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The Existence of Sell in May and Go Away in ASEAN-5

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Abstract

This research aims to test the existence of Sell in May and Go Away in the ASEAN-5 market. This quantitative research was conducted from May 2013 to October 2023 on the five founding countries of ASEAN. The dynamic panel data regression approach with the Generalized Method of Moment (GMM) estimation system which includes the unit root test, sargan test, and Arellano-Bond test with the help of Stata software. This research shows that the November-April period positively affect stock returns. This research found that there was Sell in May and Go Away in 4 of 5 ASEAN countries. This research also found that the January effect cannot strengthen the positive relationship between the November-April period and stock returns.

Keywords: *Sell in May and Go Away, January effect, behavioral finance theory, and stock returns*

Introduction

Research on market anomalies has been widely carried out by academics and researchers in the financial sector (Asri, 2013). Sell in May and go away is a calendar anomaly showing that stock returns from November to April are higher than May to October. It also known as the Halloween effect (Bouman & Jacobsen, 2002).

Sell in May and go away is an investment strategy with significant market timing potential and more potential to generate profits with much smaller risks when compared to the buy and hold strategy (Bouman & Jacobsen, 2002). Additionally, Sell in May and Go Away is a great long term investment opportunity (Jacobsen & Zhang, 2012). Based on its effects, a sell-in-May-and-go-away strategy can outperform a buy and hold strategy and protect investors from large losses during a recession (Guo et al., 2014).

Market efficiency theory states that it is an individual can't enjoy abnormal returns because prices reflect all information, so calendar anomalies such as Sell in May and Go Away are impossible. However, Sell in May and Go Away is a simple investment strategy that can produce abnormal returns by predicting price changes through the seasonal cycles of November-April and May-October (Arendas et al., 2018).

The seasonal cycle of Sell in May and Go Away can be caused by investor decisions involving aspects of human behaviour such as herding behavior. When many people sell their shares in May-October, an individual can carry out herding behavior by following the direction or decision made by many people. Likewise, in November-April many people buy shares. This can happen because people unconsciously compare themselves and follow what

many do (Asri, 2013). The involvement of behavioral aspects not following with market efficiency theory is an interesting topic for researchers by providing an illustration that Sell in May and Go Away supports behavioral finance theory more than market efficiency theory.

Several studies in the financial sector have proven the existence of Sell in May and Go Away and even stated that the existence of Sell in May and Go Away is strong and even strengthens and does not disappear over time (Bouman & Jacobsen, 2002; Guo et al., 2014; Zhang & Jacobsen, 2021). However, this differs from Lucey & Zhao's research (2008), which states that Sell in May and Go Away only reflects the January effect, and its existence needs to be stronger . Other research states that Sell in May and Go Away have weakened and disappeared (Dichtl & Drobetz, 2015; Siriopoulos & Giannopoulos, 2006).

Several studies have tried to analyze why stock returns in May-October are lower than in November-April, one of which is the January effect (Bouman & Jacobsen, 2002; Guo et al., 2014). Based on researchers' observations, previous studies only examined the January effect to explain seasonal stock returns and did not use it as a moderating variable. Therefore, researchers tried to use the January effect as a moderating variable in this study to test whether it could moderate the relationship between the November-April period and the high and low stock returns.

Thampanya et al (2020) research stated that the Southeast Asian stock market is more speculative than other developed markets such as the US and Europe. This means there is more possibility of noise traders who can amplify market anomalies. This provides an opportunity for researchers to assess the existence of the Sell in May and Go Away anomaly in ASEAN countries' markets.

This research aims to provide further evidence regarding calendar anomalies by examining the existence of Sell in May and Go Away in countries that are members of ASEAN-5 through daily stock market data from May 2013 to October 2023. This research also uses the January effect as a moderating variable to test its influence on the relationship between the November-April period and the high returns in that period.

Literature Review and Hypotheses

Efficient Market Hypothesis (EMH) is based on the assumption of investor rationality, where investor will respond to relevant information quickly, completely, and accurately so that the capital market is efficient (Asri, 2013). Market efficiency theory explains that an individual can't get abnormal returns because all market participants get the same information. When a person or group of people can enjoy abnormal returns over a long period, the market becomes inefficient (Hartono, 2019).

Some opinions that doubt market efficiency theory (mostly practitioners) argue that deviations easily occur in efficient markets because of behavioral factors that influence humans in making decisions and acting (Asri, 2013).

An approach called behavioral finance theory has identified behavioral factors that can hinder the application of conventional financial concepts and theories. One of the behavioral factors, namely herding behavior, is the factor that caused the phenomenal event of an uncontrolled increase in stock prices (bubble price) until it finally burst and experienced an extraordinary decline (dotcom bubble event).

Herding behaviour shows behavior where people do something by following or imitating what many people do. Herding behavior can occur due to a person's fear of regret (Asri, 2013). Alexakis et al (2023) explained that people tend to group in dangerous situation, as their findings show herding behavior during the COVID-19 sub-period. Investment managers and investors can put themselves in a relevant position by anticipating events that could lead to herding behavior. This shows that stock prices can be formed from the herding behavior of market players.

Market anomalies are phenomena whose background, process, or "direction" cannot be explained, even investment theories cannot always explain them (Asri, 2013). Asri (2013) explains that market anomalies can be caused by structural factors (such as a lack of market transparency so that access to information costs money) and behavioral factors (related to understanding and responding to information that involves human behavior).

Khan & Rabbani (2019) explains in their research that market anomalies can only last for a while in the stock market because rational investors are expected to immediately restore the market price balance. However, groups who oppose market efficiency theory believe that deviations in market efficiency, such as market anomalies will easily occur over a long period of time due to human behavioral factors (Asri, 2013).

The January effect is a market anomaly that shows an unusual increase in prices in January, different from market prices in other months (Asri, 2013). The January effect is often associated with investors' consideration of end-of-year taxes and investor optimism at the start of the new year, with the assumption that if the beginning of the year, namely January, shows good performance, then in the next year it is likely to provide good performance too (Haggard & Witte, 2010).

Sell in may and go away, referring to the adage that shares historically tend to perform worse in May through October than the rest of the month. According to the saying, May is the beginning of the bearish market, so investors are advised to sell their shares in May (Bouman & Jacobsen, 2002). The existence of the Sell in May and Go Away phenomenon is an anomaly that challenges efficient market theory (Bouman & Jacobsen, 2002; Jacobsen & Zhang, 2012; Plastun et al., 2019).

Sell in may and go away in Bouman & Jacobsen's research (2002) and Guo et al (2014) show returns in November-April are higher than returns in May-October. Arendas et al (2018) and Zhang & Jacobsen (2021) also found a higher average stock return in November-April. Therefore, a hypothesis is formed:

H1: The November-April period has a positive effect on stock returns

Previous research tried to use the January effect as an explanatory variable that explains Sell in May and Go Away. Bouman & Jacobsen (2002) reject the hypothesis that Sell in May and Go Away is just the January effect in disguise. Guo et al (2014) also found that the January effect did not mask in Sell in May and Go Away. In addition, Lucey & Zhao (2008) found that Sell in May and Go Away may reflect the January effect. The January effect is where stock returns tend to increase in January. January is included in the November-April period (in Sell in May and Go Away), which shows higher stock returns than the May-October period. Referring to previous research, a hypothesis was formed:

H2: January effect strengthens the positive relationship between the November-April period on stock returns
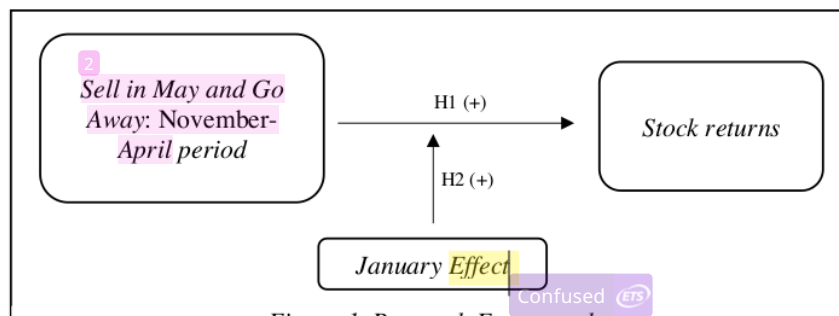

Figure 1. Research Framework

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Research Method

This research covers five ASEAN countries: Indonesia, Malaysia, Singapore, Philippines, and Thailand. The sample collection technique in this research was purposive sampling. This research uses dynamic panel data analysis which includes lag in the dependent variable, to overcome the dynamism of the data. The lag in the dependent variable shows that there is model dependence on the current and previous periods, which can cause autocorrelation. The data's dynamism can cause endogeneity problems which, if analyzed using static panel data analysis, can produce biased and inconsistent estimates (Nuansari et al., 2023). The dynamic panel data regression model can be seen in the following equation (Febrianti & Setiawan, 2022):

$$\gamma_{i,t} = \delta\gamma_{i,t-1} + \beta x'_{i,t} + u_{i,t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

For i is individual units (cross-section), where $i = 1, 2, ..., N$, then t is time period, where $t = 1, 2, ..., T$; then $\gamma_{i,t}$ is dependent variable on the cross-section unit i to the time period t; then $x'_{i,t}$ is vector of independent variables in the observation of the cross-section unit i for a period of time t with size $1 \times k$, then $u_{i,t}$ is member error, where if assumed, $u_{i,t}$ is a one way error component, δ is scalar (lag coefficient of expalanatory endogenous variable), and β is a constant vector that has a size $1 \times k$.

This research uses the Generalized Method of Moment (GMM), which is suitable for overcoming endogeneity problems. The approach used is the System Generalized Method of Moment (Sys-GMM) developed by Blundell & Bond (1998). Sys-GMM is used because it can expand the estimation to cover several levels rather than FD-GMM which is limited to the first difference level only (Nuansari et al., 2023).

Table 1. Variable's Explanation

Variables	Explanation	Source(s)
Stock Return	The Result or rate of return of an investment	(Hartono, 2019)
Sell in May and Go Away	One of the calender anomalies shows that stock returns in May-October tend to be lower than in November-April	(Bouman & Jacobsen, 2002)
January Effect	A phenomenon where stock returns in January are higher than other months	(Beladi et al., 2016)

Stock returns are the dependent variable in this research. To obtain daily stock return data, capital gain measurements are used. According to Hartono (2019), capital gain is the difference between the current investment price relative to the previous period's price. Capital gains can be calculated using the following formula:

$$Capital\ gain = \frac{P_t - P_{t-1}}{P_{t-1}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where P_t is closing share price for period t, P_{t-1} is closing share price for period $t-1$.

In this research, the November-April period is used as an independent variable, taking it as dummy 1, while the other months, May-October, take it as dummy 0. Then January effect as a moderating variable is expressed as a dummy variable: dummy 1 for January and 0 for other months. Based on the equation (1), this is the dynamic panel data equation in this research:

Equation I:

$$R_{i,t} = \delta R_{i,t-1} + \beta_1 SMGA_{i,t} + u_{i,t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Equation II:

$$R_{i,t} = \delta R_{i,t-1} + \beta_1 SMGA_{i,t} + \beta_2 JE_{i,t} + \beta_2 SMGA_{i,t} \cdot JE_{i,t} + u_{i,t} \dots\dots\dots\dots\dots\dots\dots (4)$$

Where R is Stock returns in country i in period t, SMGA is Sell in May and Go Away in country i period t, and JE is January Effect in country i period t.

Results and Discussion

Before carrying out regression analysis using the Sys-GMM method, a unit root test was carried out to ensure that the data used was stationary.

Table 2. Dicky Fuller Unit Root Test Results

Variable	Statistics	p-value	Information
R	360.4365	0.0000	Stationary
SMGA	288.3492	0.0000	Stationary
JE	111.3212	0.0000	Stationary

This test ensure that the data is valid and stable so that it does not cause autocorrelation or spurious regression. The unit root test results in Table 2 show that all the variables used are stationary, with probability values below 0.05.

Table 3. Descriptive Statistics for All Variables

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
R	11,583	0.0000462	0.0112359	-0.1161616	0.1369559
SMGA	11,583	0.4978848	0.5000171	0	1
JE	11,583	0.0825347	0.2751896	0	1

Table 4. Descriptive Statistics of Stock Returns

Country	Observations			Mean		Std. Deviation	Minimum	Maximum
	0	1	total	0	1			
Indonesia	1,210	1,217	2,427	0.0001729	0.0002517	0.009609	-0.0657867	0.1019069
Malaysia	1,220	1,227	2,447	-0.0002117	0.0000734	0.0068431	-0.0526127	0.0685075
Singapore	1,174	1,167	2,341	-0.0003064	0.0006598	0.0115055	-0.1161616	0.0756824
Philippines	991	951	1,942	-0.0001048	-0.000189	0.0176793	-0.1137725	0.1369559
Thailand	1,221	1,205	2,426	-0.0000735	0.0001252	0.0092389	-0.1079935	0.0795354
All Countries	5,816	5,767	11,583	-0.0001036	0.0001973	0.0112359	-0.1161616	0.1369559

Table 3 summarizes all variables with descriptive statistical results such as mean, standard deviation, minimum, and maximum. This research combines data from capital markets in five ASEAN countries: Indonesia, Malaysia, Singapore, Philippines, and Thailand

from May 2013 to October 2023. The November-April period (in the context of *Sell in May and Go Away*) as an independent variable is considered dummy 1, while the remaining six months are assumed to be dummy 0. Likewise, the January effect is dummy 1 for January and 0 for other months.

Table 4 shows the descriptive statistics of stock returns as the dependent variable so that you can see the descriptive statistical values of stock returns for each country and each dummy group. The number of observations in each country is different because the data used is daily stock return data, while the number of observations from all countries is 11,583. Table 3 shows the positive average in November-April and the negative average in May-October in each country except the Philippines where the average in May-October is negative.

Table 5. Correlation Matrix

Variable	Return	November-April (SMGA)	January Effect
Stock returns	1,0000		
November-April (SMGA)	0,0134 (0,1496)	1,0000	
January Effect	0,0119 (0,2022)	0,3012*** (0,0000)	1,0000

Table 5 presents a correlation matrix to determine the correlation between the variables used in this research. The results in Table 5 show the highest coefficient value of 0.3012, namely the correlation between the January effect and the November-April period, so the matrix correlation does not indicate multicollinearity problems. Based on the rule of thumb described in Amelia et al (2023), the correlation coefficient between regressions or between variables must be below 0.8. If the correlation coefficient value is more than 0.8, there is a multicollinearity problem.

Table 6 is divided into 2 columns: equation model 1 in column 1 and equation model 2 in column 2. Equation model 1 is to determine the effect of the November-April period (which is based on Sell in May and Go Away) on stock returns, while equation model 2 to determine the role of the January effect as a moderating variable on the relationship between the November-April period and stock returns.

Table 6. Sys-GMM Analysis Results

Variable	Dependent Variable: Stock Return	
	1	2
L1. Stock returns	-0.0687162 (0.113)	0.0683579 (0.144)
November-April (SMGA)	0.000618** (0.047)	0.0090072 (0.480)
January Effect	-	-0.0284618 (0.636)
L1. SMGA*JE	-	0.0234107

		(0.704)
AR (1)	*-1.98****	*-2.03****
	(0.047)	*(0.043)*
AR (2)	*-0.51*	*-0.71*
	(0.610)	*(0.478)*
Sargan Test	*1.44*	*2.12*
	(0.487)	*(0.714)*
Observation	*11,583*	*11,583*

Based on Table 6, analysis using the Sys-GMM method shows that the November-April period influences stock returns positively. This conclusion can be seen from the coefficient value of the November-April variable of 0.000618 and is significant at the 5% level with a probability value of 0.047 < 0.05.

Table 6 shows that the November-April period positively affects stock returns, so hypothesis 1 in this study is accepted. The results of this study are in line with research by Guo et al (2014) and Bouman & Jacobsen (2002). These results prove that seasonal effects can influence changes in stock prices. In this case the seasonal effects from the November-April period can influence the high stock returns in that period.

Judging from descriptive statistics, the average stock return in 4 out of 5 ASEAN-5 countries supports the statement of the *Sell in May and Go Away* phenomenon. On the other hand, only the Philippines has an average stock return from November to April that is lower than the average from May to October. This is in line with Bouman & Jacobsen's research (2002), Guo et al (2014), and Arendas et al (2018), who found that stock returns in November-April were higher than in May-October.
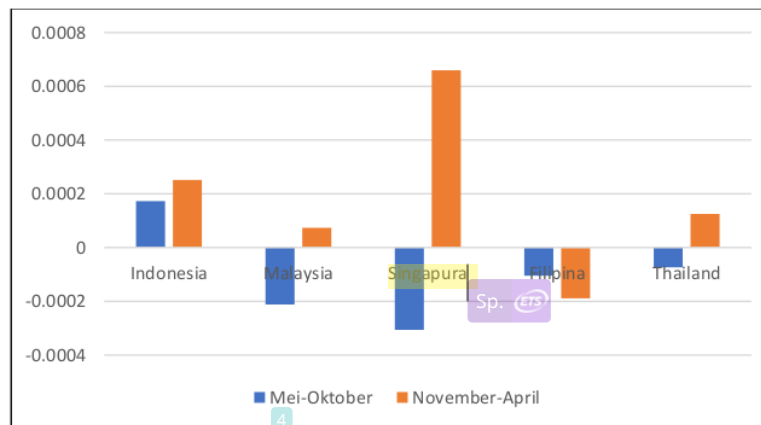

Figure 2. ASEAN-5 stock average returns from May 2013 to October 2023

The results of this research support the *Sell in May and Go Away phenomenon*, which has proven that *Sell in May and* Go Away has still existed in the last 10 years. This is in accordance with Bouman & Jacobsen's research (2002) and Zhang & Jacobsen (2021).

The existence of *Sell in May and Go Away*, which is a market anomaly, shows the involvement of human behavioral factors such as investor psychological factors. This supports Behavioral Finance Theory which explains that human behavioral factors can cause market

anomalies over a long period. One behavioral factor, such as herding behavior can influence an investor's decisions, as with the case Sell in May and Go Away phenomenon.

Furthermore, suppose it is related to market efficiency theory. In that case, the results of this research contradict market efficiency theory because the Sell in May and Go Away anomaly is proven to exist still. This is based on research conducted by Plastun et al. (2019), which says that Sell in May and Go Away do not support market efficiency theory.

Apart from that, from a practical perspective, Sell in May and Go Away can be considered a strategy capable of generating abnormal returns by predicting stock price movements through seasonal effects. Bouman & Jacobsen (2002) explained that Sell in May and Go Away has quite a large market timing potential and even has smaller risks when compared to the buy and hold strategy. This can also be evidence that can increase investors' desires and hopes for Sell in May and Go Away as a strategy, so that Sell in May and Go Away still exists today because investors still believe in the power of Sell in May and Go Away as an investment strategy

Furthermore, in Table 6 it can be seen that hypothesis 2 is rejected. This means the January effect cannot strengthen the positive relationship between the November-April period and stock returns. This result can be seen from the January effect moderation interaction coefficient value of 0.0234107, but it is insignificant with a probability value of 0.704 > 0.05.

Table 6 shows that the January effect cannot strengthen the positive relationship between the November-April period and stock returns, so hypothesis 2 in this study is rejected. Hypothesis 2 was rejected in the research, an independent t-test was carried out on the January effect variable. The independent t-test was conducted to determine whether there were differences in stock returns in January compared to other months, as explained regarding the January effect anomaly phenomenon. The month of January is assumed to be a dummy (1), while for months other than January it is assumed to be a dummy (0). The following are the results of the independent t-test:

Table 7. Independent t-test of January Effect

	January Effect	
	0	1
Observation	10,627	956
Mean	6.27e-06	0.0004901
Std. error	0.0001087	0.0003735
Std. Deviation	0.0003735	0.0115478
	t = -1.2754	
Degrees of Freedom= 11581		
H: diff != 0		
Pr (|T| > |t|) = 0.2022		

Based on the results of the independent t-test, the calculated T value is -1.2754 with a probability value of Pr (|T| > |t|) = 0.2022 at a degree of freedom (DF) of 11581. The probability value of 0.2022, which is greater than 0.05, shows no difference between the two groups in this variable. This means there is no difference in stock returns in January with other

months, so it can be concluded that in ASEAN-5, there is no January effect anomaly, or perhaps the January effect has decreased in the ASEAN-5 market.

The fact that most ASEAN members are developing countries could be why the January effect was not found in ASEAN countries' markets. Tax avoidance is often used as a hypothesis to explain the January effect. Investors sell some of their shares to avoid year-end taxes (for tax purposes), so stock trading in January increases because investors start buying back the shares they sold. However, it is possible that tax regulations implemented in developing countries do not cause an increase in stock trading in January as is often found in developed countries (Claessens et al., 1995). Therefore, anomalies such as the January effect are not very pronounced or even not found in developing countries (Claessens et al., 1995).

ÖZTÜRK et al (2018) conducted research related to the influence of the January effect on returns and found that the January effect had no effect on returns because investors did not take into account factors that could influence company operations such as the January effect and did not use strategies based on "timing", so strategies such as calendar anomalies did not develop in the capital market.

The absence of a January Effect in this study also supports Bouman & Jacobsen's research (2002), which states that Sell in May and Go Away is not the January effect in disguise. Even though there is no January effect, Sell in May and Go Away is still proven to exist, seeing that the average stock return for the November-April period is higher than the average stock return for the May-October period in most ASEAN-5 markets.

Conclusion

Based on the data analysis and interpretation of research results, the November-April period positively affects stock returns in ASEAN-5. This proves that seasonal effects can influence the high and low stock returns. The results of descriptive statistical tests show that stock returns in November-April are higher than in May-October in 4 out of 5 ASEAN-5 countries. Therefore, this research proves there is still Sell in May and Go Away in the ASEAN-5 market. Furthermore, the research results show that the January effect cannot strengthen the positive relationship between the November-April period and stock returns because the January effect was not found in the ASEAN-5 market.

Considering the discovery of Sell in May and Go Away in this research, investors are still implementing Sell in May and Go Away as an investment strategy. Therefore, it is hoped that the public and investors can increase accuracy and caution in investing by deepening their knowledge regarding market phenomena and anomalies to utilize their existence well and in the right portion without experiencing large losses (which can minimize losses) and maximize profits in investing.

It is hoped that future researchers can use indexes or other countries' capital markets to test the role of the January effect as a moderator of the Sell in May and Go Away phenomenon, considering that this research did not find the role of the January effect as a moderating variable because the January effect was not found in the ASEAN-5 market.

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Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to use an article before this word. Consider using the article **the**.

Confused You have used **Effect** in this sentence. You may need to use **affect** instead.

Article Error You may need to use an article before this word. Consider using the article **the**.

Missing "," You may need to place a comma after this word.

Proper Noun If this word is a proper noun, you need to capitalize it.

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Run-on This sentence may be a run-on sentence. Proofread it to see if it contains too many independent clauses or contains independent clauses that have been combined without conjunctions or punctuation. Look at the "Writer's Handbook" for advice about correcting run-on sentences.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

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Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Prep. You may be using the wrong preposition.

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to remove this article.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word.

Confused You have used **Effect** in this sentence. You may need to use **affect** instead.

Article Error You may need to use an article before this word. Consider using the article **the**.

Garbled Grammatical or spelling errors make the meaning of this sentence unclear. Proofread the sentence to correct the mistakes.

Proper Noun If this word is a proper noun, you need to capitalize it.

Run-on This sentence may be a run-on sentence. Proofread it to see if it contains too many independent clauses or contains independent clauses that have been combined without conjunctions or punctuation. Look at the "Writer's Handbook" for advice about correcting run-on sentences.

Article Error You may need to use an article before this word.

Wrong Article You may have used the wrong article or pronoun. Proofread the sentence to make sure that the article or pronoun agrees with the word it describes.

Prep. You may be using the wrong preposition.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.