Measurement of Successful Management and Leadership Via A Multi Factor Model on Bank Profit - A Case of BIDV

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Abstract— Purpose of study: we build a Multifactor model impact on bank net profit.

Bank for Investment and Development of Vietnam (BIDV) who became Best retail bank in Vietnam in recent years, has made very positive contributions to the overall achievements of the banking industry, deserving of its position as one of the leading joint stock commercial banks of the Vietnamese banking system, contributing to helping State Bank stabilizes the market and successfully implements monetary policy. Movement of net profit 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 micro and 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 multi macroeconomic factors such as: stock price, VNIndex, risk free rate, lending rate, inflation, GPD growth, S&P500, exchange rate, etc. on net profit of a joint stock commercial bank, BIDV Bank (BID) in Vietnam in the period of 2010-2023, both positive and negative sides. The results of quantitative research, in a seven factor model, show that the increase in inflation, GDP (increasing too much) and lending rate and reducing risk free rate has a significant effect on reducing MBB 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.

Index terms: bank net profit; stock price; GDP growth; inflationary; risk free rate; market interest rate.

INTRODUCTION

Bank for Investment and Development (BIDV) in Vietnam maintained a higher growth rate than the industry average on all indicators of scale, quality, efficiency, and labor productivity.It currently pushes digital banking operation and control risk. H

Modern risk management practices with Basel II and III standards have set requirements for risk management and capital adequacy for banks. Grasping new risk management trends, BIDV has proactively researched and modernized risk measurement tools such as: Internal credit rating system, building PD models (probability of default, LGD (estimated loss at the time of default)..., ready to prepare for a major transformation of the entire banking system.

Sharing the same trend, the State Bank (SBV) has issued a series of documents directing and guiding innovation in risk management, such as: Circular 41 in 2016 on regulations on safety ratios. full capital for banks and foreign bank branches; Guidance on classifying risky assets, regulating minimum capital adequacy ratio, transparent public reporting and information disclosure regime to meet pillars 1 and 3 of Basel II standards. With the goal of always aiming for a model of a strong financial institution, BIDV has been recognized by the Governor of the State Bank of Vietnam as meeting the requirements of Circular 41 before the effective date of the Circular from December 1, 2019. 2019.

Following that, the State Bank issued Circular 13 of 2018 regulating the internal control system of banks and foreign bank branches, creating a complete and synchronous legal framework in internal control. , Risk management follows the model of 3 independent lines of defense, creating a closed internal assessment process for capital adequacy (ICAAP). Successfully implementing the MRA&ICAAP project, BIDV has completed 100% of the 3 pillars according to Basel II standards. In Circular 13, the list of key risks is expanded from 3 basic types (according to pillar 1) to 6 types (according to pillar 2). (source: issuu.com/nganhangbidv).

Commercial bank 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 bank performance, esp. bank 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 BIDV bank stock price moves in the same trend with VN Index and GDP growth, although it fluctuates in a smaller range.
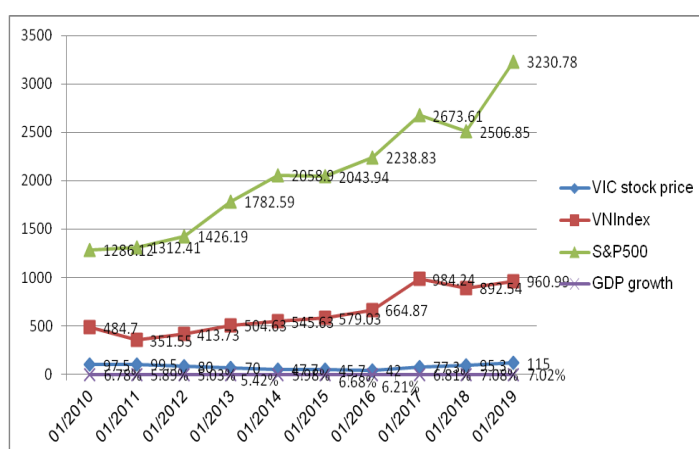
This study will calculate and figure out the impacts of seven (7) macro economic factors such as inflation, GDP growth, market interest rate, risk free rate, VNIndex, S&P500 and exchange rate on its stock price (BIDV).

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..

I. 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: stock price, interest rate, exchange rate, inflation, VNIndex, S&P 500 and GDP growth?

Issue 2: What are the impacts of above 7 macro economic factors on BIDV stock price?

Issue 3: Based on above discussion, we recommend some solutions regarding to commercial bank management in incoming period.

This paper also tests two (2) below hypotheses:

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

Hypothesis 2: An increase in inflation can increase pressure in BIDV 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 public debt 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 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 2010-2023.

2.3 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 BIDV 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. Stock price is a function with 7 variables as follows:

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

With: x_1 : GDP growth rate (g), x_2 : inflation, x_3: VNIndex, x_4: lending rate, x_5: risk free rate (Rf), x_6: USD/VND rate; x_7: S&P500

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.

II. MAIN FINDINGS AND DISCUSSION

3.1- General data analysis

First of all, The below chart 1 shows us that Y has a positive correlation with GDP growth: Chart 1 – Net profit (Y) vs. Cost (G)
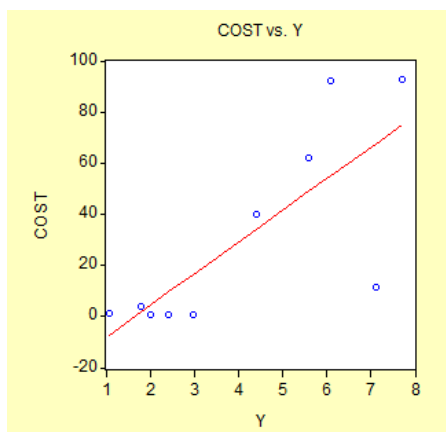
Chart 2 – Net profit (Y) vs. Inflation (CPI)
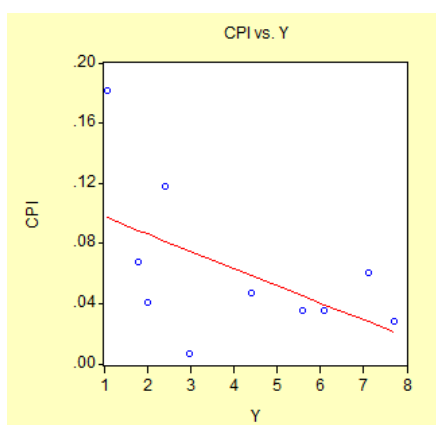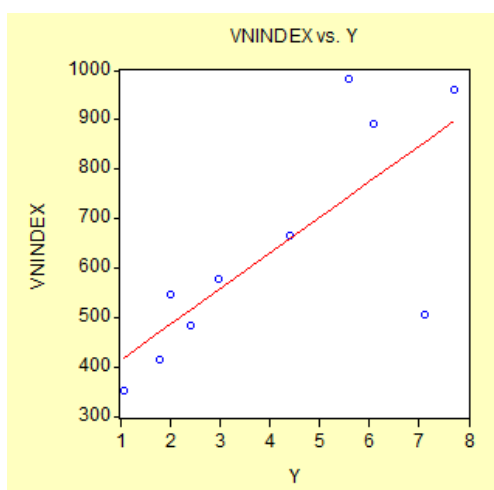
Next we find out that, based on the below scatter chart, Y (MBB stock price) has slightly negative correlation with inflation (CPI).

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

Chart 3 – Y vs. VNIndex

We see that, stock price (Y) and lending rate have negative correlation: Chart 4 – Y vs. Lending rate (r)
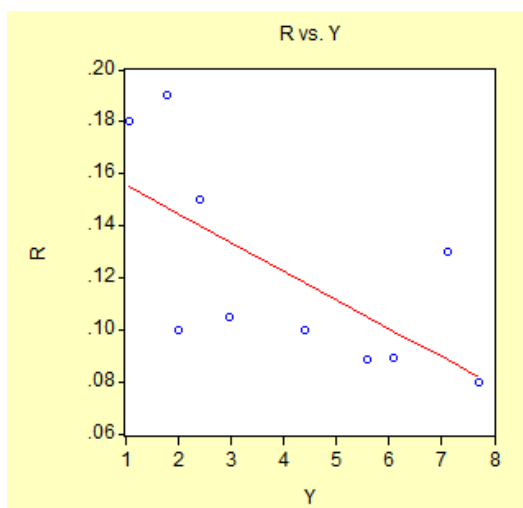
In addition to, the below scatter graph shows us that stock price (Y) and risk free rate (Rf) also have negative correlation.

Chart 5 – Y vs. Risk free rate (Rf)

Chart 6 – Y vs. GDP growth (g)

The below chart 6 shows us that Y and USD/VND rate have a positive correlation.
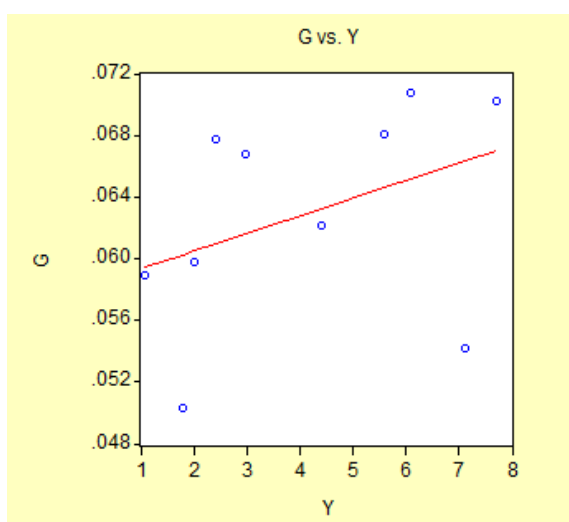
Chart 7 – Y vs. Exchange rate (Ex_rate)

The below chart 6 shows us that Y and USD/VND rate have a positive correlation.
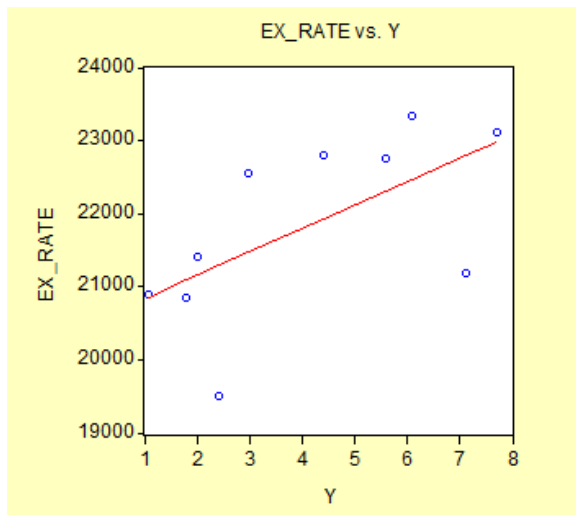
Chart 8 – Y vs. S&P500
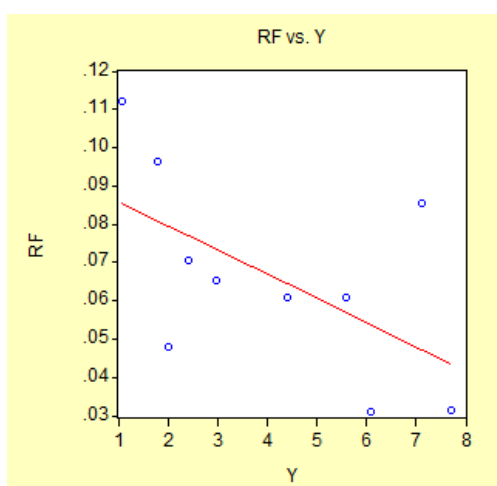
The below chart 6 shows us that Y and USD/VND rate have a positive correlation.
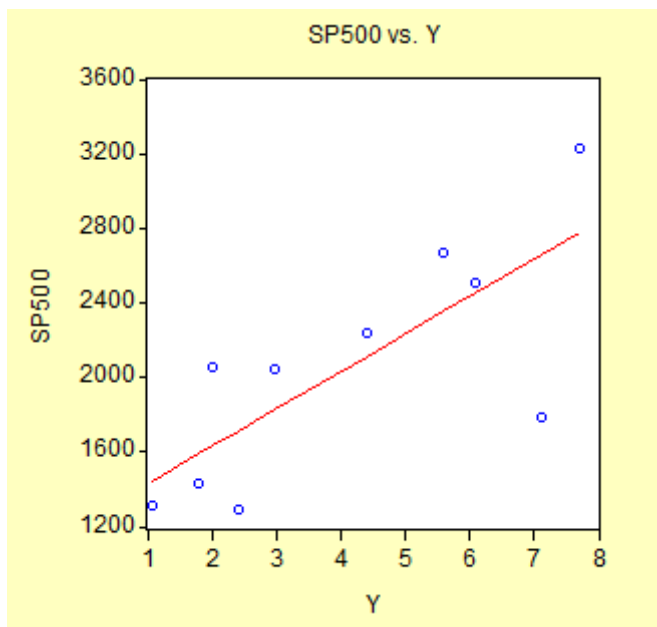
On the other hand, we could see statistical results with Eview in the below table with explained variables:

Table 1 – Statistics for macro economic factors
Unit: %

	Net sales	Cost	Net profit	stock price	GDP growth	Inflation (CPI)	VN Index	Lending rate	Risk free rate	USD/ VND rate	S&P 500
Mean	43.089	30.579	4.119	77	0.06416	0.02588	758.875	0.09856	0.050485	22611.7	2056.022
Median	13.1	7.695	3.685	78.65	0.0648	0.0264	720.67	0.1	0.05435	22757.5	2051.42
Maximum	130	93	7.7	115	0.0708	0.0474	984.24	0.1115	0.06535	23350	3230.78

			1.0 7	42		0.00 63	545. 63	0.088 6			
Minimum	0.62	0.52			0.0552				0.0297	21405	1286.12
Standard dev.	52.24 2	38.520	2.3 84	25. 444	0.005549	0.01 3884	176. 4835	0.007 636	0.014066	610.2313	633.811

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 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 ten (10) macro-economic variables (GDP growth, inflation in VN, market interest rate, Risk free rate, exchange rate and stock price)

Correlation Matrix										
	Y	SP500	VNINDEX	STOCKPRICE	RF	R	NETSALE	G	EX_RATE	CPI	COST
Y	1.000000	0.756378	0.749808	0.236921	-0.573013	-0.664729	0.779171	0.388725	0.610962	-0.532733	0.768488
SP500	0.756378	1.000000	0.932232	0.099779	-0.816875	-0.880212	0.865862	0.616498	0.869277	-0.701892	0.860151
VNINDEX	0.749808	0.932232	1.000000	0.215098	-0.800688	-0.835661	0.920668	0.729679	0.800218	-0.622082	0.915179
STOCKPRICE	0.236921	0.099779	0.215098	1.000000	-0.023542	0.194896	0.431549	0.282591	-0.119224	0.419862	0.428589
RF	-0.573013	-0.816875	-0.800688	-0.023542	1.000000	0.888975	-0.714651	-0.731404	-0.660120	0.710100	-0.724589
R	-0.664729	-0.880212	-0.835661	0.194896	0.888975	1.000000	-0.670977	-0.698635	-0.785406	0.756683	-0.672997
NETSALE	0.779171	0.865862	0.920668	0.431549	-0.714651	-0.670977	1.000000	0.629169	0.770081	-0.432921	0.998858
G	0.388725	0.616498	0.729679	0.282591	-0.731404	-0.698635	0.629169	1.000000	0.502911	-0.310687	0.636081
EX_RATE	0.610962	0.869277	0.800218	-0.119224	-0.660120	-0.785406	0.770081	0.502911	1.000000	-0.691415	0.777588
CPI	-0.532733	-0.701892	-0.622082	0.419862	0.710100	0.756683	-0.432921	-0.310687	-0.691415	1.000000	-0.433426
COST	0.768488	0.860151	0.915179	0.428589	-0.724589	-0.672997	0.998858	0.636081	0.777588	-0.433426	1.000000

The above table 2 shows us that correlation among 8 macro variables. An increase in exchange rate and decrease in lending rate might lead to an increase in stock price. It also indicates that correlation between MBB stock price (Y) in Viet Nam and VNIndex in Viet Nam and S&P 500 in the US (0.9 and 0.89) is higher than that between Y and lending rate (-0.55) or between Y and CPI (-0.05).

The below table 3 shows us that covariance matrix among eight (8) macro economic variables. MBB stock price (Y) has a negative correlation with risk free rate and lending rate but has a positive correlation with exchange rate (EX_Rate), and GDP growth.

Hence, an increase in inflation may have slight negative impact on in stock price.

Table 3 – Covariance matrix for 10 macro economic variables

Covariance Matrix										
	Y	SP500	VNINDEX	STOCKPRICE	RF	R	NETSALE	G	EX_RATE	CPI	COST
Y	5.115949	1028.687	369.7660	12.93530	-0.032375	-0.056369	87.34424	0.005850	1638.757	-0.058656	63.51910
SP500	1028.687	361545.2	122213.5	1448.206	-12.26913	-19.84271	25802.88	2.466311	619836.3	-20.54446	18899.93
VNINDEX	369.7660	122213.5	47536.57	1132.033	-4.360682	-6.830873	9948.444	1.058476	206899.6	-6.602438	7291.619
STOCKPRICE	12.93530	1448.206	1132.033	582.6660	-0.014195	0.176378	516.2723	0.045384	-3412.810	0.493355	378.0550
RF	-0.032375	-12.26913	-4.360682	-0.014195	0.000624	0.000833	-0.884727	-0.000122	-19.55408	0.000863	-0.661413
R	-0.056369	-19.84271	-6.830873	0.176378	0.000833	0.001406	-1.246747	-0.000174	-34.91917	0.001381	-0.922040
NETSALE	87.34424	25802.88	9948.444	516.2723	-0.884727	-1.246747	2456.274	0.207463	45259.76	-1.044456	1809.031
G	0.005850	2.466311	1.058476	0.045384	-0.000122	-0.000174	0.207463	4.43E-05	3.967930	-0.000101	0.154651
EX_RATE	1638.757	619836.3	206899.6	-3412.810	-19.55408	-34.91917	45259.76	3.967930	1406290.	-39.91345	33696.96
CPI	-0.058656	-20.54446	-6.602438	0.493355	0.000863	0.001381	-1.044456	-0.000101	-39.91345	0.002370	-0.771013
COST	63.51910	18899.93	7291.619	378.0550	-0.661413	-0.922040	1809.031	0.154651	33696.96	-0.771013	1335.390

3.2 Regression model and main findings

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

3.2.1 Scenario 1: Regression model with single variable: analyzing impact of Cost (c.o) on net profit (Y)

Note: C: constant

Using Eview gives us the below results:

```
Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:03
Sample: 1 10
Included observations: 10
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Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.047566	0.014002	3.396992	0.0094
C	2.664481	0.667205	3.993497	0.0040

R-squared	0.590574	Mean dependent var	4.119000
Adjusted R-squared	0.539396	S.D. dependent var	2.384195
S.E. of regression	1.618102	Akaike info criterion	3.977241
Sum squared resid	20.94602	Schwarz criterion	4.037758
Log likelihood	-17.88620	F-statistic	11.53955
Durbin-Watson stat	2.485692	Prob(F-statistic)	0.009402

Hence, cost has positive impact on Y

3.2.2 Scenario 2 - Regression model with 2 variables: analyzing impact of Inflation (CPI) on (Y):

Running Eview gives us below results:

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:03
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.040971	0.015583	2.629197	0.0340
CPI	-11.42243	11.69808	-0.976437	0.3614
C	3.574910	1.147666	3.114938	0.0170
R-squared	0.639655	Mean dependent var		4.119000
Adjusted R-squared	0.536699	S.D. dependent var		2.384195
S.E. of regression	1.622832	Akaike info criterion		4.049548
Sum squared resid	18.43509	Schwarz criterion		4.140323
Log likelihood	-17.24774	F-statistic		6.212903
Durbin-Watson stat	2.809419	Prob(F-statistic)		0.028088

Therefore, this equation shows us Y has a positive correlation with cost and negative relationship with inflation in Vietnam.

3.2.3. Scenario 3 - Regression model with 3 variables: adding lending rate (r) into the above model

Eviews generates below statistical results :

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:04
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.037860	0.020651	1.833306	0.1165
CPI	-8.274812	17.53854	-0.471807	0.6537
R	-7.138107	27.74579	-0.257268	0.8056
C	4.340306	3.220416	1.347747	0.2264
R-squared	0.643586	Mean dependent var		4.119000
Adjusted R-squared	0.465379	S.D. dependent var		2.384195
S.E. of regression	1.743270	Akaike info criterion		4.238577
Sum squared resid	18.23395	Schwarz criterion		4.359611
Log likelihood	-17.19288	F-statistic		3.611456
Durbin-Watson stat	2.716803	Prob(F-statistic)		0.084685

Hence, The above regression equation shows us that net profit (Y) has a positive correlation with cost and negative relationship with inflation (CPI) and lending rate (R).

3.2.4. Scenario 4 - regression model with 5 macro variables: adding exchange rate and risk free rate (Rf) into the above model:Eviews presents the below results:

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:04
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.085840	0.027556	3.115092	0.0357
CPI	-29.61364	17.30677	-1.711101	0.1622
R	-64.49637	34.28063	-1.881423	0.1331
EX_RATE	-0.001814	0.000960	-1.889386	0.1318
RF	109.3037	52.29699	2.090057	0.1048
C	43.52605	21.39067	2.034815	0.1116
R-squared	0.843285	Mean dependent var		4.119000
Adjusted R-squared	0.647392	S.D. dependent var		2.384195
S.E. of regression	1.415755	Akaike info criterion		3.816912
Sum squared resid	8.017447	Schwarz criterion		3.998463
Log likelihood	-13.08456	F-statistic		4.304816
Durbin-Watson stat	2.458753	Prob(F-statistic)		0.091115

Therefore, We find out impacts of 5 macro variables, with the new factor, shown in the above equation, (Y) has negative correlation with ex rate and inflation and lending rate, whereas it has positive correlation with cost , Rf

3.2.5. Scenario 5 - regression model with 7 macro variables: adding GDP growth (g) and net sales into the above model:

Running Eviews gives us results:

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:05
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.382787	0.511582	0.748241	0.5323
CPI	-31.53843	27.83755	-1.132946	0.3748
R	-91.91808	55.75518	-1.648602	0.2410
EX_RATE	-0.002455	0.001630	-1.505681	0.2711
RF	136.1296	96.59422	1.409294	0.2941
G	-83.64996	147.0771	-0.568749	0.6269
NETSALE	-0.205098	0.354038	-0.579311	0.6209
C	64.21145	37.78045	1.699595	0.2313

R-squared	0.881998	Mean dependent var		4.119000
Adjusted R-squared	0.468989	S.D. dependent var		2.384195
S.E. of regression	1.737375	Akaike info criterion		3.933190
Sum squared resid	6.036944	Schwarz criterion		4.175258
Log likelihood	-11.66595	F-statistic		2.135543
Durbin-Watson stat	2.399690	Prob(F-statistic)		0.355629

Hence, we see impacts of 7 macro factors, with the new variable.

3.2.6. Scenario 6 - regression model with 8 macro variables: adding stock price

Running Eviews gives us results:

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:05
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.348107	0.650728	0.534949	0.6873
CPI	-33.13812	35.35253	-0.937362	0.5206
R	-106.2521	76.11450	-1.395950	0.3957
EX_RATE	-0.001952	0.002294	-0.851157	0.5511
RF	132.7578	122.3537	1.085034	0.4741
G	-130.0699	207.8717	-0.625722	0.6441
NETSALE	-0.201929	0.447816	-0.450918	0.7303
STOCKPRICE	0.037408	0.074770	0.500311	0.7047
C	56.26154	50.35575	1.117281	0.4648

R-squared	0.905622	Mean dependent var		4.119000
Adjusted R-squared	0.150594	S.D. dependent var		2.384195
S.E. of regression	2.197352	Akaike info criterion		3.909798
Sum squared resid	4.828354	Schwarz criterion		4.182124
Log likelihood	-10.54899	F-statistic		1.199455
Durbin-Watson stat	2.852426	Prob(F-statistic)		0.612110

Therefore, we see impacts of 8 macro factors, with the new variable: stock price, the above equation shows that (Y) has negative correlation with GDP growth, inflation, exchange rate and lending rate, whereas it has positive correlation with cost, Rf, stock price.

3.2.6. Scenario 7 - regression model with 8 macro variables: adding VNIndex
        Running Eviews gives us results:

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:06
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.221633	0.052466	4.224296	0.1480
CPI	-55.15575	2.851280	-19.34421	0.0329
R	-141.7153	6.651769	-21.30490	0.0299
EX_RATE	-0.002521	0.000179	-14.07466	0.0452
RF	179.0845	9.635137	18.58660	0.0342
NETSALE	-0.047751	0.037023	-1.289742	0.4199
STOCKPRICE	0.034221	0.005440	6.290887	0.1004
VNINDEX	-0.017664	0.001191	-14.83733	0.0428
C	71.84426	4.173431	17.21467	0.0369

R-squared	0.999406	Mean dependent var		4.119000
Adjusted R-squared	0.994655	S.D. dependent var		2.384195
S.E. of regression	0.174303	Akaike info criterion		-1.158625
Sum squared resid	0.030382	Schwarz criterion		-0.886298
Log likelihood	14.79312	F-statistic		210.3619
Durbin-Watson stat	2.080647	Prob(F-statistic)		0.053276

 Therefore, we see impacts of 8 macro factors, with the new variable, the above equation shows that (Y) has negative correlation with inflation lending rate, VNIndex and exchange rate, whereas it has positive correlation with risk free rate, cost and stock price.

3.2.7. Scenario 8 - regression model with 8 macro variables: adding S&P500
        Running Eviews gives us results:

Dependent Variable: Y
Method: Least Squares
Date: 02/24/20   Time: 13:06
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST	0.457117	0.357249	1.279545	0.4223
CPI	-51.01972	13.70471	-3.722787	0.1671
R	-127.1202	31.58837	-4.024273	0.1551
EX_RATE	-0.003452	0.001073	-3.218137	0.1918
RF	193.4517	54.65412	3.539564	0.1753
NETSALE	-0.208507	0.260515	-0.800365	0.5703
VNINDEX	-0.016227	0.005835	-2.780876	0.2198
SP500	0.001922	0.002459	0.781709	0.5776
C	86.68703	21.59554	4.014118	0.1554

R-squared	0.985043	Mean dependent var		4.119000
Adjusted R-squared	0.865391	S.D. dependent var		2.384195
S.E. of regression	0.874740	Akaike info criterion		2.067636
Sum squared resid	0.765171	Schwarz criterion		2.339962
Log likelihood	-1.338178	F-statistic		8.232530
Durbin-Watson stat	2.629354	Prob(F-statistic)		0.263559

Therefore, we see impacts of 8 macro factors, with the new variable: S&P500, the above equation shows that net profit (Y) has negative correlation with inflation lending rate, VNIndex and exchange rate, whereas it has positive correlation with cost, risk free rate, and S&P500

III. DISCUSSION AND FURTHER RESEARCHES

Through the regression equation with above multi macroeconomic variables, this research paper used updated data from 2010-2023 to analyze the regression equation via Eview in order to show that net profit (Y) has negative correlation with inflation lending rate, VNIndex and exchange rate, whereas it has positive correlation with cost, risk free rate, and S&P500.
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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 public debt. Furthermore, we can add unemployment rate or public debt increase into our econometric model to measure the impact of these extra factors on Y.

IV. CONCLUSION AND POLICY SUGGESTION

Based on the above data analysis from our regression model, although low inflation during 2015-2016 is a good signal for Y, 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 increasing lending rate too much, together with credit, operational and market risk management, corporate governance and controlling bad debt.

Next, managing Y 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 commercial bank.

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