THE INFORMATIVENESS OF ACCOUNTING EARNINGS FOR GROSS DOMESTIC PRODUCT

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Abstract: The purpose of this study is to investigate the informativeness of accounting earnings for growth in gross domestic product (GDP). The research population is Tehran stock exchange. Using systematic sampling method, 311 companies were selected as sample. The research period is from 2001 to 2013. In order to test the reliability of the research variables, Levene's test, Dickey–Fuller test and Phillips–Peron test were used. Chow test, Fisher test, Durbin-Watson test and Wald test were used to estimate the research model. According to the research findings, the growth of future GDP can be predicted through accounting earnings and GDP growth forecast errors (research variables). Explanatory power and information contents of two variables are not enough to explain the volatility of future GDP growth in economy of Iran. The reason of this issue is that the number of companies listed on the Tehran stock exchange is very few as well as their effects on the formation of the national economic statistics is very low. The Iranian economy is heavily dependent on the crude oil and gas sector and oil and gas revenues is much more than the total revenue of the companies listed on the Tehran stock exchange.

Keywords: Accounting Earnings, Gross Domestic Product, Forecast Errors, Information Content, Iran

1. INTRODUCTION

Accounting information is one of important sources to take economic decisions. This information is largely classified in three groups of financial statements, quantitative reports and special analysis. In economic decision-making, each one of following information can be applied singly or together or even along with information out of accounting systems (Ebrahimi Kurdlor, 2007). One of important elements of this information is corporates statements. specially their gain or loss statements, which represents the result of company' operation in a financial period, and also its ultimate number shows the net profit or loss of that period and is considered as essential basis of most decisions, evaluating models and stock pricing, so as its accuracy, precision, reliability, confidence, predictability and its realization, is in direct relation with the accuracy of decisions and evaluations (Ebrahimi

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Kordler & Noravesh, 2005). Investors and many other users of accounting information, consider profit as important source for evaluating the company's performance. Evaluation of company's performance means evaluating the overall financial position and the results of operations to get logical decisions. Profit is also one of main elements of stock pricing. In this context Penman et al(2007) mention that if the accounting profit is able to forecast future value of company, it will be of fair quality (Pourheidari & Karamshahi, 2011). Getting profit is the ultimate goal of all commercial companies. In finance scope, profit is of special status and significance. For this reason, recognition of effective factors and their type and severity, has been considering by researchers since old times. (Setayesh & Mansouri, 2010).William Beaver believes that considering the notion of accounting profit and its functional scope in firm's performance, provides context of development for important part of empirical accounting and financial affairs researches, and finally leads to growth of company (Saghfi & Aghaee, 1994).

Growth in accounting profit in big companies, leads to economic growth (Bureau of Economic Analysis (BEA), 2004).In present situation of country's economy, everyone's agreement specially economists, specialists and country's politicians is on this essential economical problem of country that economic growth and production in the country isn't consistent with natural and human resources of national economy and the power, capacity and economical potentials of country aren't exploited efficiently. Therefore, there is high rate of unemployment at resources especially labor force in the country and in an aspect as national economic growth is largely dependent on oil, it has high volatility, and this volatility and inconstancy is observed in plans and top variables of economy. These mentioned factors along with other reasons leads to reduced productivity in national economy and this factor necessitates a fundamental need in field of structures' change in order to use country's resource and economic potentials properly. Therefore reviewing the process of economic variables' flow including gross domestic production of country, which as national economic power has always been discussed, is of high importance (Amiri, Mirzaei, Yazdani, & Khoshbakht, 2010). In addition, change in gross domestic production is assigned as economic growth, and somehow represents the economic change process and is the indicator of amplifying the extent (limit) of national economy during a period. For this reason the fluctuations in growth rate followed closely by political and decision making authorities and economic officials in every society seek to keep this economic variable in a proper condition. When gross domestic production scats from its long-term trend, they try to use economic measures and politics to provide required field to return it to optimal trend (Amiri, Mirzaei, Yazdani, & Khoshbakht, 2010). White House and United States Congress have used GPD indicator to provide Federal Budget. In addition, Wall Street uses it to set monetary policies by Treasury Department, and as economic indicator. Also Central Bank of The United States

recognizes it as the main criteria for ranking the world's economy (Stark, 2010), (Zarnowitz & Braun, 1993). Pundits believe that accounting profit in general, is considered as related information about decision-making models. Also accounting data users in order to evaluate and predict the cash flow of business unites and subsequently, to take economic decisions, more than any other information, rely on the information from profit and its components. In this research, the relation between accounting profit and GDP in accepted companies in Tehran Stock Exchange is identified. The aim of research is to answer the question that is there any relationship between accounting profit and GDP, and if so to what extent and how will it be?

1.1. The Importance and Necessity of Research

While a big amount of accounting studies, provide evidence about informational role of accounting profit at the company level, but the relationship between accounting profit and macroeconomic indicators such as GDP remained almost unknown. Also macroeconomic researches are independent from accounting researches, which in this kind of researches the performance of companies is taken in consideration and therefore there is concerns about the effectiveness of accounting profit for growth of GDP (Konchitchki & Patatoukas, 2014). The use of economic measures despite having various restrictions is common widely among investors in exchange. So exact recognition of important variables of macroeconomic and the way of its usage can be efficient and useful.

1.2. The New Aspect and Innovation in Research

Accounting profit growth is one of the leading indicators in the field of Gross Domestic Product Growth. This research aims to using accounting profit data to predict Gross Domestic Product Growth and the errors relating to this prediction in.

1.3. Practical Purpose

Accepted companies in Tehran' stock exchange, financial managers, shareholders, investors, creditors, financial and economic analysts, banks, university students and other enthusiasts to related topics which can benefit from accounting profit and Gross Domestic Product can benefit from the results of this research.

1.4. Variables and Terms 'Definition

These research variables are divided into three groups including independent, dependent and moderator.

1.4.1. Independent Variable

Accounting profit in this research has been considered as independent variable.

1.4.1.1. Accounting Profit

Accounting profit is the difference between costs and revenues, which it is measured in framework of accepted accounting principles. The company earn revenue during a fiscal year with respect to the activities which it perform. In the other hand, the company sustains some of money in order to produce products and offering services. The related revenues and costs matched together at the end of fiscal year to determine company's performance to specify that how much profit company has earned in fiscal year. Therefore, the profit can be a method for evaluating company's performance. (Zarif Fard & Jahankhani, 1995).

1.4.2. Dependent Variable

Gross Domestic Product and forecast error of Gross Domestic Product in this research have been considered as dependent variable.

1.4.2.1. Gross Domestic Product

Total monetary value of final good produced by economic units residing in country in a determined period (annual or seasonal) is called Gross Domestic Product. (Central bank website of Islamic republic of Iran).

1.4.2.2. Forecast Error

The difference between real and predicted value in corresponding period is called forecast error. If E is forecast error in t period, Y is real value in t period and F is predicted value in t period. Forecast error is equal to following equation according to below relation:

$$ET = Yt - Ft$$

However, forecast error is lower; the prediction will be more accurate. (Turchin, 2007).

1.4.3. Moderator Variable

The informative content of accounting profit in this research is considered as moderator variable.

1.5. The Methods and Tool of Data Analysis

The combined data method will be used in this research regarding to data and existing analytical method. The purpose of combined data is a set of data consisting of a large number of sectional variables (N) which they have been evaluated during a determined period (T). In this case, of observation, relation is as follows: N × T and data analysis is performed through following models:

1- We will test the relation between accounting profit growth of companies and future Gross Domestic Product growth by using below regression model

Relation 1: $g_{it+k} = \beta_0 + \beta_1 \Delta X_{it} + \varepsilon_{it}$

In this relation: ΔX is accounting profit and g is Gross Domestic Product.

β_0 is numeral coefficient, I is the number of sample companies, t indicated the time.

ε is the amount of error and k is {1. 2, 3, 4}

2- We will measure forecast error of Gross Domestic Product growth as below in order to test is there any relationship between accounting profit of companies and predicting error of future Gross Domestic Product growth.

Relation 2: $Err\_g_{it+k} = \beta_0 + \beta_1 \Delta X_{it} + \varepsilon_{it}$

Err_g is predicting error of GDP growth.

2. LITERATURE REVIEW

Siddighi (2013) examined the relationship between the structure of board of directors and information content of accounting profit from 2004 to 2008. The results showed that variables of the structure of board of directors such as; the size of the board of directors, membrane of chief executive officer (CEO) in the board of directors, duality of CEO's responsibility and independence of the board of directors was not significantly related to the information content of accounting profit. Soleymani and Memariyan (2012) investigated the relationship between accounting profit and economic profit with the return on equity of stockholders in Tehran Stock Exchange for 8 years (2002-2010) on 40 top stock companies and they concluded that there is no significant association between economic profit and accounting profit and return on equity of stockholders. Amjadi et al (2012) analyzed the knowledge-based economy on the GDP in different countries through analysis of data from 148 countries and they concluded that human development, economic regime and economic incentives, innovation system, education and human resources and information infrastructures have effect on GDP. Kordestani and Keshavarz Hedayati (2012) compared the power of defining the stock price through intellectual capital and accounting profit for 115 companies listed in Tehran Stock Exchange from 2001 to 2009 that showed a significant relationship between intellectual capital and the stock price. However, the evidence suggests that the intellectual capital in explaining stock price is less than the interest power in explaining the stock price. However, the simultaneous use of accounting profit and intellectual capital as explanatory variables leads to the highest explanatory power for stock price. Janjani and Khodadadi (2011) in his study examined the relationship between profit and its components with stock returns with emphasis

on profit quality of companies listed in the Tehran Stock Exchange. To do this purpose a sample of 230 companies listed in Tehran Stock Exchange from 2002 to 2008 were selected. The results showed that based on hybrid method, both profit components have informative content but cash component of profit in comparison with its commitment component has a higher information content. Setayesh and Mansouri (2010) in their study investigated the relationships between working capital and the different components of accounting profit. The sample consists of 195 companies listed in Tehran Stock Exchange from 2004 to 2008. The results suggest that the net working capital has a positive and significant correlation with operating profit, profit before interest and net income and tax. However, there is no significant relationship between working and gross capital and none of the different components of accounting profit. Dahmardeh and Keramati (2010) investigated the causal relationship between housing and non-housing investments with GDP from 1959 to 2007. The results suggested that there is a two-way causal relationship between housing and non-housing investments with GDP. Thus, the positive trend of investment in the Iran economy could increase the economic development through GDP growth; however, an increase in GDP may lead to investment growth in Iran economy.

Baradaran Hassan Zadeh and *et al.* (2011) examined the effect of combination of stakeholders on the information content of accounting profits of the companies listed in Tehran Stock Exchange and it was concluded that the stockholders' institutional ownership does not have any effect on the information content of accounting earnings or profit and the greatest impact on stock return belongs to variables of the ratio of share earnings to price (E/P) and ratio of earnings of per share to book value of per share (E/BV) and changes in accounting profit. Behboudi and *et al.* (2009) examined the relationship between energy consumption and GDP in developing and development countries during 1970-2006. The results showed an integration relationship between the variables in the long term. During the period under review, the developed countries, in terms of energy consumption were higher than the developing countries, and the long-term impact of energy consumption on GDP in these countries was lower than its impact on developing countries Khani and Mollaiy (2009) investigated the relationship between accounting earnings and operating cash flow to systemic risk in Tehran Stock Exchange from 1999 to 2006. The results showed the relationship between accounting earnings and operating cash flow with systemic risk. Besides incremental content of any of the information related to accounting, earnings and operating cash flow have been taken into account in forecasting process of systemic risk. Rahnamay Roodposhti *et al.* (2011) in their study entitled "The information content of earnings and profits and cash flow volatility cycle" for 50 companies listed in Tehran Stock Exchange from 1999 to 2008 concluded that the information content has accounting earnings. Another finding of this study is that the

information content of accounting earnings have been reduced at companies, which have had smoother profits than cash flow. Motefakker *et al.* (2008) examined the impact of human capital on GDP based on James Raymo framework. The results suggested that when human capital is regarded as a productive institution is investigated along with other factors of production, so it may have a positive and significant effect on long-term, while in short-term it has a negative and insignificant effect on GDP. Beheshti and Sojoodi (2008) in their study entitled "An empirical analysis of the relationship between health expenditure in gross domestic production in Iran" investigated the long-term relationship between health expenditures and GDP in Iran from 1959 to 2004 and the income elasticity of health and health expenditure. The results showed that only a long-term relationship between health expenditure and GDP has been found under which GDP a significant positive impact has on health expenditures. Namazi and Shamsodini (2007) using a sample of 77 companies listed in Tehran Stock Exchange from 2000 to 2004 investigated the factors affecting on the accuracy of predicting earnings by the management of listed companies in Tehran Stock Exchange. The results showed relationship between the earnings growth, sales growth, asset growth, forecasted profit in the past, financial leverage, stock prices and accuracy of earnings prediction, however, there is no relationship between the paid dividend profit and the size of company with accuracy of profit forecast. The results of multiple regression analysis showed that the profit growth and financial leverage are correlated with the accuracy of earnings forecast. Fooladi (2007) examined the relationship between changes in income and loss statement items and stock price changes. The purpose of this study was to examine whether there is a relationship between accounting earnings components (such as; sales revenue, cost of sold goods, operating costs, other expenses, other income and net income) stock price changes. The results showed that the components of the income and loss statement contained information content and investors will react to it, so they have significant impact on stock price and trading volume.

Saeidi and Ghaderi (2008) assessed the ability of prediction of book value, net income, operating cash flows and cash flows originated from investing activities in relation to the value of the company. The findings showed the book value and accounting profit are more related items and entering cash flows (operating and capital) don't increase the explanatory power of the model significantly and they are not related. Fakhari and Yousef Nezhad (2006) examined the relationship between the variables of growth of net profit and operating profit growth of companies with the systematic risk. Besides, two variables; company size and industry type were measured as control variables. The results indicated a positive relationship between systematic risk and growth of net profit and operating profit growth. These findings reaffirm the usefulness of accounting variables for systematic risk assessment. Motevaseli and Fouladi (2006) examined the effects of

world increase in oil prices on GDP and employment in Iran by using a computable general equilibrium model. Their results suggested that the increase in oil prices has led to an increase in GDP, while this increase is due to an increase in all components of GDP. Pourheydari *et al.* (2006) examined the information content of the net profit and the book value of the companies through making a relationship between the earnings of per share and book value of per share with the price of per share of the companies listed in Tehran Stock Exchange from 1996 to 2004. Their findings revealed that a considerable part of the changes in the value of the company is explained by the profit and most of the explanatory power of book value and total profit is due to the profit. Besides, the company book value doesn't benefit from an appropriate explanatory power when it is compared to earnings per share. Maleki (2004) studied the causal relationship between energy consumption and GDP in Iran (1981 to 2001) and the results showed that in the short term and long term, there is a one-way causal relationship between energy consumption and GDP. Noravesh and Mashayekhi (2004) studied incremental information content of economic value added and cash value-added against accounting earnings and cash flow cash obtained from operations. They showed accounting earnings have incremental information content rather than other studied variables, however, operating cash doesn't have significant correlation with stock returns and it is without incremental information content toward accounting earning and economic and cash value added.

Shariat (2004) examined the relationship between value added and accounting profit in carmaker companies listed in Tehran Stock Exchange. The results of this study suggested that there is significant correlation between accounting profit and economic value added. Shahmoradi (2002) examined whether there is a significant correlation between the accounting profits (operating profit, net profit and comprehensive income) and the stock returns? The results showed that there is a significant relationship between operating income and comprehensive income and stock returns, but not between net profit and the stock returns. Heydari (1999) found a positive relationship between stock price index and the GDP and a negative relationship between stock price index and inflation. Ramazani (1999) using two simultaneous equation systems, and implementing a three-stage method of least squares from 1971 to 1996 found the impact of the total share of the government expenditure in GDP and implementation of government expenditure on per capita was positive and generally, the government expenditure has impact on Iran economic growth. Taheri Fard and Rahmani (1997) using error correction model (1967-1994), investigated the relationship between GDP, energy consumption and capital stock in Iran and the results indicated that in short-term, there is no significant relationship between GDP, energy consumption and capital stock, but

the relationship between energy consumption, gross domestic production (GDP) and capital stock was long-term. Yadollahzadeh Tabari (1992) examined the structural changes in Iran economy to oil revenues. The research model is related to pre-boom period of oil (1961-1973) and post-boom period of oil (1972-1989). The results showed that growth in the oil revenues in pre-boom period has more impact on GDP growth. Kanchichky and Petatoucs (2014) examined the relationship between accounting earnings and GDP from 1988-2011 in the USA. Their results indicated a significant positive relationship between accounting profit and it's GDP. Gallo et al (2013) by examining the accounting profit, monetary policy and stock returns concluded that the Federal bank reacts with a lag to the total growth of accounting profit. Studies provide evidences about the mechanism through which the accounting profit growth can lead to the response of monetary policy.

Kanchichky (2011) investigated the performance of a stock price changes concluded that the change in the price level affects profit accounting of firms and it has useful information for the future cash flows and pricing the stock. Zubairi (2010) examined the effect of key economic and financial profitability of the 20 companies listed on the Stock Exchange in Karachi, Pakistan (cement industry). The results revealed that GDP growth has a significant positive effect on profitability. Landsman (2009) in determining the value of company by using accounting earnings suggested that profit can only help to stakeholders in determining the value of the company if it can explain variation of stock returns and earnings should be related and reliable in order to be reflected in the stock price. Szirmai(2009) investigated the impact of industrialization on the economic growth of 63 developing countries from 1950 to 2005. According to some results, industrialization is an important factor for development of the successful countries. In this study, the increase in the share of industry in GDP has been emphasized as an important structural variable in economy and the industrial sector has been described as the engine of growth. Other results of this study showed a high correlation between GDP per capita and the share of manufacturing in GDP. Chiang Lee and Se Chien (2008) examined the relationship between tourism development and real GDP from 1959 to 2003 in Taiwan. The results of this study showed a long-term relationship between these two variables. Vanegas Sr and Croes (2007) explored the relationship between the tourism industry and GDP in Nicaragua from 1980 to 2005. The results indicated the existence of a long-term and stable relationship between GDP and tourism and the causal relation from tourism toward economic growth.

Rafik Ben Ayed and Abaoub (2006) studied the relevance of accounting income and information content of its components in evaluating business units in Tunisia Stock Market. The components of income included in net profit, operating profit, profit before tax, unexpected items, income taxes and accruals, which have been studied with operating cash flow. The results showed that operating cash flow

and values of commitments are irrelevant, but net profit, operating profit, profit before tax and unexpected items are relevant for evaluation of the business unit. Kothari et al (2006) in their study concluded that there is a negative relationship between stock market returns and accounting earnings growth. Erdil and Yetkiner (2004) investigated a series of countries with different income levels from 1990 to 2000 and examined the causality between health expenditure and GDP. Based on the obtained results in low- and middle-income countries (which Iran is part of them), there is only causality from income to health expenditures while in high-income countries, health expenditure is effective on GDP. Padachi (2004) studied the relationship between economic growth and accounting earnings in small manufacturing firms in developing countries, especially in Mauritius from 1998 to 2003 and they came to the conclusion that excessive investment in inventories and receivable accounts reduces corporate profitability. Barth et al. (2004) investigated the relevancy of cash and commitment components of profit to value in a company. The findings showed that, by considering an unusual interest and the market value of the company as dependent variables, the separation of commitment to its components leads to reduce any error in predicting the market value of the company. Chowdhury & Mavrotas (2003) examined the causal relationship between FDI and GDP in Malaysia and Thailand from 1969 to 2000. The results indicated a two-way causal relationship between FDI and GDP in these countries. Anderson et al (2003) found that the information content of earnings has a negative relationship with the dual responsibility of the Director and a positive relationship with the board of directors' independence.

Peneder (2003) found a positive relationship between the relative share of exports and imports benefiting from high-level skills, technology and growth in GDP per capita for a sample of member states in Economic Cooperation and Development Organization. Barth et al (2002) examined to what extent the accounting profit analysis forecasts abnormal earnings explains the changes of value of common stock market. The results indicated that the decomposition of benefit to both the commitment and cash sectors reduce error in predicting stock market value. In another research, Barrett stated that audited profits increase the credit reported accounting profits by profit unit. According to conducted researches Riley (2000, pp. 715-738), Holthausen & Watts (2001, pp. 1-19), Francis & Lafond & Olson &Schipper(2002) all investors' behavior for announcing accounting profit through issuance of the financial statements shows increase and decrease changes in the pricing of shares. Kothari (2001) showed that the price changes after profit announcement are due to reactions lower than investors' expectations for profit news.Bloom *et al.* (2004) after adding health expenditures to the aggregate production function concluded that health has a positive and significant effect on

GDP growth. Hopkins & Macdonald (2000) by using Johansson boundary and correlation values showed that in Australia despite GDP has higher than one and positive impact on health expenditure, but health expenditures had no significant effect on the production. Ball *et al.* (2000) compared the information content of net income in countries with common law (which has a higher level of conservatism) and countries with civil law (which has a lower level of conservatism). They measured a regression between Net profit and positive and negative returns and concluded that there is a significant difference between Basu coefficients and positive and negative returns in countries with high and low conservativeness. The interest in countries with common law than the ones with civil law countries have more power in explaining the behavior of stock returns.

Coulson & Kim (2000) examined the effects of causality and housing and non-housing investment with respect to GDP by using Vector Auto Regression. They showed that shocks in housing investment to determine GDP are more important than non-housing investment. Clarida *et al.* (2000) and Taylor (1993) believed that monetary policies are a function of forecasting errors in GDP growth, evidences of Konchitchki and Petatoukas (2014) of error forcase in GDP growth indicateed that the future reactions to the monetary policy can be based on growing predictable accounting profit.

Li & Hu (1998) studied on investment in housing and its important effect on the accounting variables such as net profit of the companies, the results showed that investment in housing has a significant effect on net income as an accounting variable. Dechow *et al.* (1998) in their investigation concluded that accounting earnings show expected future cash flows better than the current cash flows. Belkaoui & Picur (1994) stated that the relative information content of value added is more than accounting earnings. Besides the accounting, earnings and value added have an incremental information content toward each other. Dechow (1994) showed that the lower volatility the company has in realizing the required funds to do operating, investing and funding activities, the better condition the cash flows will have for the performance of the company. He believes that corporate profits in short term have greater correlation with stock returns than cash flows so it is regarded as a better criterion in evaluating the function of a company. The economists have evaluated the impact of exports on GDP of the countries in various aspects. Including researches by Michaely (1977), Dolar (1990) and Fosu (1990) which showed a positive impact of exports on GDP growth. Ali (1994) studied about incremental information content of earnings, operating working capital and cash flow. He found that information related to accounting earnings have a higher incremental information content rather than operating working capital and cash flow. Board and Doy (1989) assessed the role of accounting earnings and operating cash flows in explaining stock returns and they concluded that people get used to accounting earnings based on historical defined cost, since there are still accessible

there is no reason to change their conduct. Syrquin (1986) examined the relationship between GDP growth and the structure of the economy, including the manufacturing and business structure for 19 countries in Latin America from 1960 to 1982. Based on the results of the variables of export growth rate, the relationship between the shares of exports and investment of GDP with economic growth was positive and significant. Fischer and Merton (1984) investigated the role of the stock market and showed that corporate profits are part of the GDP and probably are interrelated with other components of GDP.

Gambola & Ketz (1983)examined the relationship between accrual benefit and cash flows. Their study showed that cash flows in comparison with the accounting profit are unimportant in case of information. According (Fama, (1981); Harvey, (1989); Ang *et al.*, (2006)) yields of treasury bills and short-term and three-month stock market returns have content forecasts for GDP growth in the future. Ball and Brown (1968) examined the relationship between accounting earnings and stock prices through the relationship between unexpected profit changes in interest and average rate of abnormal returns. The results confirm that accounting earnings reflect factors that influence on stock price and dividend announcements of new information are transferred to the market.

3. RESEARCH HYPOTHESIS

1. There is a significant relationship between accounting profit growth of companies and future Gross Domestic Product growth.

2. There is a significant relationship between accounting profit growth of companies and predicting error of future Gross Domestic Product growth.

3.1. Conceptual Model

Each one of two variables including accounting profit and Gross Domestic Product have been studied and tested separately in some researches, which performed different years in inside and outside of county. In each research, the ability to collect and analyze these variables have been somehow tested. The value of companies' profit and its informative content have been confirmed in the most of the researches. The data relating to Gross Domestic Product in the results of most of the researches show the importance and effectiveness of this important economical variable in financial and economical researches.

3.2. The Population and Statistical Sample of Study

3.2.1. The Population of Study

The statistical population of this research are all the accepted companies in Tehran's Stock Exchange from the beginning of 2002 up to the end of 2013 for 12 years
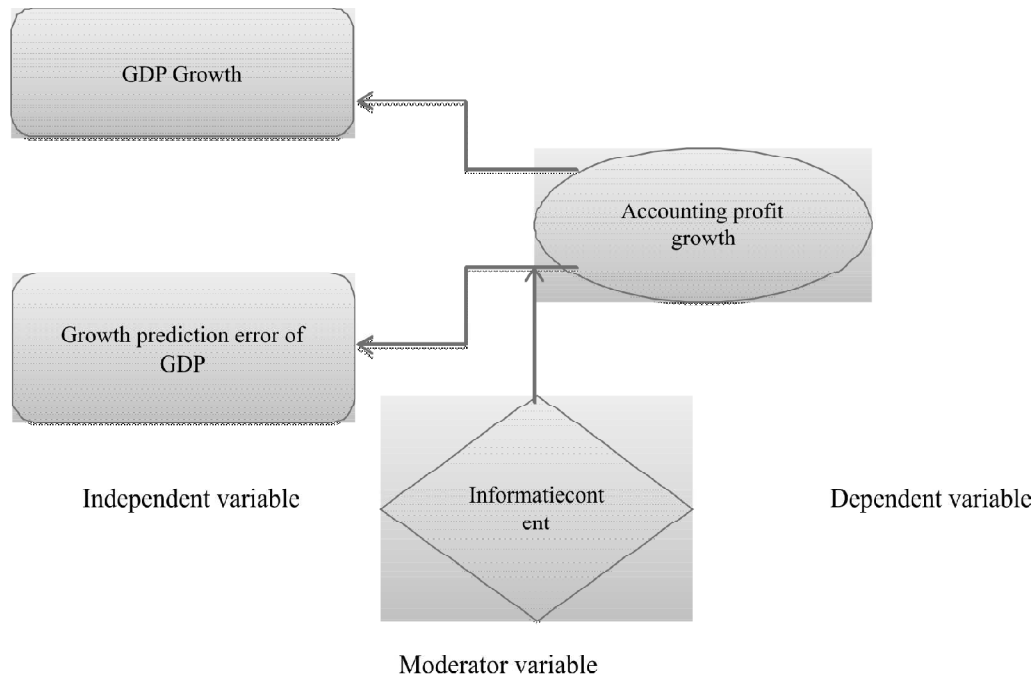
Reference: Researcher Build

which they have maintained their membership during this period in Stock Exchange.

3.3.2. Sampling and sample size

The systematic elimination sampling method has been used in this research:

1. Their financial year must be ended to the end of March respecting the increase in comparison capability.
2. It must not have financial year changing and operation stop during the years 2001-2012.
3. The selected company must not be a part of investing companies, financial mediators, banks and insurance companies, because the nature of these companies is different from other ones
4. The company must not have trading interval more than 4 months.
5. The required data for calculations and tests of research hypothesis must be accessible. With respect to above conditions, 471 number of companies were selected. Finally, after observing above conditions and assessment of reports, 311 number of companies were selected as sample from 471 existing company in Tehran's Stock Exchange up to the end of 2012 regarding required information disclosure.

4. MATERIAL AND METHODS

1.1.5.3. Independent variable: Independent variable is the variables, which it is measured, manipulated or selected by researcher in order to measure its effect or relationship on variable or other variables. (Ramezan, 1999). Accounting profit growth rate in this research has been considered as independent variable, which is equivalent to accounting net profit growth (ΔX) changes percentage which has been homogenous with sale revenue of company.

2.1.5.3. Dependent variable: Dependent variable is the variable, which it is measured or observed in order to specify, and determines the effect of independent variable on it. (Delavar, 2006, p. 87). In the other words, dependent variable is the variable, which is influenced by independent variable. Dependent variable in present research including:

1. Gross Domestic Product growth rate (g) which is equivalent to Gross Domestic Product changes percentage.

2. Forecast error of Gross Domestic Product, which is equivalent to forecast error of model 1, and accounting net profit growth has been used for predicting Gross Domestic Product growth rate.

3.1.5.3. Moderator variable: Moderator variable is a secondary variable which is from the kind of independent variable and scholar wants to control and manipulate it to determine that does this variable influence on independent and dependent variable or not . Moderator variable in present research is profit is informative content.

Significant Regression Test

Because estimating the coefficients relating to explanatory variables of regression equations are performed by using data related to sample, so it should determine by the help of statistic science that to what extent these estimations match to all the community. If regression model is as follows:

First hypothesis model: $g_{it+k} = \beta_0 + \beta_1 \Delta X_{it} + \varepsilon_{it}$

Second hypothesis model: $Err\_g_{it+k} = \beta_0 + \beta_1 \Delta X_{it} + \varepsilon_{it}$

Coefficient test hypothesis including of

H0: $\beta i = 0$

H1: $\beta i \neq 0$

$i = 1, 2… k$

In regression analysis especially when the variables have been studied during one time interval, it is possible that data changes during time follow from a special

pattern. Durbin Watson test is used to specify this pattern. Durbin Watson statistics is between 0 to 4. If there is no serial correlation between reminds, this statistics amount must be close to 2. If it is close to zero. It shows positive correlation and if it is close to 4, it shows negative correlation. Totally if this statistics is between 1.5 to 2.5, there is no worry.

2.4. Descriptive statistics: Descriptive statistics relating to research variables have been presented in table 1. The mentioned statistics present an overview of the condition of research dada distribution.

Presented results show that average of Gross Domestic Product growth rate is 0.0433 (0.0575), accounting profit growth rate is 0.0040 (0.0027) and Forecast error of Gross Domestic Product growth rate is 0.0000 (0.3673). The mentioned variables have respectively maximum amount of 0.0820, 0.1788 and 1.2106 and minimum amount of -0.0585, -0.1871 and -2.7635 and dispersions are 0.0388, 0.0502 and 0.9999.

Table 1
Descriptive Statistics of Research

Statistics/variables	Gross Domestic Product growth rate	accounting profit growth rate	Forecast error of Gross Domestic Product growth rate
Average	0.0433	0.0040	0.0000
median	0.0575	0.0027	0.3673
maximum	0.0820	0.1788	1.2106
minimum	-0.0585	-0.1871	-2.7635
Standard deviation	0.0388	0.0502	0.9999

Variables definition:

Gross Domestic Product growth rate (g). it is Gross Domestic Product growth changes rate

Accounting profit growth rate (ΔX): it is equivalent to accounting net profit growth changes percentage, which has been homogenous with sale revenue of company.

Forecast error of Gross Domestic Product growth rate (Err g): it is equivalent to forecast error of model 1 which accounting net profit growth has been used for predicting Gross Domestic Product growth rate.

3.4. Correlation Coefficient Table

The Pierson correlation coefficient test has been conducted to study the presence and direction of linear correlation between variables of accounting profit growth rate and Gross Domestic Product growth rate up to 4 step forward and its results has been presented in table 2.

Table 2
Correlation Coefficient Table

Variables	g_{t+1}	g_{t+2}	g_{t+3}	g_{t+4}	ΔX	Err_g_{t+1}	Err_g_{t+2}	Err_g_{t+3}	Err_g_{t+4}
g_{t+1}	1								
g_{t+2}	0.5081 ***	1							
g_{t+3}	0.0865 ***	0.3703 ***	1						
g_{t+4}	0.4325 ***	-0.2245 ***	0.3699 ***	1					
ΔX	0.0187	0.0190	0.0333*	0.323*	1				
Err_g_{t+1}	0.9896 ***	0.5045 ***	0.0833 ***	0.4256 ***	0.217	1			
Err_g_{t+2}	0.4986 ***	0.9873 ***	0.3666 ***	-0.2257 ***	0.179	0.4952 ***	1		
Err_g_{t+3}	0.0833 ***	0.3619 ***	0.9871 ***	0.3685 ***	0.372**	0.0798 ***	0.3579** *	1	
Err_g_{t+4}	0.4321 ***	-0.2257	0.3670 ***	0.9965 ***	0.343	0.4248 ***	-0.2260	0.3653* **	1
***,** and * are respectively significant at the level of 1%, 5% and 10%									

Presented results show that there is a significant correlation between Gross Domestic Product growth rate of year t+1 with growth rate of three year later (with correlation coefficient value of 0.5081, 0.0865 and 0.4325) and Forecast error of Gross Domestic Product growth rate from the first step up to fourth (with correlation coefficient value of 0.9896, 0.4986 and 0.0833 and 0.4321) in 1% level. This issue is true for Gross Domestic Product growth rate of year t+2, t+3 and t+4. However, the results show that there is a significant correlation only between accounting profit growth rate variable with Gross Domestic Product growth rate of years t+3 and t+4 at the level of 10% and predicting error of year t+3 at the level of 5% . This means that companies 'accounting profit growth during 3-4 year after will influence on Gross Domestic Product of country and this effectiveness will occur in medium-term (not in short-term).

4.4. The Study of Validity of Research's Variables

The unit root tests including Loin test and *et al.*, generalized test of Dicky foller (Fisher type) and Philips and Prown test (Fisher type) have been used.

Table 3
The results of validity test and Data

Variables	Loin and et al test	generalized test of Dicky foller	Philips and Prown test
ΔX	-61.4707***	4376.8800***	4524.9800***
G	-25.6040***	1420.5600***	1328.3600***
Err-g	-12.4516***	709.4270	564.2460
co integration test of Pederoni between: **Err-g and g**			
Group rho-Statistic	-6.5517***		
Group PP-Statistic	-62.1099***		
Group ADF-Statistic	-51.1028***		

The results of Luin and *et al.* test indicates validity of three research variable. However, the results of Dicky foller and Philips and Prown test indicate the validity of Gross Domestic Product growth rate and accounting profit growth rate but they reject the validity of Forecast error of Gross Domestic Product growth rate. So it is required to perform co integration test between Gross Domestic Product growth rate variables and Forecast error of Gross Domestic Product growth rate. For this purpose, Pederoni test (1999) in frame of three statistics has been used. The results

of co integration Pederoni test show that all the three statistics are significant at the level of 1% and this issue confirms presence of co integration and long-term relationship between two variables. Therefore, regression models have not led to false results and this work is permitted.

5. RESULTS

1.5.4. The results of estimating model 1 up to four steps forward and first hypothesis test

In order to first hypothesis test, model 1 with a dependent variable with four steps forward has been estimated and its results have been presented in table 3. Lack of significant of Chow statistics indicates priority of integrative data pattern in estimating model 1.

Table 3
The Results of Estimating Model 1

intervals	*Chow statistics* *(significance)*	*Coefficient* *(significance)ΔX*	*Fisher statistics* *(significance)*	*Adj.R^2*	*Durbin-Watson*
1	0.0000 (1.0000)	0.0056 (0.6365)	0.2233 (0.6366)	0.02%	1.8966
2	0.0010 (1.0000)	0.0291** (0.0190)	5.5032** (0.0190)	0.12%	1.8610
3	0.0013 (1.0000)	0.0356*** (0.0080)	7.0397*** (0.0080)	0.18%	1.8102
4	0.0011 (1.0000)	0.0319** (0.0250)	5.0218** (0.0251)	0.14%	1.9405
Summary of results	0.0008 (1.0000)	0.0255** (0.0495)	4.4470** (0.0204)	0.11%	1.8771
*** and ** are respectively at the significant level of 1% and 5%					

Presented results show that estimated model for all the steps (excepting first step) is significant. In addition, Durbin-Watson statistics value indicates lack of presence of problem of serial auto correlation in disturbing components of model, which has been estimated in each one of four models. Therefore, the results of estimating model are not false and they are usable for first hypothesis test.

The low level amount of moderator determining coefficient value (Adj. R^2) of model 1 for all the steps show thataccounting profit growth rate provide a little explanation of dependent variable fluctuations.

The summary of presented results show that coefficient variable of accounting profit growth which is (0.0225) and positive and it is significant at the level of 5% and totally it explains about 0.11% of Gross Domestic Product growth rate changes of following years. Fisher statistical significance (4.4470) indicates the total significance of estimated model 1 at level of 5%. The presence of positive and significant relationship between accounting profit growth rate and future Gross Domestic Product growth rate indicates failure to reject the first hypothesis of research. The presence of very weak relationship between accounting profit growth rate and future Gross Domestic Product growth rate is because of overall country's economic dependence to oil revenues. In the other words, the activity of companies, which are member of Stock Exchange (because of small volume of Stock compared with country's overall economic volume), has a little role in determining national statistic including Gross Domestic Product.

After estimating model 1, its reminds have been used as Forecast error of Gross Domestic Product growth rate in creating and estimating model 2 which it will be discussed in continue.

2.5.4. *The results of estimating model 2 up to four steps forward and second hypothesis test*

In order to second hypothesis test, model 2 with a dependent variable with four steps forward has been estimated and its results have been presented in table 4. Lack of significant of Chow statistics indicates priority of consolidated data pattern in estimating model 2. Presented results show that estimated mole for all the steps (excepting first step) is significant.

In addition, Durbin-Watson statistics value indicates lack of presence of problem of serial auto correlation in disturbing components of model, which has been estimated in each one of four models. Therefore, the results of estimating model are not false and they are usable for second hypothesis test. The low level amount of moderator determining coefficient value (Adj.R^2) of model 2 for all the steps show thataccounting profit growth rate provide a little explanation of Forecast error of Gross Domestic Product growth rate fluctuations.

The summary of presented results show that coefficient variable of accounting profit growth which is (0.6529) and positive and it is significant at the level of 10% and totally it explains about 0.11% of Forecast error of Gross Domestic Product growth rate of following years. Fisher statistical significance (4.2490) indicates the total significance of estimated model 2 at level of 5%. The presence of positive and significant relationship between accounting profit growth rate and Forecast error

Table 4
The Results of Estimating Model 2 $Err\_g_{it+k} = \beta_0 + \beta_1 \Delta X_{it} + \varepsilon_{it}$

intervals	Chow statistics (significance)	Coefficient (significance)ΔX	Fisher statistic (significance)	Adj.R2	Durbin-Watson
1	0.0084 (1.0000)	0.1789 (0.5583)	0.3426 (0.5584)	0.02%	1.9030
2	0.0126 (1.0000)	0.6768** (0.0349)	4.4523** (0.0349)	0.09%	1.6015
3	0.0123 (1.0000)	0.8927*** (0.0099)	6.6517*** (0.0099)	0.17%	1.7107
4	0.0104 (1.0000)	0.8631** (0.0185)	5.5493** (0.0186)	0.15%	1.9697
Summary of results	0.0109 (1.0000)	0.6529* (0.0157)	4.2490** (0.0233)	0.11%	1.7962
*** and ** and * are respectively at the significant level of 1% and 5% and 10%					

of Gross Domestic Product growth rate indicates failure to reject the first hypothesis of research. The presence of very weak relationship between accounting profit growth rate and future Forecast error of Gross Domestic Product growth rate is because of the same reason, which it was mentioned in analyzing very weak relationship between accounting profit growth rate and Gross Domestic Product growth rate.

6. DISCUSSION AND CONCLUSION

6.1. Research's Descriptive Findings

It is observed according research's descriptive results that the average of accounting profit growth rate of sample companies is 0.0040, the average of Gross Domestic Product growth and Forecast error of Gross Domestic Product growth rate are respectively 0.0433 and 0.000.

Also other middle statistical parameters, maximum, minimum and standard deviation of variables have been calculated. Results are consistent with findings of Konchitchki and Patatoukas (2014), Fishr and Merton (1984) and also with researches of Fama (1981), Harvey (1989) and Ang *et al.* (2006). This research's

findings show that accounting profit influence significantly on Gross Domestic Product.

6.2. Research's Inferential Findings

In this part, obtained results of questions and actually of research's hypothesis have been discussed and concluded. For this purpose, each one of research's hypothesis at first has been proposed. Then possible results and reasons of their confirmation or rejection with respect to statistic evidence and analysis have been discussed.

6.2.1. First Hypothesis

There is a significant relationship between accounting profit growth rate of companies and future Gross Domestic Product growth. According to findings, First hypothesis, which is based on the existence of a significant relationship between accounting profit growth rate of companies and future Gross Domestic Product growth, is confirmed. The results show that Variable coefficients of accounting profit growth is (0.0255) and positive and it is significant at the level of 5% and it totally explains about 0.11% of future Gross Domestic Product growth rate changes. The Fisher statistics significance (4.4470) indicates total significance of estimated model 1 at level of 5%. The presence of a positive and significant relationship between accounting profit growth rate and future Gross Domestic Product growth rate shows confirmation of first research's hypothesis.

6.2.2. Second Hypothesis

There is a significant relationship between accounting profit growth rate of companies and Forecast error of Gross Domestic Product growth rate. According to obtained results of estimated model, Variable coefficients of accounting, profit growth is (0.6529), positive and it is significant at the level of 10%, and it totally explains about 0.11% of Forecast error of Gross Domestic Product growth rate. The Fisher statistics significance (4.2490) indicates total significance of estimated model 2 at level of 5%. The presence of a positive and significant relationship between accounting profit growth rate and Forecast error of Gross Domestic Product growth rate shows confirmation of second research's hypothesis.

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Appendixes

A-Statistical Appendices
1- descriptive statistics

	G	DX	EG
Mean	0.043330	0.004046	4.14E-05
Median	0.057510	0.002660	0.367308
Maximum	0.081999	0.178766	1.210603
Minimum	-0.058475	-0.187080	-2.763483
Std. Dev.	**0.038771**	**0.050238**	**0.999892**

2- Pearson correlation coefficients table
   Covariance Analysis: Ordinary
   Included observations: 2954 after adjustments
   Balanced sample (listwise missing value deletion)

Correlation	G(1)	G(2)	G(3)	G(4)	DX	EG(1)	EG(2)	EG(3)	EG(4)
G(1)	1.000000								
G(2)	0.508087	1.000000							
G(3)	0.086468	0.370327	1.000000						
G(4)	0.432477	-0.225355	0.369885	1.000000					
DX	0.018705	0.018960	0.033283	0.032276	1.000000				
EG(1)	0.989619	0.504523	0.083258	0.425556	0.021712	1.000000			
EG(2)	0.498914	0.987261	0.366642	-0.225654	0.017853	0.495167	1.000000		
EG(3)	0.083310	0.361891	0.987091	0.368486	0.037159	0.079844	0.357898	1.000000	
EG(4)	0.432118	-0.225650	0.366985	0.996541	0.034318	0.424795	-0.225978	0.365287	1.000000

t-Statistic	G(1)	G(2)	G(3)	G(4)	DX	EG(1)	EG(2)	EG(3)	EG(4)
G(1)	— —-								
G(2)	32.05078	— —-							
G(3)	4.715691	21.66076	— —-						
G(4)	26.06064	-12.56733	21.63085	— —-					
DX	1.016439	1.030331	1.809360	1.754543	— —-				
EG(1)	374.1336	31.74883	4.539352	25.55050	1.179918	— —-			
EG(2)	31.27803	337.1234	21.41159	-12.58488	0.970127	30.96640	— —-		
EG(3)	4.542190	21.09195	334.8551	21.53610	2.020314	4.351976	20.82483	— —-	
EG(4)	26.03404	-12.58468	21.43468	651.5044	1.865682	25.49472	-12.60394	21.32023	— —-

Probability	G(1)	G(2)	G(3)	G(4)	DX	EG(1)	EG(2)	EG(3)	EG(4)
G(1)	— —-								
G(2)	0.0000	— —-							
G(3)	0.0000	0.0000	— —-						
G(4)	0.0000	0.0000	0.0000	— —-					
DX	0.3095	0.3029	0.0705	0.0794	— —-				
EG(1)	0.0000	0.0000	0.0000	0.0000	0.2381	— —-			
EG(2)	0.0000	0.0000	0.0000	0.0000	0.3321	0.0000	— —-		
EG(3)	0.0000	0.0000	0.0000	0.0000	0.0434	0.0000	0.0000	— —-	
EG(4)	0.0000	0.0000	0.0000	0.0000	0.0622	0.0000	0.0000	0.0000	— —-

3- Scatter diagram views

G

DX

EG
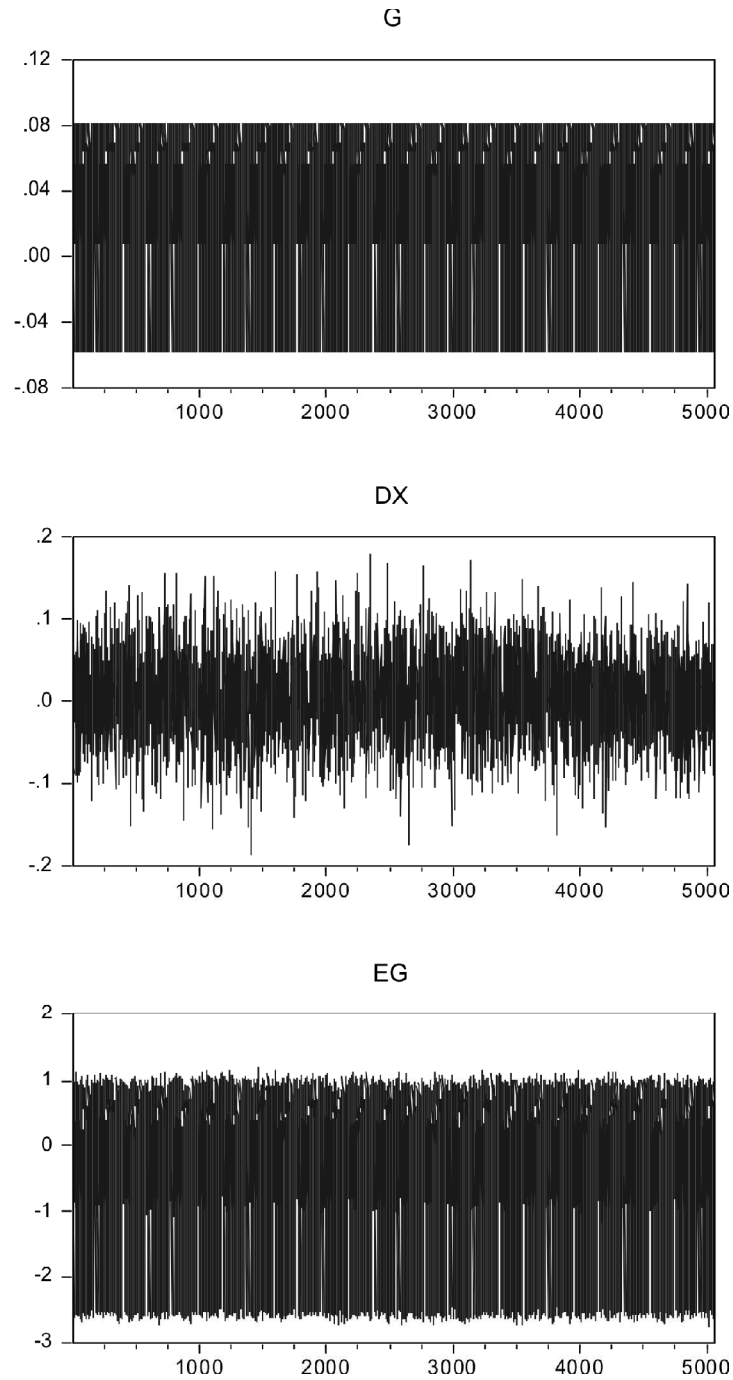
4- Chart frequency of observations

G

DX

EG

Histogram —— Normal
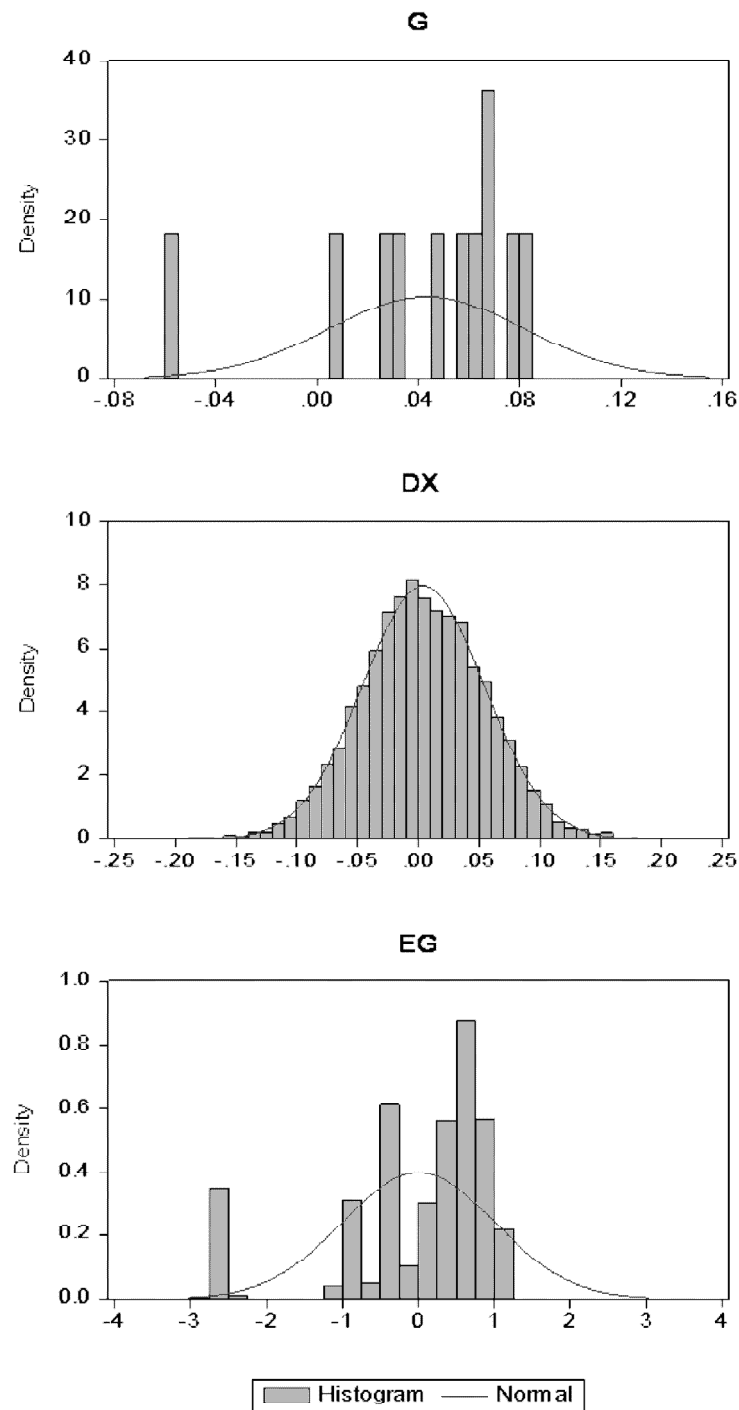
5- Chart quarter - quarter observations

G

DX

EG
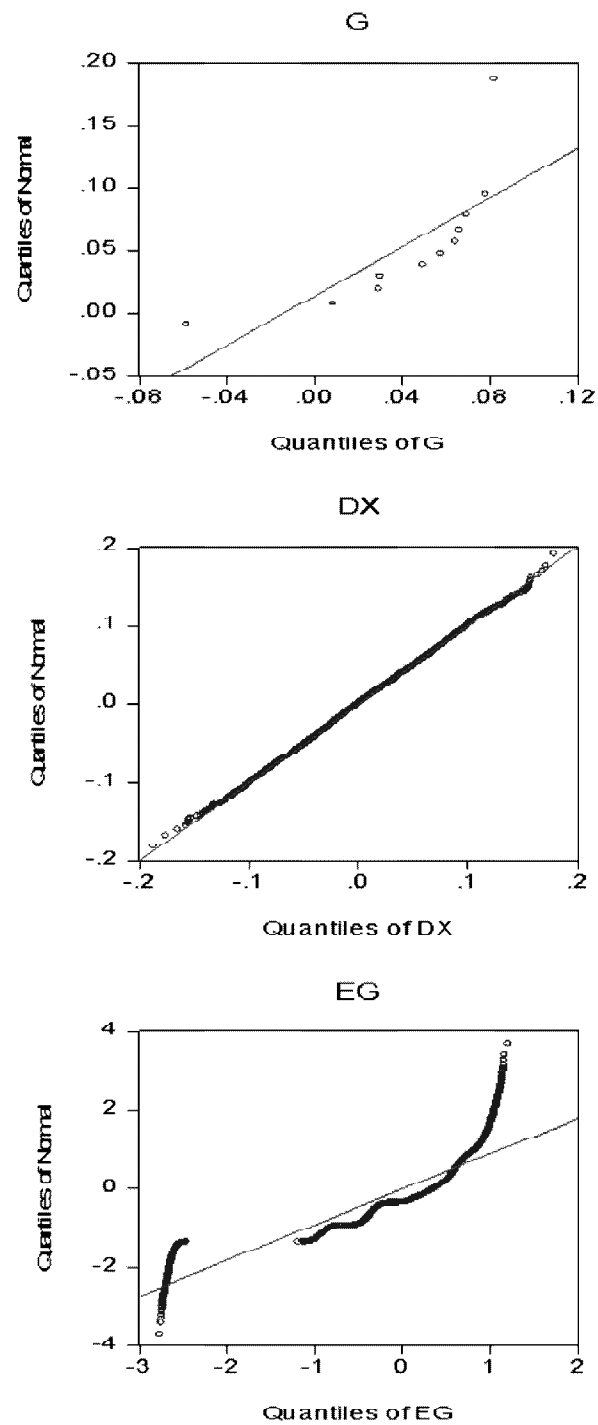
5- Unit root test results variables

Panel unit root test: Summary
Series: DX
Exogenous variables: None
Automatic selection of maximum lags

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-61.4707	0.0000	422	4145
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	4376.88	0.0000	422	4145
PP - Fisher Chi-square	4524.98	0.0000	422	4220

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: EG
Exogenous variables: None
Automatic selection of maximum lags

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.4516	0.0000	422	4218
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	709.427	0.9997	422	4218
PP - Fisher Chi-square	564.246	1.0000	422	4220

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: G
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-25.6040	0.0000	422	4220
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	1424.56	0.0000	422	4220
PP - Fisher Chi-square	1328.36	0.0000	422	4220

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

7. Agglomeration test

Pedroni Residual Cointegration Test
Series: G EG
Included observations: 5064
Cross-sections included: 422
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Automatic lag length selection based on SIC with a max lag of 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	0.472371	0.3183	-5.962286	1.0000
Panel rho-Statistic	-18.33228	0.0000	-16.79333	0.0000
Panel PP-Statistic	-47.79928	0.0000	-47.82587	0.0000
Panel ADF-Statistic	-45.68414	0.0000	-44.98176	0.0000

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	-6.551689	0.0000
Group PP-Statistic	-62.10993	0.0000
Group ADF-Statistic	-51.10282	0.0000