

2009-2000 :

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Pooled and Panel data analysis  
(OLS)  
(19)

(FEM&REM)

(2009-2000)

(Panzar-Rosse: H-statistic)

(6)

(Gabriel 2009)

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2009 2000

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... (Culahovic 2006)

) (29 2002) (Stimson et al., 2006)

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2006) (United Nations 2001)

. (Manzini and Gridley

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:(Budiwibowo et al. 2009)

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(Johnson )

et al. 2008

.(2003 )

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.45 2003

.(31 2001 )

( Porter, 1990)

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.( 2009 )

(Deltuvaite 2007)

and Vasklaitis

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2009  
(2001 ) )  
(2009 )  
(1999 - 1995)  
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(Hashem 2006)  
(12)  
(2004-1997)  
(Panzar-Rosse) (2010)  
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(6)  
(2006 )  
(CAMEL)  
(OLS)  
( )  
(2010)

(Panzar-Rosse) (2007-1990) 2010) (Diamond Theory)  
 (Panel Data Analysis) 2007-2003  
 (Shaffer) .  
 (Gruben and McComb 2003) .  
 1993-1987 (Murjan and Ruza 2002)  
 -1993)  
 (Zulhibri *et al* 2007) (Panzar-Rosse) (1997)  
 (Xiaoqing 2009) (Al-(Muharrami et al 2006)  
 2006 1997  
 - (Panzar-Rosse) (52) (2002 -1993)  
 (HHI) - (CR<sub>k</sub>) (HHI)  
 2001 (Panzar-Rosse) (H-statistic)  
 ( 2006 Gunalp and Celik)  
 H- (Panzar-Rosse)  
 statistic  
 34 2000 1990  
 (AL-Mutairi and Al-Omar 2009)  
 (2005-1993)  
 (HHI)  
 (Aktan and Masood (P-R)  
 (2008-1998) 2010) (Mensi

	(Panzar-Rosse)		(17)
		(Panzar-Rosse)	
		(H-statistic)	
	(Hempell 2002)		
(Gischer and Stiele 2008)			
400			
2002 1993			
		(Bikker and Haaf 2002)	
Uchida )		(Panzar-Rosse)	
	(and Tsutsui 2005)	(1998-1988)	
1980 1970			23
(Deltuvaite and Gižiene 2007)		(Yildirim and Philippatos 2003)	
		(14)	
2005-2000	(Panzar & Rosse)	1993	
			2000
		(Uiboupin 2004)	
	( )	(2001-1995)	(219)
Panzar-Rosse		(Mamatzakis et al 2005)	
H-statistic		(2002-1998)	
		(Panzar-Rosse)	
		1998-1993	

(OLS)

(2009-2000)

"Panel Data"  
(Fixed Effect Model)  
(Random Effect Model)

(Gujarati, 2003)

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(Lagrange Multiplier Test  
"Panel Data "Pooled Data Analysis"  
Analysis"

.3

(Cross-Sectional Variance)

:

(Hausman Test)

(BD)

(WC)

(FC)

(AGE)

(CC)

(S)

(CR<sub>3</sub>D)

**(CR<sub>3</sub>L)**

:

(Gujarati, )

2003

Panel Data"

"Analysis

(Jarque-Bera)

(Cross-Sectional Data)

(multicollinearity)

(Pooled Data Analysis)

(Variance Inflation Factor) "VIF

<p><math>t</math></p> <p><math>i</math></p> <p><math>(Age_{i,t})</math> <math>(CR_{3,t})</math> <math>t</math></p> <p>(Al-Muharrami et al. 2006)</p> <p>H-)</p> <p>(Panzar-Rosse)</p> <p>(statistic</p> <p>:</p> <p><math>IA_{i,t} = \alpha_t + \beta_1 FC_{i,t} + \beta_2 WC_{i,t}</math> <math>+ \beta_3 CC_{i,t} + \varepsilon_t \dots (2)</math></p> <p>(2)</p> <p>(H-statistic)</p> <p>(H-statistic)</p> <p>(H-statistic)</p> <p>(CR<sub>3</sub>D)</p> <p>(CR<sub>3</sub>L)</p> <p>(03)</p> <p><math>(CR_{3D})</math> <math>(CR_{3L})</math></p> <p><math>CR_{3,t} = \alpha_t + \beta_1 FC_{i,t} + \beta_2 WC_{i,t} + \beta_3 CC_{i,t}</math> <math>+ \beta_4 BD_{i,t} + \beta_5 S_{i,t} + \beta_6 Age_{i,t} + \beta_7 IA_{i,t} + \varepsilon_t \dots (3)</math></p>	<p>(Heteroscedasticity)</p> <p>(Park test)</p> <p>(Residuals)</p> <p>Chi<sup>2</sup></p> <p>2009 2000</p> <p>21</p> <p>8 13 2009</p> <p>:</p> <p>"Panzar-Rosse"</p> <p>:</p> <p>"Panzar-Rosse"</p> <p><math>IA_{i,t} = \alpha_t + \beta_1 FC_{i,t} + \beta_2 WC_{i,t} + \beta_3 CC_{i,t} + \beta_4 BD_{i,t}</math> <math>+ \beta_5 S_{i,t} + \beta_6 Age_{i,t} + \beta_7 CR_{3,t} + \varepsilon_t \dots (1)</math></p> <p><math>i</math></p> <p>(Uiboupin )</p> <p>(AL-Mutairi and Al- (Hashem 2006) 2004 <math>(FC_{i,t})</math> .omar 2009)</p> <p>AL-Mutairi and Al- ) <math>t</math></p> <p><math>i</math> <math>(WC_{i,t})</math> .(Omar 2009 <math>(CC_{i,t})</math> .<math>t</math></p> <p>AL-Mutairi ) <math>t</math> <math>i</math></p> <p><math>(BD_{i,t})</math> .(and Al-Omar 2009 <math>(S_{i,t})</math> (Hashem 2006) <math>t</math> <math>i</math></p> <p><math>t</math> <math>i</math></p> <p>.(Bikker and Haaf 2002) (Hashem 2006)</p>
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$$\begin{aligned}
 & \text{CR}_{3,t} \\
 & \frac{(FC_{i,t})}{(WC_{i,t})} \cdot t \quad i \\
 & \frac{(CC_{i,t})}{(BD_{i,t})} \cdot t \quad i \\
 & \frac{(S_{i,t})}{(Age_{i,t})} \cdot t \quad i \\
 & \frac{(IA_{i,t})}{(IA)} \cdot t \quad i
 \end{aligned}$$

(Rasiah, 2010) .  
 (AL-Mutairi (Al-Muharrami et al. 2006)  
 (Bikker and Haaf, and Al-Omar, 2009)  
 (Hempell, 2002) 2002)  
 (Deltuvaite and Gižiene, 2007)  
 (Uiboupin, 2004)  
 (Hashem, 2006) (2001  
 (AL-Mutairi and Al-omar, 2009)  
 ( )

- نسبة تركيز أكبر ثلاثة مصارف بالودائع (CR3D) = مجموع ودائع أكبر ثلاثة مصارف  
 مجموع ودائع جميع المصارف

نسبة صافي الربح قبل الضرائب إلى الموجودات (IA) = صافي الربح قبل الضرائب  
 مجموع الموجودات

- نسبة تركيز أكبر ثلاثة مصارف بالقروض (CR3L) = مجموع قروض أكبر ثلاثة مصارف  
 مجموع القروض لجميع المصارف

$$\begin{aligned}
 & \text{CR3} \\
 & \text{CR} = \sum_{i=1}^k P_i \\
 & \text{Ceterli, 2001) .}
 \end{aligned}$$

: (FC) -

(Hashem,

: 2006)

هيكل ودائع المصرف (BD) = مجموع ودائع البنوك والمؤسسات المصرفية

مجموع الودائع الكلية في المصرف

: (S)

(AL-Mutairi and Al-Omar, 2009)

تكلفة التمويل للمصرف (FC) = مجموع الفوائد المدبنة

مجموع الودائع

: (WC)

تكلفة التشغيل للمصرف (WC) = مجموع المصاريف التشغيلية

مجموع الودائع

: (CC)

(2002 )

(Hashem, 2006)

(Bikker and Haaf, 2002)

(Yildirim and Philippatos, 2003)

(Gischer and Stiele, 2008)

: (Age)

( AL-Mutairi and Al-

Omar, 2009)

تكلفة رأس المال الثابت للمصرف (CC) = مجموع الإهلاكات والإطفاءات

صافي الأصول الثابتة

: (BD)

(1)

(1)

(FC) (CR<sub>3</sub>D)  
 (IA) (WC) (Lagrange Multiplier) (CR<sub>3</sub>L)  
 "Pooled" "Panel Data"  
 "Panel Data" Data"  
 (Hashem 2006) (Hausman Test)  
 (AL-Mutairi and Al-Omar 2009) (REM) (FEM)  
 (FC) (Hausman Test)  
 (IA) %1  
 (BD) (Hashem 2006)  
 (Hashem 2006)  
 3.32 1.46 (VIF)  
 (10)  
 (Gujarati 2003)  
 (Jarque-Bera)  
 (Residuals)  
 (Gischer and Stiele 2008) (Hashem 2006)  
 Bikker and ) (2001 )  
 (Yildirim and Philippatos 2003) (Haaf 2002) (Heteroskedasticity)

(1)

variables	CR3L			CR3D		
	Panel data		Pooled data	Panel data		Pooled data
	FEM	REM		FEM	REM	
CONST	0.477	0.226	0.093	0.401	0.176	0.066
	(4.52)*	(3.51)*	(2.14)**	(3.42)*	(2.75)*	1.565
FC	-0.281	-0.254	-0.270	-0.36	-0.297	-0.302
	(-4.60)*	(-4.54)*	(-4.20)*	(-4.73)*	(-5.12)*	(-4.65)*
WC	-0.53	-0.487	-0.271	-0.497	-0.464	-0.261

variables	CR3L			CR3D		
	Panel data		Pooled data	Panel data		Pooled data
	FEM	REM		FEM	REM	
	(-5.24)*	(-5.25)*	(-2.95)*	(-4.51)*	(-4.80)*	(-2.79)*
CC	-0.01	0.0031	0.015	-0.013	0.003	0.015
	(-0.845)	0.293	1.631	(-0.997)	0.28	1.579
BD	0.024	0.014	0.008	0.024	0.014	0.009
	1.57	1.064	0.76	1.53	1.042	0.819
S	-0.008	-0.333	0.002	-0.007	-0.002	0.003
	(-1.99)**	(-1.276)	1.430	(-1.65)***	(-0.824)	1.560
AGE	-0.0015	-7.0E-05	-0.0003	-0.0014	-0.0001	-0.0003
	(-1.7)***	(-0.405)	(-3.09)*	(-1.29)	(-0.714)	(-3.25)*
CR3	-0.305	-0.154	-0.136	-0.229	-0.113	-0.102
	(-4.63)*	(-5.67)*	(-4.92)*	(-3.2)*	(-4.82)*	(-4.43)*
R2	0.687	0.538	0.459	0.657	0.51	0.441
Adj R2	0.632	0.511	0.428	0.598	0.482	0.409
F-statistic	12.69	20.256	14.777	11.113	18.167	13.761
Prob (F-stat.)	0	0	0	0	0	0
Observations(n)	130	130	130	130	130	130
Hausman test	Chi <sup>2</sup> statistic=15.88			Chi <sup>2</sup> statistic=12.123		
	Prob(Chi <sup>2</sup> )=0.0026			Prob(Chi <sup>2</sup> )=0.004		
LM test	chi <sup>2</sup> (1) = 8.96			chi <sup>2</sup> (1) =8.81		
	Prob > chi <sup>2</sup> = 0.0028			Prob > chi <sup>2</sup> = 0.0030		

\* \*\* \*\*\* denote 1% 5% and 10% significant levels

(IA)

(CR<sub>3</sub>D)

(CR<sub>3</sub>L)

(IA)

(AGE)

.(Xiaoqing 2009)

(2)

variables	CR3L			CR3D		
	Panel data		Pooled data	Panel data		Pooled data
	FEM	REM		FEM	REM	
CONST	0.095		-0.545	0.079		-0.486
	0.686		(-3.09)*	0.559		(-2.56)**
FC	0.3373		-0.258	0.337		-0.224
	(-3.349)*		(-1.92)***	(-3.104)*		(-1.54)
WC	-0.047		0.035	-0.053		0.035
	(-1.284)		0.743	(-1.471)		0.678
CC	0.022		0.053	0.02		0.058
	1.286		(2.331)**	1.178		(2.49)**
BD	0.004		0.052	0.004		0.048
	0.246		(2.238)**	0.211		(1.97)***
S	0.001		0.022	-9E-06		0.021
	0.096		(3.58)*	(-0.001)		(3.04)*
AGE	-0.001		-4E-05	-0.001		-2E-05
	(-0.866)		(-0.366)	(-0.711)		(-0.15)
CR3	-0.086		0.185	-0.058		0.128
	(-0.896)		(1.947)***	(-0.718)		1.446
R <sup>2</sup>	0.761		0.488	0.759		0.468
Adj R <sup>2</sup>	0.713		0.399	0.711		0.375
F-statistic	18.004		5.455	17.837		5.021
Prob (F-stat.)	0		0.0002	0		0.0004
Observations(n)	48		48	48		48
Hausman test						
LM test	chi2(1) = 7.90			chi2(1) = 7.69		
	Prob > chi2 = 0.0049			Prob > chi2 = 0.0055		

5% and 10% levels \*\*\* denote variable is significant at 1% \*\* \*

(IA)

(FC)

(2)

(H-statistic)  
)  
(Hashem 2006)  
(Hausman Test) (Multiplier  
(REM) (FEM)  
(Hausman Test) ( CC WC FC)  
%1 (IA)

(3)

variables	foreign banks			Jordanian banks			all banks		
	Panel data		Pooled data	Panel data		Pooled data	Panel data		Pooled data
	FEM	REM		FEM	REM		FEM	REM	
CONST	0.008 (1.825)***	0.008 (1.480)	0.025 (3.07)*	0.053 (12.504)*	0.046 (11.398)*	0.036 (10.85)*	0.032 (9.387)*	0.031 (8.456)*	0.030 (10.21)*
FC	0.329 (3.720)*	0.260 (3.00)*	-0.301 (-2.007)***	-0.275 (-4.390)*	-0.261 (-4.315)*	-0.204 (-3.06)*	-0.228 (-3.733)*	-0.234 (-3.994)*	-0.266 (-4.50)*
WC	-0.06 (-2.932)*	-0.064 (-3.166)*	-0.093 (-2.2)**	-0.708 (-7.663)*	-0.603 (-7.231)*	-0.449 (-5.59)*	-0.155 (-5.516)*	-0.152 (-5.541)*	-0.144 (-4.737)*
CC	0.018 (1.332)	0.021 (1.554)	0.026 (1.096)	6E-05 (0.005)	0.014 (1.198)	0.026 (2.413)**	-0.005 (-0.435)	-0.001 (-0.093)	0.010 (1.120)
R <sup>2</sup>	0.857	0.381	0.247	0.573	0.39	0.271	0.517	0.196	0.194
Adj R <sup>2</sup>	0.827	0.339	0.195	0.517	0.377	0.254	0.452	0.182	0.180
F-statistic	29.10	9.03	4.80	10.19	27.00	15.63	7.94	14.16	13.95
Prob (F-stat.)	0	0	0.006	0	0	0	0	0	0
Observations(n)	48	48	48	130	130	130	178	178	178
H-statistic <sup>1</sup>	0.269	0.195	-0.394	-0.982	-0.864	-0.627	-0.383	-0.385	-0.41
Hausman test	Chi2 statistic=14.99 Prob(Chi2)=0.0018			Chi2 statistic=14.52 Prob(Chi2)=0.0058			Chi2 statistic=13.65 Prob(Chi2)=0		
LM test	chi2(1) =8.86 Prob > chi2 = 0.0009			chi2(1) =7.98 Prob > chi2 = 0.0021			chi2(1) =9.86 Prob > chi2 = 0.0007		

\*\*\* denote variable is significant at 1% 5% and 10% level.

(3)

( WC FC)  
(0.269)  
(H-statistic)

(Al-Muharrami *at al* 2006)

(Murjan and Ruza 2002)

(Mensi 2010)

(CR<sub>3</sub>)

"0.982-" (H-statistic)

FC)

( IA AGE S BD CC WC  
(CR<sub>3</sub>L CR<sub>3</sub>D)

(Fixed Effect Model)

(Random Effect

Model)

(Hashem 2006)

(4)

( )

"-0.383" (H-statistic)

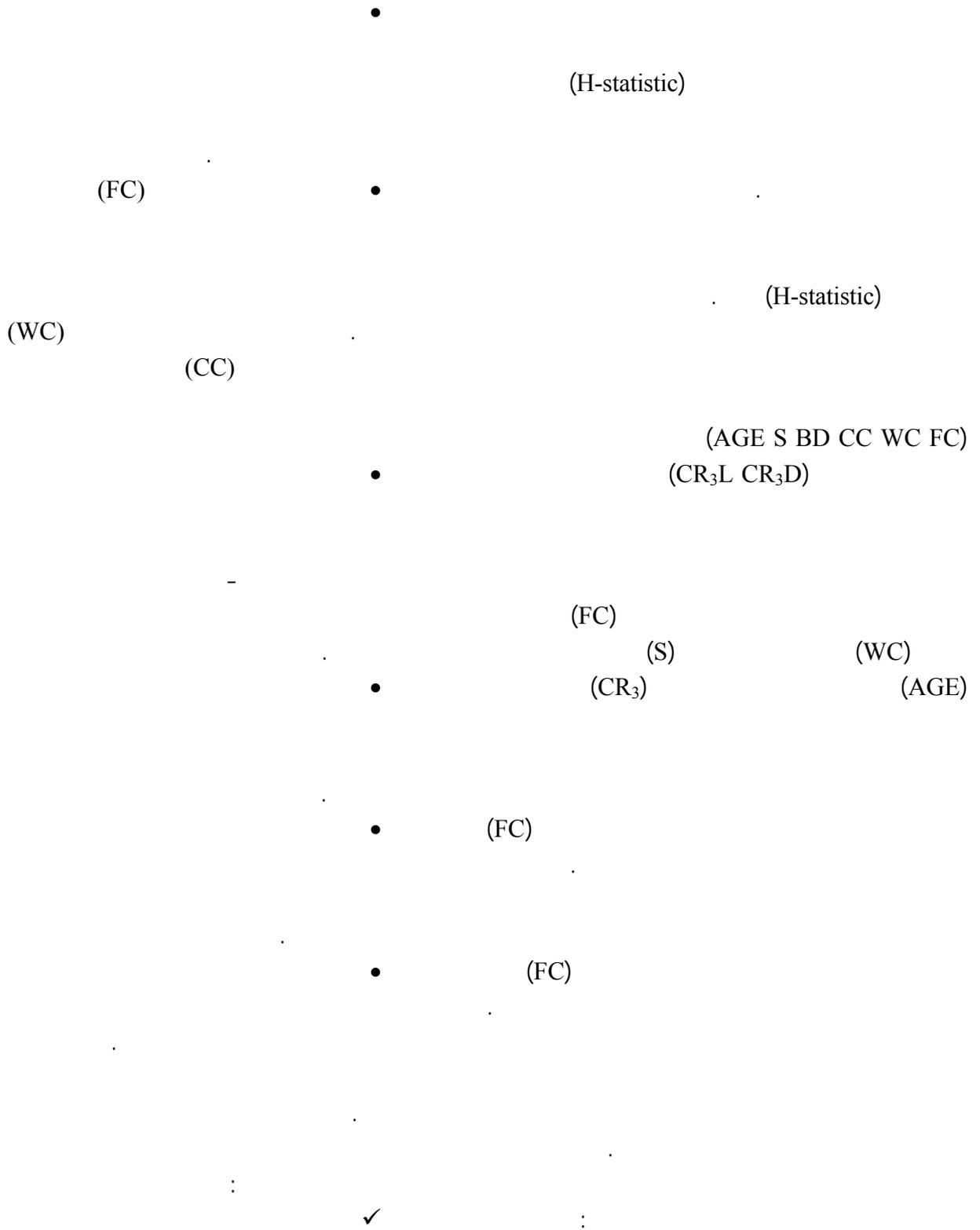
:(4)

variables	CR3L			CR3D		
	Panel data		Pooled data	Panel data		Pooled data
	FEM	REM		FEM	REM	
<b>const</b>	1.232 (16.20)*	1.089 (39.199)*	0.915 (16.55)*	1.40 (17.32)*	1.28 (40.117)*	0.981 (14.54)*
<b>FC</b>	-0.120 (-1.60)	-0.03 (-0.489)	-0.018 (-0.106)	-0.48 (-5.99)*	-0.33 (-4.58)*	-0.260 (-1.283)
<b>WC</b>	-0.037 (-0.911)	-0.138 (-4.166)*	-0.081 (-0.94)	-0.05 (-1.217)	-0.19 (-5.416)*	-0.098 (-0.942)

variables	CR3L			CR3D		
	Panel data		Pooled data	Panel data		Pooled data
	FEM	REM		FEM	REM	
CC	0.001 0.078	0.004 0.413	0.003 0.132	-0.014 (-0.93)	-0.006 (-0.473)	-0.003 (-0.098)
BD	-0.023 (-1.445)	-0.055 (-4.734)*	-0.044 (-1.68)***	-0.03 (-1.81)	-0.07 (-5.63)*	-0.054 (-1.706)***
S	-0.010 (-2.165)**	-0.02 (-11.96)*	-0.009 (-3.045)*	-0.013 (-2.70)*	-0.025 (-15.28)*	-0.011 (-3.08)*
AGE	-0.010 (-13.43)*	4E-04 (5.045)*	0.0003 1.574	-0.012 (-15.79)*	0.0006 (5.308)*	0.0003 1.272
IA	-0.334 (-3.400)*	-0.91 (-11.338)*	-0.730 (-3.75)*	-0.33 (-3.178)*	-1.11 (-12.70)*	-0.889 (-3.741)*
R <sup>2</sup>	0.903	0.282	0.176	0.927	0.32	0.176
Adj R <sup>2</sup>	0.886	0.253	0.142	0.914	0.292	0.142
F-statistic	56.29	9.56	5.174	76.69	11.4	5.171
Prob (F-stat.)	0	0	0.00002	0	0	0.00002
Observations(n)	178	178	178	178	178	178
Hausman test	Chi <sup>2</sup> statistic=931.92			Chi <sup>2</sup> statistic=1211.09		
	Prob (Chi <sup>2</sup> )=0.000			Prob (Chi <sup>2</sup> )=0.000		
LM test	chi <sup>2</sup> (1) = 58.62			chi <sup>2</sup> (1) =63.30		
	Prob > chi <sup>2</sup> = 0.0000			Prob > chi <sup>2</sup> =0.0000		

\* \*\* \*\*\* denote variable is significant at 1% 5% and 10% level.

(CR<sub>3</sub>L) (BD) (4) (FEM) -  
 : (CR<sub>3</sub>D) (AGE) (S) -  
 (CR<sub>3</sub>D) (CR<sub>3</sub>L) (IA) -  
 (H-statistic) (CR<sub>3</sub>D) (FC) -





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## Competitiveness Analysis of the Jordanian Commercial Banks during the Period: 2000-2009

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### ABSTRACT

The purpose of this study analyzes the competitiveness of commercial banks operating in Jordan and, in particular, assesses the capacity of local banks in meeting competitive challenges of foreign banks operating in Jordan. In addition, it identifies key determinants in competitiveness. The study used "Panzar-Rosse: H-statistic" measure to assess bank competitiveness along with "Pooled and Panel data analysis" by using the fixed effect and random effect models and the ordinary least squares (OLS) method. The study includes 19 commercial banks including (including 6 foreign banks) during the period (2000-2009). The findings revealed that all banks operating in Jordan were subject to monopolistic competitive conditions and that foreign banks were posing a competitive threat to local banks as their profitability was better and that the factors affecting competitiveness were different from those in local banks. The study made recommendations to reduce overall operating costs for local banks, particularly financing costs and to draft appropriate policies for better controlling costs and improving profitability, raising quality of service and attracting larger deposits as a means for enhancing overall profitability.

**KEYWORDS:** Commercial Banks, Jordanian Financial Sector, Competitiveness, Banking Concentration, Monopolistic Competition.

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