BUSINESS MANAGEMENT VIA AN ECONOMETRIC MODEL ON FIDITOUR STOCK PRICE – A CASE IN TOURISM INDUSTRY IN VIETNAM

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ABSTRACT

Fluctuation of stock price in commercial banks in developing countries such as Vietnam will reflect the business health of bank system and the whole economy. 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. By data collection method through statistics, analysis, synthesis, comparison, quantitative analysis to generate qualitative comments and discussion; using econometric method to perform regression equation and evaluate quantitative results, the article analyzed and evaluated the impacts of six (6) macroeconomic factors on stock price of a joint stock commercial bank, Vietcombank (VCB) in Vietnam in the period of 2014-2019, both positive and negative sides. The results of quantitative research, in a seven factor model, show that the increase in GDP growth and lending rate and risk free rate has a significant effect on increasing VCB stock price with the highest impact coefficient, the second is decreasing the exchange rate. This research finding and recommended policy also can be used as reference in policy for commercial bank system in many developing countries.

KEYWORDS: Bank Stock Price; GDP Growth; Inflationary; Risk Free Rate; Market Interest Rate

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INTRODUCTION

The development strategy of FIDITOUR is to focus on quality, high quality, and attentive care with products tailored to customers' needs in order to provide guests with satisfied vacation trips as the foundation. branding a sustainable FIDITOUR in the hearts of tourists.

During the past years, FIDITOUR has always improved and diversified its types to meet the needs of customers with products: popular for middle-class customers; Relaxation for guests coming back to their sights for a second time with a more comfortable, higher quality program; Hi-class for high-end guests; Package Tou and partial tour; Tour ships at home and abroad; Types of MICE; Study abroad and study abroad. Tour quality has been standardized according to the version every year, preventive Quality Control testing before, during and after tour, standardize service style, manage tour quality.

Tourism 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 macro

economic factors on tourism company performance, esp. Fiditour (FDT) stock price. From these analytical results, we could suggest bank and government policies to encourage and stabilize the growth of bank system and stock market in developing countries such as Vietnam.

Looking at the below chart, we find out that FDT stock price moves in the same trend with VN Index and GDP growth, although it fluctuates in a smaller range.

Figure 1

This study will calculate and figure out the impacts of seven (7) macro economic factors such as inflation, GDP growth, market interest rate, risk free rate, VN Index, S&P500 and exchange rate on FDT stock price.

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.

BODY OF MANUSCRIPT

Research Issues

The scope of this study will cover:

- Issue 1: What are the correlation and relationship among many economic factors: FDT stock price, interest rate, exchange rate, inflation, VN Index, S&P 500 and GDP growth?
- Issue 2: What are the impacts of above 7 macro economic factors on FDT stock price?
- Issue 3: Based on above discussion, we recommend some solutions regarding to tourism management in incoming period.

This paper also tests two (2) below hypotheses:

- Hypothesis 1: An increase in lending rate will make FDT stock price declines.
- Hypothesis 2: An increase in inflation can increase pressure in FDT stock price.

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 researchers 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 FDT stock price and suggest policies for bank system, Vietnam government, Ministry of Finance, State Bank and relevant government bodies. We also analyze data throughout time series from 2014-2019.

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 FDT stock price.

In this research, analytical method is used with data from the economy such as inflation in Vietnam and market interest rate, GDP growth rate, exchange rate (USD/VND). Data are included from 2014 -2019 with semi-annual data (10 observations in total). Data is estimated based on exchange rate and lending interest rates of commercial banks such as: Vietcombank, BIDV, Agribank, Vietinbank (average calculation). S&P 500 index data is from USA Stock exchange, data source (inflation, GDP) is from Bureau of Statistics. Beside, econometric method is used with the software Eview. It will give us results to suggest policies for businesses and authorities.

We build a regression model with Eview software to measure impacts of factors. FDT stock price is a function with 6 variables as follows:

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

With: x_1 : GDP growth rate (g), x_2 : inflation, x_3 : VN Index, x_4 : lending rate, x_5 : risk free rate (Rf), x_6 : USD/VND rate

Beside, this paper also uses analytical and general data analysis method to measure and generate comments on the results, then suggest policies based on these analyses.

MAIN RESULTS

General Data Analysis

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

Chart 1: FDT Stock Price (Y) vs. GDP Growth in Vietnam (G).

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

Chart 2: FDT Stock Price (Y) vs. Inflation (CPI).

Looking at the below chart 3, we also recognize that FDT stock price (Y) and VN Index have positive correlationship.

Chart 3: Y vs. VN Index.

We see that, FDT stock price (Y) and lending rate have negative correlation:

Chart 4: Y vs. Lending Rate (r).

In addition to, the below scatter graph shows us that FDT stock price (Y) and risk free rate (Rf) also have negative correlation.

Chart 5: Y vs. Risk Free Rate (Rf).

The below chart 6 shows us that Y and USD/VND rate have a positive correlation.

Chart 6: Y vs. Exchange Rate (Ex_rate).

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.

	FDT stock price	GDP growth	Inflation (CPI)	VN Index	Lending rate	Risk free rate	USD/VND rate
Mean	32.87	0.06416	0.02588	758.875	0.09856	0.050485	22611.7
Median	32.49	0.0648	0.0264	720.67	0.1	0.05435	22757.5
Maximum	49.4	0.0708	0.0474	984.24	0.1115	0.06535	23350
Minimum	24.9	0.0552	0.0063	545.63	0.0886	0.0297	21405
Standard dev.	7.468	0.005549	0.013884	176.4835	0.007636	0.014066	610.2313

Unit: %

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

If we want to see correlation matrix of these 8 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 FDT Stock Price)

Correlation Matrix								
	Y	G	CPI	VNINDEX	R	RF	EX_RATE	SP500
Y	1.000000	0.499137	0.486796	0.700464	-0.488121	-0.535988	0.768233	0.639421
G	0.499137	1.000000	-0.050535	0.653067	-0.390583	-0.474076	0.564582	0.634468
CPI	0.486796	-0.050535	1.000000	0.146050	-0.220576	-0.158705	0.082310	0.183559
VNINDEX	0.700464	0.653067	0.146050	1.000000	-0.440372	-0.634696	0.777514	0.983824
R	-0.488121	-0.390583	-0.220576	-0.440372	1.000000	0.302601	-0.154750	-0.374293
RF	-0.535988	-0.474076	-0.158705	-0.634696	0.302601	1.000000	-0.521420	-0.677534
EX_RATE	0.768233	0.564582	0.082310	0.777514	-0.154750	-0.521420	1.000000	0.755250
SP500	0.639421	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. An increase in exchange rate and decrease in lending rate might lead to an increase in FDT stock price. It also indicates that correlation between FDT stock price (Y) in Viet Nam and VN Index in Viet Nam and S&P 500 in the US (0.7 and 0.63) is higher than that between Y and lending rate (-0.4) or between Y and CPI (0.48).

The below table 3 shows us that covariance matrix among 7 macro economic variables. FDT stock price (Y) has a negative correlation with risk free rate and lending rate but has a positive correlation with exchange rate (EX_Rate), CPI and GDP growth.

Hence, an increase in GDP may lead to an increase in FDT stock price.

Table 3: Covariance Matrix for 7 Macro Economic Variables

Covariance Matrix								
	Y	G	CPI	VNINDEX	R	RF	EX_RATE	SP500
Y	50.19488	0.018615	0.045425	830.8848	-0.025051	-0.050673	3150.927	1267.532
G	0.018615	2.77E-05	-3.50E-06	0.575578	-1.49E-05	-3.33E-05	1.720538	0.934488
CPI	0.045425	-3.50E-06	0.000173	0.322068	-2.10E-05	-2.79E-05	0.627614	0.676458
VNINDEX	830.8848	0.575578	0.322068	28031.78	-0.534085	-1.418033	75361.46	46087.69
R	-0.025051	-1.49E-05	-2.10E-05	-0.534085	5.25E-05	2.93E-05	-0.648952	-0.758612
RF	-0.050673	-3.33E-05	-2.79E-05	-1.418033	2.93E-05	0.000178	-4.028085	-2.529699
EX_RATE	3150.927	1.720538	0.627614	75361.46	-0.648952	-4.028085	335144.0	122334.5
SP500	1267.532	0.934488	0.676458	46087.69	-0.758612	-2.529699	122334.5	78286.05

Regression Model and Main Findings

In this section, we will find out the relationship between eight macro economic factors and public debt.

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

Note: C: constant

Using Eview gives us the below results:

Dependent Variable: Y
 Method: Least Squares
 Date: 01/31/20 Time: 14:59
 Sample: 1 10
 Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G	671.7810	412.3287	1.629237	0.1419
C	-10.23347	26.54390	-0.385530	0.7099
R-squared	0.249137	Mean dependent var	32.86800	
Adjusted R-squared	0.155280	S.D. dependent var	7.468071	
S.E. of regression	6.863805	Akaike info criterion	6.867257	
Sum squared resid	376.8946	Schwarz criterion	6.927775	
Log likelihood	-32.33629	F-statistic	2.654412	
Durbin-Watson stat	1.772376	Prob(F-statistic)	0.141911	

Hence, $Y = 671.7 * g - 10.2$, $R^2 = 0.24$, $SER = 6.8$

Within the range of 10 observations (2014-2019) as described in the above scatter chart 1, coefficient 671, when GDP growth increases, FDT stock price will increase.

Scenario 2 - Regression model with 2 variables: analyzing impact of GDP growth (G) and Inflation (CPI) on FDT stock price (Y):

Running Eview gives us below results:

Dependent Variable: Y
 Method: Least Squares
 Date: 01/31/20 Time: 14:59
 Sample: 1 10
 Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G	706.6952	355.8250	1.986075	0.0874
CPI	276.1249	142.2120	1.941643	0.0933
C	-19.61967	23.38234	-0.839081	0.4291
R-squared	0.511973	Mean dependent var	32.86800	
Adjusted R-squared	0.372537	S.D. dependent var	7.468071	
S.E. of regression	5.915651	Akaike info criterion	6.636405	
Sum squared resid	244.9645	Schwarz criterion	6.727181	
Log likelihood	-30.18203	F-statistic	3.671736	
Durbin-Watson stat	2.016682	Prob(F-statistic)	0.081199	

Therefore, $Y = 706.6 * g + 276 * CPI - 19.6$, $R^2 = 0.51$, $SER = 5.9$

Hence, this equation shows us FDT stock price has a positive correlation with GDP growth and inflation in Vietnam. Esp., it is highly positively affected by GDP growth rate.

Scenario 3 - Regression model with 3-5 variables: adding lending rate @ and other factors into the above model

Table 4

	Co efficient		
	3 variables	4 variables	5 variables
GDP growth	590	202	186
CPI	248	212	208
Lending rate	-210	-124	-124
Risk free rate			-48
VNIndex		0.02	0.01
C	9.3	10.9	16.1

Scenario 4 - regression model with 6 macro variables:

Running Eviews gives us results:

Dependent Variable: Y
 Method: Least Squares
 Date: 01/31/20 Time: 15:02
 Sample: 1 10
 Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G	39.22084	408.5260	0.096006	0.9296
CPI	196.7269	123.3612	1.594722	0.2090
R	-310.9357	261.0356	-1.191162	0.3192
VNINDEX	-0.005274	0.018667	-0.282504	0.7959
RF	-33.43907	150.2531	-0.222552	0.8382
EX_RATE	0.009014	0.004544	1.983552	0.1416
C	-142.2210	89.82019	-1.583397	0.2115
R-squared	0.860054	Mean dependent var	32.86800	
Adjusted R-squared	0.580163	S.D. dependent var	7.468071	
S.E. of regression	4.838925	Akaike info criterion	6.187290	
Sum squared resid	70.24560	Schwarz criterion	6.399099	
Log likelihood	-23.93645	F-statistic	3.072813	
Durbin-Watson stat	2.866953	Prob(F-statistic)	0.192501	

$$Y = 39.2 \cdot G + 196.7 \cdot \text{CPI} - 310 \cdot R - 0.005 \cdot \text{VNINDEX} - 33.4 \cdot R_f + 0.009 \cdot \text{EX_RATE} - 142.2,$$

$$R^2 = 0.86, \text{SER} = 4.8$$

Therefore, we see impacts of 6 macro factors, with the new variable: exchange rate USD/VND (EX_RATE), the above equation shows that FDT stock price (Y) has negative correlation with lending rate, VN Index and risk free rate, whereas it has positive correlation with GDP growth, CPI and exchange rate. We also recognize that GDP growth and lending rate, then CPI and risk free rate have the highest impact on FDT stock price, while exchange rate just has a slightly impact on stock price.

DISCUSSION AND FURTHER RESEARCHES

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 an increase in CPI and GDP growth has a significant impact on increasing FDT stock price (Y) with the highest coefficient of impact, followed by a decrease in lending rate and decrease in risk free rate, then a decrease in VNINDEX, as well as a little increase in exchange rate.

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 FDT stock price.

CONCLUSIONS AND POLICY SUGGESTION

Based on the above data analysis from our regression model, although low inflation during 2015-2016 is a good signal for FDT 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.

Next, it is necessary to coordinate synchronously between the management and administration of commercial bank policies with fiscal policies, monetary policies (used as effective tools to stimulate bank stock price) and other economic development policies to limit the negative effects of lending rate, risk free rate and exchange rate, i.e not increasing much.

Generally speaking, managing FDT stock price depends on many factors, so the government need to use fiscal policy combined with monetary policies and socio-economic policies to reduce unemployment and stimulate economic growth, toward a good stock price management.

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 stock price.

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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.**