COMPARATIVE ANALYSIS OF RETURN ON OPTION CONTRACT SIMULATION WITH COVERED CALL WRITING STRATEGY AND PROTECTIVE PUT BUYING STRATEGY (STUDY ON JCI YEARS 2012-2014 IN INDONESIA STOCK EXCHANGE)

Syahrul Rasyid[a], Dadan Rahadian[b], Anisah Firli[c]
[abc]Telkom University, Bandung, Indonesia
Corresponding email: syahrul21rasyid@gmail.com

Abstract

Investment is one of the options in determining the proportion of funds. Investors always strive to minimize the impact of risks accepted, therefore, one way to reduce the impact of a reduction in the value is to use derivative products in particular option contracts. The contract option has some trading strategies where its research strategy use a writing covered call and protective put buying strategy.This study uses a JCI (Joint Stock Price Index) in 2012, 2013 and 2014 as a research object, and using the Black-Scholes method to determine the option price on condition OTM, ATM and ITM with a period of 3 months. The results showed that there are returns of both strategies on the condition of OTM, ATM and ITM in 2012, 2013 and 2014. Returns on the most maximum is 93.86% with OTM using Covered Call Writing Strategy in 2012, and 63.80% in 2013 on the condition OTM using Protective Put Buying Strategy, and 88.62% in 2014 on the condition of using the OTM covered call writing strategy. But overall, a better strategy would be determined on how investors choose what they wanted to get.

Keywords: Black-Scholes Method, Covered Call Writing Strategy, JCI,   Protective Put Buying Strategy, Option Contract

1. Introduction

Indonesia Stock Exchange (IDX) is a platform for capital market participants in Indonesia to be able to trade in the capital market. According to www.financerool.co.id, IDX is a container for the perpetrators of the stock to trade or trade in any stock / securities which actors have and want to buy shares (Indo Alpha Team, 2015).

Everyone is faced with various options in determining the proportion of the funds, the source of funds or its resources for current consumption, and in the future, one form of the allocation of funds is the investment. Investments will also not be separated from the risk as the risk that often appears in the investment is a reduction in the investment value of the shares, as stated by Raharjo in Fahmi (2012) that the risk is the level of potential loss arising from the acquisition of the investment return expected is not appropriate with hope, therefore the investors are also becoming increasingly concerned about the risks that arise in their investments.

The movement of stock values were erratictherefore making risk reduction in the value of equity investment difficult to avoid. Impairment of investment shares that emerged in 2012-2014, and the image can be seen that there is a sharp decline in the value of JCI in May 2012 until June 2012, a decline of 569.42 points from the index price of 4224 becomes 3654.58. Additionally, impairment of significant investment in May 2013 to August 2013 decreased by 1232.16 points from the price of 5200 to 3967.84, the JCI 2014 is better than the previous year in which there was an increase of each month, in the month of January 2014, the Price of JCI is at 4257.66 and

in the end of December it reached 5226.95 which proves that the Indonesian capital market was experiencing an increase. Therefore, the level of risk (standard deviation) of 0.010518 or 1.05% making possible risk of impairment of investments becomes difficult to avoid.

According to Sutedi (2012), to compensate for unwanted price movements, this research will analyze the comparison returns of a contract by using covered call option writing strategy and a protective put buying strategy which is one type of hedge strategy. Calculation option with covered call writing strategy and a protective put buying strategy should be used as underlying assets and the same time period. Therefore, in this study, the Composite Index (JCI) that is used as the underlying assets are researched with the same time period, ie. 3 months in the calculation of the contract during the period 2012-2014.

2. Research Problem

Based on the brief description that has been proposed above, this study has several purposes as the following:

1. How does investment returns on stock index options contracts within 3 months of using Covered Call Writing Strategy in 2012, 2013 and 2014?

2. How does investment returns on stock index options contract within a period of 3 months with the use of Protective Put Buying Strategy in 2012.2013 and 2014?

3. Which strategy is better between the use of Covered Call Writing Strategy and Protective Put Buying Strategy against investment return on contact JCI option in 2012.2013 and 2014?

3. Research Method

This research used quantitative methods for this study and apply the methods of analysis Black-Scholes for calculation analysis of data, where the data is used in the form of numbers, as proposed by Sugiyono (2013)that quantitative methods are research methods used to examine the population or sample particular, where the data collection is using the research instrument, and quantitative data analysis / statistics.

Then, based on the goal, this research is included in the descriptive method, as it aims to determine the investment returns option contract period of 3 months which corresponds to those proposed by Sekaran and Bougie (2010). The Descriptive method is a method in place to examine an object that can be described characteristics of a situation or symptoms.

Based on the type of research, investigation is categorized into types of comparative because this research will compare which strategy is better based on the return obtained from the use of options between the Covered Call Writing Strategy or Protective Put Buying Strategy.

4. Review of the Relevant Literature

Investment

According to Tandelilin (2010), investment can be interpreted as a commitment to invest some funds at this time with the goal of obtaining a profit in the future. Meanwhile, according to Sunariyah (2011), the investment is an investment for one or more assets owned and usually a period of time in the hope of benefit in the future. In conclusion, the investment is a commitment to invest or amount of funds at this time with the aim to profit in the future.

Option Contract

According to Sunariyah (2011),option is a contract in which the rights are granted to individuals, but not an obligation to purchase financial instruments, as well as debt or other property at a special price without a specific time or a specific date. In line with the understanding of the options, according to Sutedi (2012) who says that basically the option contract (option contract) is an option (a right and not the obligation) to sell (put) or buy (call) a tangible objects (tangible assets) or objects immobile (intangible assets) which were given with certain benefits that are generally in the form of premium payments.

Option Pricing Model

There are several option pricing models as described in the following explanation.

1) Black Scholes Model Call
According to Tandelilin (2010), the Black-Scholes model in evaluating call option does not pay dividends using five variables, namely: a) Stock price (Current Price Security; b) Strike Price (exercise price); c) Expiration Date (time to expiration); d) Interest rate (risk-free rate); e) share price volatility (security price volatility).

Table 1 :Factors Affecting Price Options (Tandelilin, 2010)

No.	Factor	Increasing Impact Factor	
		Option Call Price	**Option Put Price**
1.	Stock Price	Increase	Decrease
2.	Strike Price	Decrease	Increase
3.	Expiration Date	Increase	Increase
4.	Interest Rate	Increase	Decrease
5.	Stock Price Volatility	Increase	Increase
6.	Expected Devidend	Decrease	Increase

Option Pricing Formula with Black-Scholes Model is :

$$C_0 = S \, N \, (d_1) - X \, (e^{-(r)T} \, N \, (d_2)$$

Where :

$$d_1 =$$

$$d_2 = d_1 -$$

Descriptions:
Co   = Option Call Price
S   = Stock Price
X   = Strike Price
r   = Risk-free Interest Rate
T   = expiration date
σ   = Stock Price Standard Deviation
N(.)   = The cumulative density functionfrom d1 and d2

2) Put Option Model

Tandelilin (2010) proposed a put option is the option that gives the holder the right to sell a particular stock on the amount, timing, and a predetermined price.

To get the price of the put option, it is essential to know the value of a call option in advance and with the same conditions. The price of the put option can be determined by using the following formula:

$$)$$

Description:

Cput   = Option Put price

Ccall   = Option Call Price

X   = strike price

S   = Stock Price

r   = Risk-free Interest Rate

t   = expiration date (in year)

Option Trading Strategy

There are many options of trading strategies that can be taken by investors, but these strategies can basically be grouped into five, namely: naked strategies, hedge, straddle, combination, and spread (Tandelilin, 2010).

1) Covered Call Writing Strategy

According to Sarmiadi and Trinanto (2007), this strategy is intended to protect the portfolio as a percentage of share price decline by selling a call option on shares held in the portfolio (investor sells a call option and has shares used as a benchmark physically).
2) Protective Put Buying Strategy
Sutedi (2012) stated that one way for investors protect their portfolios is to buy a put option on the shares. In this way, investors get a guarantee that the put option exercise price will be lower than the cost of the option. This strategy is called strategy of buying a put protected.

Returns Calculation
Returns on the use of options contracts can be calculated using the following equation (Tandelilin, 2010).
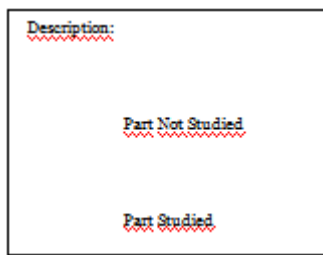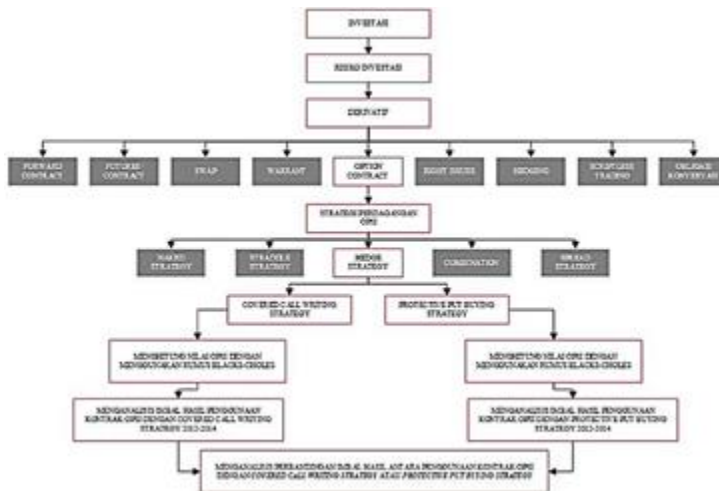
Description:

   = Return   = Natural Logarithm

   = The Current Stock Price   = The Stock Price Last Period

5. Research Framework

The framework in this study is shown in Figure 1 as follows:

Figure 1: Framework

Investors can perform various options of trading strategies by applying a combination of several purchase or sell the option at the same time, in order to obtain greater benefits, and or to minimize the losses that must be faced. In fact, there are few options trading strategies that can be used.

According Sutedi (2012), option trading strategies can be done in a several ways, namely naked strategy, hedge strategy, straddle strategy, and spread strategy.

This study chose to compare between Covered Call Writing Strategy and Protective Put Buying Strategy, which is part of the hedge strategy is most often used, the goal itself is meant to offset any undesirable price movements through gains from other positions.

The Study will ultimately determine which strategy is better between Covered Call Writing Strategy or Protective Put Buying Strategy, which previously would have determined the return of its first contract option by using Covered Call Writing Strategy and Protective Put Buying Strategy, and to determine the return of the previous will be determined in advance the price of the options using the Black-Scholes model calculation based on the value of JCI.

6. Data Analysis

Covered Call Writing Strategy Return

In option contracts, an option purchaser (taker) reserves the right to not execute a contract option. The return received by using covered call option writing strategy if the purchaser (taker) does not execute the contract, the premiums received at the beginning of the contract is added with the return received, thenthe stock long position is then divided by the initial stock price (spot price). Of course it would be different results if the buyer choose the option to execute the contract options, seller of the option (writer) will suffer losses because the buyer execute the contract, but the losses will be covered by profits earned from sales positions option, so in these conditions, rates definitely maturing up high so that buyers execute the contract, then returns accepted that gains on long stock plus the premium received and reduced by losses on options contracts and then the result is divided by the initial stock price (spot price).

Results of the analysis of covered call writing strategy in 2012 showed that the return received in 2012 is different, it is influenced by the position of the exercise by investors and also call its premium value. The lower the exercise price chosen by the purchaser (taker), the higher the price premium paid by the buyer. Therefore, with its higher call premium price paid by the buyer will provide greater benefit to the seller or in other words, will further increase the return obtained from the sale of call options. This is seen in the return on OTM position that the total return for the year 2012 in the amount of 93, 8637% higher than ATM and ITM position that only amounted to 53.7996% and 46.4059%. From the analysis using a covered call writing strategy on the idea in 2013, it can be concluded that the OTM position seller (writer) obtain higher returns. This is because the premium received by the seller more on OTM position compared to the ATM and ITM. In the year 2013, the return obtained from the use of options contracts using the covered call writing strategy on the condition of the ATM and ITM is negative because in 2013, the market is down (bearish) because in that year.the global economic slowdown occurred causing the pressure resulting from reversal in market sentiment was mainly triggered by rising concerns market participants will be continuity of policy stimulus from the Fed corresponding proposed by Rachmat Kusuma (2013), it is also the reason why in 2013 the return obtained on condition of ATM and ITM became negative. Results of the analysis

returns the use of contracts by using covered call option writing strategy in 2014 showed that in the returns obtained over the past year is the highest in OTM position with a value of 88.6227%, the same as in previous years. OTM positions give greater returns because of the conditions OTM call seller will obtain a greater premium than in the condition of the ATM and ITM.

Therefore, the table returns obtained in 2012, 2013 and 2014 by using the covered call writing strategy shows that the greatest returns for the years 2012, with the value of return of 93.8637% compared with the year 2013 amounted to 31.3107% and in 2014 amounted to 88.6227%. So from observation returns above, the use of covered call writing strategy to provide returns on the use of options contracts, especially in conditions of OTM.

Protective Put Buying Strategy Return

Protective put buying strategy will be profitable if the price at maturity is much smaller than the initial stock price (spot price). Because in case of price drop very much, then the investor can sell his option contracts in accordance with the exercise price listed in the contact or in other words, the investor will execute the contract option. Thus, investors just suffered a loss of the premium of the put. For the calculation of the return when the stock price fell obtained from a reduction in the exercise price of the put premium and then reduced the price of maturity, then divided by its spot price. If the price increase, then the investor will not execute the option contract. Thus, the return received by investors will be reduced by the premium paid for the option contract.

Results of analysis returns by using protective put buying strategy in 2012 showed that the returns obtained on condition OTM larger than the condition of the ATM and ITM, this is due to the rise in prices and on the conditions ITM exercise price is at its lowest point, in addition to the conditions ITM has a smaller premium price that causes the return obtained from the use of options contracts is greater at ITM conditions. Analysis of returns in 2013, with the use of protective put buying strategy, shows a difference with the year 2012. In 2013, the return earned on condition OTM larger than ATM and ITM conditions. This is because in 2013 the market was down (bearish) where in a period of 1 year, a lot of decline in the price index occurred, therefore the investor will execute the contract his options and the conditions OTM exercise price is at its highest point which caused the return obtained from use the put option contract to maximum, even though conditions in OTM price premium paid is higher than other conditions. Furthermore, analysis of the use of the option contract by using a protective put buying strategy in 2014 can be seen that the conditions ITM return greater than the other conditions, as well as the 2012 market conditions in 2014 were in a state of rising (bullish) which causes investors will not execute the contract option. In addition, the exercise price on the condition of ITM is the lowest compared to other conditions, but the price of the option premium on the condition of ITM smaller than other conditions that cause investors not too pay too expensive for option contracts that eventually give maximum return in market conditions was up compared to other conditions.

Analysis of the use of the option contract returns by using protective put buying strategy in 2012, 2013 and 2014 shows that by using the option contact can provide positive returns to investors, especially when the market is down (bearish) investors will get maximum return as in 2013 in which the use of the option contract would give a return of 63.7950% compared to other years.

Return Comparison using Covered Call Writing Strategy and Protective Put Buying Strategy

Table analysis returns above have demonstrated yields obtained from the use of contracts by using covered call option writing strategy and a protective put buying strategy, but both of these strategies yield different. In table 2, a comparison can be seen between returns obtained from the use of contracts by using covered call option writing strategy and a protective put buying strategy.

Table 2 : Comparison of Return

Years	Total Return					
	Covered Call Writing Strategy			Protective Put Buying Strategy		
	OTM	ATM	ITM	ITM	ATM	OTM
2012	93.86%	53.80%	16.98%	24.16%	18.96%	11.20%
2103	31.31%	-0.25%	-27.74%	53.78%	60.83%	63.80%
2014	88.62%	43.99%	3.44%	41.68%	36.99%	28.11%

In table 2 above. it can be seen that the comparison returns obtained from the use of options contracts using the covered call writing strategy and a protective put buying strategy, it can be seen that in a stable market conditions, the better strategy to use is covered call writing strategy that yields the maximum in 2012 and 2014 with a value of 93.86% and 88.62% at OTM conditions compared to using protective put buying strategy. But, when the market is down (bearish), the maximum options contracts were used to minimize the risk is to use protective put buying strategy which gives a yield of 63.80% with OTM. In conclusion, a better strategy to use to obtain maximum yield and to prevent large losses is to use a strategy of protective put buying strategy.

Conclusion and Recommendations

From the results of analysis and discussion that have been done in this study, it can be concluded that based on the yield obtained annually, and also the ability to reduce the impact of a reduction in the value of shares, then a better strategy to use is protective put buying strategy, because in the use of protective put buying strategy although in terms of yields is still smaller than the covered call writing strategy, but the strategy of protective put buying strategy deliver positive returns each year on the condition of ITM, ATM and OTM. In addition the strategy also gives maximum yield at the time of the decline in value of the shares which means that using this strategy the investor will be able to minimize losses obtained from a reduction in the value of the stock index.

Based on the research that has been done, the author gives advice to investors or the practitioner to make decisions in investing in the derivatives market if someday be traded back, especially practitioners who use the strategy of covered call writing strategy and a protective put buying strategy. In addition, this study can be used as a benchmark for capital market regulators that the derivatives market, especially the use of options can provide positive returns to investors and will provide protection against the decline in value of a good investment for investor assets. For the next researcher who wants to perform a similar study, the results of this

study only focused on analyzing the differences in yield and yield obtained from the use of covered call writing strategy and buying protective put strategy on the index JCI in 2012, 2013 and 2014. By Therefore, the authors suggest that further research can use the strategies of other options trading or using other stock price index as well as more recent data. Moreover, the authors suggest that further research in terms of option pricing can use other methods such as Monte Carlo method or methods of Artificial Neural Networks.

References

i.   Fahmi, I., 2012. *Pengantar Pasar Modal Panduan bagi Para Akademisi dan Praktisi Bisnis dalam Memahami Pasar Modal Indonesia*. Bandung: Alfabeta.

ii. Indo Alpha Team. 2015. *Indeks Saham di Indonesia yang wajib diketahui Investor*. Available at: Tersedia http://www.indoalpha.com/ihsg-dan-indeks-saham-acuan-di-pasar-modal-indonesia/ (Accessed Agustus 02, 2015)

iii. Rachmat Kusuma, D., 2013. *Kinerja Pasar Modal Indonesia Tahun ini Anjlok*. Available at: Tersedia:http://finance.detik.com/read/2013/12/23/165943/2449810/6/kinerja-pasar-modal-indonesia-tahun-ini-anjlok.

iv. Sarmiadi & Trinanto, N. S., 2007. Option Contract: Alternatif Investasi Pada Pasar Modal. *Jurnal Ekonomi dan Bisnis*, 2(2), Politeknik Negeri Padang.

v.   Sekaran, U. & Bougie, R., 2010. *Research Methods for Business*, 5th edn, United Kingdom: John Wiley & Sons Ltd.

vi. Sugiyono. 2011. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

vii. Sugiyono. 2013. *Metode Penelitian Manajemen*. Bandung: Alfabeta.

viii. Sunariyah. 2011. *Pengantar Pengetahuan Pasar Modal*. Yogyakarta: UPP STIM YPKN.

ix. Sutedi, A., 2012. *Produk- Produk Derivatif dan Aspek Hukumnya*. Bandung: Alfabeta.

x.   Tandelilin, E., 2010. *Portofolio dan Investasi Teori dan Aplikasi*, 1st edn, Yogyakarta: Kanisius.