Scholars Journal of Economics, Business and Management OPEN ACCESS
Abbreviated Key Title: Sch J Econ Bus Manag
ISSN 2348-8875 (Print) | ISSN 2348-5302 (Online)
Journal homepage: https://saspublishers.com

Impacts of a Seven Factor Model on Gil Stock Price – A Case in Vietnam

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DOI: 10.36347/sjebm.2024.v11i04.002 | **Received:** 02.03.2024 | **Accepted:** 08.04.2024 | **Published:** 10.04.2024

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Abstract **Original Research Article**

Fluctuation of stock price in ex-import and textile system in developing countries such as Vietnam will reflect the business health of economic system. Based on the above data analysis from our regression model, although low inflation during 2015-2016 is a good signal for GIL stock price, we would suggest the government, Ministry of Finance and State Bank of Vietnam consider to control inflation more rationally, i.e not increasing much and suitable with each economic development stage. Governmental bodies and bank system also need to apply macro policies to stimulate economic growth, however not reducing lending rate too much, together with credit, operational and market risk management, corporate governance and controlling bad debt. *This research finding and recommended policy also can be used as reference in policy for ex-import and textile system in many developing countries.*

Keywords: Gilimex Stock Price, GDP Growth, Inflationary, Risk Free Rate, Market Interest Rate JEL: M21, N1.

1. INTRODUCTION

Gilimex (Gil) located in Binh thanh, HCM city Vietnam has achieved many good resuts in recent years. Main business are: Producing, processing and exporting agricultural, forestry, seafood, handicraft, garment, leather goods, rubber, food, food, equipment, machinery, construction materials…; Importing machinery, equipment, means of transport, electronics; Real estate business, investment cooperation in the field of tourism, restaurants, hotels …

Due to the complicated impact of COVID-19 epidemic, especially in the US and Europe which are the main consumer markets, Gilimex's sales volume faced many challenges in the year 2019-2020.However, contrary to the gloomy picture of the textile and garment industry, rvenue and profit of Gilimex in the beginning of 2020 increased, compared to the last year.

Ex-import and textile system in Vietnam in recent years plays a key role in helping the whole economy. In the context that GDP growth in Vietnam has been increasing during 2014-2019 and CPI goes down and up and Vietnam stock market has been growing much, it is necessary to evaluate impacts of seven (7) internal and external macroeconomic factors on firm performance, esp. Gilimex stock price. From these analytical results, we could suggest bank and government policies to encourage and stabilize the growth of Ex-import and textile system and stock market in developing countries such as Vietnam.

The paper is organized as follows: after the introduction it is the research issues, literature review and methodology. Next, section 3 will cover methodology and data and section 4 presents main research findings/results. Section 5 gives us some discussion and conclusion and policy suggestion will be in the section 6.

2. BODY OF MANUSCRIPT

2.1 Research issues

The scope of this study will cover:

Issue 1:

What are the correlation and relationship among many economic factors: GIL stock price, interest rate, exchange rate, inflation, VNIndex, S&P 500 and GDP growth?

This paper also tests two (2) below hypotheses:

Hypothesis 1: An increase in lending rate will make GIL stock price declines.

Hypothesis 2: An increase in inflation can increase pressure in GIL stock price.

2.2 Literature Review

Lina (2012) indicated that both the change of inflation rate and the growth rate of money supply (M2) are positive but insignificant to the banking industry stock return, the exchange rate is positive and significant to banking industry stock return and interest rate is negative and significant to banking industry stock return. Next, Sadia and Noreen (2012) found out exchange rate, and Short term Interest Rate have significant impact on Banking index. Macroeconomic variables like Money Supply, Exchange Rate, Industrial Production, and Short Term Interest Rate affects the banking index negatively where as Oil prices has a positive impact on Banking index.

Manisha and Shikha (2014) stated that Exchange rate, Inflation, GDP growth rate affect banking index positively whereas Gold prices have negative impact on BSE Bankex but none of them have significant impact on Bankex. Then, Winhua and Meiling (2014) confirmed that macroeconomic do have a substantial influence to the earning power of commercial banks.

Krishna (2015) investigated the nature of the causal relationships between stock prices and the key macro-economic variables in BRIC countries. The empirical evidence shows that long-run and short-run relationship exists between macro-economic variables and stock prices, but this relationship was not consistent for all of the BRIC countries. And Kulathunga (2015) suggested that all macroeconomic factors influence the stock market development. More precisely, volatile inflation rate and exchange rate together with higher deposit rate have curtailed the stock market development in Sri Lanka. Moreover, positive optimism created by the economic growth and the stock market performance during the previous periods tend to enhance stock market performance. Moreover, Duy (2015) mentioned through the evolution of interest rates and the VNI could see that the relationship between these two variables in the period 2005-2014 is the opposite. This relationship is shown in specific periods of the year the stock market proved quite sensitive to interest rates. When interest rates are low or high but the bearish stock market rally, and vice versa when the high interest rates the stock market decline.

Last but not least, Quy and Loi (2016) found that 3 economic factors (inflation rate, GDP growth rate, and exchange rate) impact significantly on real estate stock prices; but the relationship between 10-year Government bond yield and trading volume, and real estate stock prices was not found. Ahmad and Ramzan (2016) stated the macroeconomic factors have important concerns with stocks traded in the stock market and these factors make investors to choose the stock because investors are interested to know about the factors affecting the working of stock to manage their portfolios. Abrupt variations and unusual movements of macroeconomic variables cause the stock returns to fluctuate due to uncertainty of future gains.

Until now, many researches have been done in this field, however, they just stop at analyzing internal macroeconomic factors on stock price.

Within the scope of this paper, we measure impacts of both internal and external macro factors on Gilimex stock price and suggest policies for bank system, Vietnam government, Ministry of Finance, State Bank and relevant government bodies. We also analyze data through out time series from 2014-2019.

4. METHODOLOGY AND DATA

This research paper establishes correlation among macro-economic factors by using an econometric model to analyze impacts of seven (7) macro-economic factors in Vietnam such as: GDP growth, inflation, interest rate, exchange rate,… on Gilimex (GIL) stock price.

We build a regression model with Eview software to measure impacts of factors. Gilimex stock price is a function with 7 variables as follows:

Y (GIL stock price) = f (x1, x2, x3, x4, x5, x6, x7) = ax1 + bx2 + cx3+dx4+ ex5 + fx6 + k

With: x1 : GDP growth rate (g), x2 : inflation, x3: VNIndex, x4: lending rate, x5: risk free rate (Rf), x6: USD/VND rate

4. MAIN RESULTS

4.1: General Data Analysis

First of all, the below chart 1 shows us that Y has a negative correlation with GDP growth:

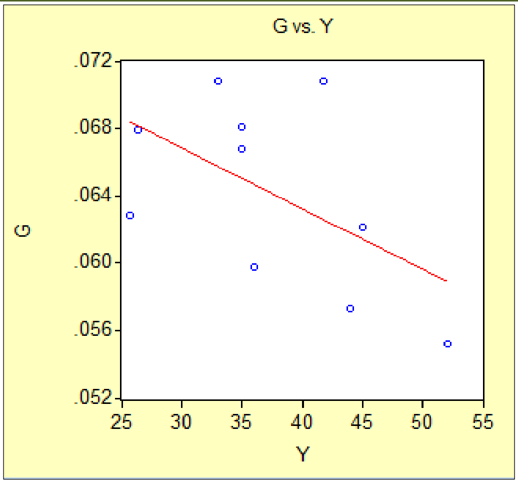

Chart 1: GIL stock price (Y) vs. GDP growth in Vietnam (G)

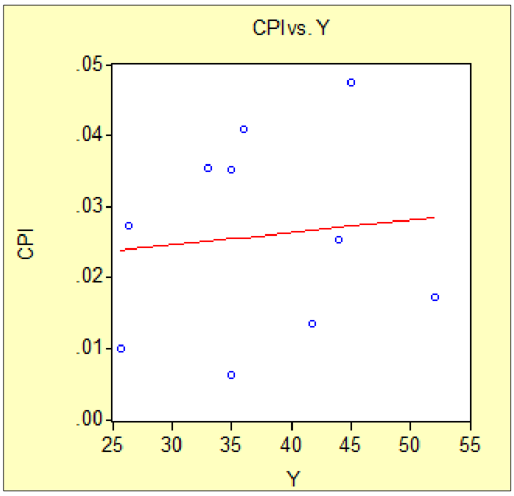

Chart 2: GIL stock price (Y) vs. Inflation (CPI)

Next, we find out that, based on the below scatter chart, Y (GIL stock price) has slightly positive correlation with inflation (CPI).

Looking at the below chart 3, we also recognize that GIL stock price (Y) and VNIndex have negative correlationship.

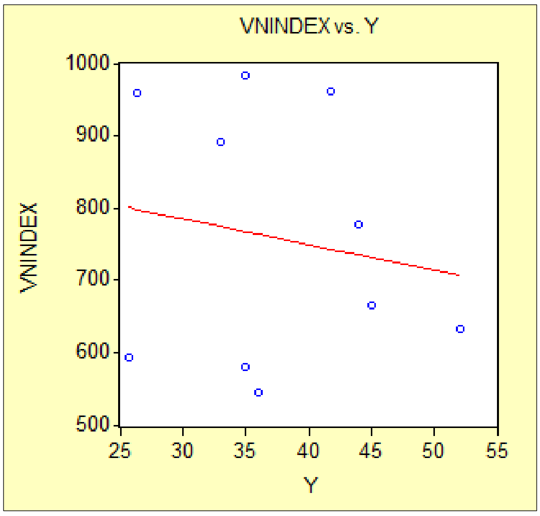

Chart 3: Y vs. VNIndex

On the other hand, we could see statistical results with Eview in the below table with 6 variables:

Table 1: Statistics for macro-economic factors Unit: %

	GIL stock price	GDP growth	Inflation (CPI)	VN Index	Lending rate	Risk free rate	USD/VND rate
Mean	37.39	0.06416	0.02588	758.875	0.09856	0.050485	22611.7
Median	35.5	0.0648	0.0264	720.67	0.1	0.05435	22757.5
Maximum	52	0.0708	0.0474	984.24	0.1115	0.06535	23350
Minimum	25.7	0.0552	0.0063	545.63	0.0886	0.0297	21405
Standard dev.	8.33	0.005549	0.013884	176.4835	0.007636	0.014066	610.2313

Looking at the above table, we recognize that standard deviation of exchange rate and VNIndex are the highest values. Whereas standard deviation of GDP growth, Rf and lending rate are the lowest values.

If we want to see correlation matrix of these 7 macro variables, Eview generate the below result in table 2:

Table 2 – Correlation matrix for seven (7) macro-economic variables (GDP growth, inflation in VN, market interest rate, Risk free rate, exchange rate and GIL stock price)

Table 2

Correlation Matrix

	Y	G	CPI	VNINDEX	R	RF	EX_RATE	SP500
Y	1.000000	-0.544842	0.105416	-0.168402	-0.099540	0.109439	-0.017172	-0.190238
G	-0.544842	1.000000	-0.050535	0.653067	-0.390583	-0.474076	0.564582	0.634468
CPI	0.105416	-0.050535	1.000000	0.146050	-0.220576	-0.158705	0.082310	0.183559
VNINDEX	-0.168402	0.653067	0.146050	1.000000	-0.440372	-0.634696	0.777514	0.983824
R	-0.099540	-0.390583	-0.220576	-0.440372	1.000000	0.302601	-0.154750	-0.374293
RF	0.109439	-0.474076	-0.158705	-0.634696	0.302601	1.000000	-0.521420	-0.677534
EX_RATE	-0.017172	0.564582	0.082310	0.777514	-0.154750	-0.521420	1.000000	0.755250
SP500	-0.190238	0.634468	0.183559	0.983824	-0.374293	-0.677534	0.755250	1.000000

The above table 2 shows us that correlation among 7 macro variables. A decrease in exchange rate and decrease in lending rate might lead to an increase in GIL stock price. It also indicates that correlation between GIL stock price (Y) in Viet Nam and Rf in Viet Nam and lending rate (0.109 and -0.09) is higher than that between Y and VNIndex (-0.16) or between Y and CPI (0.105).

4.2 Regression Model and Main Findings

In this section, we will find out the relationship between 7 macro-economic factors and stock price.

4.2.1 Scenario 1: Regression model with single variable: analyzing impact of GDP growth (G) on GIL stock price (Y)

Note: C: constant

Using Eview gives us the below results:

Dependent Variable: Y
Method: Least Squares
Date: 02/15/20 Time: 12:02
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G	-817.9745	445.0889	-1.837778	0.1034
C	89.87124	28.65286	3.136554	0.0139

R-squared	0.296853	Mean dependent var	37.39000
Adjusted R-squared	0.208960	S.D. dependent var	8.330460
S.E. of regression	7.409147	Akaike info criterion	7.020164
Sum squared resid	439.1636	Schwarz criterion	7.080681
Log likelihood	-33.10082	F-statistic	3.377427
Durbin-Watson stat	1.232486	Prob(F-statistic)	0.103397

Hence, Y = -817.9 * g + 89.8, R^2 = 0.29, SER = 7.4

Within the range of 10 observations (2014-2019) as described in the above scatter chart 1, coefficient -817.9, when GDP growth increases, GIL stock price will decrease.

4.2.2 Scenario 2 - Scenario 3 - regression model with 6 macro variables:
Running Eviews gives us results:

Dependent Variable: Y
Method: Least Squares
Date: 02/15/20 Time: 12:05
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G	-1402.649	783.7774	-1.789601	0.1715
CPI	-41.03330	236.6746	-0.173374	0.8734
R	-543.2729	500.8097	-1.084789	0.3574
VNINDEX	-0.014266	0.035814	-0.398351	0.7170
RF	-27.74659	288.2680	-0.096253	0.9294
EX_RATE	0.008866	0.008718	1.016904	0.3841
C	-6.252346	172.3245	-0.036282	0.9733

R-squared	0.586015	Mean dependent var	37.39000
Adjusted R-squared	-0.241955	S.D. dependent var	8.330460
S.E. of regression	9.283718	Akaike info criterion	7.490428
Sum squared resid	258.5623	Schwarz criterion	7.702238
Log likelihood	-30.45214	F-statistic	0.707773
Durbin-Watson stat	2.300797	Prob(F-statistic)	0.672018

Therefore, we see impacts of 6 macro factors, with the new variable: Risk free rate (Rf), the above equation shows that GIL stock price (Y) has negative correlation with inflation and risk-free rate and G, whereas it has positive correlation with exchange rate.

We also recognize that GDP growth and lending rate, have the highest impact on GIL stock price, while exchange rate just has a slightly impact on stock price.

EXHIBIT

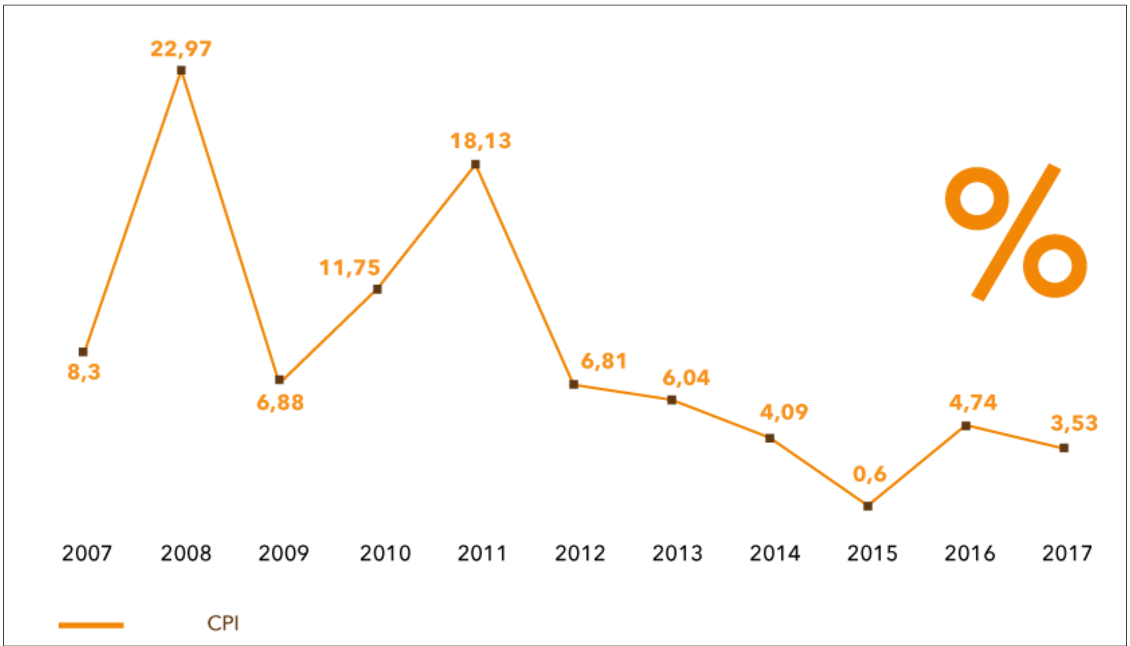

Exhibit 1: Inflation, CPI over past 10 years (2007-2017) in Vietnam

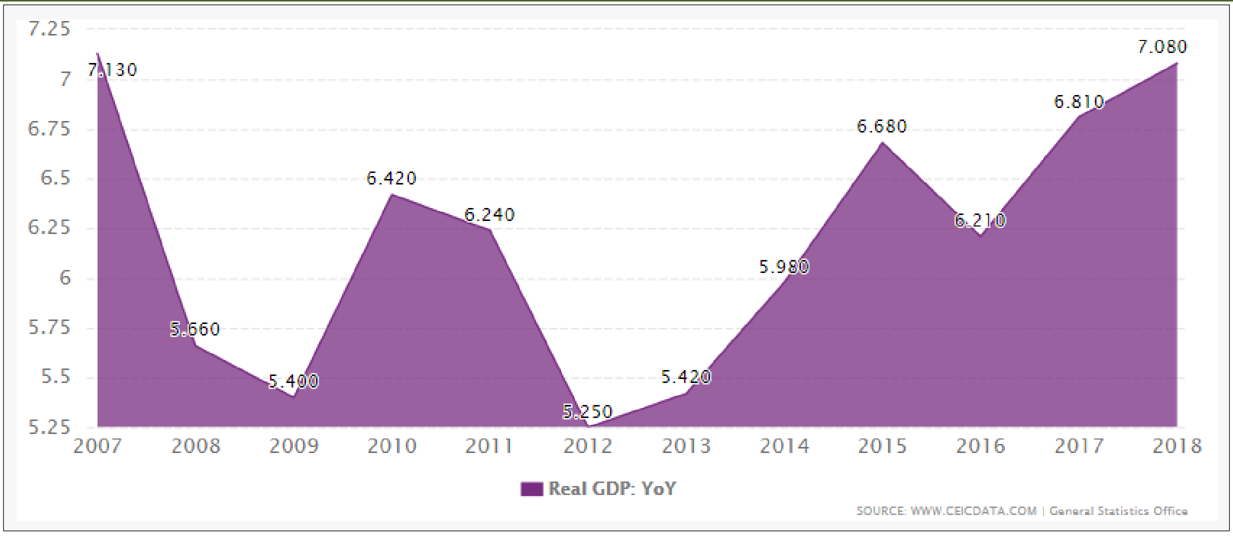

Exhibit 2: GDP growth rate past 10 years (2007-2018) in Vietnam

5. DISCUSSION AND CONCLUSION

Through the regression equation with above 6 macroeconomic variables, this research paper used updated data from 2014-2019 to analyze the regression equation via Eview in order to show that GIL stock price (Y) has negative correlation with inflation and risk free rate And G, whereas it has positive correlation with exchange rate. We also recognize that GDP growth and lending rate, have the highest impact on GIL stock price, while exchange rate just has a slightly impact on stock price.

Data are from observations in the past 10 years, it is partly based on the market economic rules, and the research results are also affected by socio-economic characteristics in Vietnam such as: efficiency of public investment, waste of public investment, enterprise bankruptcy, and investment in areas that increase GDP such as production, electricity, etc. or investing in healthcare, environment and education sectors. We have not yet considered the impact of these factors.

Beside, we can analyze impact of another macro factor, for example, deposit rate when we add this variable into our regression model of stock price. Furthermore, we can add unemployment rate or public debt increase into our econometric model to measure the impact of these extra factors on GIL stock price.

GIL's management believes that the market will have many changes. Especially after the COVID-19 epidemic, the company's goods import and export through Europe, the US and China markets may have many strong fluctuations, affecting the company's revenue. That is one of the reasons this enterprise has to adjust its business targets.

Based on the above data analysis from our regression model, although low inflation during 2015-2016 is a good signal for GIL stock price, we would suggest the government, Ministry of Finance and State Bank of Vietnam consider to control inflation more rationally, i.e not increasing much and suitable with each economic development stage. Governmental bodies and bank system also need to apply macro policies to stimulate economic growth, however not reducing lending rate too much, together with credit, operational and market risk management, corporate governance and controlling bad debt.

Limitations of This Research

Finally, this research paper also helps to direct further future researches, for instance, we could add deposit rate and unemployment rate into our above econometric model to measure impacts of them on commercial bank stock price.

Acknowledgements

I would like to take this opportunity to express my warm thanks to Board of Editors, my family, my colleagues, and brother in assisting convenient conditions for my research paper.

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