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**RISK MANAGEMENT
UNDER IMPACTS OF
MACRO ECONOMIC
FACTORS INA BIG
SEAFOOD EX-IMPORT
FIRM -ANGIANG
FISHERIES EX-IMPORT
JSC. IN VIETNAM**

1. Introduction

Agifish (AGF) sea food ex-import company has got quality standards in quality management system such as HACCP, CoC, ISO. Our study scope is to measure macro effects on its stock price, as our statistics shows that stock price moves in the same trend with VNIndex and GDP growth.

Over years, Vietnam economy has achieved good results in GDP growth during 2011-2019 until 2020 where receiving bad effects from Covid 19 and China-US commerce war (see Exhibit 1) and Vietnam agriculture sector has been developing quickly and seafood industry has developed so much with the development of export-import seafood.

The signing of Free Trade Agreements has brought positive signals to the Vietnamese economy, especially the Free Trade Agreement between Vietnam and the EU (EVFTA). In 2020, exports to the EU reached 34.8 billion USD; Notably, after 5 months of implementation

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(from August 1, 2020), Vietnam's total export turnover to the EU reached 15.4 billion USD, up 1.6% over the same period last year (source: gso.gov.vn, access date 24/6/2021).

Among big seafood companies, in the country, export-import firm is Agifish company (AGF). The firm AGF has participated in many Association including VCCI, Vietnam Association of Seafood Exporters and Producers (VASEP), Vietnam Pangasius Association (VPA), etc.

Agifish applies quality management systems such as ISO 14001:22004, HACCP, CoC, etc. in the entire production process.

The ASC, BAP standards for raw pangasius farming areas and processing factories of the Company have been certified by international organizations.

Agifish is allowed to export seafood products to the EU market with 4 codes DL and certified HALAL to export to the Muslim community at home and abroad.

In the domestic market, products processed from Pangasius Agifish are "High Quality Vietnamese Goods" continuously voted by consumers from 2003 to 2015.

Agifish is the only enterprise in the seafood industry to receive the title of "National Brand 2012" (Vietnam Value) continuously in 2008, 2010, 2012.

Agifish has a tradition of being a leader in the fields of production and business activities, scientific research in the field of fingerling production, seafood processing technology and the development of value added products processed from Basa fish, tra fish.

Agifish cares about building a spirit of solidarity between leaders, managers and workers striving for the development of the Company.

Business results of Agifish over past years are presented in below table 1.

Table 1. Business results of AGF (Unit: m VND)

	2014	2015	2016	2017
Revenues	2,780,325	1,719,128	3,291,370	2,452,391
Gross profit	337,747	166,775	224,810	199,396
Net profit	72,125	-446	2,585	4,120

Source: financial reports and stock exchange

We find out in the above table that: net profit increased from 2015 to 2017 while revenue reduced in 2017. Thus, The company managed cost better in 2017.

Once again, we emphasize the study scope is that: we will explore both internal and external macroeconomic elements and their impacts on stock price of Agifish (AGF).

We will mention in this study, below six (6) major variables:

$$Y \text{ (AGF stock price)} = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7) = ax_1 + bx_2 + cx_3 + dx_4 + ex_5 + fx_6 + gx_7 + k$$

In which : x_1 : inflation in Viet Nam, x_2 : lending rate in Viet Nam, x_3 : risk free rate, x_4 : inflation in the US, x_5 : USD/VND exchange rate, x_6 : VNIndex.

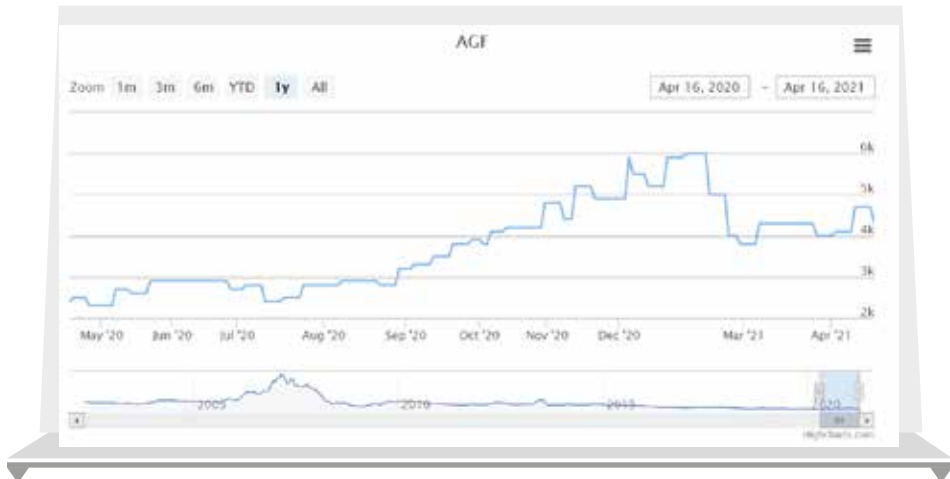


Figure 1. Stock price of AGF over past years

Source: www.vinacorp.vn

It is organized with introduction, literature review, method, main results, discussion and conclusion.

2. Contents

2.1. Research questions

Question 1: What are the relationship among many economic factors and stock price of AGF ?

Question 2: What are recommendations for macro and risk policies?

2.2. Literature review

Relating studies are summarized in below table 2.

Table 2. Previous studies

Authors	Year	Results, contents
Sadia and Noreen	2012	Banking index much affected by exchange rate and interest rate (short term)
Huy, D.T.N	2012	Leverage and the size of firms' competitors affect beta in the construction industry
Saeed and Akhter	2012	Banking index much affected by interest (short term) and exchange rate.
Winhua and Meiling	2014	Bank income much affected by macro effects
Krishna	2015	Between stock price and macro factors there are causal relation.
Kulathunga	2015	In Sri Lanka, stock market curtailed but increasing deposit rates
Ahmad and Ramzan	2016	Investors might consider macro effects in portfolio of stock investment
Huy, D.T.N et al	2020	Good business management requires us to consider the impacts of multi macro factors on stock price, and it contributes to promoting business plan and economic policies for economic growth and stabilizing macroeconomic factors
Manisha and Shikha	2014	Stated that between bank index and GDP growth, Inflation, there is positive relationship.
Huy, D.T.N et al	2021	Macro index has affected stock price of Vingroup in Vietnam.

Source: authors' calculation and stock exchange

Last but not least, Vu Quynh Nam, Dinh Tran Ngoc Huy, Nguyen Thi Hang, Pham Thi Hong Nhung (2021) stated important roles of international sea ports for supporting companies having exporting activities of Vietnam and Asia countries.

So far, there is no research that has been done on both internal and external macro economic variables on fisheries firm and their stock price, esp. in Viet Nam market. This is a research gap.

2.3. Conceptual theories

There are multi elements that has certain impacts on stock price of single firm, such as operation, dividend, performance, and macro elements.

What happens in high inflation time - values of investment harmed, negative effect on stock price, purchasing goes down

What happens in low inflation time - inflated revenue /profits of firms, declined values? So we see the reason for decision of Fed to keep low rates of inflation and GDP growth over years, as below formula: real return equals to (=) nominal return minus (-) inflation.

Our market evidence in Vietnam stock exchange in 2007-2009 crisis told us that stock market and stock price are harmed and affected negatively by inflation. Whereas stock price of companies can be affected, in long term impact, by variables such as exchange rate (with positive effect).

3. Methodology and data

We use both quantitative and qualitative analytical methods, with OLS regression supported by Eviews.

Most data from stock exchange and reliable. Stock price from HOSE or HNX stock exchange, rates from bank system, GDP and CPI from Bureau statistics and Ministry of Finance.

Then we use OLS regression for 6 factors below.

The correlation between them and stock price will be estimated.

Y (AGF stock price) = f (x_1 : G, x_2 : CPI, x_3 : R, x_4 : Rf, x_5 : VNIndex, x_6 ; exchange rate).

We therefore can estimate effects and impacts of multi factors on firm stock price.

4. Main findings

4.1. Overall analysis

We can analyze in below charts that: we see negative relationship Between stock price Y (AGF) and GDP growth and inflation and VNIndex, while between Y and Rf and lending rate there is positive correlation.

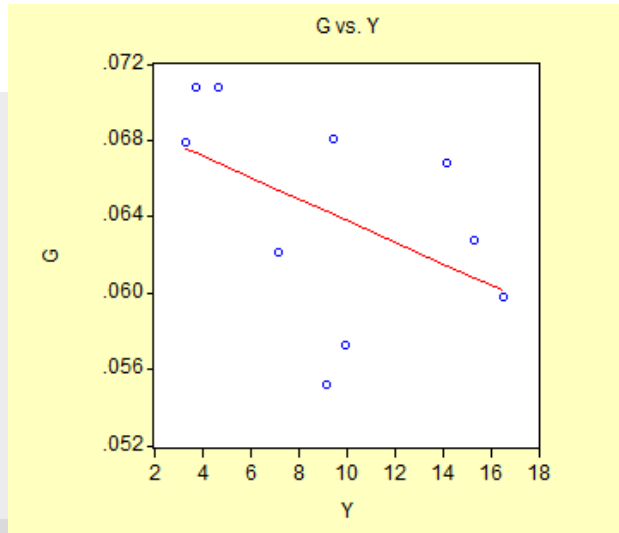


Figure 2. AGF stock price (Y) vs. GDP growth in Vietnam (G)

Source: authors' calculation and stock exchange

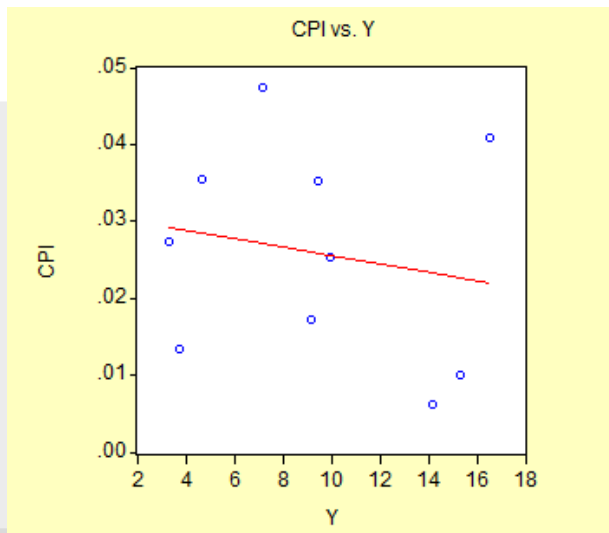


Figure 3. AGF stock price (Y) vs. Inflation (CPI)

Source: authors' calculation and stock exchange

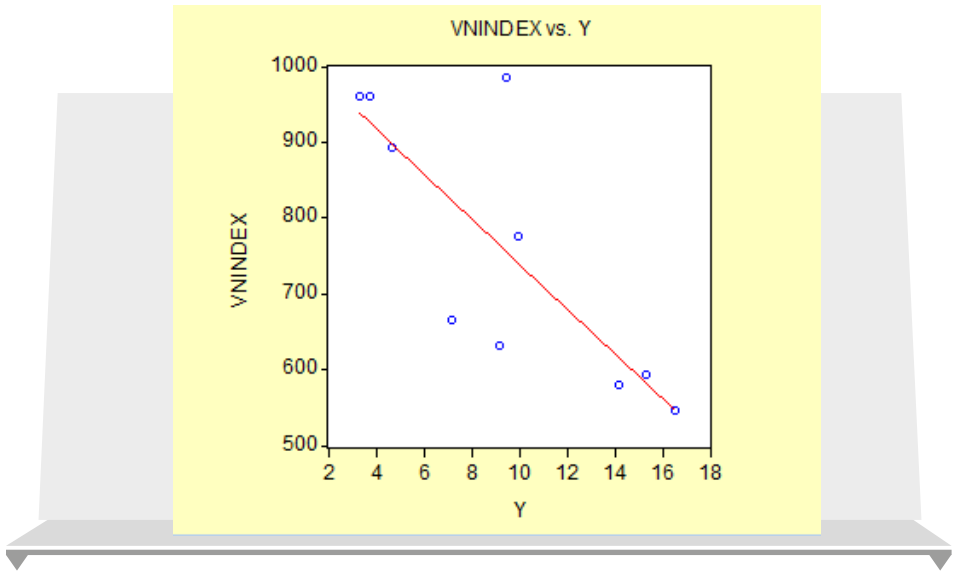


Figure 4. Y vs. VNIndex

Source: authors' calculation and stock exchange

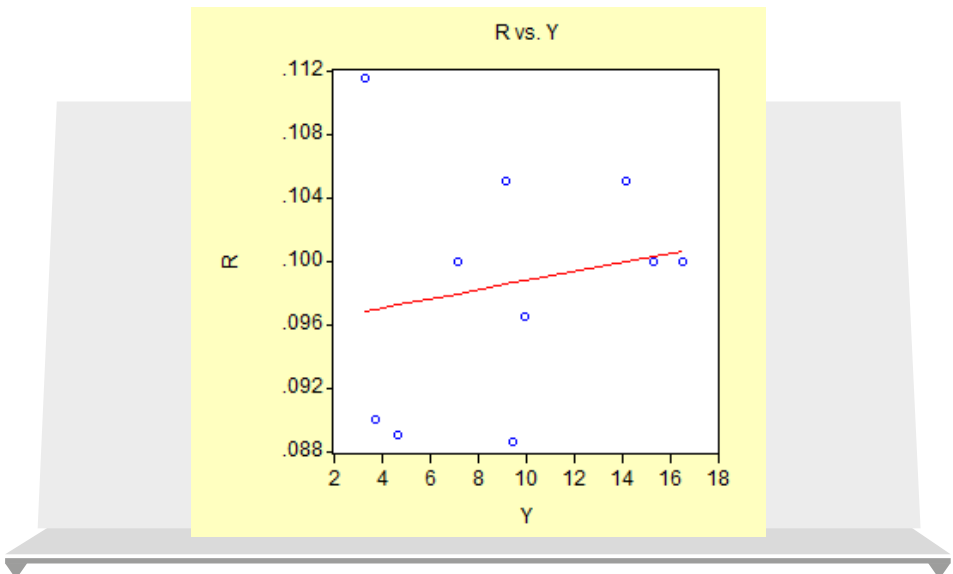


Figure 5. Y vs. Lending rate (r)

Source: authors' calculation and stock exchange

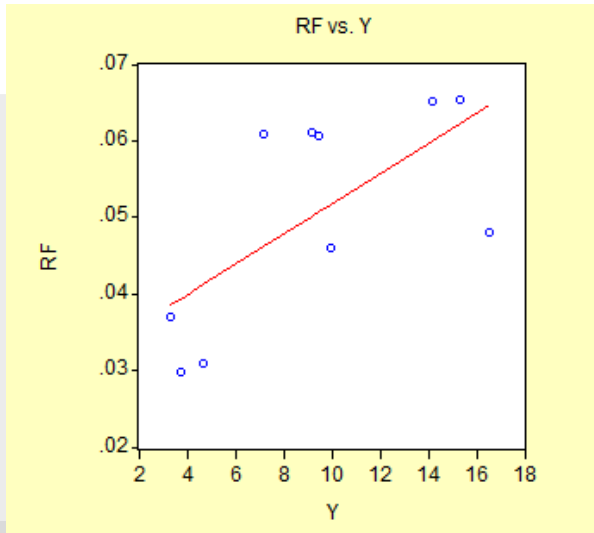


Figure 6. Y vs. Risk free rate (Rf)

Source: authors' calculation and stock exchange

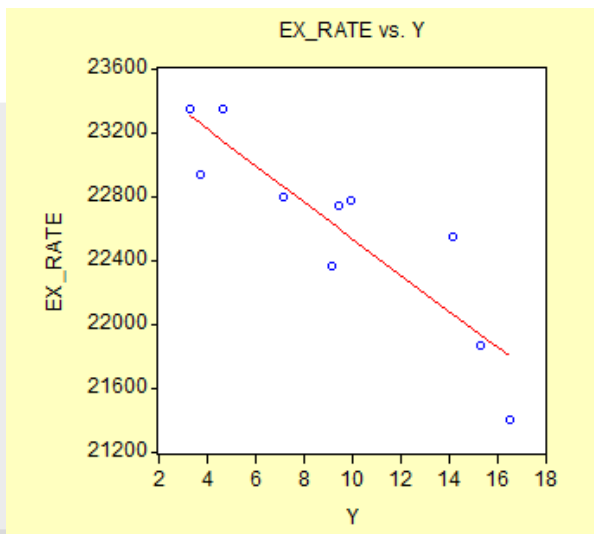


Figure 7. Y vs. Exchange rate (Ex_rate)

Source: authors' calculation and stock exchange

Below tables show us that:

- standard deviation of GDP growth is lowest value and negative (table 3),
- correlation of Rf and Y is higher than that of R and Y (table 4).

Table 3. Statistics for macroeconomic factors (%)

	AGF stock price	GDP growth	Inflation (CPI)	VN Index	Lending rate	Risk free rate	USD/VND rate
Mean	9.37	0.06416	0.02588	758.875	0.09856	0.050485	22611.7
Median	9.35	0.0648	0.0264	720.67	0.1	0.05435	22757.5
Maximum	16.52	0.0708	0.0474	984.24	0.1115	0.06535	23350
Minimum	3.34	0.0552	0.0063	545.63	0.0886	0.0297	21405
Standard dev.	4.78	0.005549	0.013884	176.4835	0.007636	0.014066	610.2313

Source: authors' calculation and stock exchange

We recognize from the above table that standard deviation of GDP growth is the lowest value while that of USD/VND has the highest value.

Table 4. Correlation matrix for seven (7) macro-economic variables (GDP growth, inflation in VN, market interest rate, Risk free rate, exchange rate and AGF stock price)

	Y	G	CPI	VNIndex	R	Rf	Exrate	SP500
Y	1.0	-0.48	-0.18	-0.8	0.17	0.67	-0.8	-0.7
G		1.0	-0.05	0.65	-0.39	-0.47	0.56	0.63
CPI			1.0	0.14	-0.2	-0.15	0.08	0.18
VNIndex				1.0	-0.4	-0.6	0.7	0.9
R					1.0	0.3	-0.15	-0.37
Rf						1.0	-0.5	-0.67
Exrate							1.0	0.75
SP500								1.0

Source: authors' calculation and stock exchange

From the above table, we find out that: between stock price (AGF) and Risk free rate, there is higher correlation (0.67) than between Y and Sp500 (-0.7).

4.2. Regression model and main findings

Scenario 1: Regression model with single variable: in which: C: constant. OLS gives us the below results (table 5).

Table 5. OLS regression for 1 variable

C	Coefficient (G)	R-squared	SER	Akaike info criterion
36	-416.2	0.23	4.43	5.9

Source: authors' calculation and stock exchange

Hence, $Y = -416 * g + 36$, $R^2 = 0.23$, $SER = 4.4$. Within the range of 10 observations (2014-2019) as described in the above scatter chart 1, coefficient -416, when GDP growth increases, AGF stock price will decrease.

Scenario 2: Regression model with 2-6 variables: OLS give us results (table 6).

Table 6. Regression results

	2 variables- Coefficient
G	-425
CPI	-72

Source: authors' calculation and stock exchange

Scenario 3: Regression model with 3-5 variables: OLS again give us results below (table 7).

Table 7. Regression results

	Coefficient			
	3 variables	4 variables	5 variables	6 variables
GDP growth	-452.8	0.6	30.4	113

CPI	-78.9	-37.1	-28.9	-22.4
Risk free rate			92.8	84.2
Lending rate	-49.5	-150	-149	-44.4
VNIndex		-0.02	-0.02	-0.006
Exchange rate				-0.005

Source: authors' calculation and stock exchange

From above result tables we recognize that: there is positive relationship between stock price Y and Risk free rate and GDP growth, while between stock price and CPI and lending rate there is negative correlation.

5. Discussion and further researches

According to business results, Agifish applies the fiscal year starting from October 1 and ending on September 30 of the following year. For the fiscal year 2017-2018, the Company achieved VND 1,285 billion in revenue, down 43% from the previous year and the year-round profit after tax recorded a negative level of VND 190 billion.

We had OLS regression results above and find out that: Y - stock price AGF increases if GDP growth increase (highest impact) together with lending rate declines.

Other elements such as rate of unemployment and FDI can be added into our regression model to estimate macro effects on stock price.

6. Conclusion and policy suggestion

Therefore, there are Policy implications:

- inflation or CPI need to be controlled better,
- lending rate policy controlled for risk prevention,
- risk free rate not decline much, bonds (corporate and treasury) can create good mechanisms for capitals invested,
- GDP growth positive good for stock price,
- observing macro varying can help us to get financial gains.

Management implications. Fisheries and Seafood companies need to build suitable model to estimate macro effects on firm stock price and net profit.

Limitation of research. We can expand our research model to other markets.

Summary

RISK MANAGEMENT UNDER IMPACTS OF MACRO ECONOMIC FACTORS INA BIG SEAFOOD EX-IMPORT FIRM -ANGIANG FISHERIES EX-IMPORT JSC. IN VIETNAM

AnGiang Fisheries Ex-Import Joint Stock Company (AGF) was established in 2001. Agifish has traditionally been a leader in the fields of production and business activities, scientific research in the field of fingerling production, seafood processing technology and the development of value added products processed from Basa fish, tra fish. Agifish cares about building a spirit of solidarity between leaders, managers and workers striving for the development of the Company.

Because we figure out there is a research gap in which many previous studies forgot to explore both internal and external macroeconomic elements and their impacts on stock price of Agifish (AGF), a big Vietnam fisheries firm, in the context Viet Nam and the US economies receive impacts from global economic crisis.

With the using of quantitative analysis and statistics, regression OLS, together with qualitative methods including synthesis, comparison and explanatory methods, authors recognize that, in a six factor model, AGF stock price goes up together with effects from increase in GDP growth and lending rate declines.

Last but not least, our research model can be expanded to other markets.

Keywords: *AGF stock price; GDP growth; inflationary; risk free rate; market interest rate.*

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EXHIBIT

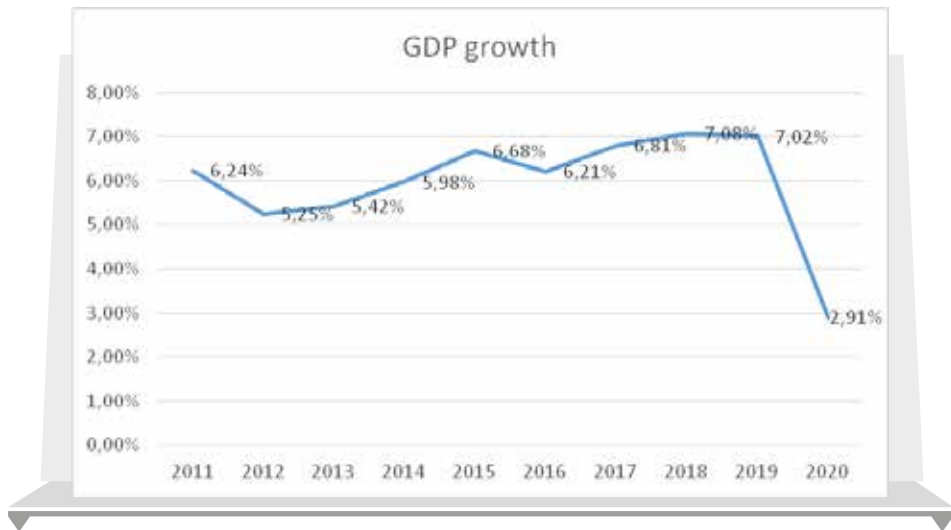


Exhibit 1. Vietnam GDP growth over 10 years 2010-2020

Source: authors' calculation and stock exchange