# INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE & MANAGEMENT

IJRCM

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

*Indexed & Listed at:*

Ulrich's Periodicals Directory ©, ProQuest, U.S.A., EBSCO Publishing, U.S.A., Cabell's Directories of Publishing Opportunities, U.S.A.,

Open J-Gage, India [link of the same is duly available at Inflibnet of University Grants Commission (U.G.C.)],

The American Economic Association's electronic bibliography, EconLit, U.S.A.,

Index Copernicus Publishers Panel, Poland with IC Value of 5.09 & number of libraries all around the world.

Circulated all over the world & Google has verified that scholars of more than **4456 Cities** in **177 countries/territories** are visiting our journal on regular basis.

Ground Floor, Building No. 1041-C-1, Devi Bhawan Bazar, JAGADHRI – 135 003, Yamunanagar, Haryana, INDIA

http://ijrcm.org.in/

# CONTENTS

# CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography: Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript** ***anytime*** in ***M.S. Word format*** after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website (***FOR ONLINE SUBMISSION, CLICK HERE***).

# GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1. **COVERING LETTER FOR SUBMISSION:**

**DATED: _____________**

***THE EDITOR***

IJRCM

Subject: **SUBMISSION OF MANUSCRIPT IN THE AREA OF _______________________.**

**(e.g. Finance/Mkt./HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)**

**DEAR SIR/MADAM**

Please find my submission of manuscript entitled '_____________________________________________' for possible publication in one of your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published elsewhere in any language fully or partly, nor is it under review for publication elsewhere.

I affirm that all the co-authors of this manuscript have seen the submitted version of the manuscript and have agreed to their inclusion of names as co-authors.

Also, if my/our manuscript is accepted, I agree to comply with the formalities as given on the website of the journal. The Journal has discretion to publish our contribution in any of its journals.

**NAME OF CORRESPONDING AUTHOR** :

Designation :

Institution/College/University with full address & Pin Code :

Residential address with Pin Code :

Mobile Number (s) with country ISD code :

Is WhatsApp or Viber active on your above noted Mobile Number (Yes/No) :

Landline Number (s) with country ISD code :

E-mail Address :

Alternate E-mail Address :

Nationality :

**NOTES**:

a) The whole manuscript has to be in ***ONE MS WORD FILE*** only, which will start from the covering letter, inside the manuscript. ***pdf. version is liable to be rejected without any consideration***.

b) The sender is required to mention the following in the **SUBJECT COLUMN of the mail**:

**New Manuscript for Review in the area of** (e.g. Finance/Marketing/HRM/General Mgt./Engineering/Economics/Computer/IT/Education/Psychology/Law/Math/other, please specify)

c) There is no need to give any text in the body of mail, except the cases where the author wishes to give any **specific message** w.r.t. to the manuscript.

d) The total size of the file containing the manuscript is expected to be below **1000 KB**.

e) **Abstract alone will not be considered for review** and the author is required to submit the **complete manuscript** in the first instance.

f) ***The journal gives acknowledgement w.r.t. the receipt of every email within twenty four hours*** and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of manuscript, within two days of submission, the corresponding author is required to demand for the same by sending a separate mail to the journal.

g) The author (s) name or details should not appear anywhere on the body of the manuscript, except the covering letter and the cover page of the manuscript, in the manner as mentioned in the guidelines.

2. **MANUSCRIPT TITLE**: The title of the paper should be **bold typed**, **centered** and **fully capitalised**.

3. **AUTHOR NAME (S) & AFFILIATIONS**: Author (s) **name**, **designation**, **affiliation** (s), **address**, **mobile/landline number** (s), and **email/alternate email address** should be given underneath the title.

4. **ACKNOWLEDGMENTS**: Acknowledgements can be given to reviewers, guides, funding institutions, etc., if any.

5. **ABSTRACT**: Abstract should be in **fully italicized text**, ranging between **150** to **300 words**. The abstract must be informative and explain the background, aims, methods, results & conclusion in a **SINGLE PARA**. ***Abbreviations must be mentioned in full***.

6. **KEYWORDS**: Abstract must be followed by a list of keywords, subject to the maximum of **five**. These should be arranged in alphabetic order separated by commas and full stop at the end. All words of the keywords, including the first one should be in small letters, except special words e.g. name of the Countries, abbreviations.

7. **JEL CODE**: Provide the appropriate Journal of Economic Literature Classification System code (s). JEL codes are available at www.aeaweb.org/econlit/jelCodes.php, however, mentioning JEL Code is not mandatory.

8. **MANUSCRIPT**: Manuscript must be in ***BRITISH ENGLISH*** prepared on a standard A4 size ***PORTRAIT SETTING PAPER***. *It should be free from any errors i.e.* ***grammatical, spelling*** *or* ***punctuation.*** *It must be thoroughly edited at your end*.

9. **HEADINGS**: All the headings must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.

10. **SUB-HEADINGS**: All the sub-headings must be bold-faced, aligned left and fully capitalised.

11. **MAIN TEXT**:

***THE MAIN TEXT SHOULD FOLLOW THE FOLLOWING SEQUENCE***:

**INTRODUCTION**
**REVIEW OF LITERATURE**
**NEED/IMPORTANCE OF THE STUDY**
**STATEMENT OF THE PROBLEM**
**OBJECTIVES**
**HYPOTHESIS (ES)**
**RESEARCH METHODOLOGY**
**RESULTS & DISCUSSION**
**FINDINGS**
**RECOMMENDATIONS/SUGGESTIONS**
**CONCLUSIONS**
**LIMITATIONS**
**SCOPE FOR FURTHER RESEARCH**
**REFERENCES**
**APPENDIX/ANNEXURE**

The manuscript should preferably range from ***2000 to 5000 WORDS***.

12. **FIGURES & TABLES**: These should be simple, crystal **CLEAR**, **centered**, **separately numbered** & self explained, and **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. *It should be ensured that the tables/figures are referred to from the main text*.

13. **EQUATIONS/FORMULAE**: These should be consecutively numbered in parenthesis, horizontally centered with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word should be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.

14. **ACRONYMS**: These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section: Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.

15. **REFERENCES**: The list of all references should be alphabetically arranged. ***The author (s) should mention only the actually utilised references in the preparation of manuscript*** and they are supposed to follow Harvard Style of Referencing. **Also check to make sure that everything that you are including in the reference section is duly cited in the paper**. The author (s) are supposed to follow the references as per the following:

- All works cited in the text (including sources for tables and figures) should be listed alphabetically.
- Use (**ed.**) for one editor, and (**ed.s)** for multiple editors.
- When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc, in chronologically ascending order.
- Indicate (opening and closing) page numbers for articles in journals and for chapters in books.
- The title of books and journals should be in italics. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.
- For titles in a language other than English, provide an English translation in parenthesis.
- ***Headers, footers, endnotes** and **footnotes** should **not be used** in the document.* However, **you can mention short notes to elucidate some specific point**, which may be placed in number orders after the references.

**PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:**

**BOOKS**

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

**CONTRIBUTIONS TO BOOKS**

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

**JOURNAL AND OTHER ARTICLES**

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

**UNPUBLISHED DISSERTATIONS**

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

**ONLINE RESOURCES**

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

**WEBSITES**

- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

VOLUME NO. 6 (2015), ISSUE NO. 09 (SEPTEMBER) ISSN 0976-2183

# THE EFFECT OF SAVINGS, INVESTMENT AND FOREIGN DIRECT INVESTMENT ON JORDAN ECONOMY (1980-2013)

*TORKI M. AL-FAWWAZ*
*ASSOCIATE PROFESSOR*
*FINANCE AND ECONOMIC DEPARTMENT*
*FACULTY OF FINANCE AND BUSINESS ADMINISTRATION*
*AL AL-BAYT UNIVERSITY*
*MAFRAQ*

*HANADI ABED AL RIFAEE*
*HEAD*
*NATIONAL ECONOMY STUDIES & ECONOMIC POLICIES DIRECTORATE*
*MINISTRY OF FINANCE*
*JORDAN*

**ABSTRACT**

*This study aimed to analyzing the long-term and short-term relationship between the savings, investment, and foreign direct investment on Jordan Economy for the period (1980-2013). The study employed model: used GDP as dependent variable and FDI, INV and SAV as independent variables. The stationary of the data is checked through Augmented Dickey Fuller test and Phillips-Perron Test, and then Johansen co integration test and Vector error correction model (VECM) are employed for analysis. The study found that the series are not stationary in its levels and stationary in first difference. The results of Johansen co integration test revealed that the Jordan Economy (GDP) is significantly and positively co integrated with the savings (SAV), investment (INV) and foreign direct investment (FDI), which leads the way to run the VECM. The results from the VECM provide evidence for that not existence of long-run relationship between GDP and (SAV), (INV) and (FDI). The Wald test results revealed that there is no short-run causal relationship running from SAV and INV to GDP, but there is short-run causal relationship running from FDI to GDP.*

**KEYWORDS**

Savings, Investment, Foreign direct investment, GDP, vector error correction model.

## 1. INTRODUCTION

The main macro-economic objectives are to reach sustainable economic growth, and increase the employment opportunities, and achieving price stability, due to this there is strong relations between economic growth and these variables (saving, and investment, and foreign direct investment (Yılmaz, 2014). Among the economists (classical, and Keynesian) , Whether saving effect investment or gets cause by investment. Investment and Savings play a major role in achieving economic growth, by the adoption economic policies.

In classical school, an increase in savings will lead to a reduce the interest rates prompting investors demand more from the available funds and therefore to an increase in investments.

On other hand, Keynesian school argues that an increase in the investment leads to an increase in the output and income which will increase savings.( Ramakrishna,2012).

The purpose of this study is to examine the effect of savings, investment and foreign direct investment on Jordan economy (1980-2013).Using cointegration and vector error correction model (VECM), to investigate the long run and short run relationships between these variables. The data obtained from annual reports of the Central Bank of Jordan (CBJ). The empirical tests have been carried out E-views software package was used in this study.

This study attempts to test the relationship between gross domestic product, investment, savings and foreign direct investment in Jordan in the long run.

The rest of the paper is organized as follows: The second section provides literature review, Section three provides the empirical results of the study, and final section contains the conclusion.

## 2. LITERATURE REVIEW

In economic literature there are many studies examined the effects of the savings, investment and FDI inflows on the economic growth such as: study of Agrawal et al. (2010). The relationship between savings and growth: Cointegration and causality: Evidence from Asia. This study found that there was unidirectional causality from economic growth to savings.

The study of Andrei and Huidumac-Petrescu (2013). Saving and economic growth: An empirical analysis for Euro area countries. using Johansen co-integration test. Study reveals that there is a significant unidirectional causality between the two macroeconomic variables from real GDP to the saving rate.

The study Tang and Ch'ng (2012). Multivariate analysis of the nexus between savings and economic growth in the ASEAN-5 Economies. Found that there was unidirectional causality from savings to economic growth in all ASEAN-5 economies.

The study Tang and Lean (2013). The role of savings on economic growth in Malaysia: A view from generalized variance decomposition analysis. Revealed that the relationship between economic growth and savings in Malaysia are stable and coalescing in the long run. Study Tang and Tan (2014). A revalidation of the savings–growth Nexus in Pakistan. result showed that savings have positively affected economic growth in both the short run and long run. The Granger results also show that savings Granger-cause economic growth.

On the contrary, study Tang and Chua (2012). The savings growth Nexus for the Malaysian economy: A view through rolling sub-samples. Granger causality results indicate that the relationship between savings and economic growth is bilateral.

In the study Gulmez and Yardımcıoglu (2013). BRICS ülkeleri ile Türkiye'nin ekonomik büyümesinde ulusal ve yabancı tasarrufların etkisi: Panel veri analizi. They found that Domestic and foreign savings had positive impact on economic growth.

There are many studies that examined the nature relationship between foreign direct investment and economic growth present different results. Some studies found that there is a positive impact of foreign direct investment on economic growth, as in (El-Wassal (2012), Soumia and Abderrezzak (2013) and Gursoy et al. (2013).

Study El-Wassal (2012). Foreign direct investment and economic growth in Arab countries (1970-2008): An inquiry into determinants of growth benefits. Found that FDI inflows had positive impact on economic growth.

Study Soumia and Abderrezzak (2013) .The determinants of foreign direct investment and their impact on growth: Panel data analysis for AMU countries. Study noted that there was unidirectional causality from economic growth to domestic investment, while there was bidirectional causality between economic growth and FDI inflows.

Study Gursoy et al(2013). FDI and economic growth relationship based on cross-country comparison. Revealed that there was unidirectional causality from FDI inflows to economic growth in Azerbaijan, while there was bidirectional causality between economic growth and FDI inflows in Turkmenistan. While other studies noted that FDI had negative impact on economic growth, such as(Saqib et al. (2013), Ray, S., (2012), Rachdi and Saidi,( 2011).

Saqib et al. (2013).Impact of FDI on Economic Growth of Pakistan. found that FDI had negative impact on economic growth.

Ray, S., (2012). Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis. Which indicated that the there is a negative impact on economic growth in India.

Rachdi and Saidi,( 2011). The Impact of Foreign Direct Investment and Portfolio Investment on Economic Growth in Developing and Developed Economies. The study found that the relationship between the investment portfolios and economic growth is negative and statistically significant.

## 3. EMPIRICAL RESULTS

We applied the unit root test to test whether the data is stationary or have a unit root; to do this we employ the Augmented Dickey-Fuller test and Phillips-Perron Test, in the second step we applied the cointegration test and we use vector error correction model Approach (VECM) to identify the long run equilibrium relationship between the variables also we use Wald test to identify the short run equilibrium relationship between the variables.

### 3.1 UNIT ROOT TEST (TESTING FOR STATIONARITY)

The meaning of stationarity is that both Mean and Variance are consistent for all time (t), the same holds for the Cov(Yt, Ys), thus the correlation between any two different values depends on different time series for both values of (Y) (for T≠S). If the time series data is non-stationary the method of least squares become is not trusted, also if the data is not stationary the value of R-squared is high this make difficult to determine relationship between the variables. In this case the Unit Root Test and Cointegration Test are used to determine the nature of the relationship between the variables (alfawwaz, 2013).

The Augmented Dickey-Fuller (ADF) (Dickey & Fuller, 1981) test is used to determine the stationarity of time series. Table 1 reports the results of the ADF test. The results show that all the variables are nonstationary in level, therefore, the null hypothesis is accepted, but was rejected in 1st difference. As result of this all the variables are integrated of order I(1).

**TABLE 1. UNIT ROOT TEST USING AUGMENTED DICKEY FULLER TEST**

| Variable | LEVEL | | First difference | |
|---|---|---|---|---|
| | ADF | Critical value. (5%) | ADF | Critical value. (5%) |
| GDP | 1.916596 | -3.552973 | -3.904315 | -3.557759 |
| FDI | 1.422124 | -3.595026 | -4.889575 | -3.595026 |
| SAV | -3.177708 | -3.557759 | -4.628498 | -3.568379 |
| INV | -2.290375 | -3.552973 | -6.070568 | -3.557759 |

**TABLE 2: UNIT ROOT TEST USING PHILLIPS-PERRON TEST**

| Variable | LEVEL | | First difference | |
|---|---|---|---|---|
| | ADF | Critical value. (5%) | ADF | Critical value. (5%) |
| GDP | 1.637740 | -3.552973 | -3.922939 | -3.557759 |
| FDI | -2.277372 | -3.552973 | -5.204147 | -3.557759 |
| SAV | -2.173924 | -3.552973 | -7.376789 | -3.557759 |
| INV | -2.350847 | -3.552973 | -5.998024 | -3.557759 |

Table 2 shows the results of the Perron test for level and first difference series. The null hypothesis of a unit root was accepted for all the variables but was rejected in 1st difference. The Perron test confirm the result of ADF test

Since the variables are integrated of the same order, the next step is to estimate the long-run equilibrium relationship by relationship using Johansen co-integration procedure.

### 3.2 CO-INTEGRATION TEST RESULT

In the second step the researchers applied the co integration test to identify the long run equilibrium relationship between the variables, using the Johansen (1988) and Johansen & Juselius (1990). Where: H0, there is no co integration between the two variables. Schwarz criterion is used to determine the specific lag length periods (lagged one period), and for choosing acceptable test of co integration. Since Johansen method is sensitive for autocorrelation in residuals, we use the Pantula principle (see Pantula, 1989) to determine the co-integration rank (see al-fawwaz,and Al-Sawai‟e. 2012).

Having established that all variables are integrated of same order, we proceed to test for presence of co-integration among the variables. The co integration of the variable series requires the existence of a long-run relationship acts as a constraint on their movement. We employ Johansen co-integration test. It may be noted here that we are interested to check for the presence of co integrating relationship among the variable.

**TABLE 3: LAG SELECTION ON VAR MODELS**

| Lag | FRE |
|---|---|
| 0 | 1.88e+56 |
| 1 | 4.36e+53 |
| 2 | 4.19e+53* |
| 3 | 7.15e+53 |
| 4 | 5.37e+53 |

The co integration approach requires the determination of the optimal lag structures by estimating a VAR model to carry out the task. The VAR models are estimated for 1, 2, 3, and 4 lags to select the optimal lag interval that minimizes the Final prediction error. The result of **FRE** reported in table 3 suggests 2 lags for co integration models.

Accordingly, the Johansen-Juselius Co integration test in Table 4, we present only the results of the null hypothesis that there does not exist co-integration against the alternative that there exists co integration. Starting with the null hypothesis that co-integration (r=0) does not exist among the variables, the trace statistic is well above the 95 per cent critical value for all the series. Hence, it rejects the null hypothesis of no co-integration in favor of existence of co integration for all the series. Turning to the maximum eigen value test, the null hypothesis that there does not exist co-integration is rejected at 5 per cent level of significance in favor of the specific alternative that there is at least one co-integrating vector for all series.

TABLE 4: RESULTS OF JOHANSEN COINTEGRATION TEST

| Trace Statistic Result | | | |
|---|---|---|---|
| Hypothesized Number of Cointegrating Equations | Trace Statistic | 5% Critical Value | Probability |
| None* | 57.95868 | 47.85613 | 0.0043 |
| At Most 1 | 28.89334 | 29.79707 | 0.0633 |
| At Most 2 | 12.65467 | 15.49471 | 0.1293 |
| At Most 3 | 0.700194 | 3.841466 | 0.4027 |

| Maximum Eigen value Statistics Results. | | | |
|---|---|---|---|
| Hypothesized Number of Cointegrating Equations | Max-Eigenvalue Statistic | 5% Critical Value | Probability |
| None* | 29.06534 | 27.58434 | 0.0321 |
| At Most 1 | 16.26867 | 21.13162 | 0.2096 |
| At Most 2 | 11.92447 | 14.26460 | 0.1135 |
| At Most 3 | 0.700194 | 3.841466 | 0.4027 |

The result shows that both Trace test and Max-Eigen test are statistically significant to reject the null hypothesis of r= 0 at 5% significance level. Therefore, only one long run cointegration relationship between GDP and others variables.

**3.3 VECTOR ERROR CORRECTION MODEL (VECM) RESULT**

Since there is co-integration, we apply VECM model to evaluate the short run. The results VECM models are presented in table (5).

TABLE 5: RESULTS OF VECTOR ERROR CORRECTION MODEL

| variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| c(1) | 0.046455 | 0.039733 | 1.169190 | 0.2554 |
| c(2) | 0.468291 | 0.201512 | 2.323883 | 0.0302 |
| c(3) | -0.240452 | 0.370584 | -0.648846 | 0.5235 |
| c(4) | -9623165 | 35018384 | -0.274803 | 0.7862 |
| c(5) | -0.728483 | 0.384359 | -1.895318 | 0.0719 |
| c(6) | 0.126194 | 0.233715 | 0.539948 | 0.5949 |
| c(7) | 1.055693 | 0.361843 | 2.917542 | 0.0082 |
| c(8) | 1371011. | 34661543 | 0.039554 | 0.9688 |
| c(9) | 0.085157 | 0.408165 | 0.208633 | 0.8367 |
| c(10) | 3.88E+08 | 2.64E+08 | 1.468589 | 0.1568 |

The VECM equation for the dependent variable GDP is as follows:

**D(GDP) = C(1)*( GDP(-1) + 0.307051507075*FDI(-1) + 159438799.704*I INV(-1) + 3.81666765229*SAV(-1) - 14885830181.5 )+C(2)*D(GDP(-1))+ C(3)*D(FDI(-1)) + C(4)*D(INV(-1)) + C(5)*D(SAV(-1)) + C(6)*D(GDP(-2)) + C(7)*D(FDI(-2)) + C(8)*D(INV(-2)) + C(9)*D(SAV(-2)) + C(10)**

GDP = Dependent variable

FDI, INV, SAV = Independent variable

C (1) = Coefficient of co integrating equation (long-term causality)

C (2), C (3), C (4),c(5),c(6).c(7),c(8) and C (9) = Coefficient of co integrating equation (short-term causality).

C (10) = Constant / intercept

From the VECM equation, the C(1) is the coefficient of co integrating equation.

C(1)*( GDP(-1) +0.307051507075*FDI(-1) + 159438799.704*INV(-1) + 3.81666765229*SAV(-1) - 14885830181.5)

from which the residual is taken for developing the error correction (EC) term and from the EC term the long-run causality is developed. The results of EC model is presented in table (5). C (1) is the residual at two period lag of co integrating vector between GDP and others variables. The EC term is not negative and is not significant at 1%, which implies that all variables haven't long-run causality on GDP. The result thus shows that there not exists a long-run causality between FDI, SAV, and INV to GDP.

On the other hand, from the VECM the short-run causality from FDI, SAV, and INV to GDP is examined using the coefficient C (3) to C (9), the results are presented in table (6) using Wald test.

To identify the short-run causality from FDI, SAV, INV to GDP the study used chi-square value of Wald test. If the coefficients C (3) and C (7), c(4) and c(8),c(5) and c(9) jointly influence the GDP, then there exists a short-run causality from variables to GDP. The results of Wald test is presented in table 6. It is inferred that the H0 i.e C (4) =C (8), C (5) = C (9)=0 of lag two cannot jointly influence the GDP. It is inferred that H0 cannot be rejected, since the $\chi$ 2 is >5%. Hence, the H0 1b "there is no short-run causality between GDP and INV, SAV" is accepted, which implies that C(4),c(5),c(8) and c(9) jointly impacts to zero. In other words, all these having two lag cannot cause GDP, and therefore it is concluded that there is no short-run causality running from INV and SAV to GDP, but there is short-run causality running from FDI to GDP.

since EC term is not significant negatively, whereas there is no short-run causality running from SAV, INV to GDP but there is short-run causality running from FDI to GDP.

**TABLE 6: RESULTS OF WALD TEST**

| Variable | Wald Test statistic | Value | Df | Prob. |
|---|---|---|---|---|
| FDI | **F Statistics** | 4.781219 | (2, 21) | 0.0194 |
| | **Chi-square** | 9.562438 | 2 | 0.0084 |
| **Null Hypothesis Summary:C(3)=C(7)=0** | | | | |
| **Normalized Restriction (=0)** | | **Value** | Std. Err. | |
| C(3) | | -0.240452 | 0.370584 | |
| C(7) | | 1.055693 | 0.361843 | |
| **Null Hypothesis Summary:C(4)=C(8)=0** | | | | |
| **Variable** | **Wald Test statistic** | **Value** | **Df** | **Prob.** |
| INV | F-statistic | 0.038889 | (2, 21) | 0.9619 |
| | Chi-square | 0.077777 | 2 | 0.9619 |
| **Normalized Restriction (=0)** | | **Value** | Std. Err. | |
| C(4) | | -9623165. | 35018384 | |
| C(8) | | 1371011. | 34661543 | |
| **Null Hypothesis Summary:C(5)=C(9)=0** | | | | |
| **Variable** | **Wald Test statistic** | **Value** | **Df** | **Prob.** |
| SAV | F-statistic | 1.796868 | (2, 21) | 0.1904 |
| | Chi-square | 3.593736 | 2 | 0.1658 |
| **Normalized Restriction (=0)** | | **Value** | Std. Err. | |
| C(5) | | -0.728483 | 0.384359 | |
| C(9) | | 0.085157 | 0.408165 | |

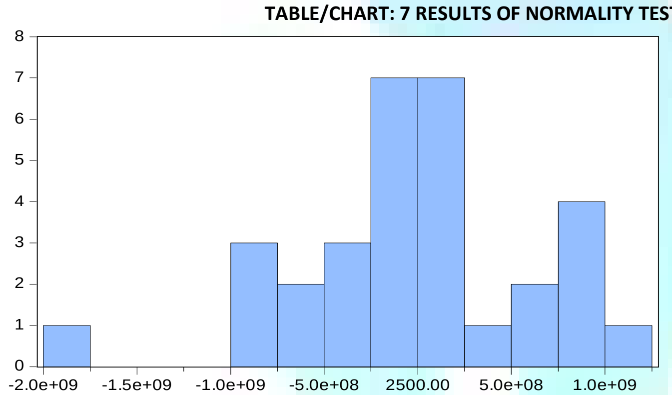
### 3.4 MODEL SELECTION AND DIAGNOSTIC CHECK

The model used in the study is subject to diagnostic check to assess whether the model was correctly specified. The selection criterion among the two models was based on three methods.

Firstly, the residual of the model should be normally distributed, and secondly, the model should be able to capture the autoregressive conditional heteroscedasticity (ARCH) effect and thirdly, the model should not have any serial correlation.

The results from the table 7show that the residuals for the model applied are normally distributed, since the probability of Jarque-Bera statistics is more than 5% and therefore, the H0 "residuals are normally distributed" is accepted.

**TABLE/CHART: 7 RESULTS OF NORMALITY TEST**




Series: Residuals
Sample 1983 2013
Observations 31

| | |
|---|---|
| Mean | -7.59e-08 |
| Median | -5057201. |
| Maximum | 1.11e+09 |
| Minimum | -1.92e+09 |
| Std. Dev. | 6.50e+08 |
| Skewness | -0.522340 |
| Kurtosis | 3.853491 |
| Jarque-Bera | 2.350581 |
| Probability | 0.308729 |

Secondly, the H0 "there is no heteroskedasticity effect" is tested and the result from the table 8 shows that the value of test statistics (Obs*R2) is more than 0.05. Hence, the H0 is rejected implying that the model have heteroskedasticity effect.

**TABLE 8: RESULTS OF HETEROSKEDASTICITY TEST**

| **Heteroskedasticity Test: ARCH** | | | |
|---|---|---|---|
| F-statistic | 0.477077 | Prob. F(2,26) | 0.6259 |
| Obs*R-squared | 1.026576 | Prob. Chi-Square(2) | 0.5985 |

Finally, "there is no serial correlation effect" is tested for the model and the probability value of observed Chi-Square >5% and hence the H0 is accepted, indicating that there is no serial correlation effect among the selected variables (table 9).

**TABLE 9: RESULTS OF SERIAL CORRELATION**

| **Breusch-Godfrey Serial Correlation LM Test:** | | | |
|---|---|---|---|
| F-statistic | 0.292155 | Prob. F(2,19) | 0.7499 |
| Obs*R-squared | 0.924903 | Prob. Chi-Square(2) | 0.6297 |

## 4. CONCLUSION

The results of Error Correction Model show that:

The main findings in this study were: Johansen co-integration test result shows evidence of co-integration implying that there is no long run relationship running from savings, investment and FDI to GDP in Jordan. Savings and domestic investment have not short run significant impact on the Jordanian economy, while FDI has positive and significant impact on the Jordanian economy.

The study investigated the causal relationship which running from savings and investment to the growth in Jordan over the years (1980 -2013). The degree of investment in any economy really affect on the extent of saving. Savings and investments are imperative for development given that they play significant role in bringing about capital required to increase production process, harnessing and transforming the resources of the country. It is obvious that the level of saving required to raise enough capital for investment is yet to be achieved due to myriad of bottlenecks, among which includes improper mobilization of saving by the banking sector, poor banking habits of many Jordanian, insecurity of lives and property which have for sometime retarded smooth economic operation and consequently low income generation, which in turns adversely affect capital accumulation.

The results of the study were consistent with this principle , the study shows not significant impact running from saving and investment to growth in Jordan during the study period , while the study found a significant effect of foreign investment on growth in the short run in the same period.

## REFERENCES


1. Agrawal, P. (2010) The relation between Savings and Growth: Cointegration and Causality Evidence from Asia, Applied Economics, 33, 499-513.
2. Al-Fawwaz, T., Sawai'e , K.(2013). The relationship between gross domestic product and government expenditures in Jordan: A VAR Approach. Interdisciplinary Journal of Contemporary Research in Business.Vol 4, No.9.
3. Andrei and Huidumac-Petrescu (2013). Saving and economic growth: An empirical analysis for Euro area countries. Theoretical and Applied Economics Volume XX, No. 7(584), pp. 43-58.
4. Bayar, Yılmaz,(2014).Savings, Foreign Direct Investment Inflows and Economic Growth in Emerging Asian Economies. Asian Economic and Financial Review, Vol.4, No.8 (2014), p.17.
5. El-Wassal, K.A., 2012. Foreign direct investment and economic growth in Arab countries (1970-2008): An inquiry into determinants of growth benefits. Journal of Economic Development, 37(4): 79-100.
6. G. Ramakrishna (2012).The Long run Relationship between savings and Investment in Ethiopia: A Cointegration and ECM approach, Developing Country Studies,vol.2, No.4, 1-12, May, 2012.
7. Gulmez, A. and F. Yardımcıoglu, 2013. BRICS ülkeleri ile Türkiye'nin ekonomik büyümesinde ulusal ve yabancı tasarrufların etkisi: Panel veri analizi. C.Ü. İktisadi ve İdari Bilimler Dergisi, 14(1): 47-68.
8. Gursoy, F., A. Sekreter and H. Kalyoncu, 2013. FDI and economic growth relationship based on cross-country comparison. International Journal of Economics and Financial Issues, 3(2): 519-524.
9. Imoughele, Lawrence Ehikioya. (2014): An Econometric Analysis of the Determinants of Private Domestic Savings in Nigeria (1981 -2012), International Journal of Humanities and Social Science, Vol. 4 No. 5.
10. International Monetary Fund, Balance of Payments database, supplemented by data from the United Nations Conference on Trade and Development and official national sources.
11. Rachdi, H., Saidi, H. (2011).The Impact of Foreign Direct Investment and Portfolio Investment on Economic Growth in Developing and Developed Economies", Interdisciplinary Journal of Research in Business, 1 (6), pp. 10-17.
12. Ray, S. (2012) .Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis. Advances in Information Technology and Management (AITM) 187 Vol. 2, No. 1.
13. Saqib, N., M. Masnoon and N. Rafique, 2013. Advances in Management & Applied Economics, 3(1): 35–45.
14. Soumia, Z. and B. Abderrezzak, 2013. The determinants of foreign direct investment and their impact on growth: Panel data analysis for AMU countries. International Journal of Innovation and Applied Studies, 2(3): 300-313.
15. Tang, C.F. and B.W. Tan, 2014. A revalidation of the savings–growth Nexus in Pakistan. Economic Modelling, 36: 370–377.
16. Tang, C.F. and H.H. Lean, 2013. The role of savings on economic growth in Malaysia: A view from generalized variance decomposition analysis. Economic Computation and Economic Cybernetics Studies and Research, 47(3): 199-214.
17. Tang, C.F. and S.Y. Chua, 2012. The savings growth Nexus for the Malaysian economy: A view through rolling sub-samples. Applied Economics, 44: 4173–4185.
18. Tang, C.F. and Ch'ng K.S. (2012) A Multivariate Analysis of the Nexus between Savings and Economic Growth in the ASEAN-5 Economies, *Margin: The Journal of Applied Economic Research*, 6(3), pp. 385-406.

# REQUEST FOR FEEDBACK

**Dear Readers**

At the very outset, International Journal of Research in Commerce & Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you tosupply your critical comments and suggestions about the material published in this issue as well as on the journal as a whole, on our E-mail**infoijrcm@gmail.com** for further improvements in the interest of research.

If youhave any queries please feel free to contact us on our E-mail **infoijrcm@gmail.com**.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward an appropriate consideration.

With sincere regards

Thanking you profoundly

**Academically yours**

Sd/-
**Co-ordinator**

# DISCLAIMER

The information and opinions presented in the Journal reflect the views of the authors and not of the Journal or its Editorial Board or the Publishers/Editors. Publication does not constitute endorsement by the journal. Neither the Journal nor its publishers/Editors/Editorial Board nor anyone else involved in creating, producing or delivering the journal or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the journal, nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of information/material contained in the journal. The journal, neither its publishers/Editors/ Editorial Board, nor any other party involved in the preparation of material contained in the journal represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources. The responsibility of the contents and the opinions expressed in this journal are exclusively of the author (s) concerned.

# ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

## Our Other Journals