ ÿη Ω

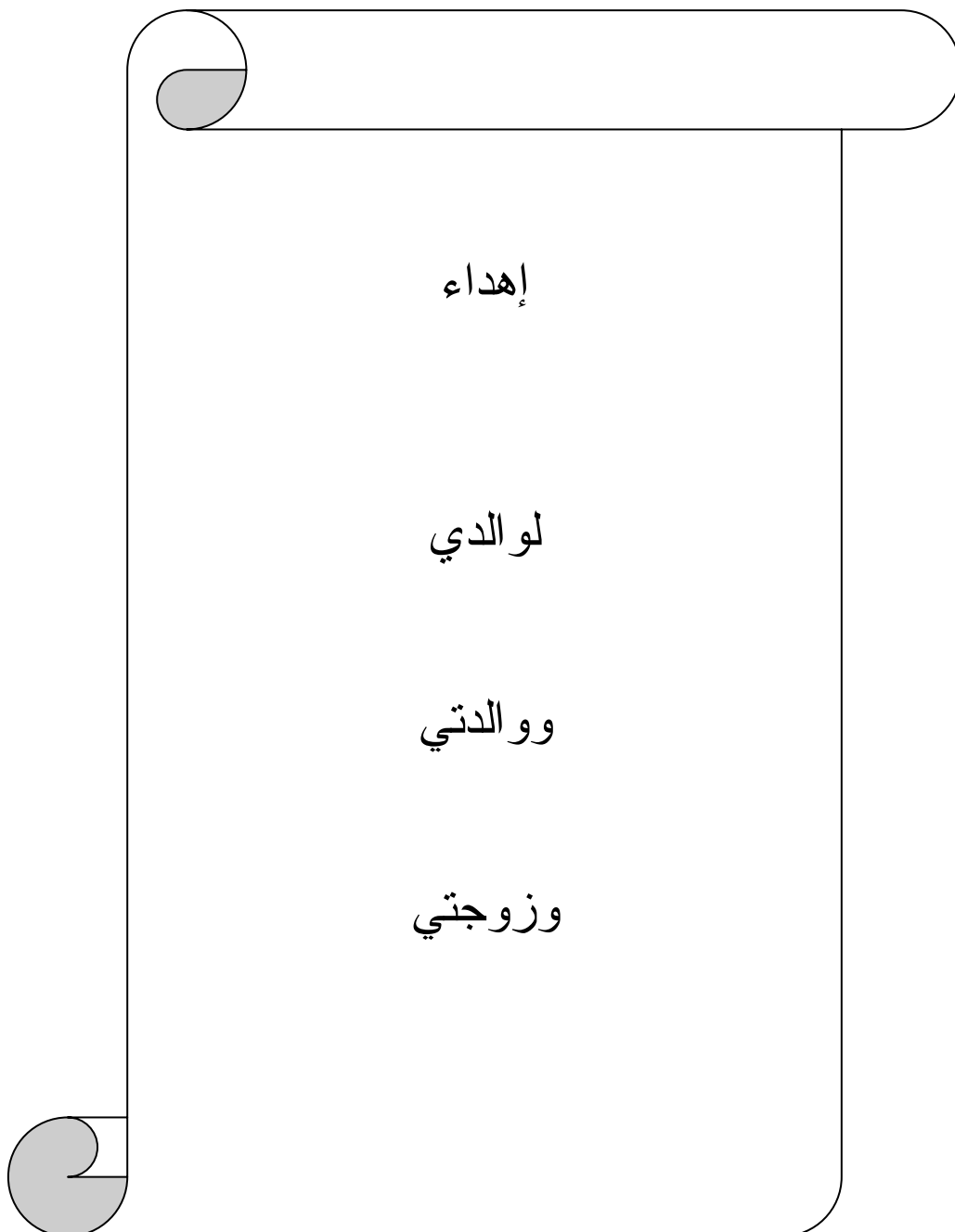
 φ ε ÿ (-) φ ÿη
 .. Ρ Θ Ψ Φε Α φ ό φ Α (-) φ ÿη
φ ό φ Α φ Ρ Θ Ψ Φε (-) φ ÿη
 Ěèτ ι γ β φ '1 φ ÿ È (-Ě) φ ÿη
 ě τ ι γ β φ '1 φ ÿ È (-Ě) φ ÿη Ω
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شكر وتقدير

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γ Ḑ-Ḑ

Γ ≡ d'-Ḑ

Γ ‡ Đ-Ḑ

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- Ē-Ḑ

ρπψ ρ ð

γ

: γ ð-ð

Ε ' 'Φ ε ρφφ φ ζ ρ ζ ε ΨΦε
È ε ΨΦε .φ ε Α φ φεε ε η φ φεε
 . ρ ρ̄ ŷ ζΥ ρ φ ζ ρ̄
φ ε Ε τφ ŷ ο̄ ε Τ τ ' Χ Χ
γ φ ρ ε ε ε ' Φ
' Τ ' Υ . η Ω τ φ φφ ρε ŷ
φ ρ Τ .σ θϊ ' ί Τ ε Τ È
ρ ροη ΩΥ φε β θ ε ' ~ ' φ ο ε
 . ε ' Φ ' ρ Υ ŷ Ε ŷ β Α ρ
φ ο φ Ρ θ ΨΦε ŷΩ
φφθ φ σ η ~ τ ' η ° ŷΧ
' γ φ ρ γ ι ŷη ρ τ Α β ŷ ι φ
τ Ρ θ ΨΦε ° ρ Ω Ω È Ζ ρ ΓÈ ó
γε φ θ ó Ε ε τ ρ οε τ Ωε
 . φ φ φ
φ È ρ Ρ θ ΨΦε τ ε Τ ρ̄
Ε Ε ŷÈθ Ρ θ ΨΦε φ ό φ Α ε Τ
φ ό φ Α ε Τ È ΔΥ φ τ èě
ε Τ ' ' Φ η ρ ρ ŷη ρ Ρ θ ΨΦε
 . Ρ θ ΨΦε φ ό φ Α
Ε 'β Υ ρ η ŷ η ρ èě φβ
ŷΧ φ φβ Ψβ Ε η Ρ τ

φ η ŷη '1 Φβ ï '1 β η .(φΦβ ή) Ρ Θ ΨΦε
 Ε β ŷÈΘ Ρ Θ ΨΦε φ ό φ Α φ ϐ ŷη -
 . φ , Ε β β ŷÈΘ ε Τ ϐ φ è,Ě φ
 φ Α ε Τ ŷη '1 '1 β ε ϐ èĚ φ
 φ ěđ,è Ε β ŷÈΘ '1ί ε . '1 τ Ρ Θ ΨΦε φ ό
 .φ τ φ ,
 φ Α ϐ ε Τ ŷη '1 ε èĚ φ
 τ φ Ě,è ϐ φ ,Ě èè φ '1ί τ Ρ Θ ΨΦε φ ό
 ο η Υ 'ΥÈΩ τ ε Τ '1 β ϐ ŷÈΘ .φ
 Α ϐ φ , φ ξ '1ί 'Υ ϐ φ
 φ đ, ε ϐ φ φ đ,ě '1ί ε Ρ Θ ΨΦε
 .Υ
 ΨΦε τ ε Τ Ω ΓΥ ΨΥ Θ ρ
 ï τ èĚ Ε β η φ Ρ Θ
 .ΨΥ

:1Γ ≡ d'-Ď

Υ ε φ η ŷη Χ È ϐφ ό φ Α '1 Ω
 φ . È Ω Τ '1 Φ γ Χ
 Ρ Θ ΨΦε η Ω .Ρ Θ ο Φε Θ φ È Ω
 .φ ï φ Φ η Χ È ϐΩ Τ τ Υ '1 φ
 ε È Ω '1 '1 ί Τ ί '1 ε
 γ φ ρ φ '1 η Ψβ ρ φ Ρ Θ ΨΦε
 φ ζΥ ϐ Τ ΨΦε φ ŷ Ψβ ϐ'1 ό '1 η Ε
 .'1 φ ε ϐ Θ η γ ε Τ ε

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:1Γ t Đ-Đ

$$\mathbb{Q} \quad : Y \quad \mathbb{Q}$$

:ΙΓ ή đ-Đ

φ ÿη Ρ Θ Ψ Φε τ ε Τ ρ τ Ύ ρ
: τ ρ 'Ι Ξ Υ τ ρφ
.ξ τ Èη 'Ι ί ÿ η ρ ÿ È η Θ ❖
τ σ Θ ĩ Ε ρ̃ ÿ Ρ Θ Ψ Φε τ ε Τ ρ ❖
.ÿ Φ ε σ φ Ρ Θ Ψ Φε
η φ ε Θ φ 'Ι ε 'Ι Τ ε ❖

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: - Ē-Ď

φ Ύ ρÿ τ ε - éě Ε β ξ φφί
Ψ Υ ÿ 'Ι φ Ύ ĩ 'Ι Τ φ ρ ÿ β ε
ÿ β ÿ . ξ ρ Χ ÿ ž ε Ύ ρ ÿ β .
φ Α ÿ Θ ÿ β . η φ ε Τ Ω
Ρ Θ Ω ε ÿ β Τ . η φ Ρ Θ Ψ Φε φ ό
'Ι ÈΘ Ω ÿ β Υ . ρ ÿ φ ε Α

. 'Ι

λ 0 ρ ð

γ

γ -d'

γ ρπ ζ Ψ γ

d'-d'

λ ρπ ζ Ψ γ

Ð-d'

πΩ Ω ζ Ψ γ

đ-d'

ρ ð

úZ Ē-d'

λ 0 p ũ

γ

: γ ð-d'

ĩ ÿθ ÿŋ ' í τ ε T ŋ η
(Friedman 1990, Friedman and 'Υ ηĩ γ β ó θΥ Έ β
Kuttner 1992, Dwyer and Hafer 1988).

τ ŋ ε ε ' Ε Ω
ÿÈθ ε ρ ε ŋ ή þφ ó φ A
φ η Φ ŋ ε Ω ε φ ÿ ε þ η η
φ Χ φ η ε ' í η Ω . θ ε ' í
(Friedman and Shwartz, φ η ĩ φ η θΥ
ε È ' ε β φ ' í ŋ ε ' í ' η η þ(1963
' ĩ ξ ÿ Τ ψ 'β θ .φ ó φ A φ Ε
þMichigan Wharton ÿŋ ĩ ξ ÿε
ÿ ' Èθ ξ ρ ž ĩ MIT ° Ω .ÿ σ θ
ρ Èθ φ ' ε τ η ŋ þ ε ŋt ' ε
þ(De Leeuw and Gramlich, 1969) φεε φ ε σ ε ŋ̃
ŋ σ ρ ÿÈθ ε 'Φ σ θ ' τ Υό
T ŋ τ ' η ' ξ ή .(Mann, 1968) τ ε
.
φ ε

η ρΧ τ φ ε ó τ ŋt ε σ Ω
þ(Blanchard (1990), Lucas (1996), and Sargent (1996)) '1
þφ ó A τ ε ŋt ÿ ρŋ þξÈ η η èĚđ
ή 'Υ . ó ε 'È β ' ŋ η Έ ŋη ' η
A þ β θ ' ÿÈθ ó τ ŋ̃ Ω Φ ε Χ
' þ β θ ' ' 'β θ ρ ÿ φ η

ě

ἵ η η ϐ ό τ ῶ ε ἵ η ῶ ε η ῖ ό ε ϐ ῦ Θ
. ό τ ε ῶ β η ῦ β Θ ὐ ἧ

ῦ ῦ Φ ϐ(VAR) φ ο Φ ἵ Τ ἵ
ῦ ἵ φ ε ἵ ῦ β ῦ . ό ε È
:φ τ ϐ ϐΨ Υ

. ε ῦ τ ε Φ ἵ -
. ῦ τ ε Φ ἵ -
. η τ ε Φ ἵ -

: γ ϐπ ζΨ γ d'-d'

φ ῦΘ ε È ἵ φ ε Φ Χ ἵ Χ È
. ἵ ῖ η ῖ ἵ η ε ῦ

ε Φ (Zacharias P., Morten O. R., and Martin Sola, 2002) φβ

è è ῦ ῖ Ω Ε β Ω ἵ Θ ϐ η ῖ Ε ἵ τ
ε ῦ φ ῦ Χ È ξ ἵ ϐ φ Ω Ω τ
η Θῡ Ψ τ η ὕ ϐ η ή ρ ό
ξ ἵ . ἵ Θ Α (τ) τ
τ ε Φ ϐ ή ρ η Ψ Υ Ω ῦ Ε ε Φ
ἵ ί Φ φ ἵ β φ ÈΘ τ ἵ ~ (VAR)
φ ἵ ί ή ἵ ϐ τ Ε È . φ ἵ ί Ε ρ ÈΘ ~
ε ή Ε η ρ η ὕ ρ τ () ἵ ~
φ Ε ἵ ί ρ φ Ψ Υ ῖ Ω ῦ ε Φ φ ή ξ . Χ È
ῦ ἵ τ ῦ Δ ἵ ἵ ί ἵ È
È ρ ξ ἵ Θ . Φε ῦ η φ Θ η
ἵ ί ἵ . η ῖ Ε ἵ φ ό Ε β ε
φ φ φεε φ Α φ ἵ ί φ Υ φ
. ρ

È

ÈΘ'1 (Yin-Wong Chung and Eiji Fujii, 1999) ÿη
 óτ ε ϑ θ ρ(Conditional Heteroskedastic) φφ
 ρ Ε (ARCH) φ È φφ ÈΘ .φη ï τ
 φ Θ̃ . ÿ È φ φφ ÈΘ ή
 τ ÿ ο° ρ(ARCH) φ ε È φφ ÈΘ ϑ
 () ' ρZY ξ φ 'X È . ó ε
 . ó τ ϑ φφΘ φ ο
 ï ÿθ ε È (Cyrene Chew, 2001) ζΥ
 η ÿ È ÿ ρCyrene Chew σ . ÿ È θ
 ρ ï ' ξ φ θ .ÿθ ε φ φ È ρ φ
 È ÿ ρ φ ρ ρ ρΕ η θ '1
 ÿ í ξ θ . ÿ È ÿ ÿθ ε
 φ Ω ' ζΥ .ÿθ ε È ÿ ()
 Υ Α β ÿθ ε È η ρ ε í ÿ
 ε Τ ξ ρ ï ' θ . ' φ
 Α τ ε ϑ Α ρ ÿη ε ε .φ ï
 Α τ ε ϑ φ ϑÈϑ ÿ φ φό
 ~ φ Α Τ ξ ' . ÿ Ε η
 ÿη .ÿθ ε È Υ Α ρ φ ÿ È ÿ Ε η
 φ ' θ ÿθ ε È 'Υ ρ Ρ θ
 φ ρ Χ Ω ξ γβ ρζ ρ τ Ω
 φ σ φ φ ÿθ φ ί τ ~ ε ÿ φ ί
 φ È η ζ ρ ε ÿ È ÿ τφ ε ο . ρ τ
 . φ ε ÿθ φ
 éË Ε β ' ρ(Stock and Watson, 1989) θ σ θ φ
 Τ φ ' í ϑ ó ρφη ï τ ρ éÈ τ

$\hat{E} \tau X \rho \varepsilon \varphi \xi \beta \eta .() \varepsilon$
 $\ddot{y} \models (\text{Krol and Ohanian, 1990}) \Theta .1 \acute{\iota} \xi \rho \eta \varphi$
 $. \models \eta \models \models \eta \acute{\iota} \tau \models (\text{Stock and Watson}) \xi$
 $\text{Stock and } \rho \ddot{y} \varphi A \varepsilon \eta \rho \acute{\iota} \varepsilon \Phi$
 $\ddot{y} \eta \varphi \models (\text{Friedman and Kuttner, 1992}) \ddot{y} \eta . \text{Watson, 1989}$
 $\varepsilon \hat{E} . \acute{e} \acute{e} \tau \acute{\iota} \Theta \models \text{Stock and Watson}$
 $.1 \Omega \Theta \beta \Upsilon \acute{\iota} \ddot{y} \Theta$
 $\xi \ddot{y} \Psi \circ \tau A$
 $\ddot{y} \hat{E} \eta . \ddot{y} \Phi \ddot{y} \acute{\iota} \varepsilon \ddot{y} \acute{\iota} \varphi \ddot{y} \Theta \varepsilon \acute{\iota}$
 $. \acute{\iota} \hat{E} \eta \varepsilon \ddot{y} \Theta \beta \Theta$
 $\ddot{y} \acute{\iota} \Phi \varepsilon \varepsilon \hat{E} \models (\text{Saunders Peter J., 2002}) \varphi$
 $\varphi A \eta \eta \acute{\iota} \varepsilon \acute{\iota} \varphi \varepsilon T \varphi \acute{o}$
 $\varepsilon \beta () () \varepsilon T \models (\text{GDPR}) \varphi \varepsilon \varphi \acute{o} \varphi A \varphi \acute{o}$
 $\ddot{y} \acute{\iota} \Phi \hat{E} \acute{\iota} \eta \tau \acute{\iota} \eta . \acute{e} \acute{e} \acute{e} - \acute{e} \acute{e}$
 $\acute{\iota} \Theta \rho \Theta . \eta \acute{\iota} \varepsilon \acute{\iota} \varphi \varepsilon T \ddot{y} \Theta$
 $A \acute{\iota} \Theta A \models (\text{Johansen, 1988}) \rho \Theta \varphi \ddot{y} \eta$
 $\hat{E} \circ \varphi \models (\text{Cointegrated}) \hat{E} \eta () \varepsilon T \varphi \acute{o} \varphi$
 $\tau \circ \models A \acute{\iota} . \eta \acute{\iota} \varepsilon \acute{\iota} \varphi \acute{\iota} \ddot{y} \acute{\iota} \Phi$
 $\tau \eta \acute{\iota} \varepsilon \acute{\iota} \varphi \varphi \acute{o} \tau \varepsilon \acute{\iota} \acute{\iota} \Omega \acute{\eta}$
 $\varphi \varphi \varepsilon \acute{o} \varphi \acute{\iota} \acute{\iota} \acute{\iota} \rho^- \ddot{y} \circ \models \ddot{y} \Phi \ddot{y} \acute{\iota}$
 $\varepsilon \acute{\eta} \sigma \Theta \ddot{y}^- A . \ddot{y} \Phi \ddot{y} \acute{\iota} \tau$
 $^-\Phi \Theta \Delta \circ A \acute{\iota} \acute{\iota} Y . \eta \acute{\iota} \varepsilon \acute{\iota} \varphi \varphi \varepsilon \acute{o}$
 $\ddot{y} . \varphi \acute{o} \varphi A \tau () \xi \varphi \gamma \models (\text{VEC})$
 $. \ddot{y} \Phi \ddot{y} \acute{\iota} \varphi \varphi \acute{o} \varphi \acute{\iota} \rho \acute{\iota} \varepsilon \tau$
 $. \ddot{y} \Phi \ddot{y} \acute{\iota} \varphi \varphi \varepsilon \acute{o} \varepsilon \acute{\iota} \hat{E} \varphi \ddot{y}$
 $\rho \models \ddot{y} \Phi \ddot{y} \acute{\iota} \varphi \varphi \acute{o} \tau \varepsilon \Omega^- \acute{\eta} \tau$
 $\varphi \varepsilon \beta \varepsilon \varphi . \eta \acute{\iota} \varepsilon \acute{\iota} \varphi \varphi \varepsilon \acute{o} \tau \Omega \rho$

η .φεε Α τ ϖ ρ ρ Θ φί ϐϑ Φ ϑ ι φ ι
. η ι Ε ι φ φ ό φ ζ ε
τ ζ ζ ζ ϖ ε ι ί ξ ρ ϑΦΘ Δ ο ι Θ Α
Α β ε Θ η ϐ ζ . ε ϑ ι φ φ Α
. η ι Ε ι φ ε ϑ ι φ φ
Θ ϐφ η ι τ ο γ Φ Υ ϐ(Sims, 1972) φ
ξ φ ζ Υ ϐ ε η ι ί φ ό φ Α τ η ϖ ι
φ ϑ ϑ : ε ϑ~ ϑ ι Τ ί . ξ ρ Υ ή
Θψ Τ ί .àϑ ε È φ τ ϐ(Exogenous) φ Θ ί ε
ρ ε Φ .ρ φ ι ρ Φ ϑϖ
.(VAR) ξ ι Θ Θ φ Ε
ϑφ ι β ϖηι ε ι ϐ (VAR) Θ
. ξ Υ φ ξ η ο ή η (Lags)
Φ φ Ε ε Τ Φ ϑφ ι ε ι Υ
φ ρ ϑ φ Α . ζ Èε ϖ ϑη η
Ε ι ι ϖ γβ ϑΘ τ ε ξ Υ β
τ ϑΘ ξ φ Υ β φ ϐ η ι
ι ϑφ ι ι β ϐ ζ . Υ ε
(Feed È (ϑ τ) ε τ ϑΘ
. ε τ ϑΘ back)
: λ ϐπ ζψ γ Θ-d'
(Victor Olivo, and ϐ ϑ Τ τ ιεΦ φ ι
ξ ιΥ ϐφ β τ ιεΦ φ Stephen M. Meller 2000)
ε ϐτ ι φ ό φ Α ε ϑ ι Φ È ι η
Ε β φ β τ ϑ È ι Θ . ι σ
ϐΕ) ι Θ ϖη Θ ξ φ ρ . èèË- è
Τ φ Υ ϐ(η ρ ι ϑ φ ϑ η ϐϑΘ Δ

. ρ η η ρ ' φ β P θ
 . φ η ' í τ ϖ φ β ' ρ ° ρ φ β ' τ η ÿ η
 φ ο (Unit-root tests) Ε ' θ ξ '
 φ Α Ω ÿ η () ρ ' . ε () ÿ ή
 ~ ρ φ ό φ Α φ Ε Ρ ÿ ρ φ φ ό
 Φ È () θ ρ ÿ φ Α ρ ÿ ε φ . η ρ
 ο ' η . ï σ φ ÿ θ () ε Τ ÿ ï
 () ε Τ ÿ η ' ρ φ θ Ε ε ¯ φ θ Δ
 φ Α φ Ε Ρ ÿ () ε Τ ρ φ ό φ Α
 φ ρ η ' È η ρ ~ () ε Τ ρ φ ό
 ÿ η φ ' È ξ ρ τ Ε È . ÿ ï ÿ Φ Υ ' '
 φ . ÿ ï τ % σ ρ β ζ θ
 Α φ Ε Ρ ÿ ρ φ ό φ Α () ε Τ ξ
 ο ξ Α ' . η ρ ~ ρ φ ό φ
 ° . È φ ï ρ φ ÿ θ ρ ε Χ ϖ
 ε φ ρ ρ η ρ ' ' Υ γ Υ ρ β ε
 . Ε Θ Υ ÿ ρ φ ό φ Α ÿ τ ϖ
 ε È Δ Υ ' ρ (Husain & Abbas, 2000) φ
 τ è / è è Ε β ρ η φ ï ε ρ ÿ θ
 τ ÿ θ ο ρ ÿ θ ε È ' . è è è / è è È
 ÿ θ φ ζ ' ε ε ÿ τ η ε
 . η φ ε
 Α ε Τ È ρ ÿ φ ' φ '
 ρ ρ (è è ρ) ρ φ Φ τ ' ε Φ ρ φ ό φ
 ' . ÿ Φ σ τ ρ φ ε ÿ θ ε Τ È φ ε τ
 Α φ ' í τ ~ ε Τ ' í τ ÿ ο τ

$\ddot{y}_t$ η Αρ Θ $\rho\phi\phi$ ή φ Α η $\ddot{y}_t$ $\rho\phi$ ό φ
 .σ Φ ' È Cointegration
 È $\ddot{y}_t$ Φ τ $\dot{Y}$ 'εφ σ Θ φ
 ρ Θ $\rho(\dot{d} \rho \varepsilon)$ ρ $\rho\phi$ ό φ Α ε η
 $\ddot{y}_t$ ι φ ί È ξ $\tau\phi\theta$ Δ $\ddot{y}_t$ η Θ
 Θ τ τ ξ ' $\dot{Y}$ $\rho \varepsilon$ η Α ε $\ddot{y}_t$ Φ
 . η ε η τ Α ο $\ddot{y}_t$ Φ ε $\ddot{y}_t$ ι φ È
 ' ί β φ ε η φ ' ί Α Α τ $\dot{Y}$ τ τ
 ι φ ε η φ ' ί β φ Α φ ' ί ρ Α φ
 Α ε φ η Χ Ω ε ξ ' τ . $\ddot{y}_t$ Φ ε
 . ε η

: πΩ Ω ζΨ γ **d-d'**

Γ $\dot{Y}$ ό ' $\rho(\dot{e}\dot{e}\dot{e} \rho)$ ' φ ' $\dot{Y}$
 ' ξ .φ Α $\rho(\dot{y} \dot{Y} \phi)$ ε Τ $\rho\phi$ η γβό È
 τ Ω φ ε $\ddot{y}_t$ τ τ $\dot{Y}$ 'φ ρ η
 ρ φ ε ' ί Ω $\rho\phi$ Α Ω Φ η
 . $\dot{e}\dot{e}\dot{e}$ τ $\dot{e}\dot{e}\dot{d}$ Ε β $\rho(\text{VAR})$ φ ο Θ
 ε Τ φ η γβό $\ddot{y}_t$ Ω ρ Α ' ρ Χ
 $\phi\phi\beta$ ή Α ε Τ Ω τ Α ' η $\rho\phi\phi\beta$ ή Α τ γ $\dot{Y}$
 È ξ . ή η φ η γβό τ ξ Ω φ
 φ ε Ε φ ε Τ $\phi\phi\beta$ ή Α
 Ε τ $\sim$ $\phi\phi\beta$ ή Α Ε φ $\phi\phi\beta$ ή Α φ
 φ 'È τ $\dot{z}$ $\dot{z}$ $\sim$ $\phi\phi\beta$ ή Α η ε τ Φ
 Φ η τ Ω Ε τ η ε τ $\sim$ ξ .
 Ω Χ $\rho(\text{OLS})$ σ ί ' ε φ $\ddot{y}_t$ τ τ .
 . τ ε Ε $\ddot{y}_t$ ÈΘ ξ ή $\dot{z}$ $\dot{z}$ η ε Τ τ $\phi\phi\beta$ ή Α

ÿη ρ γ Υ ε Τ φ η γ β ό Èη τ Α ί
 .ÿ Φ ε Τ ρ γ β γ β ό ρ φΦβ ή Α τ φ
 εε ε È τ Φ ε ρ(AL-Ghelaiqah, 1996) φ
 ÿη η ρ(èè - èÈð) È β Ω ί η φ ()
 φ ό ί Χ ίΦ .ΨΘ Δ τ Ρ Θ
 .φ Ω ο β ÿη τ η̃
 ÿη ξ φ Υ Α ρ τ ζΤ
 .() ε ί η φΦβ ή φ ό φ Α Θ ï È ΔΥ
 . η φ ε È φ () È τ ÿ ρ ï
 β βη φ ε ί ρ ρ φ È È ρ σ Θ ï
 ε τ Φ τ È β ΘΥ ÿ γ Φ ρ ε È
 τ ί Χ ÿ ρ ξ ρ ï .
 ρï τ ï ε È ρΧ . εε ε È ï τ Φ
 ρ ε Φ ρΦ . ε τ Φ τ ί Χ ί Φ φ
 φ ρ ° Φ Φ ÿΘ τ ρ̃ φ ÿ
 . ε τ Φ
 ε ÿ β σ ÿ ÿ ρ(èèě ρφ) φ
 Granger Τ ί ρ Θ . φ
 Φ ξ ί ρ ί ρ È Θ
 Αρ ÿ η ÿ ρ ό ï γ Φ Αρ
 Α τ Τ .ÿ Φ ε ï φ È ÿ β ΨΘ Δ
 φ η γ β ό ο Φε ÿ ï È ΔΥ εφ ί Θ
 φ σ ÿ .Ω ρ (M1) ε Τ τ
 ρ ε ή ρ(M1) ρ ρ η ε ÿ ε η ρ
 ί Φ È ÿ ï ÿ ρ ρ β h ή φ
 η Θ ε ί Φ τ φ ρ ε Τ φ η τ ε

h ρ η η ε

ε Τ τ φ η γ β ό ρ

.Ε ρ

:p ũ úZ Ē-d'

È τ ε ŷ τ ' φ ε Φ ' ' η
ε Χ ε ρ ο ' Τ 'Υ .ŷθ ε
φ ρ ρ η ' ' Υ () ° ρ ρ ĩ φ ŷθ
ΘΥ ŷ φ φ ό φ Α ŷ τ ρ ε
τ ρ φΦΘ φ ο () ' Χ η .Ε
ŷ ĩ τ φ Α τ ž ž ž ρ ε ' í žΥ . ό
. ε ŷ ĩ τ φ Α β ε Θ η ρ ρ ε
Ε ρ η φ ŷ τ ε Φ ' φ
φ ρΦβ ' τ η ŷη ρ Φβ ŷ 'ΥÈ ρ τ ε Φ φρ
σ Θ ρ Φ η φ Θ ŷ
φ ĩ φ Φβ ' ο ρφ β τ ε Φ
ρ η τ ε Φ φρ σ Θ ĩ ρ ρ ε Α ° È
. ε τ ŷθ ρ È ' Υ φ

1 0 p ũ
 σ Yλ Λ ψ

γ Ď-Đ
 ≡ Yλ d'-Đ
 Kλ Yλ Đ-Đ
 γλ Yλ đ-Đ
 p ũ OZ Ē-Đ

ʼ ʈ ɓ ʊ
σ Υλ Λ ψ

: γ Ǿ-Ǿ

φ τ ρ φ θ φ ʼ ʈ ó φ
τ Χ ρ φ ι γε í φ φη
ε τ Χ τ Υό β ʼ γε ÿ η Χ
φ ι σ
ɓ ε ι γε ʼ ̣η φ η γβό Υ θ φ
β γ ʼ ɓ θ ɓφ ε φφ ε θ φ
ρ ʼ ι ÿη ÿ φ Ω . ι ξ ÿλ γε ʼ ̣η
ο φ θ ρ ʼ í τ ρ ÿη ρ η ɓ φ Èθ° θ
τ ο β φ φ ξ Èθó η . φ ξ Èθ°
ÿη ÿ ʼ ι ° τ Υό .φ θ
ρεε τ ΩΥ τ φ ι γε φ ρ ι
.ʼ ι θ ÿÈθ
τ ε ÿη Γ β í φ
φβ ɓε β ÿη η ɓÿ ÿε ÿη
φ Ε β Τ βθ τ ̣ ε Τ Ε ° ʼ λ Χ ÿΧ
ι τ φ φ Ε λ θ τ ÿ Ε τ ξ ̣
φ ε Τ Τ βθ λ ι η Ε Τ βθ ο
τ Ε) γ ξ τ φ ε Τ τ ξ ɓ
.φ Α σ φ λ̣ ε ° ο .(í ÿ ο Υ τ LM
Τ) Ε β Ε τ ο° φ η γβό Ε φ
ε ό Υ γ φ Τ γ φ ο φ η γβό
γβό ÿ η ρ ÿ γ ζ Χ ÿλ ÿ τ
η Ε φ ÿθ ÿ Ε τ ÿ (φ η

(Managed 0 1 0
τ 0 ξ ρ φ í Δ 'Υ pFloat)
ÿη ÿ η ΩΥ φ . η φ
E Ω ε 'Υ φ A σ τ Ω φ ε
. E β γ β ÿ E í
pΨ Υ ÿ 1Ω φ 1 X T 'Υ ÿ β φ
. β ε η X η ε ρ

p" η φ :φ A p ε T bφ η γ β ó " b b

. éëě - ě Ě ε bĚ ŋ b

P " X ρ γ ï ε " b bφ b b Θ b by

. đ

 $\dot{E}$

.Ω ρ ξ̃ η ε ε η È τ ε Ε
σ ε η ξ ' Ε È ' Υ φ ÿ φ ÿ
(M) ' ε (Τ) η ρ φ ρΧ ε Φ φ ÿ . ü
Φ φ Υ (Q) ' η Θψ φ ρΧ ρ"Υ" ρ φ Υ
ε Τ η φ È ü σ β ÿ .(P) i
: φ ΔΥ η ' Θ Ω τ γβύ φη ε (MV)

MV = PQ.....(1)

A φ Θ 'Υ ρ φ Θ
. ' ψ ζ ~ η Υ φη ÿΘ φ ρ φη
φ i σ ° ÿ Φ ÿ i φ ο τ η Χ ' Θ
p(M^s) ' í φ φ ϖ (Q) p(V) 'Υ (M^s) φ ε Τ í η
ε Τ η Φ ζ ε η ü σ Υ
.(ε ÿ i φ ε) φ ε φβ ÿηρ '
ÿη σ ÿ β (P) i σ φ ρ ε η Χ Υ
ε ' Φ ' γ 'Υ (ε Τ) ε Ε i Τ
Ψ Φε ή i ' Θ ξ ϖ εε Ε i τ Φ φ Χ
: φ η φ

P = M^s / M^d(2)

.Real εε ε Ε i Nominal ε Ε i β
.φ Χ ε ' Φ Φ Ε ÿ ε φ φ τ i 'Υ
ε Ε i ε ρ ÿ ρ ΘΥ ϖ ρτ ü σ ε Ε ϖ
φ ÿΘ Ω εβ η φ ° Ω . ü φ ε τ
σ ρφφ ÿΘ σ ÿη τ ε ÿ i φ Φε ϖ Ωφ ε ' Φ
í ÿ φ ÿ i φ .ζ ε Ε ε η φ ρη γ φ i
. ρ ζ i

: Kλ Yλ Θ-Θ

Ω Ω Έ β Τ β Θ ε Τ ϐ ξ Χ η σ
ÿΘ φ ' ί η ε . Υ λϊ ÿÈΘ φεε Α Ω
. ε η Έ τ ~ 'È Τ ί ε τ φ Έ τ ~

: γλ Yλ δ-Θ

ΘΥ Γ β η ε Τ ϐ ε τφ
ε Τ φ η ÿη φ ÿ È . φ
.Ε ÿ Ρ ό ϐΕ ' λ ÿ È - ρ
' ε Τ ϐ ε Χ σ
Έ β η̃ .ÿ φ ÿ ι ι σ ε ÿ ι Α
φ Έ Ω φη φ ε Τ φ Έ Ω ο ι ϐφε φ Τ β Θ
λ ι σ ε τ φ φεε ε ÿΘ φη
' ί τ ~ ε η φ ' ί ε σ . εε ρ ε ε Τ Τ β Θ
ÿ λη ρ ε φ ε τ φ ε ε ÿΘ τ
.ζ ε

: ϐ ð OZ Ē-Θ

λ̃ Ωφ ε ' φ Χ ' Υ η ϐ ' Χ Ρ Θ
φ ρ η γ φ ι σ ϐφφ ÿΘ σ ÿη τ ε ÿ ι φ φε
ρ ζ ι ί ÿ φ ÿ ι φ .ζ ε Ē ε η
.

ο λ̃ 'Υ (φ Θ ί) Χ ÿΘ ε Τ η
ε Τ (ÿλ) ε ° Τ ε τ .Ε β ι Α
Α Έ β ι η Θ ÿ λ Χ Θ φ Θ ί
Ω Τ β Θ τ ε η ÿ ε Τ 'Υ ρ λ̃
ρΧ ε Τ γ ε Τ

ρ(Υ Τ β ί η Ύ φ Ω Φη η ρ Θ φ) η ε
τ Χ

ζ Θ η ρ Θ ρ ε (Τ) η Χ Èη τΦ ÿ ε φ
. ï ó ρ È Ύ Ϻ Θ φ Ϻ φ ÿ τ Τ Υ ζ η
φ ρ ε η ρ Θ Ϻ ÈΘ τ η
Ω Θ Ϻ 'l Θ Ω ï ρ ï ó σ τ Ϻ
. Θ 'l Θ

	X	þ	ũ	
σ πΩ			πγλ	P Ψ
				γ Ď-ď
			πγλ	P Ψ ή Ω d'-ď
			πγλ	P Ψ λπ Đ-ď
			γλ	π ‡ đ-ď
			πγλ	P Ψ έ ' ‡ Ě-ď
			πγλ	P Ψ Γ ē-ď
σ πΩ		έ	Ά 0~	þ πΩ Ě-ď
	σ πΩ		γλ	π ě-ď
			þ	ũ úZ Ě-ď

X þ ð

σ πΩ σ

πγλ Ρ Ψ

: γ ð-ð

η þ φ φ Ε ÿλ 'Υ φ ε 'Ι
ο ί η Ε β ί ÿÈΘ þ ο φ η φ ρ
η φ ε η ί ÿÈΘ þ Θτ τ ΨΦ
ÿ . η τ Υ ί
ή Δ þ η ή ε ï þ ξ φ ε
η þ ÿ Υ ÿ ρ
ε ρβΧ Τ Ε ÿΧ
ο φ ζ ρ ζ þ ε γ Φ φ ε Τ ί
Ε þ Εε β τ ~ φ ε Τ Ε þ
ρ ε ΦΦΘ ί ε Τ φ Ε η Ε η . Ω 'Ι
Ε η Ε τ ε Τ φ Ε φρ þζ η Α τ ~ η
ρ Ω Α τ ζΥ ΦΘ ε φ ε Τ ΤβΘ ~ .Φε ï φ
ε Τ ΤβΘ ï . φ ÿ ï ÿ þÿ þΨ Ρ Θ ÿη
φ η τ ÿ η φ η ρΧ τ ~ þ Φ σ
Φ ρ . ÿ φ Φ ÿΦ φ þ
È φ ε ε φ ζ ζ ÿ φ ε
ε Τ φ η Ω þ ε 'Ι ° Ω "
þφεε Φ σ τ ρ Γ ό η ε Ψ
ή . Ω Γ ÿλ ï Θ γε φ ο
– φεε ÿΘ σ þ ό þ Χ σ – εε 'Ι ί
ή ε Ψ Ω Γ τ ÿ ï ε φ

φ ρ 'Ι η 'Ι Ω Γ Ε β ὕε η
 . " φ È ε Χ ρ Ε Υ
 Ε ε τ ζ Ω ε ε η
 ἱ γε Τ ί Υ ε η ί τ ρ φ ρ φ
 . Ü σ φ ε Ω ὕε ὕ γε τ φ φ
 φ ε Τ ὕ β ο φ ἱ ο
 ρ η φ ε Τ Γ Φ φ ἱ ρ
 ὕ Ω ρ η φ ε 'Ι Φ 'Υ Ω ρΕ Ω ὕ ρ'Ι η
 η φ ξ ε Τ Υ ό ὕ Ω ὕ È
 .

:σ πΩ

πγλ Ρ Ψ δ'-δ

ἱ σ Ε ε φ ο⁻ : (Money Supply) ε Τ
 . 'È φ ὕ ρ φ Ω ὕ Ψ ο⁻ η ρ'Ι ~
 : ρ ε Τ 'Ι ε Ε

$$M1 = CU + DD$$

: 'Υ

$$.γ Υ οβ ε Τ = M1$$

$$. \text{Currency Outside Banks} \quad \Theta \dot{y} \quad \varepsilon = CU$$

$$. \text{Demand Deposits} \quad \ddot{I} \quad \Theta 'I \quad \sim \quad \Omega \quad \Phi 'I \quad \Omega = DD$$

$$\begin{aligned}
 &γ Υ οβ \quad \varepsilon \quad Τ \quad \ddot{y} \quad \rho(M2) \quad \Omega \quad οβ \quad \varepsilon \quad Τ \\
 &\quad : \varphi \quad \eta \quad \eta \quad \rho \quad \Theta \quad \Omega \quad \dot{z} \quad (M1)
 \end{aligned}$$

$$M2 = M1 + TD$$

: 'Υ

$$. \Omega \quad οβ \quad \varepsilon \quad Τ = M2$$

$$. \text{Time and Saving Deposits} \quad \Theta \quad \Omega = TD$$

. éÈ ρΕ ρΤÈ η ρ" Θ Ε ε " ρ ρ

(ÿ)

φ ε T (-) ÿ

ε T M3	ε T M2	ε T M1	
đ Ę	đ ě	Ě	ěě
Ě	đěĚ	đ Ě	ěě
Ě Ę	Ě	ě ě	ěě
Ěđ	ě Ęđ	Ě ě	ěěđ
Ě	đ	ĚĚ	ěě
đ		ě ě	ěě
đěđđ	đđ ě	đ ě	ěěĚ
đĚ ě	Ěđ ě	ěě	ěěě
Ě đĚ	Ě	ĚĚ	ěěĚ
ě ěĚě	Ěě ěě	Ě ě	ěěě
ě đĚ	Ěđ đ	Ěđ ě	ěĚ
ě	ě	ěĚ ĚĚ	ěĚ
đ đěĚ	Ě ěđ	Ěě đ	ěĚ
đě Ě	ěĚěě	ĚĚđ	ěĚđ
ĚĚěĚ	ěě	Ěđ	ěĚ
	ě	Ěđ đě	ěĚ
ĚđđđĚ	Ěđđě	Ě Ě	ěĚĚ
Ě đĚ	ě	Ěđ đ	ěĚě
ěĚ Ě	đ đ	ěđĚĚ	ěĚĚ
Ě Ě	đĚ	ě ě	ěĚě
ĚĚ đĚ		Ě	ěě
Ě đ	Ě ěđ	ě	ěě
ĚĚ	ě ěěĚ	Ě	ěě
ĚĚ	Ěđě	đ	ěěđ
đđ ě	ěě Ě	Ě	ěě
Ě	Ě Ěě	ě	ěě
Ě	ě	đ ě Ě	ěěĚ
ě ěěĚ	Ěđ ě	Ě	ěěě
Ě Ě	đě Ě	ě	ěěĚ
đ	Ě	ĚĚĚ	ěěě
đ Ěđ	Ěđđ	Ě	
đđ đ Ě	ě Ě	ěěđěĚ	
đĚ Ě	đ đĚě	đđě	

. ðĚΩ Ω þ ε þ φ ε ~ :

() φ ε T (-) ÿ

ε T M3	ε T M2	ε T M1	
---	---	---	ěě
ě,	,è	,	ěě
đĚ,Ě	đè,	,Ě	ěě
,	đ ,Ě	đĚ,	ěěđ
Ě ,	Ěđ,đ	Ě ,Ě	ěě
ěđ,è	ěđ,	Ěđ,	ěě
,ě	Ě,	è,	ěěĚ
đ,Ě	Ě,	,	ěěě
,	đ,	,	ěěĚ
,Ě	đ,	,	ěěè
Ě,	,	đ,è	èĚ
Ě,Ě	đ,	,Ě	èĚ
,	,Ě	đ,ě	èĚ
ě,	đ,đ	,Ě-	èĚđ
đ,	, -	đ,ě-	èĚ
,è	,	, -	èĚ
è,	đ,	đ,	èĚĚ
,	,Ě	,	èĚě
Ě,Ě	,	,è	èĚĚ
,	,ě	, -	èĚè
,Ě	đ,Ě	,	èè
,	Ě,Ě	ě,Ě	èè
,đ	,	,	èè
đ,ě	, -	đ, -	èèđ
,Ě	,	đ,	èè
,è	,è	,è-	èè
ě,ě	è,è	Ě,Ě	èèĚ
,	ě,	Ě,	èèě
đ,ě	,	,Ě-	èèĚ
Ě,Ě	Ě,	,ě	èèè
,	,è	,Ě	
,	,Ě	Ě,	
,	,	,Ě	

. ðĚð ð ε ð φ ε ÿ :

:σ πΩ πγλ P Ψ λπ Θ-đ

φ η τ ρξ η η (Money Supply) ε T ΓÈΦ

1 η τ ÿ γ β ú È η φ ε η η ρ Ω ÿ

:

:(Currency Outside Banks) Ω πτ ή Υ Z ρπ γλ - †

~ " η ÿ È ε ρ ε

η Θ ÿ φ È " ε

γ " ε ~ " η η . ε φ 1 η γ

.1 η γ

: ρ ÿ τ Currency ï o Xβ ε

.φ † ρ1 η Φ ζ ε - Ω γ Φ -

. ï ÿθ -

. ï σ η 1 Φ σ -đ

:Demand Deposits ' Γ X, π - '

1 η η ρ 1 ρ ï 1 ~ Ω

Φθ γ ρ η ο ρη ε ρ .Ω η ÿ ε

. ε T † φ φ È θ

ÿ φβ . ï σ η 1 Φ τ ρ Φ 1 Ω

T È η Ω ξ ÿη ρ ε ζ 1 η ÿ Υ ε

.(M1) ε

ÿ ηï † - φ X θ - ÿ φ

φ ο ° ρ η φ ." θ ÿ ε " ε Φ

Ω 1 η ρ éěđ τ ηï † ÿφ φ 1 η ï

X Φ Ω ρM1 γ Y ξ ε T ηï † Φ 1

η ρ φ ε T 1 η (đ-) ÿ ο Y .φη

.1 η ξ (-) ÿ ΔY

:Time and Saving Deposits **Z** π λ K X_c π $-Y$

ρ Y . $\ddot{y}$ η ϕ ρ ϕ ρ $X\beta$

$.y$ $^{\circ}$ H E η

Ω $X \dot{E}$ $(\dot{d}-)$ ε T $'$ η $\ddot{y}$ τ X

$\eta \ddot{t}$ $\ddot{t}$ ε T $\ddot{y} \eta$ ϕ ρ Φ $'$ Ω $\ddot{y}$ Θ

$. \phi$ $'$ Ω

:(Quasi-Deposits) $\gamma \lambda$ $v \Xi \rho$ **Z** ψ X_c π $-$

ρ $'$ $\ddot{y} \varepsilon$ Ω ρ $\ddot{t}$ $'E$ ε Ω E ϕ

$'$ $(M2)$ $'$ η $\ddot{y}$ ϕ ρ ε $'E$ $'$ Y $\ddot{y} \varepsilon$

ε T $'$ η $\ddot{y}$ τ X $. \varepsilon$ Θ ρ τ ρ X ε o

$'$ Ω $\ddot{y}$ ε o $\sigma \Theta \ddot{t}$ Ω $X \dot{E}$ $(\dot{d}-)$ ϕ

$. \varepsilon$ T η ϕ $\mathbb{R}$ $'$ $\rho \eta$ Θ Ω Φ

(ÿ)

φ ε T ' η (đ-) ÿ

φ Ω Total	Ω o σ θ ï ε QD	Ω θ TD	' Ω φ DD	ÿ ε θ CU	
ĖĖĖ	đ đ	Ě	éĚĖ	Ě	ėė
đ	Ėđ	ěđĖ	đ é	é	ėě
đěđ	Ě Ě	Ė	é	ĖĖ	ėě
đ ě	Ė	é	đ é	đđě	ėěđ
é Ė	Ėđě	đé	Ěđđ		ėě
Ėè	đđ	ě		Ė é	ėě
đě Ė	đ Ė	Ė	ěĚ	đĚ ě	ėěĚ
đ Ė Ė	Ě	đ Ė	ěđ ě	ěěě	ėěě
đě	Ěě é	Ě	é ěĚ		ėěĖ
é é	ě	Ěđ	đ é	ée	ėěè
ĚĖ đĚ	ėěě	ėėė	đě Ě	Ě	ėĖ
Ėè	Ě é	ĚđĚě	Ě Ěě	đ	ėĖ
ėè Ė	Ėđ	é	ěĚ	đ Ė	ėĖ
é ed		đđ ě	ĚĚě	đ Ė	ėĖđ
ě	é éĚ	đĚ Ėè	ĖđĚ	đ ě	ėĖ
đđě	ě é	đėĚĖ	Ě ě	đĚĚĚĚ	ėĖ
đ	đĚĖėě	Ėè	ě ě	đĚĚ	ėĚĚ
éĚđ	đ đ	đėĚě	ée Ě	đėđėĚ	ėĚě
ěđ	ě	ěè	ěě é	đ é	ėĚĖ
Ěđ	đĚĚě	ĚĚ	ěĚě	đđĚě	ėĚè
đĚĚ	ĚĖđ	đè Ė	ě ĖĖ	ěěĚ	ėè
ě đ	ě é	Ě đ	ě Ė	Ě	ėè
ě ĖĖ	ĚĖ Ě	Ěđđđ	Ė Ěè	đě	ėè
Ė ěĖ	ě	ěĖè	ěĚĚĚ	Ě đ	ėèđ
ĖĖ Ė	Ě Ė	ě	Ė Ěě	ėĚ	ėè
ėĚě	đĚĖ	Ě đ	Ė đĖ	đ Ėě	ėè
Ěđ	é	ě Ė	ĖėĖè	đ đĖ	ėèĚ
Ě ěĚ	đĚ é	ěě ĚĚ	é đĚ	Ė đ	ėèě
đě đ	Ėđ đ	Ėđ đĚ	é đ	é	ėèĖ
Ě Ė	é đè	Ė đ	Ě	Ě	ėèè
ĚđĚ	Ė èè	é Ėđ	Ė	é	
Ė	é Ė	é ĚĖ	đ é	é đ	
đ Ė ě	ě đ	Ė Ė		đ é	

. ÑÈΩ Ω Ɔ ε Ɔ φ ε ~ :

: πΩ Ω γλ π ‡ đ-đ
 η φ " ε Τ " ε η φ Ω ¯ ρ φ ε ~ ε
 : ' ĩ Θ
 : λπλ γ Γ λ :Α ≡ -‡
 φ η ρ ΓÈ η φ ε φΦ " ε ~ " η Θ
 φ ε Τ Ε " ε ~ " η ή ρ φ ε Τ
 ρ Τ τ Ε ε ρφΦ Τ βΘ ο° ρ
 τ Ε ε ÿε φΦ Ω ο° φ ε Τ Τ βΘ
 . ĩ ε Τ ÿε ρ Τ ό
 :(Repo) \$ ≡ Α ΨΨ :Α ≡ ά -
 ε ~ η ' Τ Ω Ε ό ο β Ε φ
 ε ' σ Τ Ε ' . φ
 Ε ‡ ε ~ ε . ε Τ φ η φ ε ~
 ĩε ~ γ ĩ φ , φ Τ Ε β ÿ ρ
 Θ .(ORR) Official Repurchase Rate Τ Ε β φ ÿ
 . ε γ τ ĩ ρ ĩ Ω ρ ~ ξ ÿ η
 .φ Χ Χ ĩ ε ĩ Χ Τ Ε β ' È ρ °

()

φ ε Τ ' η (-) ÿ

φ Ω Total	Ω ο σ θ ï ε QD	Ω θ TD	' Ω Φ DD	ÿ ε θ CU	
---	---	---	---	---	ëë
đ,Ē	,Ē	đ,	đ,đ	Ē,è	èë
ě,	đĚ,	,	ě,	ě,	èë
đ,Ě	è,	,	,	đ,Ě	èëđ
ĚĒ,	ě,	ĚĒ,	ěĚ,đ	è,ě	èë
ěĒ,	Ē,	,	è,	Ěè,	èë
è,đ	đ,	,	è,è	è,	èëĚ
,	,	Ěè,	,	đ,	èëë
đ,	ě,è	đĚ,	ě,è	Ě,è	èëĒ
,Ē	,Ě	ěè,	đ,đ	è,è	èëè
đě,Ě	Ě,	ě,è	,	đ,Ē	èĒ
đ,	,	đ,è	đ,è	Ě,	èĒ
,đ	,	,	,	Ě,	èĒ
,đ	đ,	,Ě	, -	,Ē-	èĒđ
,	,	è,	Ě, -	,đ	èĒ
,ě-	,ě-	Ē,	, -	Ě,	èĒ
,	đđ,ě	đ,	,đ	,ě	èĒĚ
, -	, -	đ, -	,ě	,	èĒë
,	,đ	,	,Ě	Ē,Ē-	èĒĒ
,ě	, -	,đ	,đ	,Ē-	èĒè
,Ē-	ě,	, -	,ě-	đ,	èè
è,	Ē,	đ,Ě	đ,è	,đ-	èè
,	ě,ě-	đ,Ē	ě,ě	,è-	èè
,đ	,	đ,	đ, -	,Ě-	èèđ
,	, -	ě,	,đ	,	èè
,Ě	đ, -	è,	,è	, -	èè
è,	,	Ě,	,	, -	èèĚ
,	, -	Ē,Ě	Ě,	Ě,	èèë
,Ē	Ē,Ē	Ē,	, -	,Ē-	èèĒ
đ,Ē	,đ	,đ	Ě,ě	,đ	èèè
ě,	, -	Ě,	,ě	ě,đ-	
Ě,Ě	,Ě	,è	đ,ě	đ,Ě-	
Ē,Ē	Ē,	ě,Ē	,	Ě,	

. ÑÈΩ Ω þ ε þ φ ε ~ :

:^d πγλ P Ψ έ ' † Ē-đ

:φ ÿη τ φ ε T φ ί '1

: πΓ Φ γ -Đ

Υ Φ) '1 ό τ φ η ΨΦε φ γβό
η γβό ï . φ ε T ° ρ(T
'1 Ω γ Φ ρ η T η γ Φ ÿ
γ ΩΦ γ Φ φ ρ τ Θ '1 φ η
φ η ΨΦε ρ ε φ '1 ξ . ÿ γ Φ '1 η
Θ ρ β ÿ η ε .φ ρ ÿ ï Ε τ ~
° . TβΘ φ Χ ε ή Θ ° η σ ρ
T ° ο . ρ Θ ° ÿ τ η '1-
~ T ° ρŷλ . ÿ Ω ε
. ε T φ TβΘ τ
η ρ ε T τ žY φ ï φ φ η Ų
~ . η φ ï † ε η ° ŷλ
TβΘ η φ η σ φ ï Ε TβΘ τ
γ φ η Φ ° ο . η ε Θ φ ÿ ε
'1Υ η η . Y ε T Ε ρ'1 η
. ε T φ ί η ρο φ ï † '1 λ η

:O Z Φ γ -đ

: ψ γ Φ ε T τ Ų η φ P Θ ΨΦε
ε T ° ρφ ρ τ '1 ρ ï Ω † γ Φ -
. Pε
ε T ° φ ΨΦε T ε TβΘ Ε γ Φ -
. TβΘ

Ω Τ ῦÈΘ φ ρ ε ή Θ ί γ φ –
φ Ψ Φε ῦ ῖ τ ῶ Ρ Θ Ψ Φε ° ο ο η ἰ
ῶ φ Ψ Φε Ω Ρ Θ Ψ Φε ἰ ° ῖῶ . ε γ Θ φ ο φ τ
. ε Τ τ ῶ φ φ Ψ Φε ε ή Θ φ τ

:^ρ πγλ Ρ Ψ Γ ē-đ

:φ η φ Ω φ ε Τ ἰ
ε) ε ό η φ φ ε Τ φ η –
. η φ (ε
ε ε Ω φ (φ η ε Τ) ε γ β –
.Ω ε Τ Φ ο ε ε È
Ω ε ε ρ ρ Τ β . ῦ ε –đ
ρ ρ Ω .Ω ε Τ ῶ φ ρ Φε φ
ε φ ρ Ω ε ῦ ῖ σ Θ ῖ ῦ ῖ
γ ῖ Τ ῦ ῖ Ω :ῶ È ῶ Θ ε Ψ β Χ
τ ρ η ε ῦ η ῖ ῖ ῖ ῖ ξ Θ . ε ο φ
τ .ῦ ρ φ È Θ ρ ῶ ῖ Ω γ φ ε
τ Υό . ε Τ φ ῶ ε ε φ η Τ τ ῶ ρ
ῦ ῖ . ε γ ῦ γ φ φ ῦΘ ρ ῦ
ρ γβ . ε ῦ ῖ ῦ ῦ γ φ Τ ῖ ῦ φ
φ ε Τ ρ φ ρ Φε ρ φ Ω ε ε ε τ
.Ω φ ε ε Τ φ .
ΩΥΘ φ φ ε τ ε Τ ῦ ε η ρ τ ῖ –
Èε ρ ό φ (η φ ε ῖ) η ρ
ε ρ ῶ . ε β ο η η ρ Ω φ

.(éèè-) ρ ῖῖ đ

٣٥

φ ε Τ φ Ε Ω̃ ÿ (-) ÿ

d'ččd'	d'ččĎ	d'ččč	ĎĚĚĚ	ĎĚĚě	
,	,ě	ď,	ě,	,	M3 ε Τ φ ί
					:φ Ε Ω̃ ÿ
,	Ě ,	Ěě	,	ěě,ď	. η γβ φ
Ě,Ě	,Ě		,	ě	Ψ Φε ' Φ φ ί . Ρ Θ
,	,Ě-	,ě-	ě,ď-	,ě	' Φ φ ί . Ψ Φε ' ~
Ě , -	ě, -	, -	ď , -	,ě-	. Ψ Φε ' φ
ďě,	,	, -	ďě,	Ě	.σ Θĩ φ
,	,ě	ď,	ě,	,	ψ

. ΩĚΩ Ω ε φ ε ~ :

:σ πΩ

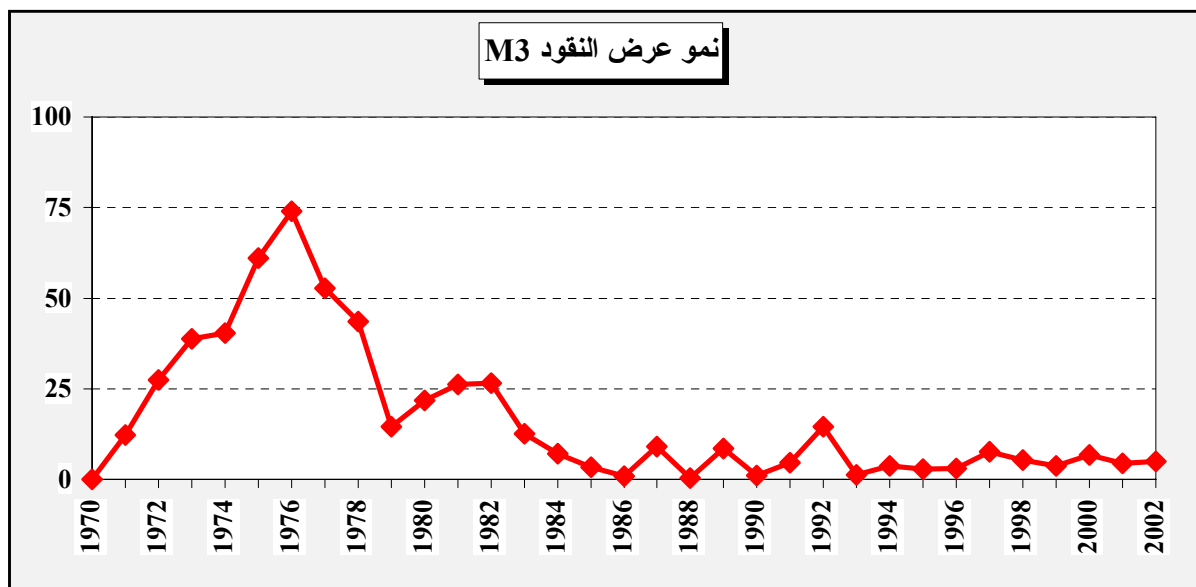
γλ π ě-ď

φ ε τ ž Ω ε ε η
ĩ γε Τ ί Υ ε η ί τ ρ φ ρ
. ü σ φ ε Ω ÿ ε ÿ γε τ φ φ
Ο φ Υ ρ ρ ' Φ ÿΧ φ
Ω 'Υ . Φ φ Υ Ω 'Υ ΦΘ τ ρφ
φ ĩ η Ω η ρ ε Ψ φη ĩ φ β φφ
. ž ε Αρ φ η žΥ ρ ε
ρ τ φ ε ~ 'Χ ρ ' Φ Τ Υ φ
ÿĚΘ η φ ε ΩΥ Χ Ě ρ ε
ε ÿ ή ρž ε ÿΧ ĩ σ
Ω Τ ε τ φ ÿ τ Χ τ σ
. φ ' Θ

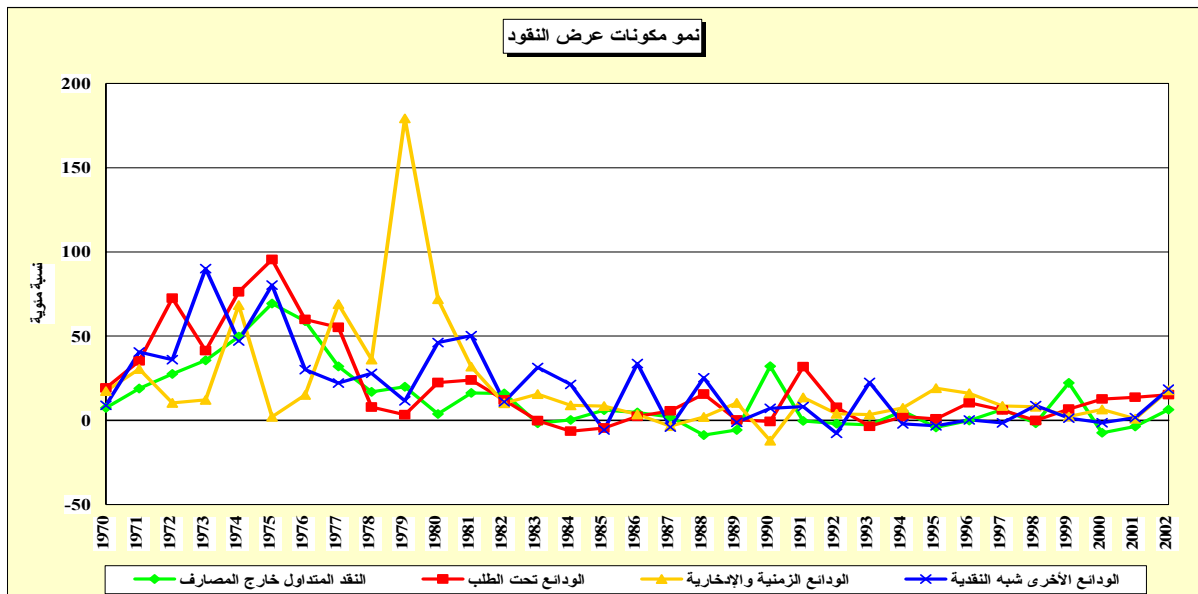
: πγλ P Ψ -t

ρ φ η σ ε ρ(đ) Ω οβ ε Τ η
 (đ) ε Τ Ωβ . Ω φ Θ ÿ ε
 φ φ , ο ÿ ε φ φ , ο Ψ ÿ
 σ . Υ ' ÿÈΘ φ ,đ ο φ
 ρÿ ÿ : τ ÿÈΘ ε ÿ φ Ψ
 Ρ Θ Ψ Φε ' ~ φ ε φ ρ È ρ Ε
 Ψ ÿ Ρ Θ Ψ Φε ' φ ' β . Ψ Φε
 ' φ ' ρ φ φ È,Ë ο ÿ ε φ ο
 đ ο Τ βΘ ÿ ε φ ,Ë Ψ Φε ' ~
 ΩΥ φ ε ρ φ Ω ÿ .γ φ φ
 Χ τ φ Ω η φ Ω Ρ ρφ φ í
 ξ Ε β È Θ ρ Τ Ε ° ε ÿ Ωη ž ρ Θ
 -) φ (-) ÿ γ ÿ φ ε Ρ β
 .(

(-) φ



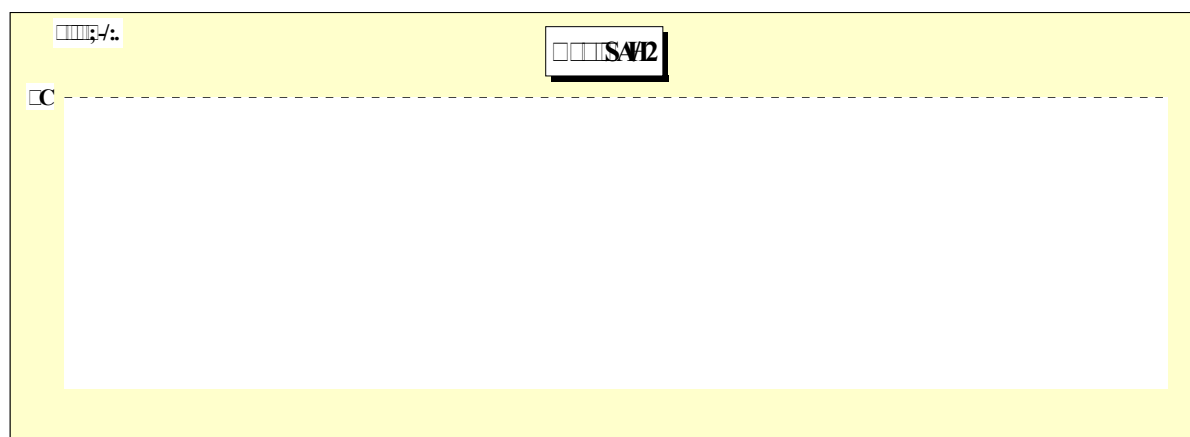
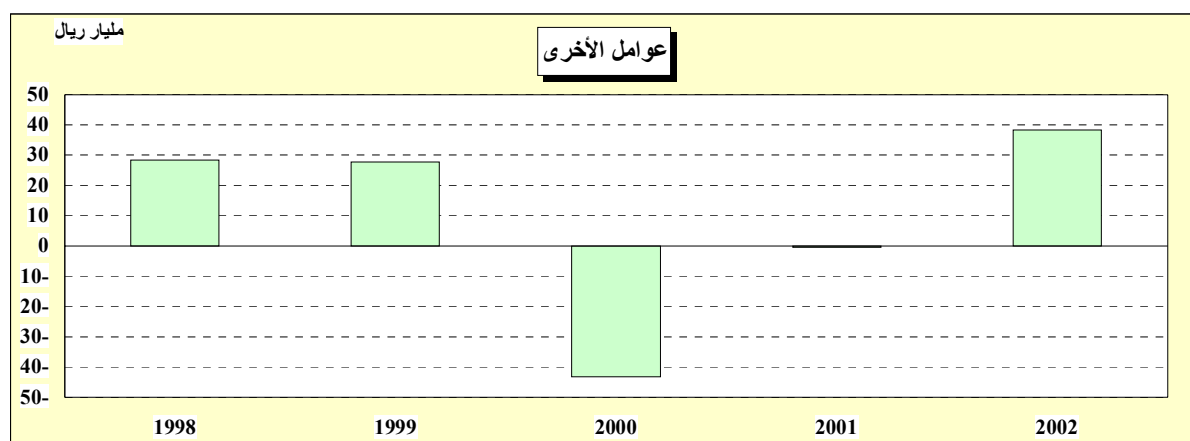
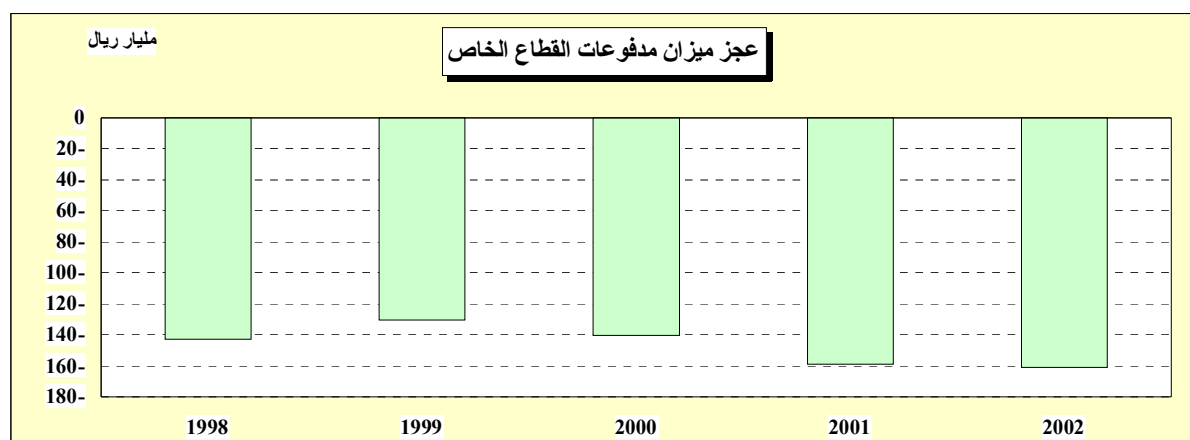
Τ φ ' Φ φ Ε φ è Ω ' η
 ÿ ě, φ Ε Ε Ω ξ ' β 'Υ ρΩ οβ ε
 φ È , Ω οβ ε Τ φ ρ ρ ÿÈΘ φ Ě,È
 Θ ÿ ε Ωβ . ρ φ ÈĚ,đ τ ρ
 ε Τ φ ο Τ βΘ ρ φ Ě, ÿ đ, φ
 -) (đ-) . ÿÈΘ φ đ,ě τ φ ,è Ω οβ
 .(-) φ ((-) φ



' β Ω φ ' Φ φ Ε φ Ω ' Ω ' ε
 φ ρ ÿX φ , ÿ è,È φ φ ' Ω
 Ω Ωβ . φ đè, ž Ω Ω οβ ε Τ
 - Ω ρ ï ε Ω) σ Θ ï ε ο Ω Θ
 ÿÈΘ Ω οβ ε Τ φ (ε ' È ' Υ ' ÿ ε
 Ω ' .σ Θ ï Ω ' β ε ρ φ Ε Ψ β
 φ ρ Ωβ φ ě,È ÿ Ě,đ φ Θ
 ' . ÿÈΘ φ È, τ φ ě,È Ω οβ ε Τ
 ρ Ωβ . φ È, ÿ φ σ Θ ï ε ο Ω
 . φ È, τ φ ě,è Ω οβ ε Τ φ

Ω Φ 'Ι Ω τ 'Ι Φ φ Ε η Ε 'Ι η
 Ε η Ε η . Ρ Θ Ψ Φε Φ σ φ ξ
 ρ 'Ι Ω ή ρ Θ Ω τ 'Ι Φ φ
 Υ Θ ρ Τ Ε 'Ι Θ
 Φ 'Ι Ω ÿη τ ρ ζ γ φ τ ÿ
 γ φ ξ Χ τ γ φ ÿ τ Ε ό ρ
 τ ρ Χ Φ φ ρ"σ Θϊ ε ο Ω "φ Ε ζΥ β .
 . Θ Ω
 'Ι τ Ω ε Τ 'Ι η φ ξÈ Ε 'Ι È η
 ζ Χ . ÿÈΘ () Ω ι οβ ε Τ () γ Υ οβ ε Τ
 () ε Τ 'Ι ζΥ 'Ι β ε ρ ε Τ 'Ι η φ 'Ι 'Υ
 ε Τ ÿ 'Ι η ή ρ ÿη () ε Τ
 ε Τ ÿ Ωβ ρ(đ) ε Τ ε ρ() ε Τ ε ()
 Φε , ρ Φ 'Ι Ω Θ ÿ ε η ρ()
 . φ φ È, ο ÿ ε φ φ ,È έ
 ÿ ε φ , έ Φε È,ě () ε Τ ÿ
 .γ φ φ ,È ο
 , Ωβ (đ) Ω οβ ε Τ ÿ φ Ψ
 ÿÈΘ (đ) φ () () ÿη Τ βΘ ε ρ φ , έ Φε
 () Τ βΘ φ đ, έ φ ,đ () Ω ρ
 .(-) ÿ . φ È ,Ě έ φ È ,
 : (Θκ) πγλ Ρ Ψ Α 0̃ ρ πΩ - '
 φ Χ Ψ β (đ) ε Τ φ ί Ε 0̃ ÿ ÿ
 φ φ η γ β ό φ Τ βΘ ή 'Υ ÿÈΘ ξ ÿ
 " ε Τ " ÿ φ η η . Ρ Θ Ψ Φε 'Ι φ η ÿ
 : ε ÿ Ψ β τ 'Ι φ ÿ ξ ÿ γ
 φ ε Φ ρ φ Ε η 'ΙÈ ρ -
 . Ψ Φε Ρ Θ Ψ Φε 'Ι ~

(đ-) φ Ω



: πγλ κ π ρ -Υ

ὤÈΘ (đ) ρ() ρ() ὕÈΩ ο β ε Τ ὤ Τ βΘ
 γε ὤ ε ρ Φ φ ἴ Ψ β η ρ
 ὤ ε Χ È . ἱ φΦε ή φ ό φ Α φ
 φ Ě,đ Ωβ ε Τ ἴ Ω ζη ζ η Θ
 Τ ρ ὤη ὤη φ Ω ἴ Ω Ε Ε ἴ β ρ
 ρ φ , Φ ἴ Ω ἴ β ε ρ β Θ ε Τ ἴ
 È, σ Θ ἱ ε ο Ω ρ φ ě,È Θ Ω
 Ψ Φε φ ρ Φ ὤ Ωη τ ἴ ξ η ζ Χ . φ
 - ὤ) . ὤÈΘ ζΥ βΘ ε Τ ἴ η ὤ ὤ ε ρφΦβ ή
 .(-) φ (Ě

(φΦβ ή Ψ Φε)

φ ε

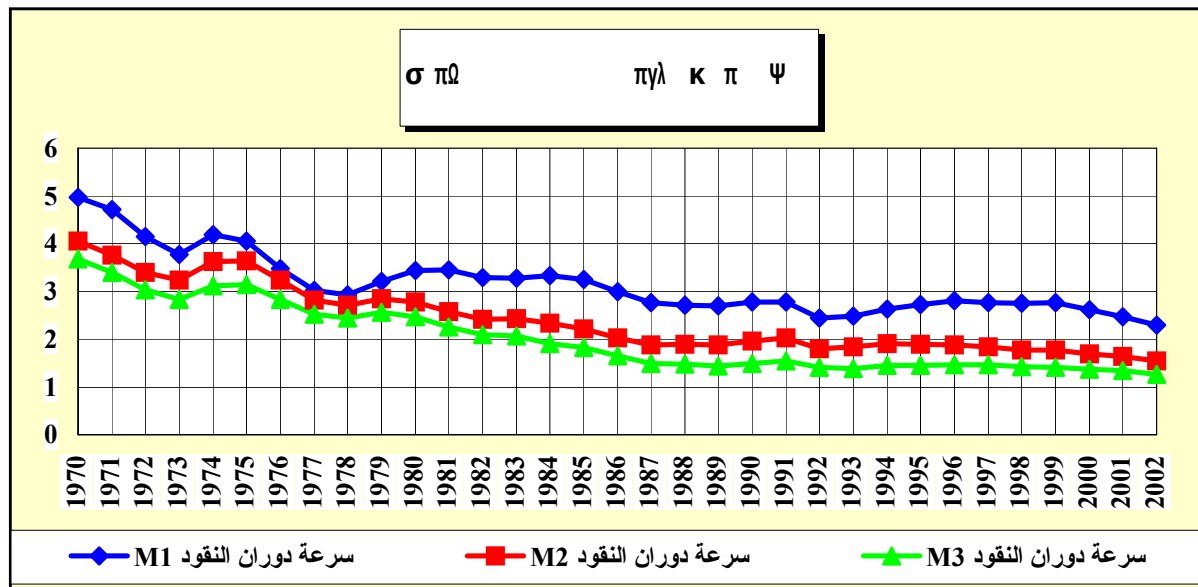
ÿ (Ě-) ÿ

()

M3	M2	M1	
đ.Ěě		,.ěě	d'ěěĐ
đ.đè	đ.ěĚ	,.ě	d'ěěđ'
đ.	đ.đè		d'ěěĐ
,.Ěđ	đ.	đ.ěě	d'ěěđ
đ.	đ.Ěđ	,.è	d'ěěĚ
đ.	đ.Ě	,.Ě	d'ěěĚ
,.Ěđ	đ. đ	đ. ě	d'ěěĚ
,. đ	,.Ě	đ.	d'ěěě
	,.ě	,.è	d'ěěĚ
,.Ě	,.Ě	đ.	d'ěěě
,. ě	,.ěĚ	đ. đ	d'ěĚĐ
,.Ě	,.Ě	đ. Ě	d'ěĚđ'
,.è		đ. è	d'ěĚĐ
,. ě	,. đ	đ. ě	d'ěĚđ
,.è	,.đđ	đ.đ	d'ěĚĚ
,.Ěđ		đ.	d'ěĚě
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,.è	,.ĚĚ	,.ěĚ	d'ěĚĚ
,. ě	,.Ěè	,.ě	d'ěĚĚ
,. đ	,.ĚĚ	,.ě	d'ěĚě
,.è	,.è	,.ěè	d'ěèĐ
	,. đ	,.ěě	d'ěèđ'
	,.Ě		d'ěèĐ
,.đè	,.Ě	,.è	d'ěèđ
	,.è	,.Ě	d'ěèĚ
	,.Ěè	,.ěđ	d'ěèě
,. ě	,.ĚĚ	,.Ě	d'ěèĚ
,.Ě	,.Ěđ	,.ěĚ	d'ěèě
,. đ	,.ěě	,.ě	d'ěèĚ
	,.ěě	,.ěĚ	d'ěèě
,.đě	,.Ěè	,.Ě	ĐĐĐĐ
,.đ	,.Ěđ	,. ě	ĐĐĐđ'
,. ě		,.đ	ĐĐĐĐ

. ðĚŦ Ŧ þ ε þ φ ε ~ :

(-) φ



ἰ ε τ Χ φ Ε ε ΔΥ γ
 ἴ φ η ἴ φ Υ ῥ
 ῥ
 ρ γ ε φ Ε η φ ε ῖ ἴ ε
 φ τ Χ ἴ .Ε β Χ ῥ ἴ ε ἴ σ ῥΧ
 éÈË ῥ ε ῥ đ,ě φη ἴ ῥ
 Ρ Ω ρῶ ῥη È ἴ φ ε η .
 ῤ η Χβ ἴ ῥΧ φ ε ῖ
 . ῥ ἴ θ

:p ũ úZ È-đ
 ε Υ (Money Supply) ε Τ ῥ β φ φ
 ρ ρη φ Ω ῥ φη τ ε Τ ΓÈΦ
 . φ
 φ ε ῖ) η γ φ ἴ ε Τ η
 ρφ ε φφ φ Ε θ ῥ Τ γ φ ρ(

φ ε τ ι η τ ζ . τ ε φ ε ή
 Ω φ ι Ω θ ÿ ε η φ
 ε τ φ ί ι γ φ ρ . ε ο Ω η θ
 . τ β θ ε ε τ τ ρ θ φ η ψ φ ε ρ
 . (ε ~) η ÿ ε ε η η ρ ε τ ι
 η φ ε τ φ ε ρ ÿ γ ρ
 ρ ι ~ ρ θ ψ φ ε ι φ φ ρ
 ρ σ θ ι ÿ φ ζ γ ρ η γ β φ ρ ρ ρ θ ψ φ ε ι
 ι ÿ ÿ ÿ β θ ι τ φ . ε τ τ ρ ι ρ
 . φ ε ι φ

Λ Ζ ρ ů
 Ο Ζ Φ γ ĩ Γ Ω λ

γ Ď-Ě
 Ο Ζ Φ γ đ'-Ě
 Ο Ζ Φ γ π ĩ Γ Ω λ π Đ-Ě
 ĩ Γ Ω λ Ο Ζ Φ γ đ-Ě
 ĩ Γ Ω λ πγλ Ρ Ψ ύΨ Ě-Ě
 ρ ů úΖ ē-Ě

Λ Ζ ρ ů
Ο Ζ Φ γ ĩ Γ Ω λ

: γ Ď-Ě

ρ Ě φ ρ β φ ε ŷθ
' Ě ρ ρ θ ή θ
φ ε ŷθ ρβ Ě ρ ' í θ θ η
.ο γ Φ ο
ε ŷ Τ ŷ Ω Ε η φ ε ŷθ ' ŷ "
:φ ĭ Χ
φ φ φ η φ ρ ' ~ Ε -
.Ω
. Τ ĩ ΕΤ βη ε φ Ε Ω -
φ ΘΥ η ρ Χ Τ ~ φ -đ
.Η ..
. θ ή Τ φ -
Χ Τ ρ ΩΥ φ -
. "φ ε ρ φ φ
φ η ε ρ Ω ε φ ε ŷθ ' ε ŷ
ε ŷ Ε ῆη φ ε ŷθ ρβ Υ ŷ (ĚĚě - Ě đ)
φ φ Τ Ω ε φ . Φ φ φ ε ŷθ
ρ η . ŷ ŷθ γ ĭ ε ε ' Ε Φ
' Φ ε ρ ή τ ξ ú ĭε Υ ĭ ρβ
' η . ή ε ' Φ Ε η

ŷε ρ"φε Φ Χ ŷ :φ η " ρ ρ ρ Χ η ρ
. τ ĩ Φ ρ ĩ - ρΩ

Σ Λ

ϐ φ Χ σ Ωβ φ ε Α σ ° ϐξ ϐ φ
 .Δ η
 φ ' η ε ϐ ρ ρ η φ Ω ÿ η
 ϐο Χ η Ω ' ε φ τ ε β ϐ η
 η ' Υ Ω ÿ η τ ' ο φβ ϐΧ
 Τφ φ ' φ Ρ Θ ΨΦε Υ
 ϐξ τ ϐ φ ÿ ϐ η ÿÈΘ φ ζ η η
 τ σ ε ' φ τ ÿ ' β η ÿ η
 ϐ φ η Τ ϐ ' τ Χ ÿ ÿ η
 τ ' φ η ' ϐ ÿ φφ τ Υό
 η ' Θ ' Υ Ε η Ω Τ γ β ό φ
 ' ' Θ ' Ω Τ φ η ÿ η '
 ' ο ε ' τ ο ' Ρ Θ ΨΦε ' φ
 φ Ρ Θ ΨΦε Ε τ ÿ . η φ ξ
 . φ φ η Ρ ε τ σ φ ό φ Α
 η ' Ε Θ ' φφΘ ÿÈΘ Ρ Θ φφ Ω
 ο Ε ÿ η φ φ η ε ΨÈΦΥÈ Ρ Θ ΨΦε
 .φ ό φ Α φ
 Ε τ φΘ ' ' ' η η
 τ Χ Ω φ η ΨΦε φ Τ ' ϐ Ρ Θ ΨΦε ΕΤβ η Ω ϐ ό
 ϐ τ Ε È ϐ η ' ' ' Θ È
 φΘ ' ' η . Ρ Θ φε φ φ β
 È η ϐφ ό φ Α φ Ρ Θ ΨΦε ϐ Ε
 ϐ Ρ Θ ΨΦε Γ Ε φ ΨΦε ΕΤβ η Ω ε
 ε τ Χ ΥβΘ ΘΥ ' τ Τεό Ω ' Ω Ε
 . ÿ
 Ε ε Ω Υ — φΘ ϐ ϐξÈ η η
 φ η ' ί ' Υ τ — ΕΤβ η Ω Ρ Θ ΨΦ

φ Α φ φβ ή Ρ Θ Ψ Φε ι Έ φ Φ
 .φ ό
 Τ Θ Θ ϐ È φ φ Ρ Θ Ψ Φε
 .ξÈ η Φ ρ ρ Γ Φ ' Θ Ψ Φ φ η ' η ' ~
 ρ φ ' Θ ρ Ω Ψ φ ό φ Α
 ζΤ ϐ Έ Ε ÿÈΘ Ω Ε ό Φ
 . φ Φ ί ζη η ξ
 ÿ Ω ÿ Ε η - φ ό φ Α ' Χ επ
 ' ~ Ε η ζ Χ ϐ ρ ε Τ
 Ω ρ τ Υ ϐφ Φ σ η φ ρ
 φ ρ ' ι σ η ϐΑ φ Ε Ω ÿ φ η
 . ρ φ η
 ' ' ÿ η Φ Εε φ Α
 ' β η Φ η ϐ Φ ο η ό
 . ' ÿ ρ ζ Φ ϐ ' Τ βη
 η ° ÿ Χ ' ε ϐΑ ε ' τ ÿ ÿ
 ϐ η ' Τ ό) φ ε ÿΘ ' Τ ό Θ
 ÿ ρ ρ ' ' Ω ρ ρ φ ϐ(ε ' ' .
 .φ ε ÿΘ ε ' ε ' τ ÿ
 φ Θ γ Φ ρ φ ε ÿΘ ' ι ζ Χ
 ÿ ε Φ Ωη φ Ε ε Φ τ Ε ο° ϐ
 .Α ÈΘ ρ η ΤΦΘι β Θ γ Φ Α ε
 Φ τ φ ε ÿΘ ε Θ γ Φ ε Φ
 ι Φ τ η ε φ ρ σ τ ' ' .
 ϐ Θ η σ τ ξ ρ ε βη τ ε φ Θ
 . ρ τ

: O Z Φ γ d'-Ē

ᵑ¹ η Ṛ η ή ό ' η Ψ Φε Ÿ
Υ ᵑγ φ ρ ' θ Ω ° ε φ ᵑ¹ X ᵑ¹ ᵑ ' ~
.φ Φ φ Ē Υ Υ
: φ τ ε

: ά O Z Φ γ Ď-d'-Ē

P θ Ψ Φε ρη φ ε ό ' η Ψ Φε Υ
: τ ε
: X Ω -

- ' η Ÿ ε ' ε φ Ω φ
- Φ ' η - Ē ~ ' ' η - ρ ĩ ' η
β ' ' Ē η β ' - Υ ' η
. ĩ ' η Ψ - Ψ
: X ή Ω -

η ε ' φ Ē í β Ω Ÿ
.Ψ ρ Ē Ÿ

: O Z Φ γ d'-d'-Ē

ε γ φ 'Ē φ ĩ Ÿ φ ' ρ Ÿ
. ' ' η τ Υό ' γ ε
- φ ε ~ Ÿη ρβ '
(' ' η Ÿ) σ θ ĩ ' ~ ' ρ - - β θ

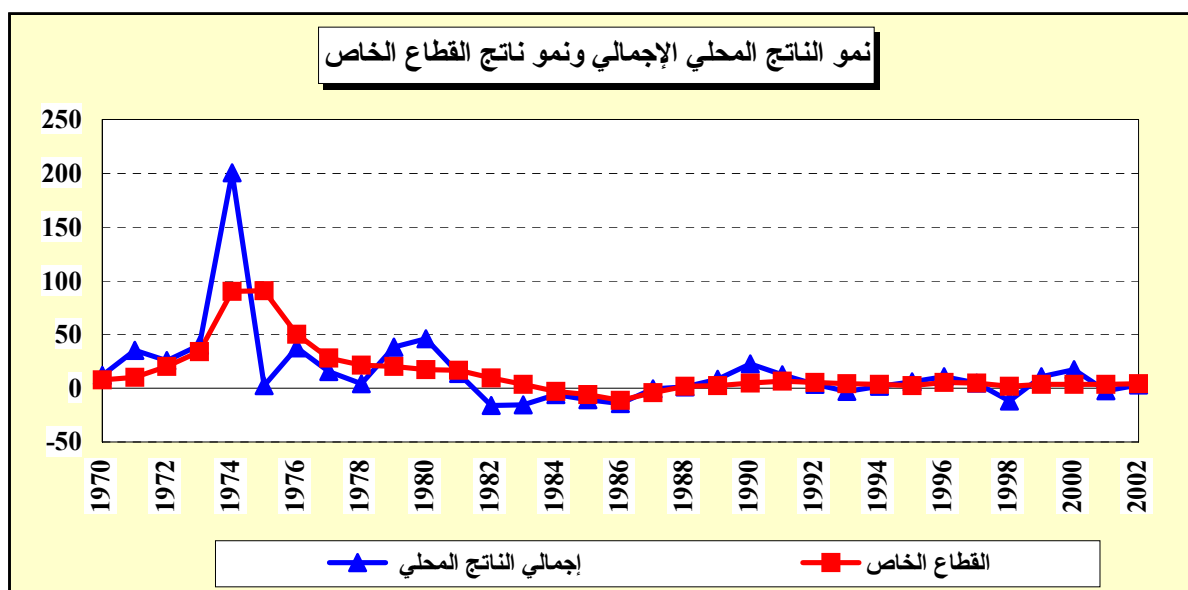
: O Z Φ γ π ĩ Γ Ω λ π Đ-Ē

ρ φ ' ' ε ᵑΦβ Ψ Φ τ η ξ
Ē ε Ṛ Ÿ φ ρ ' τ θ ΦΦθ ŸĒθ '
' Φε θ Ω γ ε ᵑŸ τ βθ ᵑρ

γ β ό φ ό φ A ε ' ~ β Υ
η̄ η . ŸĒθ P θ Ψ Φε θ β φ Ṛ

'1 β ε ρ β φ '1 τ φ ÿÈΘ
 '1 ρ β θ φ ü ÿ '1 Ω ε '1
 '1È ρ Τ ε ε ΕΤÈ 'Υ Ε Τ '1 γ ε
 . Ρ θ Φε
) ï φ ó φ Α τ ï
 φ φ ,È ο Τ βθ ε ÿÈΘ φ ,È é (
 φ , φφβ Ψ Φε τ σ .ÿ ě ,È é γ
 ž Ρ θ Ψ Φε ÿ .γ φ φ ,È ο Τ βθ ÿ ε ÿÈΘ
 ÿ - γ φ φ đ,Èě ο ε ÿÈΘ φ đ,èÈ ο
 .(-) φ (-)

(-) φ



((ï) Ρ Θ Ψ Φ Ε φ Α φ (-) ÿ					
Ρ Θ Ψ Φ Ε			φ Α φ		
%	% Α 0	ÿ	%	ÿ	
7,77	32,22	727.	13,31	22070	197.
10,27	27,28	8.17	30,10	3.497	1971
20,12	20,17	9729	20,40	38209	1972
34,33	24,17	12930	39,91	0303.	1973
90,03	10,39	2408.	198,37	109718	1974
90,72	28,74	47879	2,47	17377.	1970
00,32	31,27	7.479	37,78	220349	1977
28,04	34,08	9.227	10,8.	27.909	1977
21,71	40,33	1.9812	4,33	272277	1978
20,74	30,28	132474	37,91	370479	1979
17,00	28,49	100724	40,08	0477.4	198.
17,01	29,17	181437	13,83	722170	1981
9,70	37,97	199.30	10,70-	024197	1982
3,74	47,33	2.7288	10,07-	44021.	1983
2,80-	47,70	20007	0,08-	42.389	1984
0,87-	00,17	188707	10,48-	377318	1980
11,37-	01,90	1773.1	14,43-	322.20	1987
4,07-	00,01	17.487	0,34-	22.931	1987
1,74	49,30	173120	2,99	33.019	1988
2,40	47,80	177118	8,03	307.70	1989
4,90	40,10	170387	22,48	437334	1990
7,48	37,97	187704	12,47	491803	1991
0,73	38,70	197270	3,78	01.409	1992
4,24	41,00	20637	3,00-	494907	1993
3,77	42,38	213191	1,70	0.3.00	1994
2,04	40,97	218099	7,00	0330.4	1990
0,40	39,02	23009	10,73	09.748	1997
4,78	39,00	2413.4	4,70	717902	1997
1,78	44,93	2407.3	11,03-	047748	1998
3,91	42,28	200200	10,42	7.3089	1999
3,79	37,48	274873	17,08	7.7707	2000
3,87	40,09	270118	2,88-	787297	2001
3,98	40,03	287.73	2,80	70804	2002

. ÑΩ Ω ρ ε ρ φ ε ~ :

: ĩ Γ Ω λ O Z Φ γ đ-Ē

Φ Ω φ ρ ρ φ ' η

P Θ Ψ Φε .Ψ Φε φ ' γ ε φ Ÿ Ω P Θ Ψ Φε

φ A φ ηĩ τ 'Υ φ ό φ A

. ' X φ ό

(ĩ) φ ό φ A P Θ Ψ Φε '

E ε Ω φ Ω φ o φ η E Θ ĩ ŸÈΘ

èĚĚ ρ τ ' 'Υ žYβΘ ž β ξ ' β . ó

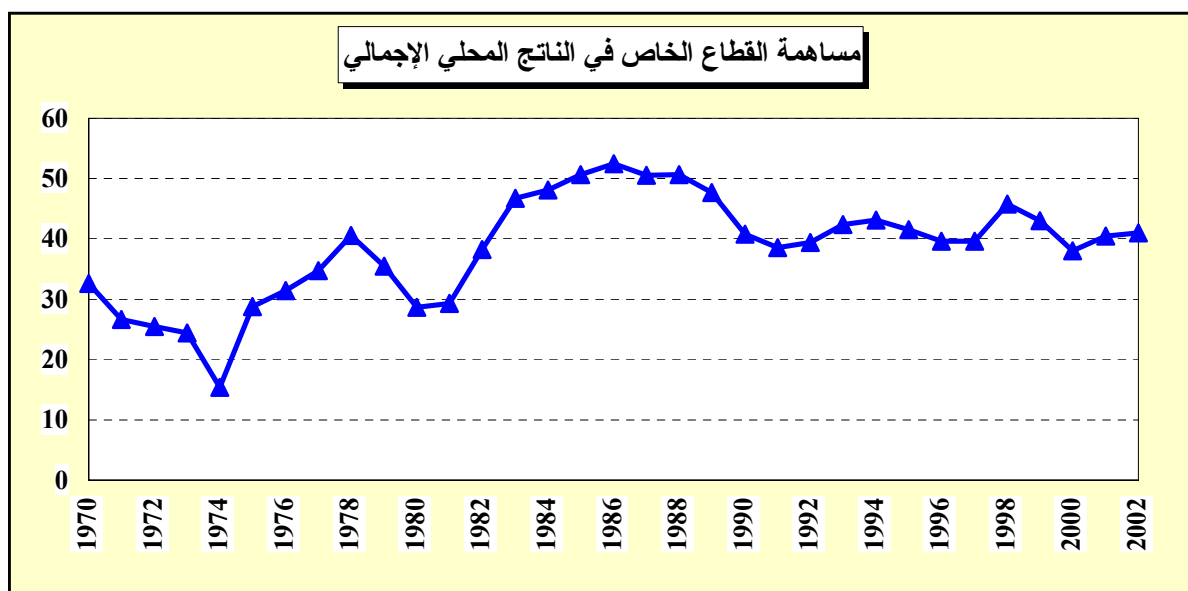
. φ È,Ě èĚ ρ σ τ 'í φ φ ,

φ , φ ό φ A φ P Θ Ψ Φε ' η

φ 'í φ .γ φ φ , Ÿ ε ŸÈΘ

Ÿ) φ đ,Ěě Ÿ ε ŸÈΘ φ đ,èĚ P Θ Ψ Φε

.(- φ p -

$$(-) \quad \varphi$$


○○

ύ Ο ύΖ Φύ γ π ύ ï Ξ λ π πγλ Ρ Ψ π λ Β Σ π ρπ π

.θd'ččd'-ĎĚĚě A ů

τ Μ3	Α		ε Τ			
Α	Ρ Θ	φ ό	Μ3	Μ2	Μ1	
οϚ,Ϛ	ι,νλ	ιι,οϣ-	ϣ,ν	Ϛ,ο	ο,Ϛο-	ιϑϑλ
οο,ν	ϣ,ϑι	ιο,έϚ	Ϛ,λ	λ,Ϛ	ιι,ν	ιϑϑϑ
έο,ι	ϣ,νϑ	ιν,ον	έ,ο	ο,ϑ	ο,Ϛ	Ϛοοο
έλ,Ϛ	ϣ,λν	Ϛ,λλ-	ο,ο	ο,λ	λ,έ	Ϛοοι
οέ,ο	ϣ,ϑλ	Ϛ,λο	ιο,Ϛ	ιέ,ο	ιϚ,λ	ϚοοϚ

η σ ΘΥ ~ Α ε Ε
 ÿ Ε η Èη σ φ φ đ Α τ ε ÿ ÿ
 Èη φ Α ÿ έ . φ τ Α ε ÿ
 φ ÿ Τ βΘ ΘΥ Φε φ , ε ÿ
 . η ïφ ίΥ ÿη φ , τ
 φ ό φ Α τ Μ3 η φ ε Χ È γ ÿ Ω
 φ ΘΥ Ω φ οη ρ ΘΥ ~ ο Ε η ι
 .Ï Ω φ ΘΥ ρ ό ï η

:Λ Ζ ρ ů ύΖ ē-Ě

Ρ Θ Ψ Φε ρ ρο ε Τ Υ ρ Ρ Θ Ψ Φε ÿ β ÿ
 .φ Ψ Φε ρ Χ ή Ω Χ Ω τ ε φ ή
 ÿ Ω Ρ Θ Ψ Φε φ ό φ ÿ ε
 Α ε Τ È φ Ω ρ Ε β Υ ό
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Λ ρ ů
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λ ρ λ† γ θ Z δ ≡ ρ Z ē - ē

κ π Z

κπ λ π γ θ Z δ ≡ ρ Z Ě - ē

^ Z B Γ ě - ē

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úZ Ďč - ē

Λ ϐ ů

γ Ωολ

:Γ Ωολ ð-ē

Φ ϕ È β ε Φ ε Τ ι ϕ ξ ι
γ Φ Τ ÿ β ϕ . Ρ Θ Ψ Φε ϕ Α ε Τ
.Α Τ Ω ϐ ϕ ρ Θ ϕ ε

:Time Series Analysis λ Κ ϐ ú ϐ Γ ð'-ē

ε γ Φ τ Ε Θ ι ι ϕ ÿ È ÿ Φ
ÿ τ ~ ε Θ τ Α τ ρ ÈΘ ÿ ~
ÿ È ÿ η Ωψ η ϐ ι È ι í
Φ ε γ Φ ρ ~ ϕ Α η Υ Α ϕΦ ϕ ε ή γ Φ
τ ~ ϕ ϐ ÿ È η β ή ι
τ Ω .ι R² ÿ η ή Spurious Regression
β ρ Variance Trend ξ ι Ω ρ ζ ή ι
Φ ξ β ϕ ι í Ω τ Ω̃ ζ Χ η Cycle
. η ι

ÿ ι Τ ό Τ Ω ÿ È η ρβ ι ε Φ ÿ
ÿ È ÿ β ϕ ϐ η τ η ή
. ρ Φ ι

:Stationarity κπ ð-ē

ι ϕ ρ Θ ÿ È ϕ ζ η Φ
ο° η η ϐ ÿ η ι È γ Φ η ~

È

ϕ P t-stat R^2 $\ddot{y}$ $\varepsilon \eta \rho \varepsilon \Phi$ A τ $\ddot{y}$
 $.0$ ϕ $\ddot{y}$ η ϕ DW 0 τ η
 $:$ P θ 1ε Stationary η y_t
 ε Φ $1 \Omega -$

$$E(Y_t) = \mu$$

Variance $1 \Omega -$

$$\text{Var}(Y_t) = E(Y_t - \mu)^2 = \sigma^2$$

E β τ $\dot{z}$ $\dot{z}$ β Covariance $\dot{z}$ η $-d$
 $.$ $\dot{z}$ β ε τ y_{t-k} y_t ε k
 $\text{Cov}(Y_t, Y_{t+k}) = E[(Y_t - \mu)] = \gamma_k$
 $.1 \Omega \gamma_k$ $\dot{z}$ $\ddot{y}$ σ^2 μ ϕ Φ γ

:Tests of Stationarity $\kappa\pi$ Z $\mathfrak{d}-\mathfrak{e}$

ϕ $\ddot{y}$ η θ ϕ θ ϕ γ Φ
 τ $^\circ$ $\dot{z}Y$ Q τ Autocorrelation Function ϕ Φ
 Dickey and $\phi\eta$ $\mathfrak{E}$ θ η ρ Ljung-box τ Box-Pierce
 .Augmented Dickey and Fuller η $\mathfrak{E}$ θ ρ Fuller
 $.$ $\theta\ddot{y}$ θ γ Φ

:The Unit Root Test of Stationarity $\kappa\pi$ $\Lambda \Gamma\pi$ Z $\mathfrak{E}-\mathfrak{e}$

$\ddot{y}$ η θ $-$ β $\ddot{y}\eta$ $\ddot{y}\eta$ $\mathfrak{E}$ θ
 $:$ 1 θ τ $^\circ$ $-$
 $:$ Dickey and Fuller (DF) Φ $-$ $\phi\eta$ θ $*$

$$\varepsilon_t = Y_t - E_t[\Phi_t - \varphi\eta_t - \Theta_t Y_t] : \varphi$$

$$\Delta Y_t = \beta Y_{t-1} + e_t$$

$$: \gamma$$

$$. \tau \ddot{\gamma} \beta \ddot{y} : \Delta$$

$$. \varepsilon : \beta$$

$$\begin{aligned} & \Phi \cdot \beta \quad \varphi \quad \Phi \quad \eta \quad \dot{\eta} \quad \dot{\eta} \quad \dot{\eta} \quad \varphi : e_t \\ & \beta \quad Y \beta \quad (E \quad \tau \quad Y_t) \beta = O \quad Y \quad \Theta \tau \quad DF \quad \Theta \\ & t \quad > t \quad \eta \quad \circ \quad \beta \quad \varepsilon \quad \beta \quad t \quad \varepsilon \quad (\eta \quad y_t) < O \\ & \quad \quad \quad Y \beta \ddot{y} \quad Y \quad T \end{aligned}$$

$$: \text{Augmented Dickey and Fuller (ADF)} \quad \eta \quad - \varphi\eta \quad \Theta^*$$

$$\begin{aligned} & \eta \quad \varphi \quad \Phi \varepsilon \quad \dot{\eta} \quad \Phi \quad DF \quad \Theta \quad \ddot{\eta} \quad X \\ & \Phi \quad \varphi \quad \circ \quad \eta \quad \tau \quad \ddot{\eta} \quad \varphi \quad \eta \\ & -\varphi\eta \quad \Theta \quad \tau \quad \beta \quad \varepsilon \quad \eta \quad \varepsilon \quad A \quad \ddot{y} \quad \dot{\eta} \quad \Phi \quad \eta \\ & : \varphi \quad \eta \quad \Delta \quad \Omega \quad \dot{\eta} \quad \Phi \quad Y^\circ \quad (ADF) \quad \eta \end{aligned}$$

$$\Delta Y_t = \beta Y_{t-1} + \sum_{j=1}^k \beta_{j+1} \Delta Y_{t-j} + e_t$$

$$: Y \quad \eta \quad \Theta \quad k \quad E \quad \beta \quad \varepsilon \quad \Theta$$

$$. \varphi \quad \Phi \quad \varphi \quad \ddot{E} : \ddot{y} \quad \ddot{\eta}$$

$$. \quad \eta \quad \varphi \quad \eta \quad : \varphi \quad \eta$$

$$\begin{aligned} & (E \quad \tau \quad Y_t) \beta = O \quad Y \quad \Theta \tau \quad ADF \quad \Theta \quad \Phi \\ & \eta \quad \circ \quad \beta \quad \varepsilon \quad \beta \quad t \quad \varepsilon \quad (\eta \quad Y_t) \beta < O \quad Y \beta \\ & \quad \quad \quad Y \beta \ddot{y} \quad Y \quad T \quad t \quad > t \end{aligned}$$

$$\ddot{E}$$

:Phillips & Perron θ^*

$\varphi \varphi \Phi \Delta \tau$ (Phillips & Perron, 1988) $\theta \varepsilon$

Non-Parametric $\varepsilon \Phi \theta \ddot{y} \ddot{E} \theta \varepsilon \theta \varphi$

$\Phi \eta \varphi \Phi \varphi \theta^- \varphi \eta \rho$ Adjustment

$\ddot{y} \eta \rho \varepsilon \tau \dot{z} \theta \Phi . \varphi \eta$

$\eta . \theta \acute{o} \varphi \Omega \tau \varphi \Phi \eta \rho \theta \acute{o}$

: $\varphi \eta \varepsilon$

$$S_u^2 = T^{-1} \sum_{i=1}^T \hat{U}_t^2 + 2 T^{-1} \sum_{j=1}^L \sum_{t=j+1}^T \hat{U}_t \hat{U}_{t-j}$$

.Lag Truncation Parameter $\sim \Phi \tau \rho \ddot{y} L \ddot{y} \rho \tau \ddot{y} \gamma$

$\varphi \Omega \Phi$ Robust $\eta \acute{h}$ (PP) $\theta \eta$

$\dot{z} \Phi \acute{e} \acute{e} \tau \Phi \theta \ddot{e} \Delta \theta \ddot{e} \eta \rho \varepsilon$

$\varepsilon \theta \varphi \rho \varphi \eta \theta \Omega \beta$ (PP) θ

$\gamma \acute{e} \beta \rho \varphi \eta \rho \theta \eta . \theta \ddot{E} \rho \beta$

$\xi \Omega \Phi \varepsilon \theta^- \eta \rho \xi \Omega \Phi \tau \ddot{e} \acute{e} \theta^-$

$\xi \Omega \Omega \Phi \theta^- \eta \eta \acute{e} \rho \beta \Phi \tau$

. $\ddot{E} \xi \eta \varphi$

Engel-Granger $\lambda \rho \lambda \gamma \theta Z \delta \Xi \rho Z \bar{e}-\bar{e}$

:Two Step Procedure $\kappa \pi Z$

$\acute{e} \eta \theta$ Engle-Granger (1987) $-\ddot{y} \varepsilon \Phi \acute{e} \Phi \theta$

$\acute{e} \Phi \theta \varepsilon \Phi \xi \tau \eta \rho \beta \dot{z} \eta \ddot{E} \eta \eta \ddot{y} \ddot{E}$

:

$\gamma \rho \ddot{y} \acute{e} \acute{e} \ddot{y} \eta \varphi \theta \tau$: $\zeta \pi \psi \lambda \pi Z$

$\acute{e} \acute{e} \xi \ddot{y} \eta \gamma \varepsilon \rho \beta \eta \varphi \Phi \eta \eta$

Unit Root Test

Long-Run Equilibrium Relationship

Long-Run Equilibrium Relationship

Long-Run Equilibrium Relationship

$$x_{1t} = \beta_1 + \beta_2 x_{2t} + \beta_3 x_{3t} + \dots + \beta_n x_{nt} + e_t$$

Ordinary Least Square (OLS)

Co-integrated

$$\Delta \hat{e}_t = \alpha_1 \hat{e}_{t-1} + \varepsilon_t$$

Unit Root Test

Co-integrated

$$\mathbb{E}[\beta] \ddot{y} = \Phi \ddot{y} + \ddot{\mathbf{r}} \quad \varepsilon = \hat{\varepsilon}_{t-1} \quad \mathbb{E}[\varepsilon] = \varphi \quad \Upsilon$$

Characteristic Roots, Rank, Co- $\delta \equiv \mathfrak{p} \quad \pi \acute{Y} \quad \pi \acute{Y} \pi \quad \mathbf{O}_\epsilon \mathbf{Z})$
(integration

η ϕ Γ ε τ Johansen (1988), Stock and Watson (1988) ε Φ
 η ρ $\ddot{y}$ η Γ ρ Ξ ε Θ φ Maximum Likelihood τ X
 η Γ Θ Ξ ε η $\ddot{y}$ η Γ ρ Θ τ Θ
 β Ξ Φ τ φ $\ddot{y}\eta$ η ρ Adjustment Parameters

$$x_t = A_1 x_{t-1} + A_2 x_{t-2} + A_3 x_{t-3} + \dots + A_p x_{t-p} + \varepsilon_t$$

Enders, Walter, "Applied Econometric Time Series", pp. 389

ρ η φ '1 $\varphi\rho$ π β σ Θ $\ddot{\imath}$ '1 $\cdot$
 $\mathbb{E}$ τ $\ddot{y}$ $(1 < \text{Rank}(\pi) < n)$ β
 $\cdot\dot{\eta}$ $\ddot{E}$ η η '1 ρ
'1 Θ Johansen (1991), Johansen and Juselius (1990) ε Φ P Θ η
 $:$ $\Phi\varepsilon$ φ $\ddot{y}$ η
 η pVAR φ $\sim\Phi$ $\mathbb{E}$ $\ddot{y}$ Φ Θ $:\zeta$ $\pi\psi$ $\Lambda\pi$ Z
 $:\varphi$ $\ddot{y}\eta$ Θ^- $\text{pLikelihood Ratio Test}$ τ X η $\acute{o}$ Θ Θ
 $(T - c) (\log|\Sigma_i| - \log|\Sigma_p|)$
 $\cdot\dot{1}$ $T:$ $\dot{Y}$
 $\cdot$ φ '1 c
 $\cdot\dot{1}$ $\sim\Phi$ $\mathbb{E}$ β φ β φ Φ $\acute{\eta}$ $\log|\Sigma_i|$
 $\cdot\mathbb{E}$ ε '1 $\ddot{E}$ '1 Ω Θ ρ χ^2 Ω Θ η
 ρ φ $\pi = \alpha\beta'$ $\dot{Y}$ π $\mathbb{E}$ ε τ $\ddot{y}$ ε $:\lambda\dot{0}$ $\Lambda\pi$ Z
'1 $)$ $\ddot{y}$ $\ddot{E}$ '1 $\acute{\imath}$ $\ddot{y}$ Φ $\ddot{y}$ $\ddot{\imath}$ $\ddot{E}$ $\ddot{y}\Omega$ φ β $\mathbb{E}$ ε τ $\ddot{y}$
 $\cdot$ $\mathbb{T}\Phi\Theta$ Δ η '1 $\ddot{y}\Omega$ φ α $\mathbb{E}$ ε $\text{p}(\quad)$ '1 $\acute{\imath}$
 A_0 β Ω $\Omega\Phi$ ε η
 $\cdot$ $\ddot{y}$ η o φ '1 Ω Ω $\text{p}\varphi$ ξ $\text{p}\beta$
 $\mathbb{E}$ $\Phi\Theta$ $(\beta$ $\mathbb{E}$ $\varepsilon)$ $\ddot{y}$ η o τ $\ddot{y}$ $:\dot{0}\dot{0}$ $\Lambda\pi$ Z
'1 $\ddot{E}$ $\ddot{y}$ η o Normalized ε ξ φ ε
 $\cdot$ η

:Error Correction $\wedge$ Z $B\Gamma$ $\check{e}$ - $\bar{e}$

γ Φ $\mathbb{E}$ $)$ η τ η $\acute{\eta}$ $\ddot{y}$
 ξ η $\ddot{y}$ $\ddot{E}$ τ η $\acute{\eta}$ $\ddot{y}$ $\ddot{E}$ $\ddot{y}$ $\ddot{E}$ $\ddot{y}$ '1 $\mathbb{T}$
 γ Φ ξ p $\ddot{y}$ $\ddot{E}$ φ η Δ $\ddot{E}$ Φ τ γ Φ
 ε Φ p'' '1 Ω φ $\ddot{y}$ $\ddot{E}$ $''\varphi$ $\acute{\eta}$
 $\varepsilon\beta$ ρ° $\cdot($ $'$ ε β $''$ $\ddot{y}$ $\ddot{E}$ ξ '1 $\ddot{y}$ $\ddot{E}$ γ β

ρ γ ϕ σ τ $\ddot{y}$ $\ddot{y}$ $\ddot{E}$ ϕ ϕ γ $\ddot{E}$ ρ γ
 ϕ θ $\rho \gamma \phi \theta \ddot{I}$ Δ $-$ ϕ ε
 $.$ β ϕ ρ ϕ ϕ γ
 γ η $\ddot{E}$ ϕ ε γ ε β
 $\ddot{y}\eta$ $\ddot{y}\ddot{E}$ θ o $\ddot{y}$ $\ddot{y}$ η $\rho\beta$ γ $\ddot{y}\ddot{E}\theta$ $\rho\gamma$ $\dot{I}$ $\dot{I}$
 $\ddot{y}$ η $\ddot{E}$ ϕ γ ρ Granger (1981) Engle and Granger (1987)
 ξ $\gamma \phi \theta$ Δ ε γ $\ddot{y}\ddot{E}\theta$ $\gamma \phi \theta \ddot{I}$ Δ $\ddot{y}$ $\ddot{E}$
 $:$ γ $\dot{I}$ $\ddot{E}$ η $^{\circ}$ $\ddot{y}$ $\ddot{E}$

$$X_{1t} = \beta_1 + \beta_2 X_{2t} + \beta_3 X_{3t} + \dots + \beta_n X_{nt} + e_t$$

$:$ o Y X_t γ γ τ $\gamma \phi \theta$ $^{\circ}$

$$\hat{e}_t = X_{1t} - \beta_1 - \beta_2 X_{2t} - \beta_3 X_{3t} + \dots + \beta_n X_{nt}$$

$:$ ε ε β ϕ Error $\gamma \phi \theta$ $^{\circ}$ o

$$\hat{e}_{t-1} = X_{1t-1} - \beta_1 - \beta_2 X_{2t-1} - \beta_3 X_{3t-1} + \dots + \beta_n X_{nt-1}$$

ρ Error Correction Mechanism $\gamma \phi \theta \ddot{I}$ Δ

τ
 $. X_{nt}$ γ $\dot{I}$ γ ϕ γ ϕ γ $\ddot{E}$ θ Ω

$:$ Ω_i λ $\ddot{E}$ $-\bar{e}$

γ θ ρ P θ $\psi \phi \varepsilon$ τ ε T Ω Γ Y $\ddot{y}$
 ϕ $\acute{o}$ ϕ A $\rho M1$ γ Y $o\beta$ ε T $($ $-$ $\acute{e}\check{e}$ $)$
 ε β $)$ ε β ρBc $($ T $\acute{o}$ $)$ ϕ ρPs P θ $\psi \phi \varepsilon$
 $.(Ir$ ρ $\Omega\ddot{E}\Omega$ ε ϕ γ ϕ $\phi\eta$ $\ddot{I}$ Ω τ

Z Ď-ě-ē

$$\begin{array}{ccccccc} \Phi & A & \tau & \sim & X & P & \beta \\ \eta & A & \tau & \sim & \varphi & E & \epsilon \\ - & & & \Theta & (DF) & -\varphi\eta & \epsilon \end{array}$$

$\tau \quad \Gamma \quad \dot{\Gamma} \quad \ddot{\Gamma} \quad \epsilon \quad \Gamma \quad \Theta \quad A \quad \Gamma \quad \rho X$

$\varphi \quad \Gamma \quad \dot{\Gamma} \quad \xi \quad \Delta \quad \varphi \quad \sigma \quad (\eta \quad \acute{\eta})^E \epsilon \quad \acute{\eta} \rho^E$

$A \quad \varphi \quad \ddot{y} \quad \Delta Y \quad . \beta \quad \ddot{\Gamma} \Phi^E \quad \tau \quad \ddot{\Gamma} \gamma \quad \beta \quad \varphi \quad (\rho \quad \eta) \quad \epsilon$

$: \quad \ddot{y} \quad \grave{E} \quad \ddot{y}$

$$\text{DF} \quad \varphi\eta \quad \theta : (-\ddot{E}) \ddot{y}$$

τ γ			l			í
đ			đ			
-3.61	-3.67	-3.73	-2.28	-1.66	-1.45	Ps P θ Ψ Φε A
-7.37	-7.46	-7.58	-2.36	-1.68	-1.55	Bc (T ó)
-4.66	-4.75	-4.83	-2.34	-1.67	-1.31	M1 ε T
-4.19	-4.13	-4.18	-1.99	-1.41	-1.05	Ir E β

$$\dot{\varphi} \quad \xi \quad \Omega\Phi \quad :\ddot{y}$$
$$\varphi \quad \xi \quad \Omega \Phi \varepsilon$$
$$\varphi \quad \xi \quad \Omega \quad \Omega \Phi \varepsilon \quad d$$
$$\begin{array}{c} \cdot \\ \cdot \end{array} \quad \begin{array}{c} \cdot \\ \cdot \end{array}$$

-4.27	-3.65	-2.64	%1	σ
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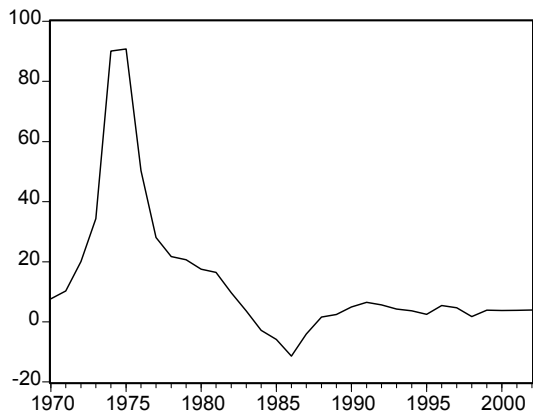
-3.56 -2.96 -1.95 %5 σ

-3.21	-2.62	-1.62	%10	σ
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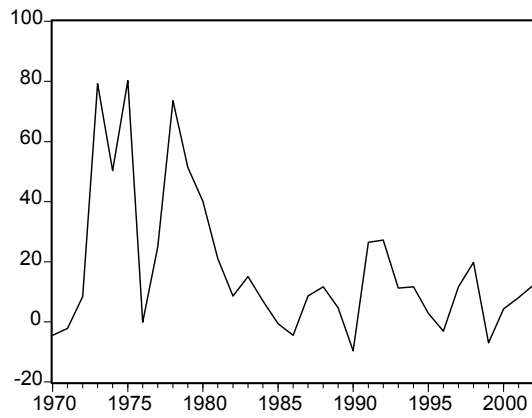
Ěě

φ ε 'l θ A τ ξÈ (-Ě) ŷ φ Y A
 σ È Y θ 'Y .ρ τ ï γ β ρ
 θ Ω ξ φ η ή ί η Y ŷ ° ρ
 .0 φ ο η
 ΩΦε ρφ ξ ΩΦ 'l φ DF -φη θ ρX
 Ω φ È Y ŷ φ ξ Ω ΩΦε η ρφ ξ
 ρX φ η ή 'l ί φ %5 σ 'l ί
 žY ρφ ξ ΩΦε ρφ ξ ΩΦ τ ï γ β φ DF θ
 Ω È Y T %5 σ φ ξ Ω ΩΦε
 .τ ï ρ φ ο η 'l ί
 ŷ È σ φ ŷ È (-Ě) φ ŷη ΔY
 :τ ï γ β θ ŷ È ξ

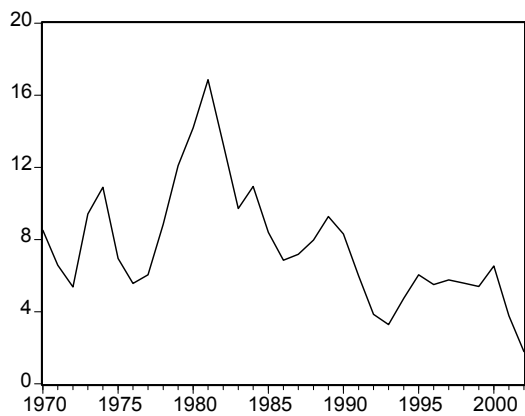
τ $\ddot{\gamma}$ β φ $\dot{\gamma}$ φ $\ddot{\gamma}$ $\ddot{E}$ $(-\ddot{E})\varphi$ $\ddot{\gamma}\eta$



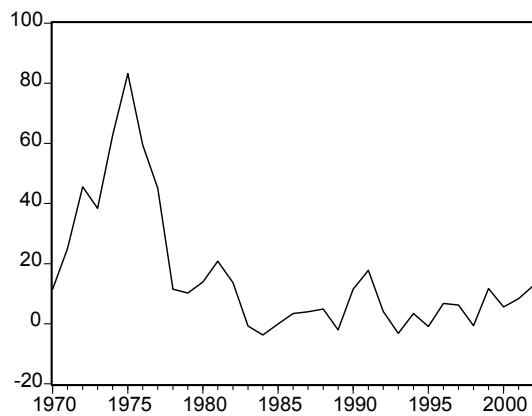
— PS



— BC



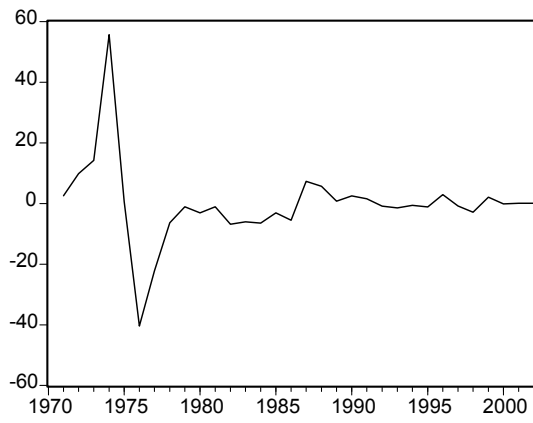
— IR



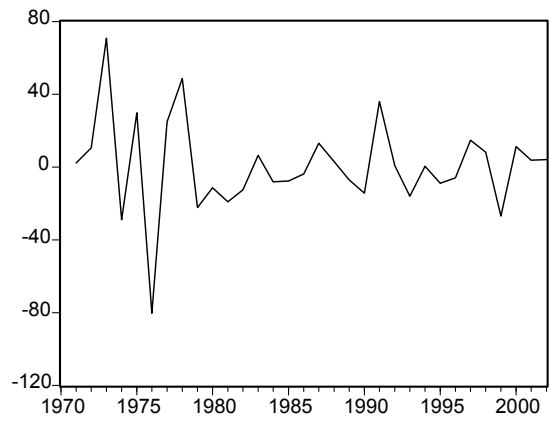
— M1

$\ddot{E}$

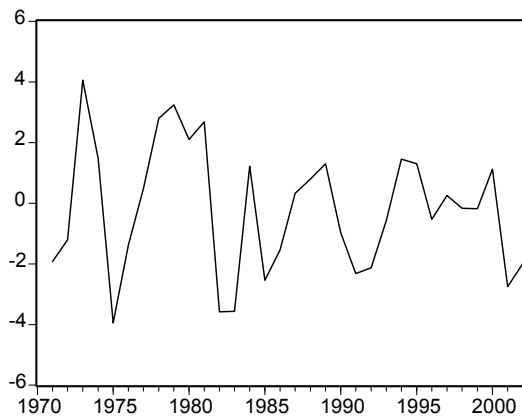
τ $\ddot{\gamma}$ β φ $\dot{\gamma}$ φ $\ddot{\gamma}$ $\ddot{\gamma}$ $(-\ddot{\gamma})$ φ $\ddot{\gamma}\eta$ Ω



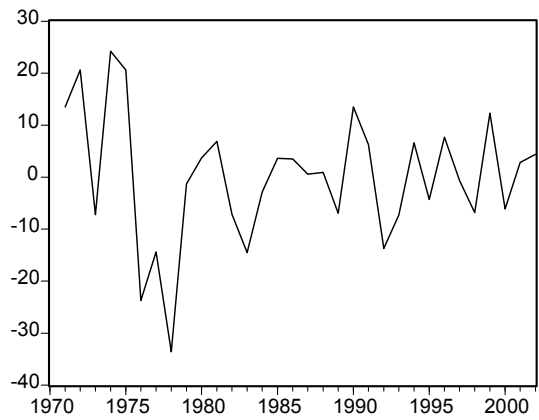
— $D(PS)$



— $D(BC)$



— $D(IR)$



— $D(M1)$

$\hat{E} \quad \varphi \quad \hat{E} \quad (P-P) \text{ (Phillips and Perron, 1988)} \quad - \quad \theta \quad \tau \quad ^\circ$
 $\sigma \quad \hat{Y} \quad (\quad \eta \quad \acute{\eta}) \quad \hat{E} \quad \varepsilon \quad \acute{\eta} \quad \rho \quad \Delta Y \quad \acute{\rho} Y \quad \eta \quad \sigma \quad \tau \quad \eta \quad \tau \quad \phi \quad \acute{o}$
 $:\varphi \quad (\quad -\check{E}) \quad \ddot{y} \quad \circ \quad Y \quad \eta \quad \acute{\rho} \tau \quad \ddot{y} \quad \gamma \quad \beta \quad \varphi \quad \eta$
 $P-P \quad - \quad \theta : (\quad -\check{E}) \quad \ddot{y}$

$\tau \quad \gamma$			η			$\acute{\eta}$
$\acute{d}$			$\acute{d}$			
-3.45	-3.51	-3.58	-2.49	-1.92	-1.65	$P_s \quad P \quad \theta \quad \psi \quad \phi \quad \varepsilon \quad A$
-8.22	-8.32	-8.50	-3.37	-2.51	-1.61	$B_c \quad (\quad T \quad \acute{o})$
-4.60	-4.71	-4.80	-2.60	-1.87	-1.43	$M1 \quad \varepsilon \quad T$
-4.08	-4.02	-4.08	-2.10	-1.60	-1.06	$Ir \quad \acute{E} \quad \beta$

$\cdot \varphi \quad \xi \quad \Omega \Phi \quad :\ddot{y} \eta$

$\cdot \varphi \quad \xi \quad \Omega \Phi \quad \varepsilon$

$\cdot \varphi \quad \xi \quad \Omega \quad \Omega \Phi \quad \varepsilon \quad \acute{d}$

$:$ ε

-4.27 -3.65 -2.64 %1 σ

-3.56 -2.96 -1.95 %5 σ

-3.21 -2.62 -1.62 %10 σ

$Y \quad T \quad \eta \quad \tau \quad \xi \quad \check{E} \quad (\quad -\check{E}) \quad \ddot{y} \quad \varphi \quad Y \quad A$
 $\%5 \quad \sigma \quad \Omega Y \quad \ddot{y} \quad \check{E} \quad \acute{\eta} \quad \acute{E}$
 $\Omega \Phi \quad \xi \quad \ddot{y} \quad \varphi \quad \ddot{y} \quad \check{E} \quad \varphi \quad \xi \quad \Omega \quad \Omega \Phi \quad \tau$
 $T \quad \tau \quad A \quad \tau \quad Y \quad \cdot \quad \Omega Y \quad \ddot{y} \quad \check{E} \quad \xi$
 $\acute{\rho} \quad \cdot \tau \quad \ddot{y} \quad \rho \quad \acute{E} \quad \Omega Y \quad \ddot{y} \quad \check{E} \quad \theta \quad Y$
 $\cdot \tau \quad \ddot{y} \quad \eta \quad \acute{\eta} \quad \acute{\eta} \quad ^\circ$

$\check{e}$

:δ ≡ ρ Z d'-ě-ē

τ ι ρ φ Ε ε ρ η ρ φ η ή ι ί ι λ X
 ÿ È ÿ ι ÿ Φ θ τ ι η ρ φ
 ÿ È φ .ι ι ί ρ φ Ε ε ή
 ÿ ι φ ÿÈ θ ή τ ÿ Φ ÿ ι φ È ρ ΩΥ
 τ ι η ÿ η λ ε Υ η . ε
 È η η ρ β ÿ η ρ φΦΘ Ω φ
 ί ° ε ÿ ι φ φ ÿÈ θ ή ο Υ λη
 .ÿ Φ ÿ ι φ ξ

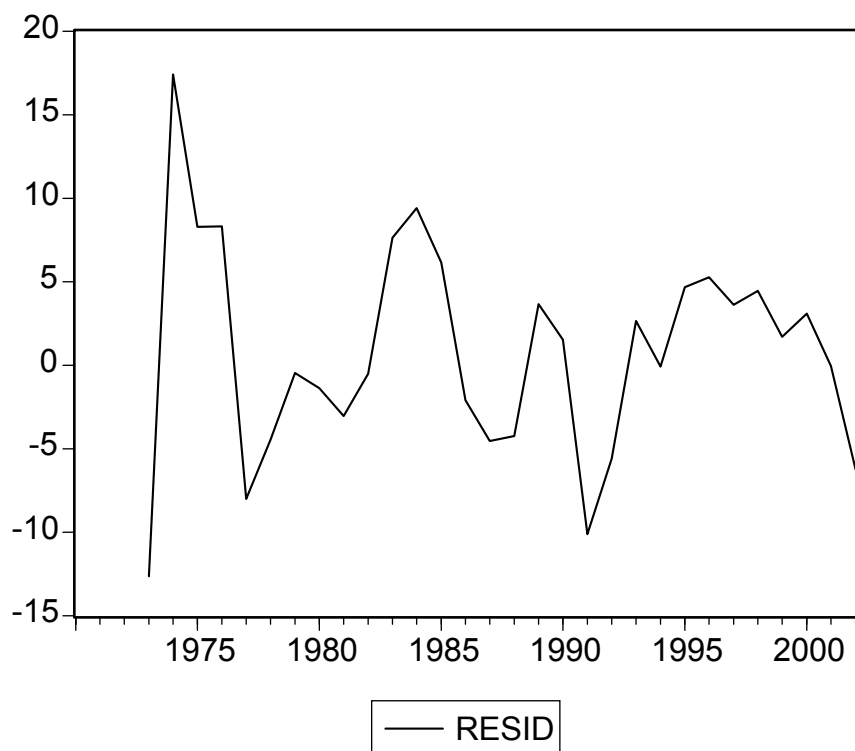
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 γ β θ ε η ο ° ι ί ÿ η
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 ι (Engle- Granger, 1987) ÿ ε Φ θ ι ί ÿ η
 :φ η ι η (OLS) σ ί ι ε Φ θ ΦΘ

$$Ps = -0.742 + 0.226 Bc - 0.417 Ir + 0.924 M1$$

(3.079) (-2.133) (12.060)

R-Squared = 0.928 F-Statistic = 62.586
 Adj. R-Squared = 0.913 Prob.(F-Statistic) = 0.00
 D-W = 1.85

Ω $\varepsilon\beta$ $\circ$ X $\dot{E}$ $\xi\dot{E}$ τ X
 φ Φ η φ X $\dot{E}$ ε $.oY$
 $.D-W$ Θ $\circ$
 $^{\circ}$ ρ φ ε ε T $\acute{\iota}$ $\circ$ $\rho\gamma$ ΔY
 $\acute{\iota}$ $\eta\rho$ $\varphi\dot{e}$, $P\Theta\psi\Phi\varepsilon$ φ $\acute{\iota}$ $\psi\beta$ $\Omega^{\sim}$
 $P\Theta\psi\Phi\varepsilon$ φ $\acute{\iota}$ E $\Omega^{\sim}$ ρ φ ε T $\acute{o}$
 φ $\ddot{\eta}$ $\Omega^{\sim}$ ρ φ ε $E\beta$ φ $\acute{\iota}$ φ $.$ φ $,\acute{d}$
 $.$ φ $,$ $P\Theta\psi\Phi\varepsilon$ φ $\acute{\iota}$ τ
 $\acute{Y}$ ADF $\ddot{y}$ $\varphi\eta$ Θ Θ e_t φ η Θ Ω
 φ Θ τ e_t φ η Θ $\ddot{y}$ $.1$ $(E\varepsilon)$ η ρ ΔY
 ε η (-3.857) φ E ε $\acute{\iota}\acute{\iota}$ $\acute{Y}$ ρE
 $\rho\beta$ η φ $^{\circ}$ $\circ$ $.(-2.970)\%$ 5 σ
 $.$ ΩY $\acute{\iota}$ $\acute{\iota}$ $\ddot{y}$ η φ
 $\acute{\iota}$ $\varphi\varphi$ $\acute{\iota}$ $(-\ddot{E})$ φ $\ddot{\eta}$



:κπ λ π γ δ ≡ ρ Z Θ-ě-ē

Ε τ ' í ÿ È Ε ' Θ ' λ
 ÿ η Θ φ Ε ΦΘ φ⁻ ρτ ι γ β τ η Δ
 . ÿ η ο ε τ ι ° ' í
 ÿ η ο ε τ (Johansen Cointegration Test) τ
 Θ ' í ÿη ' Χ φ ' í ÿ ι Φ È ÿλ
 φ φ ξ ΩΦε ε Φ Θ τ . φ
 .VAR Θ ÿ η

τ γ φ ÿÈΘ ρ ÿ φ ó A (đ-Ě) ÿ ΔΥ
 :φ τ

ξ ΩΦε τ (đ-Ě) ÿ

ε 5 Critical Value φ	η ó ÿ ' Θ Likelihood Ratio	ε Eigenvalue	ÿ η ο Rank or NO. of CEs
53.12	79.17113	0.812298	None **
34.91	27.31125	0.449446	At most 1
19.96	8.809499	0.148569	At most 2
9.24	3.823545	0.116037	At most 3
* (**) denotes rejection of the hypothesis or (rank) at the 5% (1%) level Trace test (Likelihood Ratio) indicates 1 co integrating equations at 5% level			

φ φ (79.171) η ó ÿ ξÈ (đ-Ě) ÿ φ ε ÿ
 ε Υ β Τ τ %5 ελ σ (53.12) ε η
 Ω ξÈ ÿ φ Υ Α τ Χ È . ÿ η ο
 ÿ η ο τ ÿ %5 ελ σ ε τ η ó ' í
 . ÿ η β ο τ Α ρ' í

τ ' τ ' í θ ÿ η ε
:φ

$$Ps = -0.655 C + 0.679 Bc - 0.419 Ir + 1.040 M1$$

(0.059) (0.175) (0.052)

$$L = - 394.0911$$

η ó φ (L) ¯ ΦΘĩ τ ĩ ĩ 'Y
 í ' τ ' í θ ε A ΔY .Likelihood
 þ ' θ Bc (T ó) φ þM1 ε T
 ρ ÿ Ω ž ε ξ γ Φ Ω η þ Ē Ir Ē β
 . ε

:^ Z B Γ 'Υ π λ đ-ě-ē

' ƚ φ Ē ' θ τ ÿ ' í Ψ ΥΘ
 φ ÿ η ' θ η þ ρ τ ĩ γ β θ ÿ È η
 (Engle and ÿ ρ Ē ΦΘ φˉ þ ÿ η τ '
 ˉ ΦΘ Δ ¯ 'Υ þΦΘ Δ Y Granger)
 ÿ β γ 'Υ þ'Υ φ φ ε ÿ φ Ē Θĩ
 o ε ÿ η o η φ θ ' í ÿ η
 .ÿ η φ φ ε θ ¯
 ˉ ΦΘ Δ ' ε ó A (-Ě) ÿ
 . ΩY ' í

Prob. ()	t t-statistic ()	ΦΘ Std. Error (đ)	ΈΈ Coefficients ()	(-Έ) ÿ
0.0775	1.866597	0.224815	0.419639	C ΩΦ ε
0.0166	2.626680	0.019554	0.051362	D (Bc) Τ ό
0.0293	-2.357751	0.190541	-0.449248	D (Ir) Έ β
0.0004	8.673846	0.050524	0.438237	D (M1) ε Τ
0.0001	-4.794375	0.129807	-0.622344	Resid (-1) φ ~Φ
0.9428	R-Squared (R ²) ÿ			
0.9247	Adj. R-Squared (R ⁻²) ÿ			
52.231	F-Statistic F			
0.0000	Prob (F-Statistic) F			
1.73	D-W Statistic -			

τ ζ ε Α Έ η βξΈ (-Έ) ÿ τ Χ
 F η β(0.94) R² ÿ ο ε β Έ ρ ΦΘ Δ
 φ ί Ψβ τ ~ ° ρ φ ε ε Τ ί .(52.2)
 ρ φ ε Τ ό ί φ ρ φ , ε Ρ Θ ΨΦε
 ε Έ β φ ί ρ φ , ε Ρ Θ ΨΦε ~ °
 φ , ε Ρ Θ ΨΦε φ ί τ φ ÿη ~ ° ρ φ
 γ (-Έ) ÿ φ ε Έ έ Έ Έ έ ό ΔΥ .
 Ω γβ . ε Έ έ ε Ω ί Φ φ Έ
 ε Τ Φ Έ Έ η Υ ρ Χ ξ ~ Υ φ οΥ
 .Ir Έ β η βBc Τ ό βM1
 Έ έ τ %5 σ φ t
 ζ Έ Ω ρ Ρ Θ ξ η~

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الفصل السابع الخلاصة والتوصيات

٧-١ مقدمة

٧-٢ الخلاصة

٧-٣ التوصيات

X p ð

π π úZ

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Ε β) Ir Ε β þBc (Τ ό) φ þM1 ε Τ
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Ε '1 Θ ŷϖ γ φ Θ ζ Ρ Θ ΨΦε τ ε Τ
Θ ŷ η þ ŷ ε φ Θ ŷ η Θ þ η
ρ ŷ '1 τ ζ þΦΘ Δ ϖ ε φ
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ξ Δ φ σ (η ή) Ε ε ή ρ Ε τ
φ þDF φη Θ φ β ΤΦ Ε τ ï γ β φ Ε ε '1 ί
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