

^{1*}Saba Salimi²Dr.Hossein Shirbandi

Assessing the Effect of Stagnant Business Cycles on Risk and Uncertainty in the Stock Markets of Less Developed Countries



Abstract: - The economic movement of countries is not uniform and stable over time and always fluctuates around the long-term growth trend and creates a business cycle meanwhile, the capital market as a backward variable is affected by economic fluctuations therefore, in this research, the issue is looked at from the perspective that, can the business cycle of recession be considered as a leading variable in the occurrence and formation of risk and uncertainty in the stock market of countries? To answer this question, first a meta-analysis method and based on the research background, a model of stock market uncertainty was specified In which the growth rate variance of S&P index, which was calculated by GARCH technique, was used as a variable of risk and uncertainty in the stock market of countries, and the HP method was used to calculate business cycles. Balanced data panel technique was used to estimate the model. Which include the fundamental variables of monetary policy (supply of bank credit), fiscal policy (average tax rate), nominal interest rate, capital market size, technical progress variable and stagnant business cycle. The statistical sample of the study includes 14 less developed countries. Less developed countries are defined in terms of their per capita income and in terms of the division of countries in the UN statistical report. The statistics of time series are annual and are related to the time period of 2001-2018. The research findings that were calculated jointly confirmed the effect of the variables in the model ,it also showed that stagnant cycles as expected have a positive effect on the reduction of risk in the stock market. Classification: JEL E32, G100.

Keywords: Financial Uncertainty, Recession Business Cycle, Stock Market, .S&P Index.

I. INTRODUCTION

The stock market is an important and vital part of the whole economy. It is clear that there is a strong link between the stock market and the economy. If the economic conditions are unfavorable, the performance of most companies and consequently the stock market will be weak. On the contrary, if the economic conditions are suitable, the performance of companies will be better and as a result, the optimal economic conditions in the stock market will crystallize. Stock markets and business cycles are closely related because stock prices change before the state of the economy changes. Business cycles are recurring deviations of real GDP around its long-term trend (Tehran Stock Exchange Investment Development Culture Management).

The main problem or challenge of the research is whether stagnant business cycles can be considered as a leading variable in the formation of risk and uncertainty in the stock market of countries? The main hypothesis of the research is that stagnant business cycles as a leading variable have a significant effect on creating risk and uncertainty in the stock market of less developed countries. The method is as follows: first, a meta-analysis method and based on the research background, a model of stock market uncertainty is specified. In it, the variance of S&P index growth rate, which was calculated by GARCH technique, was used as a variable of risk and uncertainty in the stock market of countries, and the HP method was used to calculate the trend and separation of business cycles. Finally, the specified model of the data panel method is estimated for less developed countries. The statistical sample of the study after adjustment includes 14 countries with average per capita income. It should be noted that the definition of less developed countries is based on the division of countries in the UN statistical report based on their per capita income. The following studies point to the fundamental factors influencing the stock market analysis and stock price index. Studies of Bishak Salmani et al. (2015), Moradi and Najafizadeh (2013), Kim and Resingo (2017) on the role of monetary and fiscal policies, Samadi and Bayani (2011), Mehrabian (2004), Urdu, Doker and Willock(2008) And Hump and McMillan (2006) emphasize the role of variables in global oil prices, inflation, interest rates and exchange rates; Highlights and new points in this research can be mentioned the following two cases.

First, background studies have shown that economic variables such as economic growth, monetary and fiscal policies, global oil prices, inflation and exchange rates affect countries' stock price indices, while all of them are leading factors in the occurrence of business cycles and through the business cycle channel, they affect the stock price index of countries. Thus, business cycles are a comprehensive variable with more explanation for the occurrence of risk and financial uncertainty in the stock market of countries.

¹ ¹ Department of Accounting, Technical and Vocational University(TVU), Tehran, Iran.

²Department of Accounting, Technical and Vocational University(TVU), Tehran, Iran.

*Corresponding author: Salimi.saba1991@gmail.com

Copyright © JES 2024 on-line : journal.esrgroups.org

Second: This study introduces an important forward-looking indicator that is an important external layer for capital market activity in fundamental stock market analysis as a factor of risk and uncertainty in the stock market.

The present article is organized into five sections. After the introduction, in the second part, the theoretical foundations and research background in the third part, the research sampling method along with the method of measuring research variables are stated. In the fourth part, the research findings and in the fifth part, it is dedicated to discussion, conclusion and presentation of suggestions.

II. SUBJECT LITERATURE

Business cycles

Business cycles express and explain changes in economic activity over time. At a glance, business cycles examine economic fluctuations in the long run, that is, during a boom in a business period, the level of economic activity is higher than the trend, and during a recession, economic activity is lower than the trend.

The study of business cycles is important because economic planning has no meaning without understanding how fluctuations in domestic production and the cause and root of these fluctuations. Increasing volatility and volatility can reduce investment and economic growth. Therefore, by recognizing the structure of fluctuations and cycles created in the economy, one should try to control and reduce its intensity. Business cycles are kind of fluctuations which occur at the macro level of economic activity of countries. Dornbush et al. (2004) consider the business cycle as regular ups and downs of prosperity and stagnation in economic activities around the path of economic growth. Lucas (1977) also considers business cycles as recurring deviations of real GDP around its long-term trend.

Each business cycle has four stages:

A- Prosperity and improvement, b- Peak point, c- Recession, d- Crisis.

The global financial crisis of 2008, followed by the global downturn in stock markets around the world, has once again drawn the attention of stock market participants to research on the interaction between business cycles and capital market performance. In each business cycle, there is a reference variable through which its fluctuations determine the business cycle, which is usually GDP.

The relationship between stock market and business cycle

The stock market is an important and vital part of the whole economy. It is clear that there is a strong link between the stock market and the economy. If the economic conditions are unfavorable, the performance of most companies and consequently the stock market will be weak. On the other hand, stock prices are one of the important indicators that can show the economic situation in terms of prosperity or recession. This important relationship between stock prices and the economy should be used to predict stock price changes. Stock prices usually fall during a downturn. However, in order to anticipate stock market changes, investors need to know about business cycle changes. If a downturn in the business cycle appears to occur in the future, the stock market is likely to decline after a few months. Stock prices almost always rise when the business cycle reaches a crisis. In addition, when the trading cycle enters the first stage of a boom, stock prices often remain stable or even fall sharply. Therefore, it is expected that the stock index will grow in the event of a boom-trading cycle and decrease in a downturn. In this regard, the occurrence of stagnant business cycles can be considered as an important external layer for stock market activity and a fundamental variable in risk analysis and financial uncertainty in the stock market of countries.

Research background

Internal Research

Anvari et al. (2015) examined the "effect of bank lending to the private sector and the government budget deficit on the size of the stock market" in a selection of 15 developing countries in the period 1993-2012. According to the results, there was no causal relationship between bank lending to the private sector and stock market capital (market size); The results of the analysis of impulse response functions show the positive effect of banking sector credits on the stock market capital index.

Bayat et al. (2016), in a study entitled "Monetary policy and total stock price index within a DSGE model" showed that, the central bank's mild response to deviations in the overall stock price index from its equilibrium level reduces the range of economic fluctuations and increases the overall macroeconomic stability.

Mahdavi and Alikhan Beikzand (2016), the results of their research entitled "Capital market stimuli in the Iranian economy" showed that ,indices of macroeconomic variables such as inflation, exchange rate and GDP have significant effects on the return of the Tehran Stock Exchange; And so, it can be confirmed that the improvement of economic indicators plays an important role in the prosperity of the capital market. Also, the effect of fiscal policy indicators such as tax revenues and government expenditures on monetary policy indicators on stock market returns is greater.

Bishak, et al. (2015), in their study entitled "The effect of monetary and fiscal policy shocks on the Iranian stock market" using its vector regression model, the effect of monetary and fiscal policy shocks on the stock market during the period 2001-2010 has been studied using quarterly data. According to short-term estimates, the government spending shock has a positive effect and in the long run, a negative effect on the growth of the stock price index. Also, short-term and long-term money supply shocks have a positive effect on the growth of the stock price index.

Moradi and Najafizadeh (2013), in a study entitled "Study of the effect of monetary policy on the rate of return on the stock index" concluded that there is a positive relationship between the growth rate of liquidity and inflation with the returns of stock market indices in Iran. Also, because the relationship between inflation and stock index returns is positive, the stock market in Iran can play a role as a suitable inflation shield. Due to the fixed nominal interest rate and the negative real interest rate in Iran, the general public is more inclined to buy durable consumer goods and they do not pay much attention to the stock market, and perhaps by liberalizing interest rates and familiarizing the general public with the stock market, the stock market in Iran can grow and prosper, and in this way, it directed the funds and savings of the society towards projects with economic priority, which in turn increases the economic growth and development of the country.

External research

Prahish and Vidya (2017), in a study entitled "Are Business Cycles, Investment-Specific Technology Shocks Important for Stock Returns?" They concluded that:

(1) There is a relationship between trade shocks and stock market returns, especially at the time of financial market liberalization.

(2) Global cycles play a dominant role in the country's cycle in explaining stock returns.

(3) Profit rates play an important role in the interaction of a dynamic business cycle and stock returns.

(4) It is a relatively weak effect of technological shocks of investment in the business cycle and stock returns.

Anghelache et al. (2016) in an article entitled "Fiscal Policy and Capital Market Performance, the Relationship between Fiscal Policy and Capital Market Performance" in six Central and Eastern European member states for the period 2004-2015. They found that for the Czech Republic and Slovakia, there was a reciprocal link between fiscal policy and capital market performance. In Bulgaria, fiscal policies affect the capital market; While in Poland, capital market returns affect fiscal policy; But for Hungary and Romania, they did not find any significant effect between the variables.

Paetz and Gupta (2016) estimate the effects of stock price wealth on the business cycle in South Africa using the DSGE approach. According to the results of the study, about 9% of product fluctuations can be explained by financial shocks and also, neither the central bank has reacted positively to the stock price gap, nor has the stock price had a clear effect on interest rate fluctuations.

Mullineux et al. (2014), in a study entitled "Stock Market Fluctuations, Risk Attitudes and Money Demand in the UK" showed that stock price fluctuations are an important variable for money demand along with standard and stock price variables. By examining different stock indices, their research results indicate that risk aversion of investors is an important force that investors move to safe assets when stock prices fluctuate.

Hsing (2013) examined the relationship between monetary and fiscal policies in the Polish stock market using the GARCH method and showed that rising interest rates have a negative effect on the stock index and there is a negative relationship between the stock index and the inflation rate and exchange rate.

Zare et al. (2013) investigated the effect of monetary policy on stock market instability in five countries: Malaysia, Indonesia, Singapore, Philippines and Thailand using the nonlinear Markov-switching model and nonparametric method. Using monthly data for the period 1991-2011, they show that the contractionary monetary policy (increase in interest rates) has a strong long-term effect on the stock market in these countries.

Using the VAR model, Chatziantoniou et al. (2013) examined the effects of monetary and fiscal policy on stock market performance in Germany, the United Kingdom, and the United States. His results showed that these policies, directly and indirectly, affect the stock market. The interrelationship between monetary and fiscal policy is very important in explaining the development of financial markets. Therefore, investors should consider these policies simultaneously.

Manazir et al. (2012), in the study of the long-term relationship between stock price index and monetary variables in Pakistan during the period 2001-2007 using the Granger causality test and showed that there is no consolidated vector and long-run relationship between stock price index and monetary variables in this country.

Jansen et al. (2008) study the relationship between fiscal policy and asset markets (stock market and treasury bonds) using variables such as the S&P stock price index, treasury bonds, federal funds rates, industrial production, consumer price index and US budget deficit. They concluded that there is an interrelationship between monetary and fiscal policy in financial markets and the effect of monetary policy on the stock market and treasury bonds varies depending on the adoption of contractionary or expansionary fiscal policy.

In summarizing the background, according to research, the effect of stagnant business cycles on monetary and fiscal policies, nominal interest rates, the size of the capital market, as well as the performance of the stock market and its index in countries can be confirmed.

III. RESEARCH METHOD

In this research, the "balanced panel data" method has been used. All data were extracted from the World Bank website and classified in Excel software, and then statistical calculations and estimates were performed in Eviews software version 10.

Statistical population, sampling method and sample size

The statistical population is less developed countries (based on the distribution of per capita income of countries according to the UN statistical report) and according to the following, their number was adjusted and 14 countries were selected. 1- Only oil-rich countries, except Iran, whose economy is mostly based on oil revenues, have been eliminated. 2- Countries with small capital markets with capital markets of less than \$ 50 billion have been eliminated.

3. The newly independent Soviet states, with the exception of Russia, which had insufficient time series statistics, were eliminated.

4. Small Central American countries (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) have been eliminated.

5. Russia, which has had abnormal economic cycles over the past decade, has been excluded for having abnormal data.

6. Countries whose data were not available for the research period have been deleted.

Hadrick-Prescott filtering method

This method is a one-equation method proposed in 1989 by Hodrick and Prescott this filter is obtained by minimizing the sum of the squares of the deviation of the variable Y from the process $Y_t \wedge tr$. In fact, the values of the mentioned process are the values that minimize the following relation.

$$\text{Min} \sum_{t=1}^T (Y_t - Y_t^{tr})^2 + \lambda \sum_{t=2}^{T-1} [(Y_{t+1}^{tr} - Y_t^{tr}) - (Y_t^{tr} - Y_{t-1}^{tr})]^2$$

Where T is the number of observations and λ is the balancing parameter. λ determines the smoothness of the process. The HP filter is used to separate the cyclic component from a time series and determine its periodic amplitude. The amount of momentum is obtained from the gap of the value of each variable from its long-term trend. The HP method was also used to calculate business cycles. In this way, first the GDP trend is calculated from the Hadrick-Prescott technique and then the cycle of the difference between GDP and the trend for each country is calculated. Positive business cycle differences are boom and negative business cycle differences are stagnant.

Generalized Regression Conditional Heterogeneity Variance Model (GARCH)

In 1986, Bollerslev introduced the generalized autoregressive conditional heteroscedasticity model. In Ballersloo model, conditional variance is a function of the square interval of the prediction error and the conditional variance interval. The average equation for GARCH is as follows:

$$Y_t = \beta_0 + \beta_1 X_{t,1} + \beta_2 X_{t,2} + u_t$$

$$\hat{u}_t = \beta_0 + \beta_1 X_{t,1} + \beta_2 X_{t,2} + \rho_1 \hat{u}_{t-1} + \rho_2 \hat{u}_{t-2} + \dots + \rho_p \hat{u}_{t-p} + \varepsilon_t$$

The variance equation for GARCH is as follows:

$$\sigma_t^2 = a_0 + a_1 \varepsilon_{t-1}^2 + a_q \varepsilon_{t-q}^2 + \beta p \sigma_{t-p}^2$$

IV. METHOD OF DO THE STUDY

4-1-Specifying the model of financial risk and uncertainty in the stock market:

This model is an empirical model that examines the fundamental analysis of the stock market and the effect of recessionary business cycles on financial risk in the stock market. In this regard, the studied variables in the articles of Salmani et al. (2015), Moradi and Najafizadeh (2013), Kim and Rasingo (2017), Mehrabian and Borhanifard (2013), Samadi and Bayani (2011), Urdu, Doker And Willock (2008) and Hump and McMillan (2006) Krainer (2001) and Parhish and Vidya (2017) Hoveiji Bao (2010) and the book Fundamental Analysis have been used in the stock market. Therefore, the following model to evaluate the effect of recession business cycles on risk and financial uncertainty in the stock market of less developed countries has been specified and written in a semi-logarithmic manner.

$$\text{LOG}(\text{GAR}) = \alpha_0 + \alpha_1 \text{RSM}_{it} + \alpha_2 \text{RS}_{it} + \alpha_3 (\text{INR} + \text{INF})_{it} + \alpha_4 \text{AT}_{it} + \alpha_5 \text{T}_{it} + \alpha_6 \text{DOWN}_{it} + \varepsilon_{it}$$

LOG (GAR): is an index of risk and financial uncertainty in the stock market, which is calculated from the variance of the growth rate of the S&P index in the GARCH technique and is written in logarithm.

RSM: Index of the ratio of bank loans and credits to the private sector to GDP. This indicator indicates the supply of bank money and bank-based financial development. Financial development through the channel of increasing the share of bank credits (bank money supply) is expected to reduce the stock market risk.

RS: Index of the ratio of stock market value to GDP and a sign of the size of the capital market and its share in the economy. This indicator indicates market-oriented financial development. Financial development through the capital market development channel is expected to reduce stock market risk.

(INR + INF): is the nominal interest rate which is obtained from the sum of real interest rate and inflation rate and it is expected that its increase will increase the financial cost of production and decrease profit and will have a positive effect on the stock market uncertainty index.

AT: The average tax rate in the economy, which is derived from the ratio of tax to GDP, this index reflects the implementation of fiscal policy and its increase is expected to increase the financial cost of production and reduce profits and have a positive effect on the index of financial risk and uncertainty in the stock market.

T: trend variable (technical progress) the coefficient of the trend variable is expected to be negative because with the passage of time and investment of companies in innovative activities and new technologies, the index of risk and financial uncertainty in the stock market will decrease.

DOWN: The trading cycle variable is stagnant and stagnant business cycles are expected to increase risk and financial uncertainty in the stock market because it has a negative effect on the production, sales and profitability of companies from the perspective of investors and stock buyers and causes a decrease in stock purchases and a decrease in the stock price index and exposes the market to more risk and financial uncertainty in the stock market.

Estimating the model of uncertainty in the capital market of less developed countries jointly:

Estimating the model of capital market uncertainty in the state of stagnant business cycles

A. Static test: The significance study of the model variables of less developed countries in surface mode and width from the origin is given in Table 1, indicates that the variables are static except for the variable of the ratio of stock market value to GDP, which is also static by one. Therefore, RS can be used with one time difference and other variables at the level and be sure that the regression estimate will not be false. However, since the model was static when the model was performed with the variables at the surface in a fixed effect and in the SUR mode, the variables at the surface were generally used.

Table 1: Static test of variables of uncertainty model in the capital market of middle-income countries

country	C	RSM?	Prob	RS?	Prob	INR?+INF?	Prob	T?	Prob	AT?	Prob	DOWN?	Prob
Turkey	302.28	-9.98	0.00	-37.57	0.23	-0.08	0.52	-0.07	0.62	-521.25	0.00	37.00	0.04
Malaysia	328.29	-1.65	0.38	8.73	0.04	-0.04	0.56	-0.13	0.01	-88.50	0.00	-5.71	0.77
China	112.63	-0.02	0.13	4.27	0.00	0.14	0.00	-0.03	0.00	-6.96	0.56	1.88	0.58
Mexico	245.98	6.28	0.01	25.31	0.00	0.27	0.00	-0.10	0.00	-30.97	0.00	-3.26	0.48
Brazil	-2,501.07	0.12	0.00	-144.25	0.00	0.47	0.11	1.23	0.00	526.97	0.00	192.00	0.01
Peru	298.04	-0.88	0.01	7.65	0.14	0.02	0.44	-0.12	0.00	21.00	0.03	12.38	0.06
Thailand	429.69	-3.61	0.26	17.73	0.03	-0.43	0.01	-0.18	0.06	-38.85	0.25	78.23	0.00
Columbia	-112.02	8.35	0.25	-131.07	0.00	-0.40	0.22	0.07	0.56	100.72	0.08	-21.31	0.71
South Africa	821.87	-0.72	0.08	-15.46	0.09	-0.72	0.01	-0.39	0.01	70.51	0.16	1.78	0.97
Iran	270.04	-1.36	0.62	-10.36	0.20	0.16	0.03	-0.11	0.48	114.26	0.16	20.96	0.20
Philippines	205.73	0.98	0.10	8.34	0.07	0.05	0.07	-0.08	0.00	-12.55	0.06	-24.51	0.00
Morocco	-260.91	-0.15	0.00	37.53	0.03	1.28	0.00	0.17	0.19	-145.21	0.00	7.61	0.90
Vietnam	67.81	-9.27	0.99	18.61	0.00	0.20	0.09	-0.01	0.92	23.42	0.53	-166.60	0.16
Bangladesh	-208.33	16.52	0.00	-33.65	0.54	-0.93	0.26	0.13	0.61	-35.35	0.84	-336.21	0.11

Source: Research Findings

Phillips and Peron		Generalized Dickey Fuller		Eim and Shin and boys		Levin, Lane and Choi		Statistics
On the surface (with width from the origin)		On the surface (with width from the origin)		On the surface (with width from the origin)		On the surface (with width from the origin)		LOG(GAR?)
0.0000	73.1102	0.0000	72.8768	0.0000	-4.59911	0.0000	-5.72144	RSM?
0.0000	88.0263	0.0000	74.6364	0.0000	-4.98156	0.0000	-6.87780	RS?
.9959	12.1748	0.7073	23.5060	0.8981	1.27070	0.1710	-.95999	RS?(1)
0.0000	95.4965	0.0000	83.2120	0.0000	-5.68759	0.0000	-4.70788	INR?+INF?
0.0000	521.857	0.0000	184.017	0.0000	-13.0627	0.0000	-13.3962	AT?
0.0000	73.1102	0.0000	72.8768	0.0000	-4.5991	0.0000	-5.72144	DOWN?

B. Limer test results showed that the model should be extracted through the panel.

C. The model was calculated from the random effect method, but since its rho value was zero, it is estimated from the fixed effect method of the model.

D. Model estimate:

The model was executed in the fixed effect mode, but because the non-diagonal components of the variance-covariance matrix were non-zero estimation models, therefore, the seemingly unrelated equations (SUR) method was re-estimated, the final results of which are given in Table 2.

Table 2: Results of estimating the stock market uncertainty model in recession cycles of the SUR method in the balanced data panel

Prob	Coefficient	Variables and tests
0.0000	107.0551	C
0.0016	-0.783965	RSM?
0.0001	2.849778	RS?
0.0000	0.062548	(INR?+INF?)
0.0000	-0.048368	T?
0.0000	-21.99279	AT?
0.0000	14.62779	DOWN?
0.76		R ²
2.06		D-W
37.44		F
0.00000		Prob F

Source: Research Findings.

Examination of the results of Table 2 shows that:

* First, the model has a high degree of explanation and R² is equal to 0.76.

* Second, the Watson-Camera statistic indicates no autocorrelation problem and no problem specifying the model.

*Thirdly, the value of F statistic is large and indicates a good fit of the model and the significance of R².

*The ratio of banks' loans and credits ratio to the private sector to GDP, which indicates the bank-based financial development, is negative and significant and as expected, and it shows that the growth and development of bank credit (bank money) will reduce risk in the capital market. The coefficient shows that for each unit increase in RSM, the growth rate variance of the S&P price index decreases by 0.78% in middle-income countries.

*The coefficient of the ratio of the value of the capital market of countries to their GDP, which indicates market-oriented financial development, is positive and significant, and it shows that in the case of recessionary cycles, the large size of the capital market and financing through the capital market increases the risk in the stock market. The coefficient shows that for each unit increase in RS, the S&P price index growth rate variance increases by 2.84% in middle-income countries.

* The nominal interest rate coefficient is positive and meaningful and meets expectations and shows that for one unit increase in the nominal interest rate, 0.06% of the variance in the growth rate of the S&P index increases.

* The rate of technical progress over time is negative and significant and in line with expectations, which means that over time, technical progress reduces risk and insecurity in the stock market. The coefficient shows that for each passing year, technical advances in the economy and capital markets reduce by 0.04% the variance in the growth rate of the S&P price index in middle-income countries.

* The average tax rate coefficient of GDP (government fiscal policy) is negative and significant, but not as expected because the implementation of fiscal contractionary policy in a recessionary cycle has increased the financial cost of production and reduced the profits of companies in the stock market and should have a positive effect on the stock market uncertainty index.

* The coefficient of stagnation cycles is positive and significant and as expected in other words, forecasting and occurring a recession cycle can reduce the level of production and profit in the future and blur the outlook for the stock market and lead to the spread of risk and uncertainty in the stock market. Its coefficient shows that for one currency, the decrease in GDP in the short run compared to its long-term trend increases the growth rate of the S&P index by 14.6%.

Estimate the stock market uncertainty model separately for each country

In this section, the results of model estimation are presented separately for countries in the state of recession cycles.

1-3-4-Estimation of stock market uncertainty model in recession business cycle mode separately.

The results of estimating the stock market uncertainty model in the recession trading cycle mode are presented separately in Table 3. The results show that the sign of the recession cycle variable is positive in 8 countries and negative in the remaining 6 countries. This means that in 8 countries, the occurrence of recessionary cycles increases the stock market risk and is as expected, but in the remaining 6 countries, the risk is reduced contrary to expectations.

In other words, with a one percent increase in the business cycle of recession, risk and financial uncertainty (variance of p & s growth rate) Malaysia (5.70%), Mexico (3.25%), Colombia (21.31%), Philippines (24.50%), Vietnam (166.60%) and Bangladesh (336.20%) are down against expectations.

Also with a one percent increase in the business cycle of recession, risk and financial uncertainty (variance of p & s growth rate) in the stock market of Turkey (36.99%), China (1.87%), Brazil (192.00%), Peru (12.38%), Thailand (78.22%), South Africa (1.78%), the Islamic Republic of Iran (20.96%) and Morocco (7.61%) will increase as expected. Table 3. Estimation of the stock market insecurity model in middle-income countries in a recessionary business cycle separately from the balanced panel method in SUR

V. SUMMARY AND CONCLUSION

The main issue of the research was to what extent can recessionary business cycles be used as a fundamental and leading variable in risk analysis and financial uncertainty in the stock market of developed countries? In the study of the subject, the variance of the growth rate of S&P index, which was calculated by GARCH technique, was used as a risk variable in the stock market of countries, and the HP method was used to calculate business cycles. Based on the research background, an experimental model of risk and uncertainty in the stock market was specified which includes the fundamental variables of monetary policy, fiscal policy, nominal interest rate, capital market size, technical progress variable and stagnant business cycles. Balanced data panel technique was used to estimate the model. The statistical sample of the research includes 14 less developed countries. Less developed countries are defined based on their per capita income and on the division of countries in the UN statistical report. The statistics of time series are annual and are related to the time period of 2001-2018.

In line with the subject, first, the regression model in stagnant business cycle cases was jointly estimated. The research findings confirmed the effect of the variables in the model. It also showed that stagnant business cycles as expected have a significant and positive effect on stock market risk, this result is consistent with the findings of Barrio (2012), Daroles et al. (2010), Zaranejad (2018), Sarang et al (2017).

Then, the regression model in stagnant business cycle cases was estimated separately for less developed countries. The results showed that in 8 countries the occurrence of recessionary cycles increases the risk of the stock market and is as expected, but in 9 countries it reduces the risk contrary to expectations.

According to the findings of the study, the following suggestions are presented:

1- Policymakers and decision makers, when formulating monetary and fiscal policies at the macro level, should consider the effects of these decisions on the stock market index and other financial markets.

2- The results obtained from this study showed that there is a direct relationship between risk and stock market uncertainty with recession cycles, therefore, investors are advised to devote a larger percentage of their capital to buying corporate stocks during the recession.

VI. References

- [1] Anvari, Ibrahim, Khodapnah, Massoud and Takband, Elham (2018). The effect of Government Budget and Banking Credit on Stock Market Size: A Panel Vector Autoregression Model Approach. *Quarterly Journal of Asset Management and Financing*, 6 (2), 70- 57.
- [2] Bayat, Marzieh; Afshari, Zahra, and Tavaklian, Hossein. (2016) "Monetary policy and total stock price index within a DSGE model". *Quarterly Journal of Economic Research and Policy*, 24 (78), 171-206.
- [3] Undoubtedly Salmani, Mohammad Reza, Barghi Oskooi, Mohammad Mehdi and Lak, Soda (2014). The effect of Monetary and Fiscal Policy Shocks on the Iranian Stock Market. *Quarterly Journal of Economic Modeling Research*, No. 6 (22), 1331-93.
- [4] Management of investment culture development of Tehran Stock Exchange. www.tse.ir.
- [5] Moradi, Somayeh and Najafizadeh, Seyed Abbas (2013). The effect of monetary policy on stock index returns (Case study: Iran). The first national electronic conference on the prospects of Iran's economy.
- [6] 6- Mahdavi, Abolghasem and Reza Alikhan Beykzand (2015). Capital market drivers in the Iranian economy. *Al-Zahra University Economic Development Policy Quarterly*. 4 (3), 41-66.
- [7] Anghelache, G.V., Jakova, S., & Oanea, D.C. (2016). Fiscal Policy and capital market performance: Evidence from EU countries from Central and Eastern Europe. *International Journal of Academic Research in Accounting, Finance and Management Sciences*. 6(2):34-43.
- [8] 8-Chatziantonious, Ioannis and David Duffy and George Filis, Stock market response to monetary and fiscal policy shocks: Multi- country evidence, *Economic Modelling*, 30, 2013, 754-769.
- [9] 9- Hsing , Y. (2013). "Effects of Fiscal Policy and Monetary Policy on the Stock Market in Poland". *Journal of Econometrics*, 205, 165 – 174.
- [10] 10- Jansen. D, Li .Q, Wang. Z, Yang ,J. (2008). "Fiscal Policy and Asset Markets: A semi parametric analysis". *Journal of Econometrics*, 145, 141 – 150.
- [11] 11- Manazir, M., Noreen, M., Ali, M., Zia, KH., Ramazan, H. & Asif, M. (2012). "Stock Market Prices and Monetary Variables". Vol. 3, No. 11.
- [12] 12- Mullineux, A., Bissoondeal, R., Karoglou, M., Hagstromer, B., & Binner, J. (2014). Stock Market Volatility, Risk Attitude and the Demand for Money in the UK.
- [13] 13- Paetz, M., & Gupta ,R. (2016). "Stock price dynamics and the business cycle in an estimated DSGE model for South Africa". *Journal of International Financial Markets, Institutions and Money*. [Volume 44](#), September 2016, Pages 166-182.
- [14] 14- Prabheesh, K. P., & Vidya, C. T. (2017). Do business cycles, investment-specific technology shocks matter for stock returns?. *Economic Modelling*.
- [15] 15- Zare, R., Azali, M., & Habibullah, M. S. (2013). "Monetary Policy and Stock Market Volatility in the ASEAN5: Asymmetries over Bull and Bear Markets". *Procedia Economics and Finance*, 7, 18-27.