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ABSTRACT (100-200 WORDS):

My thesis of "Investment Choices: Which to Choose?" dealt with my internship experience at Arthur Andersen & Co. My experience led me to be exposed to many financial instruments.

Therefore, to expand my knowledge in these instruments, my capstone discusses the accounting for options contracts and futures contracts. Also, it explains why there is an interest in these instruments by investors. In addition, among the financial issues discussed were when should investors use futures/options to increase return or reduce risk, another issue explained was how the financial instruments can be used as hedges. Other accounting issues explored were the concepts of cost or market values and whether gains or losses should be recorded or unrencorded in relation to options and futures.

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Investment Choices - Which to Choose?

A report submitted to the University Honors Program in partial fulfillment of the requirements of the Bachelor's Degree with University Honors (with Upper Division Honors)

Department of Accountancy

by

[Name]

[City, State]

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Imagine opening up the Wall Street Journal and looking at the different items listed on the security pages. What are these instruments? What do they mean? Why do people buy them? Not only do stocks listed on the New York Stock Exchange and American Stock Exchange fill the pages with figures, but bonds, futures and options also do the same. Stocks and bonds are not that difficult to understand since one can learn most of the basics in first and second level accounting courses, but what about futures and options? Stocks and bonds have always been bought by investors but only recently have futures and options become popular. Therefore, the purpose of this paper is to discuss futures and options, to discuss the accounting issues related to them, and to discuss how hedging works.

Futures

First of all, a financial future contract is an agreement between a buyer or seller and the clearinghouse of a futures exchange. Futures contracts include the following:

- a seller has to deliver a quantity of a commodity at a specific date or during a specific period or agree on a cash settlement.
- the contract can be cancelled before the delivery date by entering into an offsetting contract for the same financial instrument.
- finally, changes in the value of open contracts are settled on a regular basis - daily. 1

Future markets were initially developed to help farmers and customers improve marketing practices. They now include trading financial instruments, forest products and others.
Unlike other securities, future contracts are not transferable. They can be bought or sold on an exchange floor or through open market transactions. The quotations of each and every trade on a financial instrument are based on a standardized instrument. Since price and quantity are the two variables that are used to negotiate the buying and selling of future contracts, they allow the ease of quotation and trading.\(^3\)

Once an investor purchases a future contract:

- a change in the market value of a futures contract shall be recognized as a gain/loss in the period of the change unless the contract meets the criteria... to qualify as a hedge of an exposure to price or interest rate risk. If the hedge criteria are met, the accounting for the futures contract shall be related to the accounting for the hedged item as that changes in the market value of the futures contract are recognized in income when the effects of related changes in the price or interest rate of the hedged item are recognized.\(^5\)

When the futures contract qualifies as a hedge (discussed later) of an existing asset or liability, a change in the market value shall be recognized as an adjustment of the carrying amount of the hedged item.\(^5\) Companies are to make sure that there is always a co-relation of changes in the market value of the futures contract and the fair value of the hedged item; if there isn't, the contract shall no longer be considered a hedge and its gains/losses shall be recognized.\(^6\)

To understand the concept and importance of hedging - the protection against adverse price changes -, one should look at the credit market. It is huge. The changing effect of interest rates on both the borrower and investor is significant. These fluctuations in interest rates create serious financial risk for
both lenders and borrowers. For this reason, financial futures are used to protect against this risk by transferring it through hedging. Future contracts used as hedges are sold in anticipation of future cash commodity sales as a protection against price declines or they may be purchased in anticipation of future cash commodity purchases as a protection against increasing costs. For futures to qualify as hedges, they must meet two conditions:

"a. The item to be hedged exposes the enterprise to price (or interest rate) risk. . . . Risk refers to the sensitivity of an enterprise's income . . . to changes in market prices or yields of existing assets, liabilities, . . . ."

This criterion is met if other assets/liabilities already offset or reduce the exposure.

"b. The futures contract reduces that exposure and is designated as a hedge."

Once the hedge period has started, a correlation of changes in 1) the market value of the futures contract and 2) the fair value of, or interest income or expense associated with, the hedge item is likely to occur so that the futures contract will offset the effects of the interest rate changes on the exposed item(s).

There are two types of hedging—short and long.

**Short—** sale of a futures contract today as a temporary substitute for the sale of a cash instrument at a later date.
- The investor can protect the price at which he wishes to sell his cash investment.

**Long—** purchase of a futures contract today as a temporary substitute for the purchase of a cash instrument in the future.
- The investor can help assure a return on funds he is certain he will have to invest at a later time. Locks in "high yield" on a future investment.
Hedges may also be in place for a known or uncertain period of time.

Hedges may also be applied to asset and liability positions. An example of applying hedges to assets is as follows:

<table>
<thead>
<tr>
<th>Time Uncertain</th>
<th>Time Certain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak Form Cash Hedge</td>
<td>Strong Form Cash Hedge</td>
</tr>
<tr>
<td>Hedge Goal: Preserve capital on 30-day horizon.</td>
<td>Hedge Goal: Par value of zero coupon bond at the end of investment horizon.</td>
</tr>
<tr>
<td>Currently held cash position</td>
<td>Hedge Strategy: Short the nearest-to-deliver futures contract</td>
</tr>
<tr>
<td>Hedge Strategy: Sell the nearest-to-deliver futures contract</td>
<td>Hedge Strategy: Go long or short nearest-to-delivery futures contract.</td>
</tr>
</tbody>
</table>

**Weak Form**

| Hedge Goal: Lock in currently available return or price at the uncertain cash inflow date. |
| Hedge Strategy: Buy futures contract that expires nearest to the expected cash inflow date. |

**Strong Form**

| Hedge Goal: Lock in currently available return or price at known cash inflow date. |
| Hedge Strategy: Buy futures contract that expires nearest to the known cash inflow date. |

For example, with the strong form cash hedge, the time is known or how long the portfolio will be held. The goal is to minimize the variance in the expected total return on the portfolio. The investor has to create a cash and futures portfolio that has the same interest rate sensitivity as a zero coupon bond with an initial maturity equal to the investment period.

Futures contracts can also hedge an anticipated transaction. This hedging can only occur if the characteristics and terms are
identified and it is probable the transaction will occur. The following items have to be identified: type of instrument, expected date of transaction and expected dollar amount and the maturity of the instrument. To assess the likelihood of the transaction one should consider the frequency of similar transactions, the length of time until the anticipated transaction date and the ability of the firm to carry out the transaction. The accounting for a futures contract that hedges an anticipated transaction should be consistent with the enterprise's method of accounting for these items. Another important item used with hedging is the basis. The basis is a difference between the cash price of the commodity and the price of the commodity in the future. The basis can be positive or negative depending upon whether the futures price is greater than or less than the cash price. The greater the basis the greater its strength. The basis is affected by many variables such as cost of carry, time until delivery, deliverable supply, cost of delivery, changes in cash instruments and price expectations. The cost of carry is the difference between the short term interest rate (financing costs) and the yield on the instrument (long-term interest rate). If it is positive, the market will pay the holder to carry the instrument to the future delivery date. If the cost of carry is negative, the person will incur a cost for carrying the instrument to the future delivery date. Hedging counter-balances an individual's position in the cash commodity with an equal and opposite futures position. The hedger replaces the risk of price fluctuations with the lesser risk - the basis.
A profit opportunity exists if the basis does not coincide with the carrying costs. If cash prices are below futures prices when carrying costs are netted out in the contract delivery month, one can sell the futures contract, buy the cash instrument and then deliver the financial instrument to fulfill the future commitment and make a profit. 18

In addition, an important consideration to hedgers is market liquidity - supplied by the speculator. The ability of speculators to start positions freely and quickly gives liquidity to the futures market. The futures market may be more liquid than the cash market when there are a lot of hedgers and speculators. 19 Also, most of the participants in the futures market are speculators who accept the risk hoping to profit by price changes and commercial hedgers who buy futures to minimize price risks by shifting the risk to the speculators. 20

An interesting point about futures is that most contracts are not closed out by delivery of the actual commodity. The buyer (seller) can liquidate his position in the futures market prior to actual delivery of the commodity by merely selling (buying) on the exchange contracts of the same future. 21

Futures have become very popular to investors since they reduce risk and increase returns in their portfolios. Recently, options have had similar acceptance.

Options

Options were not widely accepted because they were thought to have caused harm to stock prices, required a lot of paperwork by brokers and possible lawsuits and financial institutions had to run a lot of regulations to trade options. 22 Now, the variety of and
trading volume in options have expanded steadily over recent years suggesting that these instruments are playing an increasingly important role in many investors' portfolios. As a portfolio investment, an option may be chosen as a substitute holding for its underlying security or may be held in some combination with the security. The choice of strategy has important portfolio implications as each strategy has a different associated risk. This risk should be an important consideration to any investor assessing whether the asset is an appropriate addition to the portfolio, given his risk-return preferences. Options have also become prominent because of widespread takeover activity. Investors would get quick profits by buying and selling options on the stocks involved in the takeovers.

Although options and futures have both become subjects of discussion for investors, options outweigh futures when:

1. The option is in its last 60 days of life.
2. The option is 'in-the-money' but not so deep-in-the-money as to have its strike unreachable by movement in the underlying futures contract.
3. The option's time at extrinsic premium is so low as to be roughly cost-equivalent with a basis trade.

Now that a little bit has been said about options, what about the person who is associated with these instruments? How would someone account for them?

First of all, an option is:

a contract allowing but not requiring, its holder to buy (call) or sell (put) a specific or standard commodity or equity or other financial instrument at a specific price during a specific time period or on a specified date.
This definition describes what a typical option is, but there is a lot more to options. There are a variety of terms associated with options. In order to comprehend what one reads about options, one should have a clear understanding of the types of options, the positions and the value considerations associated with options. There are a lot but they become common language for an options investor. All of these terms are as follows:

1. **Call** - an option contract gives the holder the right to buy (from the writer) the underlying instrument or commodity at a specified price.

2. **Put** - an option contract that gives the holder the right to sell (to the writer) the underlying instrument or commodity at a specified price.

3. **Holder ([long])** - the purchaser of an option contract.

4. **Writer ([short])** - the seller of an option.

5. **Naked call option** - a written call option for which the writer does not currently own an instrument or commodity that could be delivered if the option is exercised.

6. **Naked put option** - a written put option for which the writer does not currently have a short position in the instrument or commodity underlying the option.

7. **Covered call option** - a written call option for which the writer owns an instrument or commodity that could be delivered if the option is exercised by its holder.

8. **Covered put option** - a written put option on an instrument in which the writer has a short position.
3. Strike or exercise price - the price at which the underlying instrument can be bought, sold or settled on exercise of the option contract.

10. Expiration date - ... the last day the option may be exercised.

11. Option premium - price paid or received for the contract.

12. An option at the money -
   exercise price = market value of underlying security
   no gain by exercise

13. An option out of money -
   Call options:
   exercise price > market value of underlying security
   Put options:
   exercise price < market value of underlying security
   option not exercised

14. An option in the money -
   Call options:
   exercise price < market value of underlying security
   Put options:
   exercise price > market value of underlying security

15. An option deep in the money - (the strike price - the market price of the security) is greater than selling or buying the underlying security directly by a significant amount.

16. Intrinsic value - "the amount of advantage, if any, that would be realised by exercise of an option rather than buying or selling the security ... in the cash market. Only in-the-money options have intrinsic value."
17. **Time Value**
- Total value (at inception) - intrinsic value

18. **Cross Hedge** - "an option bought to hedge an existing position if the item underlying the option is not the same as the item being hedged."

Investment, hedging and speculating strategies are followed by combining various put and call options with the same or varying numbers of underlying units, exercise prices and expiration dates. Combinations involving the same security are as follows:

- **Straddle** - one put and one call identical to issue, number of shares, exercise price and expiration date.

- **Spread** - same as a straddle except for the exercise price.

Once an investor clearly understands these items, he will be in a better position to make a wise investment rather than a poor one. In addition to choosing an option as part of a portfolio, how should the investor account for it?

**Accounting for Options**

Accounting for options depends on the company's accounting policies for other similar items.

"Options that do not qualify for hedge accounting and that are not options on specific marketable equity securities should be marked to market and the adjustments should be included in net income. Alternatively, purchased options that do not qualify for hedge accounting should be stated at the lower of cost or market, and written options that do not qualify should be stated at the higher of proceeds received or market. . ."
The market or fair value of options fluctuates as the value of the underlying security changes and as the remaining time to expiration decreases. In addition, cost or proceeds from sales of options are adjusted to the current market or fair value of the options. Any gain or loss is included in the result of operations. Also, written options are recorded as a liability and marked to market. If the market value decreases the liability decreases. Purchased options are recorded at cost and marked to market when needed. In addition:

Enterprises in industries not having specialized accounting policies with respect to marketable equity securities should use the lower of cost or market method in accounting for options...

The gains and losses are recorded the same way. Other industries that have securities stated at market should carry options, gains and losses at market.

When discussing on how to account for options, hedge accounting was mentioned. What is it? What does it have to do with options? Hedges minimize the risk of return. They are used as a protection against loss due to price fluctuations. Options qualify as hedges if they fulfill three requirements.

1. The item to be hedged is exposed to price (or interest rate) risk.

2. The option is designated as a hedge.

3. The option reduces the exposure because either (a) the item underlying the option is the same commodity or financial instrument being hedged or (b) in the case of an asset hedge a causal economic relationship exists between the price of the item underlying the option and the price of the item being hedged.
The requirements above refer to purchased options. Written options qualify as hedges by not only fulfilling the three requirements above, but also the option has to be deep in the money on the date it is written. It also should be noted that:

1. An option that hedges an asset carried at cost or a liability stated at proceeds received can qualify for hedge accounting.
2. An out-of-the-money purchased option can qualify for hedge accounting.

Although the primary reason for hedging is to reduce risk, hedgers view options as a way to collect premiums (using writing strategies), for long positions at critical points or when market outlook is cloudy or not at all. Once an option qualifies as a hedged item, accounting for it depends on a few items. The following chart summarizes how hedge accounting works:

<table>
<thead>
<tr>
<th>IF the hedged item is...</th>
<th>THEN changes in the market price of the hedge position should be...</th>
</tr>
</thead>
<tbody>
<tr>
<td>carried at market with unrealized changes in its market price included in income,</td>
<td>included in income.</td>
</tr>
<tr>
<td>carried at market with unrealized changes in its market price included in a separate component of equity,</td>
<td>included in the separate component equity.</td>
</tr>
<tr>
<td>a firm commitment and, after the item is acquired or incurred, unrealized changes in its market price will be included in income,</td>
<td>included in income.</td>
</tr>
<tr>
<td>carried at other than market, deferred as adjustments of the carrying amount of the hedged item.</td>
<td>(cont.)</td>
</tr>
</tbody>
</table>
A firm commitment and, after the item is acquired or incurred, it will be stated at other than market, deferred and included in the measurement of the transaction fulfilling the firm commitment, except if deferral would cause recognition of losses in future periods. 26

Time and intrinsic values of a purchased option should be split if the option qualifies for hedge accounting and hedges an asset, liability or firm commitment to be carried at other than market. Other than market means LCM for assets and proceeds or the higher of proceeds or market for liabilities. Also the values are split if the gain or loss on the hedged item is included in income as it arises. 27 In addition, the time value of a purchased option should be expensed over the option's term since it is similar to an insurance premium paid to avoid the risk of adverse price changes during the option's term. 28

Hedging is very beneficial for investors since bankers are willing to lend greater sums of money to an owner who hedges. The reason is because the hedger has minimized the ownership risks associated with the commodity, which is used as collateral. 29

Options are very useful when used as hedges. Through hedging, investors can minimize risk. In order to increase returns, investors want to know the effect an option will have on portfolio risk. An option's beta can be calculated from the beta of its underlying stock and the option's risk elasticity - a measure of the percentage change in the value of the option for a small percentage change in the value of the underlying stock. 30 Betas are important because they measure the relative contribution of the security to the standard deviation of the
risky portfolio's return. A call option's beta will decrease with increasing stock price and exercise price and increase with an increasing risk-free rate. Its sensitivity to variance and time to expiration will depend on the stock price to exercise price ratio. In general, an option's beta is a good determinant of its risk.

In addition to the basic jargon associated with options, there is also option buywrite. An option buywrite is:

- a covered write, a covered call or an overwrite,
- an option's strategy that entails writing (selling) call options in conjunction with a long bond or futures position. The options premium adds additional income to the long position creating a very high current return portfolio. The extra income generated by the call options also serves to add a degree of downside protection to the position, by acting as a cushion to partially offset any decline in the market value security.

Buywrites are suitable to any investor who seeks high current returns regardless of the market direction.

Options and futures have become an important part of many investors' portfolios. Some, though, view them as being similar. The FASB believes that "options and futures are different." The most essential difference concerns the implications of the meanings of rights and obligations. Futures contracts represent an obligation to buy/sell a security at a future time. Option contracts represent the right to buy/sell a security at a future time. These differences should be understood.

Conclusion

Commodity users can avoid losses caused by fluctuations in the market price of the commodity by using the proper option/future transactions. The "levitility" of futures and options allows
traders substantial leeway to design and implement hedges and
other risk management strategies tailor-made to their individual
needs. This reason has made futures and options widely used by
many investors. Which investment to choose depends on the investor’s
preference.


5. Ibid., p. 3.

6. Ibid., p. 4.


10. Bessant, p. 3.


12. Ibid.


14. Ibid.


17. Ibid., p. 10.

18. Ibid., p. 15.


31 Ibid., pp. 2-7.

32 Ibid., pp. 4-5.

33 Stockbrokerage Auditing Subcommittee, pp. 94-95.

34 Memorandum on Accounting for Options, p. 7.

35 Stockbrokerage Auditing Subcommittee, p. 99.

36 Memorandum on Accounting for Options, p. 6.

37 Ibid., p. 8.

38 Ibid., p. 11.

39 Ibid., p. 12.

40 Earle, p. 8.


42 Memorandum on Accounting for Options, p. 18.

43 Ibid., pp. 18-19.

44 Introduction to Hedging, p. 21.


46 Ibid.

47 Ibid.

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50 Statement of Financial Accounting Standards No. 60, p. 18.
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