THE EFFECTS OF INFLATION ON FINANCIAL DEVELOPMENT: EVIDENCE
FROM SELECTED DEVELOPING COUNTRIES

BY

PILLY HAMISI MTEPA

(818423)

MASTER OF SCIENCE (FINANCE)

UNIVERSITY UTARA MALAYSIA

2016

THE EFFECTS OF INFLATION ON FINANCIAL DEVELOPMENT: EVIDENCE FROM SELECTED DEVELOPING COUNTRIES

BY

PILLY HAMISI MTEPA

(818423)

Thesis Submitted to

Othman Yeop Abdullah Graduate School of Business

University Utara Malaysia

In fulfilment of the Requirement for the Degree of Master of Science (Finance)

PERMISION TO USE

In presenting this thesis in partial fulfilment of the requirements for a Post Graduate degree from the University Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this dissertation/project paper in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of School of Economics, Finance & Banking (SEFB). Where I did my dissertation/project paper. It is understood that any copying or publication or use of this dissertation/project paper parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my dissertation/project paper.

Request for permission to copy or to make other use of materials in this dissertation/project paper in whole or in part should be addressed to:

**Dean of School of Economics, Finance & Banking (SEFB)**

University Utara Malaysia

06010 UUM Sintok Kedah

Darul Aman

Abstract

The main objectives of this research is to study the effect of inflation on financial development for 23 selected developing countries worldwide for the period 2000 to 2014.The dependent variable for financial sector performances is measured by credit provided to private sectors, and money supply(M2). Other controllable variables are, inflation which consumer price index, interest rate particular lending interest rate, and GDP per capita which measure economic growth of a particular country. This study employs panel data regression analysis of fixed effects and random effects models. Furthermore, the results show that, two independent variables was found having negative significant relationship with dependent variables, those variables are inflation and interest. While GDP per capita has negative significant relationship with money supply when used as a financial development measure. At the same time GDP per capita has positive significant relationship with credit as a measure of financial development.

i
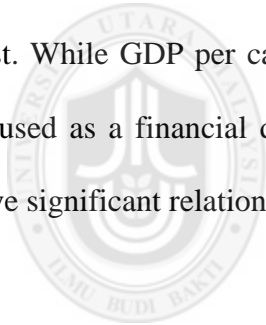
Abstrak

Objektif utama kajian ini adalah untuk mengkaji kesan inflasi ke atas perkembangan kewangan terhadap 23 buah negara membangun seluruh dunia bagi tahun 2000 sehingga 2014. Pembolehubah bersandar bagi pencapaian sektor kewangan diukur dengan pinjaman yang diberi kepada sektor swasta, dan bekalan wang (M2). Antara pembolehubah dikawal adalah, inflasi yang mengukur indeks harga pengguna, kadar faedah iaitu kadar faedah pinjaman tertentu, dan KDNK (keluaran dalam negara kasar) per kapita yang mengukur perkembangan ekonomi bagi sesebuah negara. Kajian ini menggunakan analisis regresi data panel bagi model kesan tetap (fixed effect) dan model kesan rawak (random effects model). Tambahan pula, keputusan menunjukkan bahawa dua pembolehubah tidak bersandar didapati mempunyai hubungan yang ketara negatif dengan pembolehubah bersandar, iaitu inflasi dan kadar faedah. KDNK per kapita pula mempunyai hubungan yang ketara negatif dengan bekalan wang apabila digunakan sebagai pengukur perkembangan kewangan. Dalam masa yang sama KDNK per kapita mempunyai hubungan yang ketara positif dengan pinjaman (credit) sebagai pengukur kepada perkembangan kewangan.

ii

Acknowledgements

I am grateful to the **Almighty Allah** for his blessings and giving me the opportunity to complete my thesis in Master degree. Alhamdulillah and million thanks to Allah. May peace and blessing of Allah be upon His beloved **Prophet Muhammad** (SAW), his family divine good and his companions.

I would like to express my sincere appreciation to my supervisor **Dr. Sabri Bin Nayan**. He has showed professionalism and commitment in his guidance. His keenness to complete this research was crucial to achieve this state of success.

I am indebted to **my father**, **AL haj Hamisi Bin Mtepa** for his care and love. As a typical father, he worked industriously to support the family and spare no effort to provide the best possible environment for me to grow up and attend school. My deepest gratitude goes to **my mother**, **Bi Khadija Bint Ulaya.** She is simply perfect. I have no suitable words that can fully describe my everlasting love for her. She will be remembered forever with great respect and deep love. My parents instilled in me the desire to achieve in spite of impediments, they taught me value of education and to them I will be forever grateful without their constant encouragement, motivation and assistance, I would not be able to complete my study, may Allah protect my parents.

A million thanks and appreciation goes to **my beloved spouse,** as my love and my partner life **Mohammed Sume** for his support to success**.**
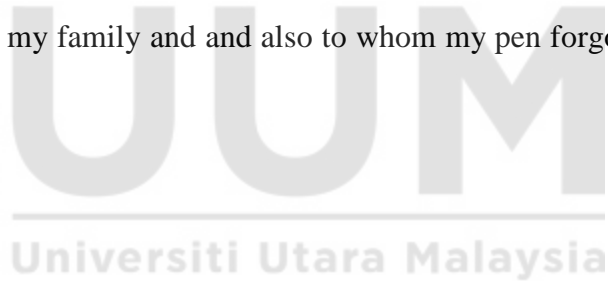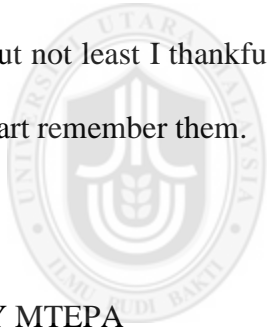
My love also and grateful goes to **my brothers, Said , Juma, Suleiman**, **Jaafary**,to **my beautiful sisters**, **Fatma, Sophia, Kiwe** and **Bimkubwa**, and my beloved sisters in-law **Tatu and Hafsa** for their support and prayers.

iii

My special thanks goes to my brother Mohammed Balozy for helping me during my entire study, no word can I use to express my thanks to him may Allah grant him mercy.

My love and thankful goes to my best friend in Malaysia, who make me happy and comfortably during the time of my study in Malaysia **Maizatul Mazni** Allah grant her mercy.

I would like to thank all of the faculty members and staff at the School of Economics Finance and Banking and Othman Yeop Abdullah Graduate School of Business at University Utara Malaysia for their help and support through my journey. My love also, and thankful goes to my classmates **Dian, and Maimuna**.

Last but not least I thankful my family and and also to whom my pen forgotten them but my heart remember them.

PILLY MTEPA

NOVEMBER 2016

iv

Table of contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The crucial importance of financial development on economic growth is generally acknowledged in the literature. However, there is yet to a consensus to the effects of inflation on financial development, in particularly credit provided by financial institutions to private sectors. This thesis attempts to contribute literature by investigating the effects of inflation on financial sector development. In early neoclassical growth literature, financial development played a passive function by making direction to investors on household savings. Scholars like McKinnon (1973) and Goldsmith (1969) were among the first scholars who makes a break from this distinctive by emphasizing a more active role for financial sector development in promoting economic growth.

Since then, a considerable theoretical and empirical literature has emerged analyzing the role of finance in economic growth and development. Schumpeter (1911) is the one of the scholars who introduced the key role of the financial sector in economic growth. His argument is that, the service provided by financial intermediaries including savings mobilization, risk management, projects evaluation, to check and observe progress of several activities done by managers, and facilitating financial transactions are necessary for making improvement on technology and economic growth. Financial intermediaries need to be capable of efficient allocation of resources facilitating in that way higher returns and desirable risk transformation.

.

The contents of the thesis is for internal user only

References

Alimi, R. S. (2014). Inflation and financial sector performance: The case of Nigeria. *Timisoara Journal of Economics and Business*, *7*(1), 55–69.

Almalki A.M, & I, B. K. (2015). The relationship between inflation and financial development in Saudi Arabia. *T he journal of developing areas*, *49*(6).

Baltagi, B. H., Demetriades, P. O., Law, S. H., Perspectives, N., & Fund, I. M. (2007). Financial development and openness: Evidence from panel data. *Journal of Development Economics*, *89*(2), 285–296.

Beck, T. (2002). Financial development and international trade. *Journal of International Economics*, *57*(1), 107–131.

Beck, T, Levine, R (2002). Stock markets, banks and growth: Panel evidence. *National Bureau* of Economic Research, working paper 9082.

Beck, T, Levine, R, Loayza, N. (2000). Finance and the source of growth. *Journal of Finance Economics,* 58(1-2), 261-300.

Bencivenga, V.R, Smith, B.D. (1992). Deficits, inflation, and the banking system in

developing Countries: Optimal degree of financial repression. *Oxford Economic Papers,* 44(4).

Blundell, R, Bond,S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143.

Boyd, J.H, Champ, B.A (2003). Inflation and financial market performance:

What have we learned in the last ten years? *FRB of Cleveland working paper*. 03-17.

Boyd, J. H., Levine, R. E., & Smith, B. D. (1996). Inflation and financial market performance.

Boyd, J. H., Levine, R., & Smith, B. D. (2000). The Impact of Inflation on Financial Sector Performance *. *Carlson School of Management, University of Minnesota, Minneapolis, MN 55455, USA, 1*(4), 42–48.

Bruno, M, Easterly, W. (1998). Inflation crises and long-run growth. *Journal of Monetary Economics, 41(1), 03-26*

Caramazza, F., Ricci, L. A., & Salgado, R. (2000). *Trade and financial contagion in currency crises, Issues 2000-2055*. *IMF working paper* (Vol. 2000).

Cheng, M.Y, Tan, H.B. (2002). Inflation in Malaysia. *International Journal of Social Economics,* 29(5), 411-425.

Cheng, M.Y. & Tan, H.B. (2002). Inflation in Malaysia. *International Journal of Social Economics*, 29(5), 411-425

Fischer,S. (1993). The role of macroeconomics factors in growth. *Journal of Monetary Economics*, 32(3), 485-512.

Francois, J. . E. (2002). *Financial sector competition, services trade, and growth. Tinbergen institute discussion paper*.

Francois, J. . E. (2004). *International trade in financial competition, and growth performance*.

Geetha,C,Mohidin, R, cHandran,V.V & Chong,V.(2011). The relationship between inflation and stock market: Evidence from Malaysia, United States and china. *International Journal of Economics and Management Sciences*, 1(2), 1-16.

GHAZOUAN, S. (2004). Relationship between inflation and financial sector performance.

Hair, H.C (2006). Multivariate data analysis, Six Edition, Pearson International Edition.

Huybens, E, Smith, B,D. (1999). Inflation, financial markets and long-run real activity. *Journal of Monetary Economics*, 43(2), 283-315.

Huybens, E, Smith, B,D. (1998). Financial market friction, monetary policy, and capital accumulation in a small open economy. *Journal of Economic Theory,* 81(2), 353-400.

Kiendrebeogo, Y. (2012). The effects of financial development on trade performance and the role of institutions.

King, R.G, Levine,R (1993). Finance,enterpreneurship and growth:Theory and evidence. *Journalof Monetary Economics*,32(3), 513-542.

Khan, H.R. (2015). The impact of inflation on financial development. *International Journal of Innovation and Economic Development,* 1(4), 42-48.

Khan, M.S, Senhadji, A.S (2001). Threshold effects in the relationship between inflation and growth. *International Monetary Fund, IMF Staff Papers* 48(1).

Levine, R, Zervos,S. (1996).Stock market development and long-run growth. *The World Bank Economic Development,* 10(2), 323-339.

Lees, C., & Skills, D. of B. I. and. (2012). *UK trade performance across markets and sectors*. *BIS Economics Papers* (Vol. 17).

Levine, R,Renelt,D. (1992). A sensitivity analysisi of cross-country growth regressions.The American Economic Review, 82(4), 942-963.

Levine,R, Zervos, S.(2000). Stock Markrts, Banks, and Economic Growth.*The American Economic Review*, 88(3), 537-558.

Mahawiya, S. (2015). Financial sector development , inflation and openness : A comparative panel study of ECOWAS and SADC.

Manova, K. (2008). *Credit constraints, heterogeneous firms, and international trade*. *Nber working paper series* (Vol. 14531).

Minh To, H., & Tripe, D. (2002). Factors influencing the performance of foreign-owned banks in New Zealand. *Journal of International Financial Markets, Institutions and Money*, 12(4–5), 341–357.

Odhiambo, N.M. (2005). Financial development and economic growth in Tanzania: A dynamic causality test. *Journal of African Finance,* 7(1), 01-17.

Odhiambo, M.N (2012). The impact of inflation on financial sector development: Experience from Zambia, *Journal of Applied Business Research*, 228(6), collection page 1497.

Ozturk, N., & Karagoz, K. (2012). Relationship between inflation and financial development : Evidence from Turkey. *International Journal of Alanya Faculty of*

Business, *4*(2), 81–87.

Ping, H., Chor, L. D., & Kalina, M. (2010). Off the cliff and back ? Credit conditions and international trade during the global financial crisis. *Journal of International Economics*, 87(1), 117–133.

Rioja, F., & Valev, N. (2004). Does one size fit all?: A reexamination of the finance and growth

relatioship. *Journal of Development Economics*, 74(2), 429–447.

Rousseau, P. L., & Wachtel, P. (2002). Inflation thresholds and the finance − growth nexus. *Journal of International Money and Finance*, 21, 777–793.

Rousseau, P.L, Bell. C. (2001). Post-independence India: Case of finance-led industrialization

Journal of Development Economics, *65(1),* 153-175.

Rousseau, P.L, Wchtel,P. (1998). Financial intermediation and economc performance: Historical evidence from five industries countries. *Journal of Money, Credit and Banking,* 30(4), 657-698.

Wacziarg, R., & Welch, K. H. (2008). Trade liberalization and growth: New evidence. *World Bank Economic Review*, *22*(2), 187–231.

Wahid, A.N.M, Sahbaz, M, Azim, P (2011). Inflation and financial sector correlation: The case of Bangladesh. *International Journal of Economics and Financial Issues*, 1(4), 145-152.

Webster, A., & Hardwick, P. (2005). International trade in financial services.

Appendices

Appendix 1. LIST OF 23 COUNTRIES OF THE SAMPLE STUDY

No	Country name
1	Argentina
2	Brazil
3	Bolivia
4	China
5	Colombia
6	Costa Rica
7	Georgia
8	India
9	Jordan
10	Kenya
11	Korea
12	Malawi
13	Malaysia

No	Country name
14	Mexico
15	Morocco
16	Nigeria
17	Peru
18	Serbia
19	South Africa
20	Sri Lanka
No	**Country name**
21	Tanzania
22	Thailand
23	Uganda
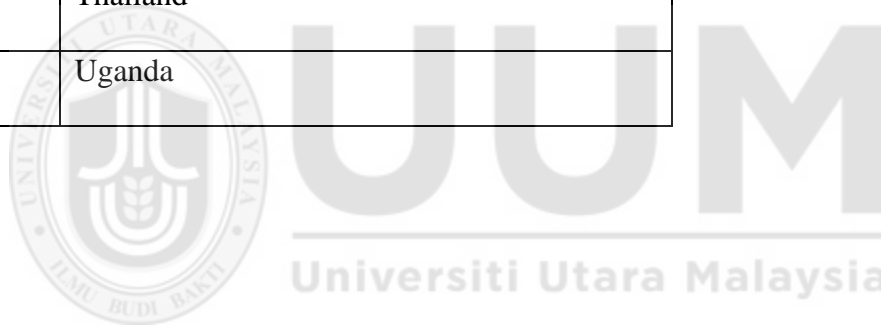
Appendix 2. DESCRIPTIVE STATISTICS

	CREDIT	INFL	INT	M2	GDP
Mean	64.94986	6.956895	16.09772	60.81318	3.487985
Median	49.49337	5.397598	14.07417	44.16168	3.331676
Maximum	192.6601	95.00523	67.08333	193.1680	30.34224
Minimum	4.087733	-1.066636	3.551667	10.38249	-11.87729
Std. Dev.	49.07174	7.780890	11.01892	42.58375	3.562929
Skewness	0.863083	6.377355	2.045569	1.007700	1.044663
Kurtosis	2.589514	64.30926	7.876255	2.963846	13.18917
Jarque-Bera	43.81169	54574.31	563.8376	56.54547	1505.567
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	21693.25	2323.603	5376.639	20311.60	1164.987
Sum Sq. Dev.	801876.0	20160.57	40431.72	603854.2	4227.255
Observations	334	334	334	334	334

Appendix 3. CORRELATION

Covariance Analysis: Ordinary
Date: 11/24/16   Time: 00:32
Sample: 2000 2014
Included observations: 334
Balanced sample (listwise missing value deletion)

Covariance Correlation Probability	CREDIT	INFL	INT	M2	GDP
CREDIT	2400.826				
	1.000000				

INFL	-107.8286	60.36099			
	-0.283254	1.000000			
	0.0000	-----			
INT	-204.9929	26.44093	121.0531		
	-0.380251	0.309322	1.000000		
	0.0000	0.0000	-----		
M2	1754.542	-116.9383	-209.0818	1807.947	
	0.842152	-0.353986	-0.446926	1.000000	
	0.0000	0.0000	0.0000	-----	
GDP	2.459785	-0.394241	-9.023650	18.41277	12.65645
	0.014111	-0.014264	-0.230536	0.121722	1.000000
	0.7972	0.7951	0.0000	0.0261	-----

Appendix 4. DIAGNOSTIC TEST

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	619.1757	Prob. F(2,327)	0.2011
Obs*R-squared	264.2278	Prob. Chi-Square(2)	0.8320

Heteroskedasticity Test: ARCH

F-statistic	1293.148	Prob. F(1,328)	0.7290
Obs*R-squared	263.2325	Prob. Chi-Square(1)	0.1100

Variance Inflation Factors
Date: 11/24/16   Time: 01:21
Sample: 1 345
Included observations: 334

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
INFL	0.404570	2.139707	1.187528
INT	0.202931	4.239464	1.349853
M2	0.521521	4.073320	1.337467
GDP	0.392506	2.082314	1.061727
C	23.19288	11.27848	NA

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.626085	4	0.8041

Appendix 5. REGRESSION RESULTS FOR PANEL 1

Dependent Variable: CREDIT
Method: Panel EGLS (Cross-section random effects)
Date: 11/24/16   Time: 01:05
Sample: 2000 2014
Periods included: 15
Cross-sections included: 23
Total panel (unbalanced) observations: 334
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL	-0.175280	0.067739	-2.587581	0.0101
INT	-0.757788	0.098804	-3.278827	0.0000
M2	0.896130	0.048789	18.36741	0.0000
GDP	0.392167	0.147913	2.651344	0.0084
C	10.35708	5.026443	2.710056	0.0031

Effects Specification		
	S.D.	Rho
Cross-section random	27.49460	0.9290
Idiosyncratic random	7.602050	0.0710

Weighted Statistics			
R-squared	0.561143	Mean dependent var	4.683793
Adjusted R-squared	0.555808	S.D. dependent var	11.36277
S.E. of regression	7.569654	Sum squared resid	18851.59
F-statistic	105.1688	Durbin-Watson stat	0.862169
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.707704	Mean dependent var	64.94986
Sum squared resid	234384.9	Durbin-Watson stat	0.200792

Dependent Variable: CREDIT
Method: Panel Least Squares
Date: 11/24/16   Time: 00:59
Sample: 2000 2014
Periods included: 15
Cross-sections included: 23
Total panel (unbalanced) observations: 334

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL	0.174640	0.067829	2.574702	0.0105
INT	-0.008782	0.100071	-0.087753	0.9301
M2	0.885999	0.051611	17.16687	0.0000
GDP	-0.391116	0.148587	-2.632236	0.0089
C	11.36007	4.234008	2.683055	0.0077

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.977875	Mean dependent var	64.94986
Adjusted R-squared	0.976001	S.D. dependent var	49.07174
S.E. of regression	7.602050	Akaike info criterion	6.972096
Sum squared resid	17741.89	Schwarz criterion	7.280183
Log likelihood	-1137.340	Hannan-Quinn criter.	7.094935
F-statistic	521.8618	Durbin-Watson stat	0.923461
Prob(F-statistic)	0.000000		

Appendix 6. REGRESSION RESULTS FOR PANEL 2

Dependent Variable: M2
Method: Panel Least Squares
Date: 11/24/16   Time: 01:49
Sample: 2000 2014
Periods included: 15
Cross-sections included: 23
Total panel (unbalanced) observations: 334

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL	-0.121144	0.053710	-2.255529	0.0248
INT	-0.367409	0.076214	-4.820763	0.0000
CREDIT	0.552800	0.032202	17.16687	0.0000
GDP	-0.130448	0.118451	-1.101287	0.2716
C	32.12113	2.843683	11.29561	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.981668	Mean dependent var	60.81318
Adjusted R-squared	0.980116	S.D. dependent var	42.58375
S.E. of regression	6.004795	Akaike info criterion	6.500377
Sum squared resid	11069.67	Schwarz criterion	6.808463
Log likelihood	-1058.563	Hannan-Quinn criter.	6.623215
F-statistic	632.3057	Durbin-Watson stat	0.938670
Prob(F-statistic)	0.000000		

Dependent Variable: M2
Method: Panel EGLS (Cross-section random effects)
Date: 11/24/16   Time: 01:50
Sample: 2000 2014
Periods included: 15
Cross-sections included: 23
Total panel (unbalanced) observations: 334
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL	-0.126518	0.053603	-2.360274	0.0188
INT	-0.365724	0.075408	-4.849938	0.0000
CREDIT	0.567401	0.030657	18.50800	0.0000
GDP	-0.110842	0.117927	-0.939917	0.3498
C	31.46606	5.283700	5.955308	0.0000

Effects Specification

			S.D.	Rho
Cross-section random			21.66626	0.9287
Idiosyncratic random			6.004795	0.0713

Weighted Statistics

R-squared	0.591933	Mean dependent var	4.407858
Adjusted R-squared	0.586972	S.D. dependent var	9.387716
S.E. of regression	6.024010	Sum squared resid	11938.98
F-statistic	119.3100	Durbin-Watson stat	0.852828
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.706424	Mean dependent var	60.81318
Sum squared resid	177277.3	Durbin-Watson stat	0.146349

Cross-section random effects test equation:
Dependent Variable: M2
Method: Panel Least Squares
Date: 11/24/16   Time: 01:51
Sample: 2000 2014
Periods included: 15
Cross-sections included: 23
Total panel (unbalanced) observations: 334

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	32.12113	2.843683	11.29561	0.0000
INFL	-0.121144	0.053710	-2.255529	0.0248
INT	-0.367409	0.076214	-4.820763	0.0000
CREDIT	0.552800	0.032202	17.16687	0.0000
GDP	-0.130448	0.118451	-1.101287	0.2716

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.981668	Mean dependent var	60.81318
Adjusted R-squared	0.980116	S.D. dependent var	42.58375
S.E. of regression	6.004795	Akaike info criterion	6.500377
Sum squared resid	11069.67	Schwarz criterion	6.808463
Log likelihood	-1058.563	Hannan-Quinn criter.	6.623215
F-statistic	632.3057	Durbin-Watson stat	0.938670
Prob(F-statistic)	0.000000		