



New York
Mercantile Exchange

NYMEX/COMEX. Two divisions, one marketplace

A PRACTICAL GUIDE TO HEDGING:

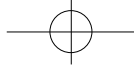
OPERATIONAL AND ACCOUNTING
CONTROLS, FINANCIAL REPORTING,
AND FEDERAL INCOME TAXES

Prepared in

cooperation with

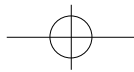
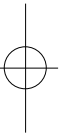
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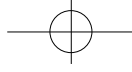




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CHAPTER ONE – INTRODUCTION

The last two decades have witnessed significant and sometimes abrupt changes in world commodity markets, especially those for energy and metals. International politics, war, changing economic patterns, stricter environmental regulations, and structural changes within these industries have contributed to uncertainty surrounding the direction of prices and supply. Uncertainty leads to volatility and the need for an effective vehicle to hedge the risk of adverse price changes while ensuring reliable physical supplies.

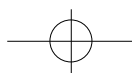
The New York Mercantile Exchange, Inc., is the world's largest physical commodity futures exchange. Activity on the Exchange trading floors and via its electronic trading system establishes worldwide benchmarks for energy, precious metals, copper, and aluminum.

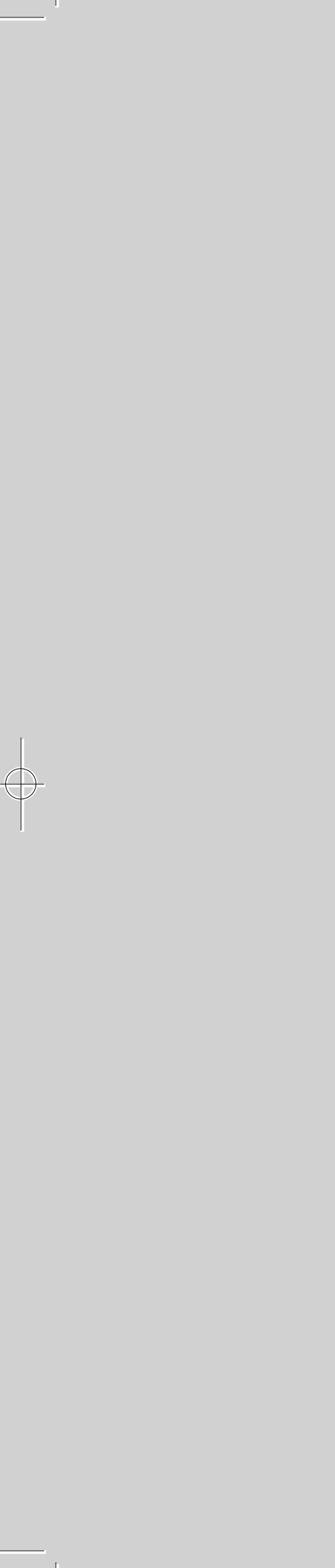
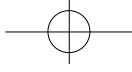
Trading is conducted through two divisions: the NYMEX Division and the COMEX Division, resulting from the merger with the Commodity Exchange, Inc., in 1994. The NYMEX Division offers futures and options contracts for light, sweet crude oil; heating oil; New York Harbor gasoline; natural gas; electricity; and platinum; and futures for propane, Middle East crude oil, and palladium. Options contracts are also offered on the heating oil-crude oil price differential and gasoline-crude oil differential, known as "crack spread options."

The COMEX Division lists futures and options on gold, silver, copper, aluminum, and the FTSE Eurotop 100® stock index and futures on the Eurotop 300®. The NYMEX and COMEX Divisions have more than 200 years of combined trading experience in the physical commodity markets. NYMEX was founded in 1872 as the Butter and Cheese Exchange of New York; COMEX was founded on July 5, 1933, in the Depression-era merger of four older commodities futures exchanges -- the National Metal Exchange, the Rubber Exchange of New York, the National Raw Silk Exchange, and the New York Hide Exchange. Its origin goes back to the New York Iron and Metal Exchange, established in 1882.

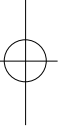
The NYMEX Division heating oil futures contract, introduced in 1978, was the world's first successful energy futures contract. The light, sweet crude oil contract, launched in 1983, is the world's most actively traded futures contract based on a physical commodity.

The COMEX Division gold futures contract, which serves as a world pricing benchmark, began trading in 1974 when the ban on the private ownership of gold was lifted.

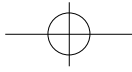


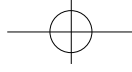


The Exchange's after-hours electronic trading system, NYMEX ACCESS®, began operation in 1993. It allows overnight trading in light, sweet crude oil; heating oil; New York harbor gasoline; natural gas; gold; silver; platinum; copper; and aluminum. Propane trades in an abbreviated session while electricity and Middle East crude are available for trading virtually around the clock. Terminals are in use in major cities in the United States and in London, Sydney, Singapore, and Hong Kong.



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Overview of Financial, Operational, and Control Issues

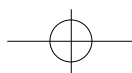
Various companies have set up programs to oversee their hedging activities because of the increasing use of futures markets, the development of more complex hedging strategies that use futures and options contracts, and the need to define and monitor a variety of trading-related risks. These programs are designed to:

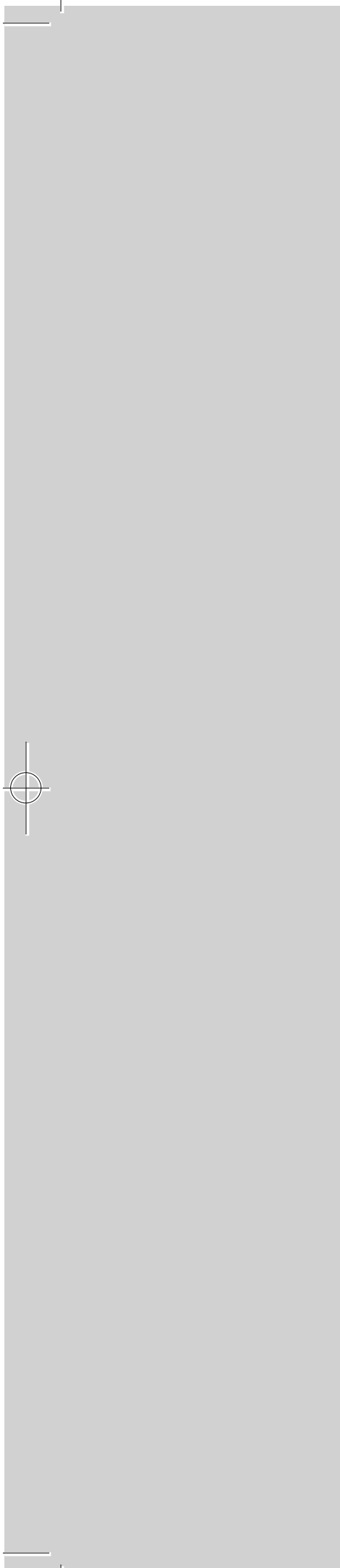
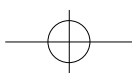
- Keep track of the adequacy of accounting systems and procedures to record, summarize, and report the results of the hedging programs.
- Monitor the financial statement effects of realized and unrealized gains and losses.
- Determine the extent to which internal operational and accounting controls can be relied upon to prevent unauthorized trading.

This information has been prepared by the New York Mercantile Exchange in cooperation with the international accounting and consulting firm of PricewaterhouseCoopers, L.L.P., and is designed as a practical guide to understanding the system of controls within which an energy or metals futures hedging program can be implemented. Additional copies can be obtained from the Exchange corporate communications department. The ultimate responsibility for the decision of the appropriate accounting and tax application for an actual transaction rests with the preparers of financial statements, who should consult their accountants. Market users should consult their own accounting, tax, and legal counsel to ensure futures transactions are appropriate for them, as well as ensure compliance with any regulatory requirements.

Chapter 2 describes typical hedging transactions which illustrate the economics of a hedge program as well as the accounting entries to record such activities. At some time prior to trade execution, it is highly probable that management of the companies illustrated in these examples would have studied alternative ways to hedge energy or metals price risk; they either intuitively or explicitly considered operating and accounting controls relating to unauthorized trading, basis risk, variation margin requirements, open positions, hedge effectiveness, precision of execution, internal and external financial reporting, taxes, and so on. Chapters 3 through 7 provide executives at various levels with an understanding of these concepts.

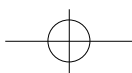
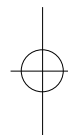
The examples are presented for reference purposes only. The prices at which a distant contract trades in comparison to a nearby month can be a significant factor in evaluating the appropriateness of a particular hedging strategy. However, the control, financial,





and tax considerations relating to the authorization, approval, implementation, and monitoring of a futures program are the same regardless of the price relationships among different delivery months

Information regarding New York Mercantile Exchange futures and options contract specifications are available from the Exchange. Contract specifications are subject to change.



CHAPTER TWO – TYPICAL HEDGE TRANSACTIONS

The “Short” or Selling Hedge for Crude Oil and Refined Products

Establishing what is known as a "short" or selling hedge protects energy industry participants from a decline in the market price of crude oil or refined products. This type of hedge would be used by producers, oil refiners, products wholesalers, and retailers -- anyone in the oil industry who could be adversely affected by declining product prices. These same market participants could also use a "long" or buying hedge to protect themselves against rising prices. The example set forth below illustrates a short hedge for use by a heating oil distributorship which wishes to protect the value of its inventory.

On May 8, a distributor (DistributorCo.) has 100,000 barrels of heating oil (4,200,000 gallons) in inventory which it expects to sell in November at the prevailing spot market price. (Assume that DistributorCo. had purchased the 100,000 barrels at an average price of 85¢ per gallon. Also assume DistributorCo. is not a trader.) To protect its inventory against a price decline, DistributorCo. sells, or takes a "short" position on 100 November New York Harbor No. 2 heating oil futures contracts at 85.5¢ per gallon on May 8. By selling, DistributorCo. has contracted to deliver 100,000 barrels of No. 2 heating oil at 85.5¢ a gallon in November. This contractual obligation may be terminated at any time prior to delivery date by executing a buy order on the Exchange to close out (liquidate) the futures contract delivery obligation.

The company designates the futures contracts as a *fair-value hedge*¹ of its heating oil inventory (the company is hedging changes in the inventory's fair-value, not changes in anticipated cash flows from the planned sale in November). Based on historical data, the company determines that changes in fair-value of the heating oil contracts will be highly effective in offsetting all changes in the fair-value of the heating oil inventory, including costs related to the location and transportation of the heating oil. Location and timing differences are important contract terms which can affect hedge effectiveness. For fair value hedges, changes in the derivative as compared to the changes in the hedged item must fall between 80% and 125% to be an effective hedge.

¹Statement of Financial Accounting Standards No. 133 (FAS 133) Accounting for Derivative Contracts and Hedging Activities, is applicable to futures transactions. SEAS 133 requires the designation of a hedge as either a fair-value hedge, a cash-flow hedge, or a hedge of a foreign currency exposure at the beginning of a hedge transaction. Refer to Chapter 5 for further details regarding FAS 133.

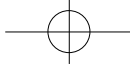
By June 30, the financial reporting date of DistributorCo., November heating oil futures prices have fallen to 83¢ per gallon and the spot market price of No. 2 heating oil has fallen to 82¢ per gallon. Because of the hedged position, DistributorCo. records a gain on its futures position $[(\$0.855 - \$0.83) \times 4,200,000 \text{ gallons or } \$105,000]$ and a loss on its physical inventory $[(\$0.85 - \$0.82) \times 4,200,000 \text{ gallons or } \$126,000]$.

By October 31, the spot market price of the New York Harbor No. 2 heating oil is quoted at 77¢ a gallon. At maturity of the contract, cash and future prices generally converge, so the futures contract also settles at 77¢ per gallon. DistributorCo. liquidates its short position by buying 100 November contracts at 77¢ per gallon and realizes a cumulative gain in the futures market amounting to \$357,000 $[(\$0.855 - \$0.77) \times 42,000 \text{ gallons} \times 100 \text{ contracts}]$. Simultaneously, DistributorCo. sells its 100,000 barrels of heating oil in the spot market for 77¢ per gallon or \$3,234,000. The company realizes a cumulative loss on its heating oil inventory of \$336,000 $[(\$0.85 - \$0.77) \times 4,200,000 \text{ gallons}]$. The change in the futures contract of \$357,000 divided by the change in the fair value of the inventory of \$336,000 yields 106%, which qualifies as an effective hedge.

Alternatively, DistributorCo. could have delivered through the Exchange. Delivery would have been made at the contract settlement price upon the termination of trading on October 31, at 77¢ per gallon. DistributorCo. would receive \$3,234,000 (100 contracts \times \$0.77 \times 42,000 gallons) from the buyer assigned by the Exchange, and \$357,000 (100 contracts \times \$0.085 \times 42,000 gallons) from his clearing member because the futures market moved in his favor by 8.5¢ per gallon. Each day, the futures contracts are marked-to-market and margin funds are paid or collected, reflecting the change in value of the futures position.

In either case, the short hedge had the net effect of locking the delivery price of the heating oil at the futures contract price on May 8, of 85.5¢ a gallon or \$3,591,000 $(\$0.855 \times 4,200,000)$.

The decision to lock in a price on May 8, also limits the benefits of any favorable price movements. For example, assume that the spot and futures price was \$1.01 per gallon in November. DistributorCo. would have sold the inventory for \$4,242,000 $(\$1.01 \times 4,200,000)$ but would have been obligated to pay \$651,000 $(\$1.01 - \$0.855 \times 4,200,000)$ under the futures contract. As a result, the net proceeds to the company would be \$3,591,000, which is identical to the outcome when prices declined.



Financial Statement Effect – Accounting Entries

(To simplify the presentation, brokerage commissions, taxes and fees, and entries to record daily cash settlements with the broker have been ignored.)

No.2 Heating Oil Prices (per gallon)

	Spot	Futures prices for delivery in November
May 8	\$0.85	\$0.855
June 30	\$0.82	\$0.83
September 30	\$0.815	\$0.825
October 31	\$0.77	\$0.77

	Debit	Credit
Initial Purchase of Heating Oil		
As of May 8, DistributorCo. has purchased 4,200,000 gallons of heating oil at an average cost of 85¢ a gallon:		
Heating oil inventory	\$3,570,000	
Cash		\$3,570,000

Summary of Hedge

To protect its inventory from a possible decline in oil prices, on May 8, DistributorCo. hedges its position by selling 100 No. 2 heating oil futures contracts at 85.5¢ per gallon for delivery in November, to coincide with its expected physical sale of the heating oil.

Receivable from broker—margin deposit ²	\$150,000	
Cash		\$150,000

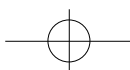
To record initial margin deposit (\$1,500 per contract for this example) on the sale of 100 November futures contracts. (The underlying cash value of this contract would be \$3,591,000: 100 contracts x \$0.855 x 42,000 gallons.)

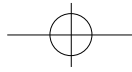
June 30 – (reporting date). November futures heating oil prices have fallen to 83¢.

Futures Contracts (receivable or variation margin)	\$105,000	
Gain on Hedge Activity		\$105,000

Loss on Hedge Activity	\$126,000	
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²Initial margin (good faith or performance) deposit varies by commodity based upon price volatility and other factors. Assumed to be \$1,500 for illustration purposes only. Margin deposits flow from the contract position holder (such as a customer) to/from the broker who, in turn, deposits and makes withdrawals from a clearing member of the Exchange who settle daily and directly with the Exchange clearing department.





Heating Oil Inventory	\$126,000
Debit	Credit

To adjust futures contracts and heating oil inventory to their fair value.

[Futures contracts: $(\$0.855 - \$0.83) \times 4,200,000 = \$105,000$, Inventory: $(\$0.85 - \$0.82) \times 4,200,000 = \$126,000$.]

Cash	\$105,000
Futures Contracts	\$105,000

To record the settlement of the futures contracts that occurred each day throughout the period.

September 30 – (reporting date). November futures heating oil prices have fallen to 82.5¢.

Futures Contracts (receivable or variation margin)	\$21,000
Gain on Hedge Activity	\$21,000

Loss on Hedge Activity	\$21,000
Heating Oil Inventory	\$21,000

To adjust futures contracts and heating oil inventory to their fair value. [Futures contracts: $(\$0.83 - \$0.825) \times 4,200,000 = \$21,000$. Inventory: $(\$0.82 - \$0.815) \times 4,200,000 = \$21,000$.]

Cash	\$21,000
Futures Contracts	\$21,000

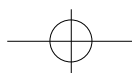
To record the settlement of the futures contracts that occurred each day throughout the period.

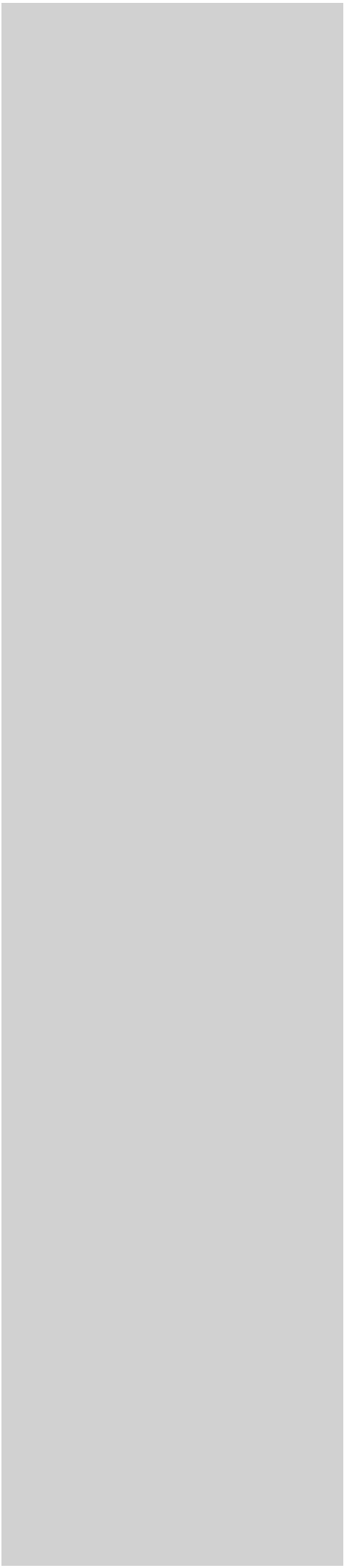
October 31 – The short futures contract (85.5¢) is closed out by buying 100 November No. 2 heating oil futures contracts at 77¢ a gallon.

Futures Contracts (receivable or variation margin)	\$231,000
Gain on Hedge Activity	\$231,000

Loss on Hedge Activity	\$189,000
Heating Oil Inventory	\$189,000

To adjust futures contracts and heating oil inventory to their fair value. [Futures contracts: $(\$0.825 - \$0.77) \times 4,200,000 = \$231,000$. Inventory: $(\$0.815 - \$0.77) \times 4,200,000 = \$189,000$.]





	Debit	Credit
Cash	\$231,000	
Futures Contracts		\$231,000

To record the settlement of the futures contracts that occurred each day throughout the period.

Cash	\$150,000	
Receivable from broker – margin deposit		\$150,000

To record the return of the margin deposit of \$150,000.

Accounts Receivable	\$3,234,000	
Revenue - Heating oil		\$3,234,000

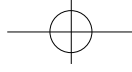
To record sale of heating oil inventory at 77¢.

Cost of Goods Sold	\$3,234,000	
Heating oil inventory		\$3,234,000

To transfer adjusted inventory to cost of sales. (\$3,570,000 beginning balance, minus \$126,000 June 30 fair value adjustment, minus \$21,000 September 30 fair value adjustment, minus \$189,000 October 31 fair value adjustment = \$3,234,000 ending balance).

Summary of Hedge

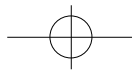
	Gain (Loss) Inventory	Gain (Loss) Derivative	Net Effect on Income Gain (Loss)
Hedge Inception	<u>\$3,570,000</u>	<u>-</u>	<u>-</u>
June 30	<u>(126,000)</u> 3,444,000	<u>\$105,000</u> 105,000	<u>\$(21,000)</u> (21,000)
September 30	<u>(21,000)</u> 3,423,000	<u>21,000</u> 126,000	<u>-</u> (21,000)
October 31	<u>(189,000)</u> <u>3,234,000</u>	<u>231,000</u> <u>357,000</u>	<u>42,000</u> <u>21,000</u>
Total change	<u>Inventory</u> \$ (336,000)	<u>Derivative</u> \$357,000	<u>Total</u> \$21,000

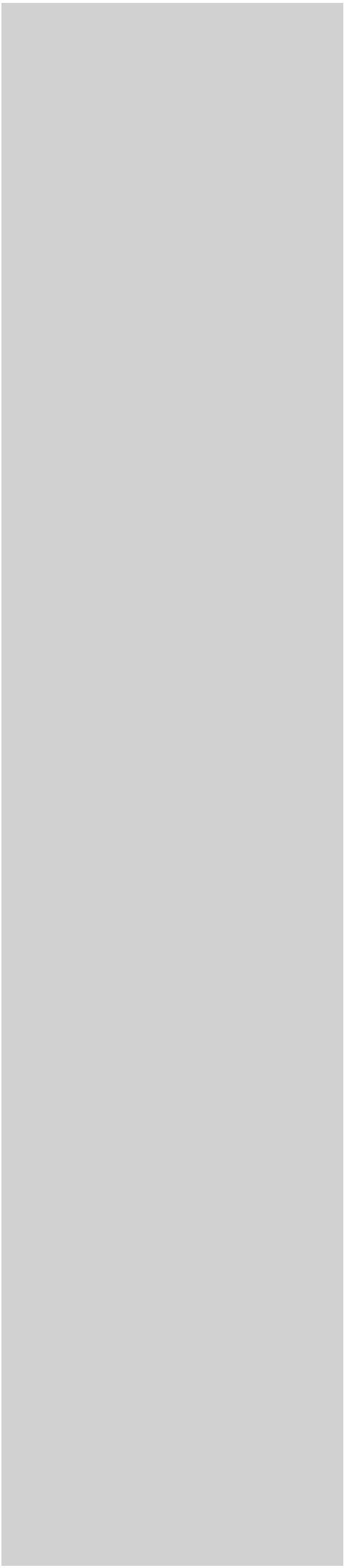


Over the life of the hedging relationship, the hedge was highly effective in offsetting price risk in the inventory. The sale of the inventory for \$3,234,000 combined with the gain of the hedging instrument of \$357,000 resulted in cash proceeds of \$3,591,000 or 85.5¢ per gallon. The hedge relationship does, however, result in inefficiency which must be reported in income as it occurs.

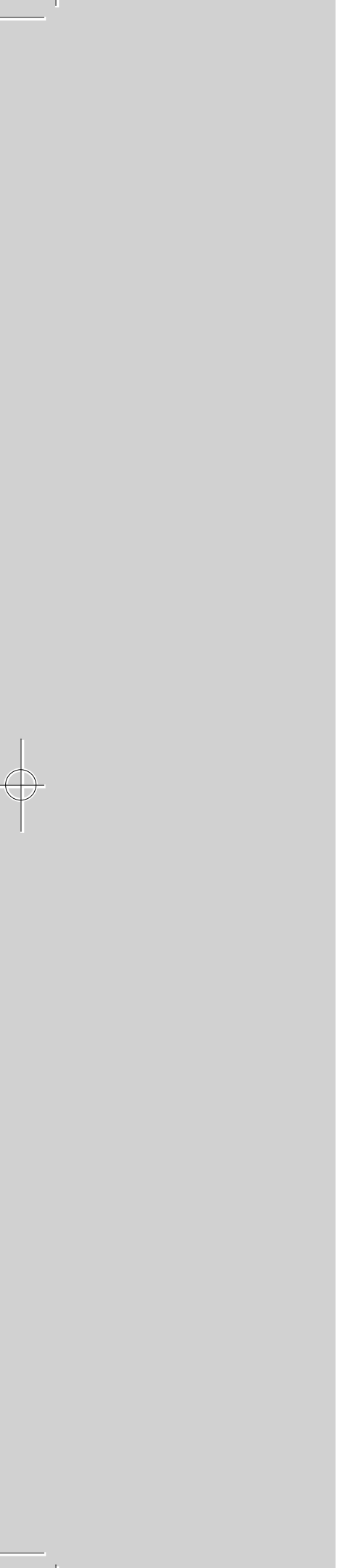
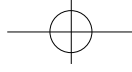
DistributorCo. could have also elected to designate the futures contracts as a cash flow hedge. In this scenario, the company does not have a contract to sell the heating oil inventory but anticipates that the sale will occur. In this transaction, DistributorCo. is hedging its exposure to changes in cash flows from the anticipated sale, not changes in the inventory's fair value. Under FAS 133, the company can choose to assess effectiveness by comparing the entire change in the fair value of the futures contracts with changes in cash flows from the forecasted transaction. This approach can often reduce the amount of ineffectiveness that must be recorded under the standard. The following journal entries would be recorded to account for the cash flow hedge:

	Debit	Credit
To hedge its anticipated sale of heating oil inventory in November, on May 8, DistributorCo. hedges its position by selling 100 No. 2 heating oil futures contracts at 85.5¢ per gallon for delivery in November.		
Receivable from broker – margin deposit	\$150,000	
Cash		\$150,000
To record initial margin deposit (\$1,500 per contract) on the sale of 100 November futures contracts. (The underlying cash value of this contract would be \$3,591,000: 100 contracts x \$0.855 x 42,000 gallons.)		
June 30 – (reporting date). November futures heating oil prices have fallen to 83¢.		
Futures Contracts	\$105,000	
Other comprehensive income		\$105,000
To record the futures contracts at their fair value		
Cash	\$105,000	
Futures contracts		\$105,000
To record the settlement of the futures contracts that occurred each day throughout the quarter. $(\$0.855 - \$0.83) \times 4,200,000 = \$105,000$.		
September 30 – (reporting date). November heating oil futures prices have fallen to 82.5¢.		





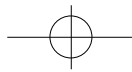
	Debit	Credit
Futures Contracts	\$21,000	
Other comprehensive income		\$21,000
To record the futures contracts at their fair value		
Cash	\$21,000	
Futures contracts		\$21,000
To record the settlement of the futures contracts that occurred each day throughout the quarter. $(\$0.83 - \$0.825) \times 4,200,000 = \$21,000$		
October 31 – The short futures contract (85.5¢) is closed out by buying 100 November No. 2 heating oil futures contracts at 77¢ a gallon.)		
Futures contracts	\$231,000	
Other comprehensive income		\$231,000
To record the futures contracts at their fair value:		
Cash	\$231,000	
Futures contracts		\$231,000
To record the settlement of the futures contracts that occurred each day throughout the quarter. $(\$0.825 - \$0.77) \times 4,200,000 = \$231,000$.		
Cash	\$150,000	
Receivable from broker – margin deposit		\$150,000
To record the return of the margin deposit of \$150,000.		
Accounts Receivable	\$3,234,000	
Revenue - Heating oil		\$3,234,000
To record sale of heating oil inventory at 77¢ spot price.		
Cost of Goods Sold	\$3,570,000	
Heating oil inventory		\$3,570,000
To remove the heating oil from accounting records at its carrying value		
Other comprehensive income		\$357,000



Revenue - Heating oil \$357,000
To reclassify as earnings the gain on futures contracts that were
deferred in other comprehensive income. (\$105,000 June 30
futures gain, plus \$21,000 September 30 futures gain, plus
\$231,000 October 31 futures gain = \$357,000)³

Over the life of the hedge, the futures contract was 100% effective in reducing the risk of
price changes from the proceeds of the sale of the oil inventory.

³Note: this example assumes that the decline in value during the hedge period did not require a writedown to the inventory value under generally accepted accounting principles (GAAP). If GAAP required a writedown, part or all of the amounts recorded in other comprehensive income would have been released into current earnings to offset the inventory writedown.



“Short” or Selling Hedge for Natural Gas

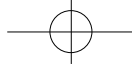
A short hedge would be used by natural gas producers, pipelines, marketers, or anyone in the natural gas industry who could be adversely affected by volatile and declining prices. Producers, for example, would want to protect the value of their reserves in the ground. Marketers who take a position on the buy-side of the cash market will need protection against price declines until they can sell the gas. Conversely, local distribution companies, the gas utilities, would most likely be long hedgers, trying to guard against a price increase. The example illustrates a short hedge for natural gas.

On July 10, ProducerCo. injects into storage 100,000 million British thermal units (mmBtu) of natural gas which it expects to sell in December at the then prevailing spot market price. (Assume ProducerCo. had produced the 100,000 mmBtu at an average of \$5.50 per mmBtu. Also assume that ProducerCo. is not a trader.) To protect its inventory against a price decline, ProducerCo. sells, or takes a "short" position on 10 December NYMEX Division natural gas futures contracts at \$5.55 per mmBtu on July 10. By selling, or taking a short position, ProducerCo. has contracted to deliver 100,000 mmBtus of natural gas in December. This contractual obligation may be terminated at any time prior to delivery date by executing a buy order on the Exchange to close out or liquidate the futures contract delivery obligation.

The company designates the futures contracts as a *fair-value hedge*⁴ of its natural gas inventory (it is hedging changes in the inventory's fair-value, not changes in anticipated cash flows from the planned sale in December). Based on historical data, the company determines that changes in fair-value of the natural gas contracts will be highly effective in offsetting all changes in the fair-value of the natural gas inventory, including costs related to the location and transportation of the natural gas. Location and timing differences are important contract terms which can affect hedge effectiveness. For fair value hedges, changes in the derivative as compared to changes in the hedged item must fall between 80% and 125% to be an effective hedge.

By September 30, the financial reporting date of ProducerCo., December natural gas futures prices have fallen to \$5.50 per mmBtu and the spot market price of natural gas has fallen to \$5.45 per mmBtu.

⁴Statement of Financial Accounting Standards No. 133 (FAS 133) Accounting for Derivative Contracts and Hedging Activities, is applicable to futures transactions. FAS 133 requires the designation of a hedge as either a fair-value hedge, a cash-flow hedge, or a hedge of a foreign currency exposure at the beginning of a hedge transaction. Refer to Chapter 5 for further details regarding FAS 133.

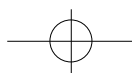


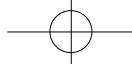
Because of the hedged position, ProducerCo. records a gain on its futures position $[(\$5.55 - \$5.50) \times 100,000 \text{ mmBtus}]$ or \$5,000 and a loss on its physical inventory $[(\$5.50 - \$5.45) \times 100,000 \text{ mmBtus}]$ or \$5,000.

By November 19, the spot market price of natural gas is quoted at \$5.20 per mmBtu. At maturity of the contract, cash and futures prices generally converge, so the futures contract also settles at \$5.20 per mmBtu. ProducerCo. liquidates its short position by buying 10 December NYMEX Division contracts at \$5.20 per mmBtu and realizes a cumulative gain in the futures market amounting to \$35,000 $[(\$5.55 - \$5.20) \times 100,000 \text{ mmBtus}]$. Simultaneously, ProducerCo. sells its 100,000 mmBtus of natural gas in the spot market at \$5.20 per mmBtu or \$520,000. The company realizes a cumulative loss on natural gas inventory of \$30,000 $[(\$5.20 - \$5.50) \times 100,000 \text{ mmBtu}]$. The change in the futures contract of \$35,000 divided by the change in the fair value of the inventory of \$30,000 yields a ratio of 117%, which qualifies as an effective hedge.

Alternatively, ProducerCo. could have delivered through the Exchange. Delivery would have been made at the contract settlement price upon the termination of trading on November 19, at \$5.20 per mmBtu. ProducerCo. would receive \$520,000 (10 contracts \times \$5.20 \times 10,000 mmBtu) from the buyer assigned by the Exchange, and \$35,000 (10 contracts \times \$0.35 \times 10,000 mmBtu) from his clearing member because the futures market moved in his favor by 35¢ per mmBtus. Each day, futures contracts are marked-to-market and margin funds are paid or collected, reflecting the change in the value of the futures position.

In either case, the short hedge had the net effect of locking the delivery price of the natural gas at the futures contract price on July 10, of \$5.55 per mmBtu or \$555,000 ($\$5.55 \times 100,000$). The decision to lock in a price on July 10, protected the company when spot prices declined below inventory cost of \$5.50. The hedge also limits the benefits of any favorable price movements to a maximum of \$5.55 per mmBtu.





Financial Statement Effect – Accounting Entries

(To simplify the presentation, brokerage commissions, taxes and fees, and entries to record daily cash settlements with the broker have been ignored.)

Natural Gas Futures Prices (per mmBTU)

Date	Spot	Futures prices for delivery in November
July 10	\$5.500	\$5.550
September 30	\$5.450	\$5.500
November 19	\$5.200	\$5.200

On July 10, ProducerCo. has 100,000 mmBtu of natural gas in inventory at an average cost of \$5.50 per mmBtu.

	Debit	Credit
Natural gas inventory	\$550,000	
Cash		\$550,000

Summary of Hedge

To protect its inventory from a possible decline in natural gas prices, on July 10, ProducerCo. hedges its position by selling 10 natural gas futures contracts at \$5.55 per mmBtu for delivery in December, to coincide with its expected physical sale of the natural gas.

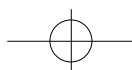
Receivable from broker—margin deposit ⁵	\$15,000	
Cash		\$15,000

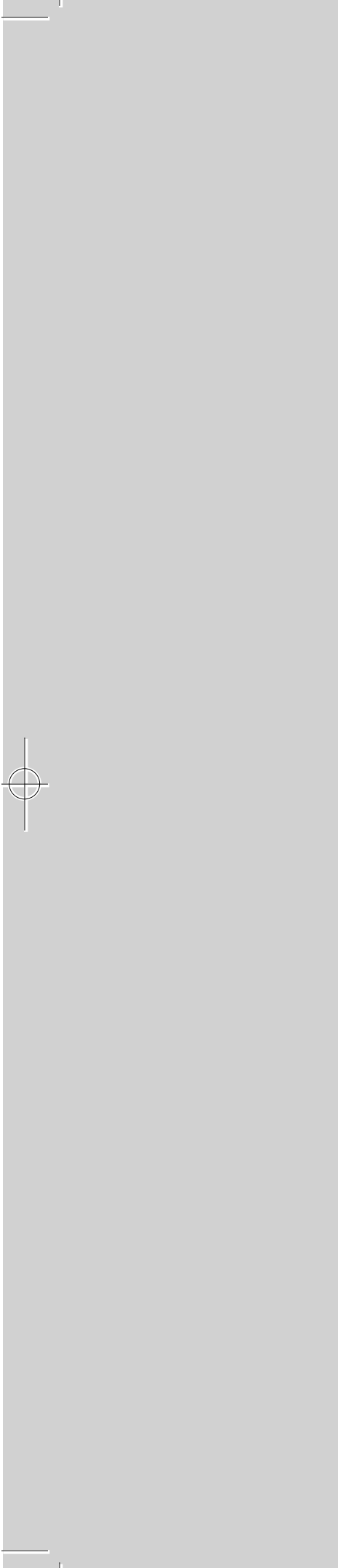
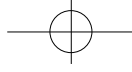
To record initial margin deposit (\$1,500 per contract) on the sale of 10 December futures contracts. (The underlying cash value of this contract would be \$555,000: 10 contracts x \$5.55 x 10,000 mmBtu.)

September 30 – (reporting date). December natural gas futures prices have fallen to \$5.50.

Futures Contracts (receivable or variation margin)	\$5,000	
Gain on Hedge Activity		\$5,000
Loss on Hedge Activity	\$5,000	
Natural Gas Inventory		\$5,000

⁵Initial margin (good faith or performance) deposit varies by commodity based upon price volatility and other factors. Assumed to be \$1,500 for illustration purposes only. Margin deposits flow from the contract position holder (such as a customer) to/from the broker who, in turn, deposits and makes withdrawals from a clearing member of the Exchange who settle daily and directly with the Exchange clearing department.





Debit **Credit**

To adjust futures contracts and natural gas inventory to their fair value. (Futures contracts: $(\$5.55 - \$5.50) \times 100,000 = \$5,000$.
Inventory: $(\$5.50 - \$5.45) \times 100,000 = \$5,000$.)

Cash	\$5,000	
Futures Contracts		\$5,000

To record the settlement of the futures contracts that occurred each day throughout the period.

November 19 – The short futures contract (\$5.50) is closed out by buying 10 December natural gas futures contracts at \$5.20 per mmBtu.

Futures Contracts (receivable)	\$30,000	
Gain on Hedge Activity		\$30,000
Loss on Hedge Activity	\$25,000	
Natural Gas Inventory		\$25,000

To adjust futures contracts and natural gas inventory to their fair value. (Futures contracts: $(\$5.50 - \$5.20) \times 100,000 = \$30,000$.
Inventory: $(\$5.45 - \$5.20) \times 100,000 = \$25,000$.)

Cash	\$30,000	
Futures Contracts		\$30,000

To record the settlement of the futures contracts that occurred each day throughout the period

Cash	\$15,000	
Receivable from broker – margin deposit		\$15,000

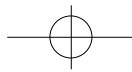
To record the return of the margin deposit of \$15,000.

Accounts Receivable	\$520,000	
Revenue – Natural gas		\$520,000

To record sale of natural gas inventory at \$5.20 per mmBtu.

Cost of Goods Sold	\$520,000	
Natural gas inventory		\$520,000

To transfer adjusted inventory to cost of sales. (\$550,000 beginning balance, minus \$5,000 September 30 fair value adjustment, minus \$25,000 November 19 fair value adjustment = \$520,000 ending balance.)



Summary of Hedge

	Gain (Loss) Inventory	Gain (Loss) Derivative	Net Effect on Income Gain (Loss)
Hedge Inception	\$550,000	-	
September 30	(5,000) 545,000	\$5,000 5,000	- -
November 19	(25,000) 520,000	30,000 35,000	5,000 5,000
Total change	<u>\$ (30,000)</u>	<u>\$35,000</u>	<u>\$5,000</u>

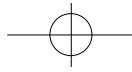
Over the life of the hedging relationship, the hedge was highly effective in offsetting price risk in the inventory. The sale of the physical gas for \$520,000 combined with the gain on the hedging instrument for \$35,000 resulted in cash proceeds of \$555,000 or \$5.55 per mmBtu. The hedge relationship does, however, result in inefficiency which must be reported in income as it occurs.

ProducerCo. could have also elected to designate the futures contracts as a cash flow hedge. In this scenario, the company does not have a contract to sell the natural gas inventory but anticipates that the sale will occur and is probable. In this transaction, ProducerCo. is hedging its exposure to changes in cash flows from the anticipated sale, not changes in the inventory's fair value. The company may choose to assess effectiveness by comparing the entire change in the fair value of the futures contracts with changes in the cash flows from the forecasted transaction (using forward rates). The following journal entries would be recorded to account for the cash flow hedge:

	Debit	Credit
To hedge its anticipated sale of natural gas inventory in November, on July 10, ProducerCo. hedges its position by selling 10 natural gas futures contracts at \$5.55 per mmBtu for delivery in December.		
Receivable from broker – margin deposit	\$15,000	
Cash		\$15,000

To record initial margin deposit (\$1,500 per contract) on the sale of 10 December futures contracts. (The underlying cash value of this contract would be \$555,000: 10 contracts x \$5.55 x 10,000 mmBtu.)

September 30 – (reporting date). December natural gas futures prices have fallen to \$5.50.



	Debit	Credit
Futures Contracts	\$5,000	
Other comprehensive income		\$5,000

To record the futures contracts at their fair value

Cash	\$5,000	
Futures contracts		\$5,000

To record the settlement of the futures contracts that occurred each day since July 10. $(\$5.55 - \$5.50) \times 100,000 = \$5,000$

November 19 – The short futures contract (\$5.55) is closed out by buying 10 December natural gas futures contracts at \$5.20 per mmBtu.)

Futures Contracts	\$30,000	
Other comprehensive income		\$30,000

To record the futures contracts at their fair value

Cash	\$30,000	
Futures contracts		\$30,000

To record the settlement of the futures contracts that occurred each day throughout the quarter. $(\$5.50 - \$5.20) \times 100,000 = \$30,000$.

Cash	\$15,000	
Receivable from broker – margin deposit		\$15,000

To record the futures contracts at their fair value:

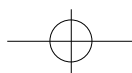
Accounts Receivable	\$520,000	
Revenue - Natural Gas		\$520,000

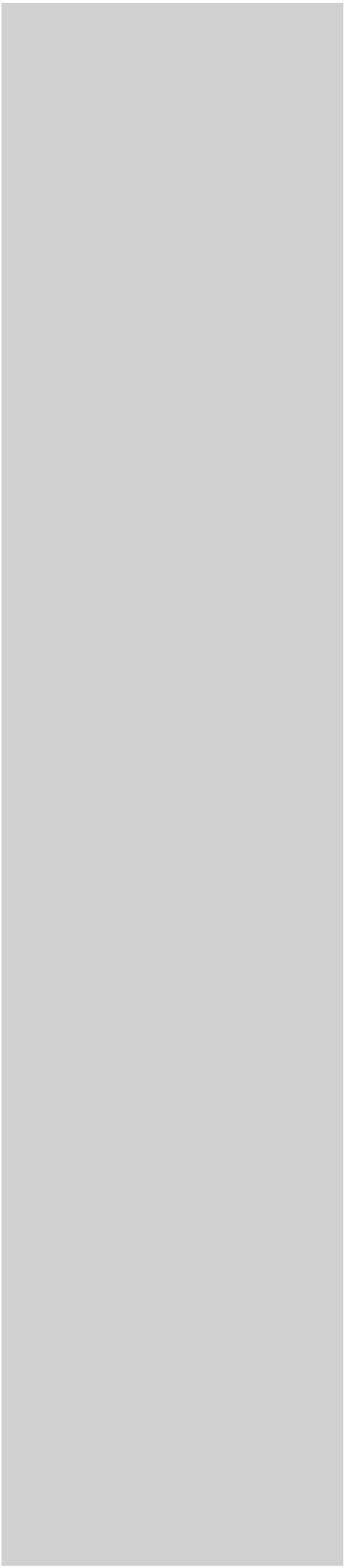
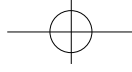
To record sale of natural gas inventory at \$5.20.

Cost of Goods Sold	\$550,000	
Natural Gas inventory		\$550,000

To remove the natural gas from accounting records at its carrying value

Other comprehensive income	\$35,000	
Revenue - Natural Gas		\$35,000

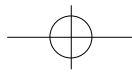


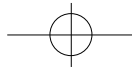


To reclassify as earnings the gain on futures contracts that were deferred in other comprehensive income. (\$5,000 September 30 futures gain + \$30,000 November 19 futures gain = \$35,000)⁶.

Over the life of the hedge, the futures contract was 100% effective in reducing the risk of price changes from the proceeds of the sale natural gas inventory.

⁶Note: this example assumes that the decline in value during the hedge period did not require a writedown to the inventory value under GAAP. If GAAP required a writedown, part or all of the amount recorded in other comprehensive income would have been released into current earnings to offset the inventory writedown.





The “Short” or Selling Hedge for Metals

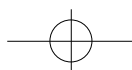
Establishing what is known as a short or selling hedge protects metals industry participants from a decline in the market price of gold and other metals. This type of hedge would traditionally be used by mining companies, metals refiners, product fabricators, and retailers – anyone in the industry who could be adversely affected by declining metal prices. These same market participants could also use a long or buying hedge to protect themselves against rising prices. The example below illustrates a short hedge for use by a gold refiner who wishes to protect the value of his inventory.

On May 10, a gold refiner, MetalCo. has 10,000 ounces of gold which it expects to sell in December at the then prevailing spot market price. (Assume MetalCo. had produced the 10,000 ounces of gold at an average cost of \$300 per ounce. Also assume that MetalCo. is not a trader.) To protect its inventory against a price decline, MetalCo. sells, or takes a short position on, 100 December COMEX Division gold futures contracts at \$315 an ounce on May 10. By selling, or taking a short position, MetalCo. has contracted to deliver 10,000 ounces of gold at \$315 an ounce in December. This contractual obligation may be terminated at any time prior to delivery date by executing a buy order on the Exchange to close out the futures contract delivery obligation.

The company designates the futures contracts as a *fair-value hedge*⁷ of its gold inventory (it is hedging changes in the inventory’s fair-value, not changes in anticipated cash flows from the planned sale in December). Based on historical data, the company determines that changes in fair-value of the gold contracts will be highly effective in offsetting all changes in the fair-value of the gold inventory, including costs related to the location and transportation of the gold. Location and timing differences are important contract terms which can impact hedge effectiveness. For fair value hedges, changes in the derivative as compared to the changes in the hedged item must fall between 80% and 125% to be an effective hedge.

By June 30, the financial reporting date of MetalCo., December gold futures prices have fallen to \$310 an ounce and the spot market price of gold has fallen to \$294 an ounce. Because of the hedge position, MetalCo. records a gain on its futures position [$(\$315 - \$310) \times 10,000$ ounces or \$50,000] and a loss on its physical inventory [$(\$300 - \$294) \times 10,000$ ounces or \$60,000].

⁷Statement of Financial Accounting Standards No. 133 (FAS 133) Accounting for Derivative Contracts and Hedging Activities, is applicable to futures transactions. FAS 133 requires the designation of a hedge as either a fair-value hedge, a cash-flow hedge, or a hedge of a foreign currency exposure at the beginning of a hedge transaction. Refer to Chapter 5 for further details regarding FAS 133.



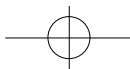
By September 30, the financial reporting date of MetalCo., December gold futures prices have fallen to \$305 an ounce and the spot market price of gold has fallen to \$289 an ounce. Because of the hedge position, MetalCo. records a gain on its futures position $[(\$310 - \$305) \times 10,000 \text{ ounces or } \$50,000]$ and a loss on its physical inventory $[(\$294 - \$289) \times 10,000 \text{ ounces or } \$50,000]$.

By December, the spot market price of gold is quoted at \$215 per ounce. At maturity of the contract, cash and future prices generally converge, so the futures contract also settles at \$215 per ounce. MetalCo. liquidates its short position by buying 100 December contracts at \$215 per ounce and realizes a cumulative gain in the futures market amounting to \$1,000,000 $[(\$315 - \$215) \times 10,000 \text{ ounces}]$. Simultaneously, MetalCo. sells its 10,000 ounces of gold in the spot market at \$215 per ounce or \$2,150,000. The company realizes a cumulative loss on gold inventory of \$850,000 $[(\$300 - \$215) \times 10,000 \text{ ounces}]$. The change in the futures contract of \$1,000,000 divided by the change in the fair value of the inventory of \$850,000 yields 118%, which qualifies as an effective hedge.

Alternatively, MetalCo. could have delivered through the Exchange. Delivery would have been made at the contract settlement price upon the termination of trading in December, at \$215 per ounce. MetalCo. would receive \$2,150,000 (100 contracts x \$215 x 100 ounces per contract) from the buyer assigned by the Exchange, and \$1,000,000 (100 contracts x \$100 per ounce x 100 ounces) from his clearing member because the futures market moved in his favor by \$100 per ounce. Each day, the futures contracts are marked-to-market and margin funds are paid or collected, reflecting the change in the value of the futures position.

In either case, the short hedge had the net effect of locking the delivery price of the gold at the futures contract price on May 10, of \$315 per ounce or \$3,150,000 $(\$315 \times 10,000)$.

The decision to lock in a price on May 10 also limits the benefits any favorable price movements. For example, assume that the spot and future price was \$320 per ounce in December. MetalCo. would have sold the inventory at market for \$3,200,000 $(\$320 \times 10,000 \text{ ounces})$ but would have been obligated to pay \$50,000 $(\$320 - \$315 \times 10,000 \text{ ounces})$ under the futures contract. As a result, the net effect is cash proceeds of \$3,150,000, which is identical to the outcome when prices declined.



Financial Statement Effect – Accounting Entries

(To simplify the presentation, brokerage commissions, taxes and fees, and entries to record daily cash settlements with the broker have been ignored.)

A summary of gold futures contract and spot prices

Gold Futures Prices (per ounce)

Date	Spot	Futures prices for delivery in December
May 10	\$300	\$315
June 30	\$294	\$310
September 30	\$289	\$305
December	\$215	\$215

On May 10, MetalCo. has 10,000 ounces of gold at an average cost of \$300 per ounce.

	Debit	Credit
Gold inventory	\$3,000,000	
Cash		\$3,000,000

Summary of Hedge

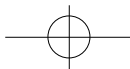
To protect its inventory from a possible decline in gold prices, on May 10, MetalCo. hedges its position by selling 100 gold futures contracts at \$315 per ounce for delivery in December, to coincide with its expected physical sale of the gold inventory.

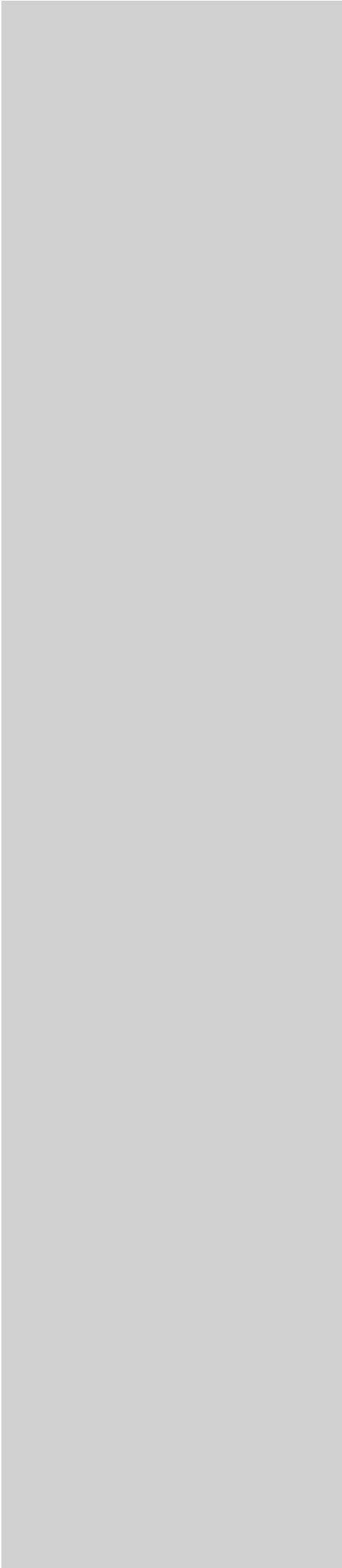
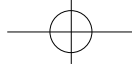
Receivable from broker—margin deposit	\$150,000	
Cash		\$150,000

To record initial margin deposit (\$1,500 per contract) on the sale of 100 December futures contracts. (The underlying cash value of this contract would be \$3,150,000: 100 contracts x \$315 x 100 ounces.)

June 30 – (reporting date). December gold futures prices have fallen to \$310.

Futures Contracts (receivable or variation margin)	\$50,000	
Gain on Hedge Activity		\$50,000
Loss on Hedge Activity	\$60,000	
Gold Inventory		\$60,000





Debit Credit

To adjust futures contracts and gold inventory to their fair value.
 (Futures contracts: $(\$315 - \$310) \times 10,000 = \$50,000$. Inventory:
 $(\$300 - \$294) \times 10,000 = \$60,000$.)

Cash	\$50,000	
Futures Contracts		\$50,000

To record the settlement of the futures contracts that occurred each day throughout the period

September 30 – (reporting date). December futures gold prices have fallen to \$305.

Futures Contracts (receivable)	\$50,000	
Gain on Hedge Activity		\$50,000

Loss on Hedge Activity	\$50,000	
Gold Inventory		\$50,000

To adjust futures contracts and gold inventory to their fair value.
 (Futures contracts: $(\$310 - \$305) \times 10,000 = \$50,000$. Inventory:
 $(\$294 - \$289) \times 10,000 = \$50,000$.)

Cash	\$50,000	
Futures Contracts		\$50,000

To record the settlement of the futures contracts that occurred each day throughout the period

December – The short futures contract (\$315) is closed out by buying 100 December gold futures contracts at \$215 per ounce.)

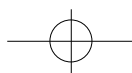
Futures Contracts (receivable)	\$900,000	
Gain on Hedge Activity		\$900,000

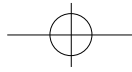
Loss on Hedge Activity	\$740,000	
Gold Inventory		\$740,000

To adjust futures contracts and gold inventory to their fair value.
 (Futures contracts: $(\$305 - \$215) \times 10,000 = \$900,000$.
 Inventory: $(\$289 - \$215) \times 10,000 = \$740,000$.)

Cash	\$900,000	
Futures Contracts		\$900,000

To record the settlement of the futures contracts that occurred





each day throughout the period

	Debit	Credit
Cash	\$150,000	
Receivable from broker – margin deposit.		\$150,000

To record the return of the margin deposit of \$150,000.

Accounts Receivable	\$2,150,000	
Revenue - Gold		\$2,150,000

To record sale of gold inventory at \$215 per ounce.

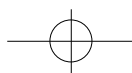
Cost of Goods Sold	\$2,150,000	
Gold		\$2,150,000

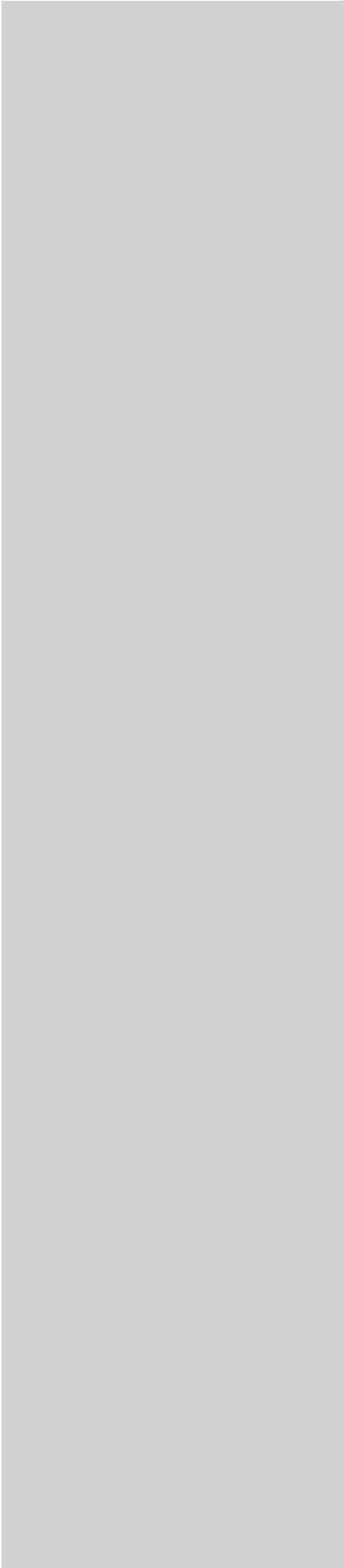
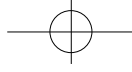
To transfer adjusted inventory to cost of sales. (\$3,000,000 beginning balance, minus \$60,000 June 30 fair value adjustment, minus \$50,000 September 30 fair value adjustment, minus \$740,000 December fair value adjustment = \$2,150,000 ending

Summary of Hedge

	Gain (Loss) Inventory	Gain (Loss) Derivative	Net Effect on Income Gain (Loss)
Hedge Inception	<u>\$3,000,000</u>	-	<u>(Loss)</u>
June 30	<u>(60,000)</u> 2,940,000	<u>\$50,000</u> 50,000	<u>\$(10,000)</u> (10,000)
September 30	<u>(50,000)</u> 2,890,000	<u>50,000</u> 100,000	<u>-</u> (10,000)
December	<u>(740,000)</u> <u>2,150,000</u>	<u>900,000</u> <u>1,000,000</u>	<u>160,000</u> <u>150,000</u>
Total change	<u>Inventory</u> \$ (850,000)	<u>Derivative</u> \$1,000,000	<u>Total</u> \$150,000

balance.)

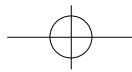


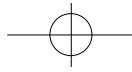


Over the life of the hedging relationship, the hedge was highly effective in offsetting price risk in the inventory. The sale of the gold for \$2,150,000 combined with the gain on the hedging instrument for \$1,000,000 resulted in cash proceeds of \$3,150,000 or \$315 per ounce. The hedge relationship does, however, result in inefficiency which must be reported in income as it occurs.

MetalCo. could have also elected to designate the futures contracts as a cash flow hedge. In this scenario, the company does not have a contract to sell the gold inventory but anticipates that the sale is probable. In this transaction, MetalCo. is hedging its exposure to changes in cash flows from the anticipated sale, not changes in the inventory's fair value. The company may choose to assess effectiveness by comparing the entire change in the fair value of the futures contracts with changes in the cash flows from the forecasted transaction (using forward rates). The following journal entries would be recorded to account for the cash flow hedge:

	Debit	Credit
To hedge its anticipated sale of gold inventory in December, on May 10, MetalCo. hedges its position by selling 100 gold futures contracts at \$315 per ounce for delivery in December.		
Receivable from broker – margin deposit	\$150,000	
Cash		\$150,000
To record initial margin deposit (\$1,500 per contract) on the sale of 100 December futures contracts. (The underlying cash value of this contract would be \$3,150,000: 100 contracts x \$315 x 100 ounces per contract.)		
June 30 – (reporting date). December gold futures prices have fallen to \$310.		
Futures Contracts	\$50,000	
Other comprehensive income		\$50,000
To record the futures contracts at their fair value		
Cash	\$50,000	
Futures contracts		\$50,000
To record the settlement of the futures contracts that occurred each day since May 10. (\$315 - \$310) x 10,000 = 50,000		
September 30 – (reporting date). December gold futures prices have fallen to \$305.		
Futures Contracts	\$50,000	
Other comprehensive income		\$50,000





To record the futures contracts at their fair value

Cash	\$50,000	
Futures contracts		\$50,000

To record the settlement of the futures contracts that occurred each day since May 10. $(\$310 - \$305) \times 10,000 = \$50,000$

	Debit	Credit
December – The short futures contract (\$315) is closed out by buying 100 December gold futures contracts at \$215 per ounce.)		
Futures contracts	\$900,000	
Other comprehensive income		\$900,000

To record the futures contracts at their fair value

Cash	\$900,000	
Futures contracts		\$900,000

To record the settlement of the futures contracts that occurred each day throughout the quarter. $(\$305 - \$215) \times 10,000 = \$900,000$.

Cash	\$150,000	
Receivable from broker – margin deposit		\$150,000

To record the return of the margin deposit of \$150,000.

Accounts Receivable	\$2,150,000	
Gold		\$2,150,000

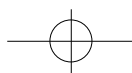
To record sale of gold inventory at \$215.

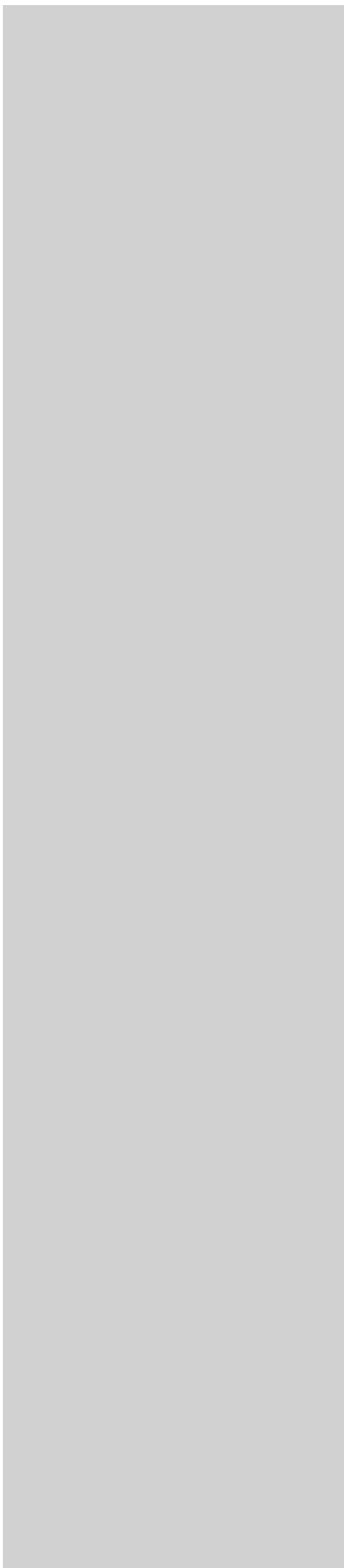
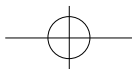
Cost of Goods Sold	\$3,000,000	
Gold inventory		\$3,000,000

To remove the gold from accounting records at its carrying value

Other comprehensive income	\$1,000,000	
Revenue - Gold		\$1,000,000

**Note: this example assumes that the decline in value during the hedge period did not require a writedown to the inventory value under GAAP. If GAAP required a writedown, part or all of the amounts recorded in other comprehensive income would have been released into current earnings to offset the inventory writedown.*

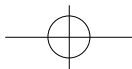


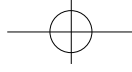


To reclassify as earnings the gain on futures contracts that were deferred in other comprehensive income. (\$50,000 June 30 futures gain, plus \$50,000 September 30 futures gain, plus \$900,000 December futures gain = \$1,000,000.)⁸

Over the life of the hedge, the futures contract was 100% effective in reducing the risk of price changes from the proceeds of the sale of gold inventory.

⁹The term *forecasted transaction* in FAS 133 is not intended to include transactions that qualify as firm commitments, even though such transactions are executed in the future. Hedges of unrecognized firm commitments are considered fair value hedges, since the price is fixed, while hedges of forecasted transactions (which involve variability in cash flows) are considered cash flow hedges under FAS 133.





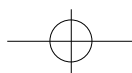
*The Long or Buying Hedge for
Crude Oil and Petroleum Products*

A company which plans to purchase refined products can effectively use the long hedge to protect against the risk of price increases. High volume buyers such as electric utilities, manufacturing companies, terminal operators and trading companies, real estate management firms, municipalities, gasoline station owners, car rental fleets, and rapid transit districts want to ensure a low product acquisition cost. The exposure or uncertainty associated with a forecasted purchase transaction can be managed through this hedging strategy⁹.

On July 10, a large motor vehicle fleet operator, FleetCo., determines it will need 100,000 barrels (4,200,000 gallons) of gasoline on November 19, and will purchase the gasoline at the prevailing market price. On July 10, FleetCo. assumes a long position or purchases 100 November gasoline futures contracts at 85.5¢ per gallon. The futures contract fixes the cost of its anticipated physical supply requirements for November 19. FleetCo. will designate the futures contracts as a cash flow hedge. In this scenario, the company does not have a contract to buy the gasoline inventory but anticipates that the purchase is probable. By buying, or taking a long position, FleetCo. has contracted to purchase 100,000 barrels gasoline at 85.5¢ a gallon on November 19. The futures contract can be terminated at any time prior to the purchase date by executing a sell order on the Exchange to close out the long futures contract. The company chooses to assess effectiveness by comparing the entire change in the fair value of the futures contracts to expected changes in the cash flows from the forecasted purchase transaction.

On September 30, the financial statement reporting date of FleetCo., November gasoline futures have risen to 88¢ a gallon. The gain on futures is recognized by recording the fair value of future contracts at \$105,000 [$(\$0.88 - \$0.855) \times 4,200,000$] with the corresponding entry credited to other comprehensive income. Each day, the futures contracts are marked-to-market and margin funds are paid or collected reflecting the change in the value of the futures position.

At the end of trading in the November contract, the spot price and future prices have increased to 90¢. FleetCo. liquidates its long position by selling 100 November gasoline contracts at 90¢, the futures price at the last day of trading. This generates a total gain in the futures market of \$189,000 [\$105,000 from September and \$84,000 for October 1 to November 19 calculated as follows:



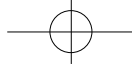
$$(\$0.90 - \$0.88) \times 4,200,000 = \$84,000].$$

FleetCo. then acquires 4,200,000 gallons of gasoline for \$3,780,000, given the spot price of 90¢. FleetCo. recognizes this purchase by increasing inventory by \$3,780,000 and recording a cash payment for the same amount. The gain recorded in other comprehensive income from the futures transaction of \$189,000 is used to fund the increase in the cash market price since July 10.

Effectively, FleetCo. paid \$3,591,000 for the inventory (\$3,780,000 – \$189,000), locking in a purchase price of 85.5¢ instead of the prevailing spot price in November of 90¢. The gain recorded in other comprehensive income of \$189,000 (\$105,000 from September and \$84,000 for October 1 to November 19 period) will be released into current earnings when the inventory is eventually sold/used. This will be accomplished by reducing other comprehensive income by \$189,000 and reducing cost of goods sold by the same amount at the time of sale.

Financial Statement Effects – Accounting Entries

The accounting entries and financial statement effects are similar to those of short cash flow hedges for crude oil, refined products, and natural gas.



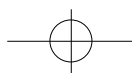
Natural Gas — Long or Buying Hedge

On May 1, a large buyer and reseller, UtilityCo., determines it will need 100,000 mmBtu of natural gas in November to be purchased at the prevailing market price. On May 1, UtilityCo. assumes a long position or purchases 10 November natural gas contracts at \$5.84 per mmBtu. This contract fixes the cost of its anticipated physical supply requirements for November. UtilityCo. will designate the futures contracts as a *cash flow hedge*. In this scenario, the company does not have a contract to buy the natural gas inventory but anticipates that the purchase is probable. By buying, UtilityCo. has contracted to purchase 100,000 mmBtu of natural gas at \$5.84 per mmBtu in November. The futures contract can be terminated at any time prior to purchase date by executing a sell order on the Exchange to close out or liquidate the long futures contract. The company chooses to assess effectiveness by comparing the entire change in the fair value of the futures contracts with changes in the cash flows from the forecasted transaction (using forward rates).

On June 30, the financial statement reporting date of UtilityCo., November natural gas futures have risen to \$5.86 per mmBtu. The gain on futures is recognized by recording the fair value of future contracts at \$2,000 $[(\$5.86 - \$5.84) \times 100,000]$ with the corresponding entry credited to other comprehensive income. Each day, the futures contracts are marked-to-market and margin funds are paid or collected reflecting the change in the value of the futures position. The company records the cash receipts for \$2,000 as a reduction in the fair value of futures contracts. FAS 133 requires entities to assess hedge effectiveness on at least a quarterly basis. As such, UtilityCo. would need to assess effectiveness as of June 30 and September 30, based on the then prevailing spot and futures prices.

At the end of trading in the November contract, the spot price and future prices have increased to \$5.94. UtilityCo. liquidates its long position by selling 10 November natural gas contracts at \$5.94, the futures price at the last day of trading. This generates a cumulative gain in the futures market of \$10,000 ($\5.94 futures price at closing – $\$5.84$ futures price on May 1 x 100,000 mmBtu, or \$2,000 as of June 30 and 8,000 from July 1 to November).

UtilityCo. then acquires 100,000 mmBtus of natural gas for \$594,000 at the spot price of \$5.94. UtilityCo., recognizes this purchase by increasing

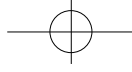


inventory by \$594,000 and decreasing cash by the same amount. The gain in the futures market of \$10,000 is used to fund the increase in the cash market price since May 1. Effectively, UtilityCo. paid \$584,000 for the inventory (\$594,000 - \$10,000). The company fixed its purchase price at \$5.84 instead of \$5.94, which was the prevailing spot price in November. The gain recorded in other comprehensive income of \$10,000 will be released into current earnings when the inventory is eventually sold or used. This will be accomplished by reducing other comprehensive income by \$10,000 and reducing cost of goods sold by the same amount.

Financial Statement Effect - Accounting Entries

The accounting entries and financial statement effects are similar to those of short cash flow hedges for crude oil and refined products and natural gas.

¹⁰The term forecasted transaction in FAS 133 is not intended to include transactions that qualify as firm commitments, even though such transactions are executed in the future. Hedges of unrecognized firm commitments are considered fair value hedges, since the price is fixed, while hedges of forecasted transactions (which involve variability in cash flows) are considered cash flow hedges under FAS 133.



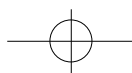
The Long Hedge for Metals

A company which plans to purchase precious metals, copper, or aluminum can effectively use the long hedge to protect against the risk of price increases. High volume buyers include manufacturers of jewelry, electronic equipment, flatware, catalysts, chemicals, wire, pipe, and other products as well as bullion dealers and traders. These market participants want to ensure a low product acquisition cost. The exposure or uncertainty associated with the forecasted purchase transaction can be managed with this hedging strategy¹⁰.

On July 1, a large jewelry manufacturer, RingCo., determines it will need 10,000 ounces of gold in October which will be purchased at the prevailing market price. On July 1, RingCo. assumes a long position or purchases 100 October gold contracts at \$305 per ounce. The futures contract fixes the cost of its anticipated physical gold requirements for October. RingCo. will designate the futures contracts as a *cash flow hedge*. In this scenario, the company does not have a contract to buy the gold inventory but anticipates that the purchase is probable. By buying, or taking a long position, RingCo. has contracted to purchase 10,000 ounces of gold at \$305 per ounce in October. This contractual obligation may be terminated at any time prior to purchase date by executing a sell order on the Exchange to liquidate the futures contract. The company chooses to assess effectiveness by comparing the entire change in the fair value of the futures contracts with changes in the cash flows from the forecasted transaction.

On June 30, the financial statement reporting date of RingCo., October gold futures have risen to \$315 per ounce. The gain on futures is recognized by recording the fair value of future contracts at \$100,000 [$(\$315 - \$305) \times 10,000$] with the corresponding entry credited to other comprehensive income. Each day, the futures contracts are marked-to-market and margin funds are paid or collected, reflecting the change in the value of the futures position. During the quarter, the company received cash for \$100,000 which equaled the fair value of the futures contracts.

At the end of trading in the October contract, the spot price and futures prices have increased to \$320. RingCo. liquidates its long position by selling 100 October gold contracts at \$320, the futures price at the last day of trading. This generates a cumulative gain in the futures market of \$150,000 ($\320 futures price at closing –



CHAPTER THREE – DEVELOPING THE HEDGE PROGRAM

\$305 futures price on July 1 x 10,000 ounces).

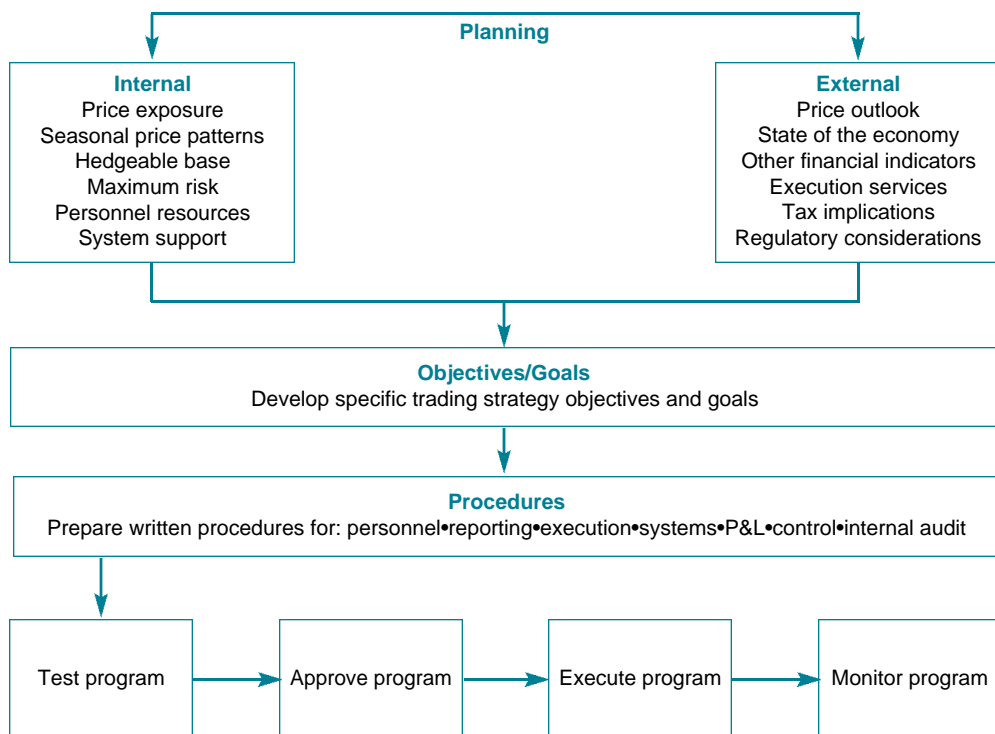
RingCo. then acquires 10,000 ounces of gold for \$3,200,000, given the spot price of \$320. RingCo., recognizes this purchase by increasing inventory by \$3,200,000 and decreasing cash by the same amount. The gain in the futures market of \$150,000 is used to fund the increase in the cash market price since July 1. Effectively, RingCo. paid \$3,050,000 for the inventory (\$3,200,000 - \$150,000), locking in a purchase price of \$305 instead of \$320, the prevailing spot price in October. The gain recorded in other comprehensive income of \$150,000 will be released into current earnings when the inventory is eventually sold / used. This will be accomplished by reducing other comprehensive income by \$150,000 and reducing cost of goods sold by the same amount.

Financial Statement Effect – Accounting Entries

The accounting entries and financial statement effects are similar to those of short cash flow hedges for metals.

*Energy Futures Hedge
Development Program*

Figure 1



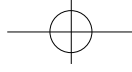
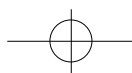
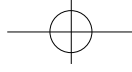


Figure 1 presents the five basic aspects of a hedge program: (1) planning; (2) development; (3) approval; (4) execution; and (5) post-execution evaluation. The decision to use futures contracts as part of an overall price risk-management program should be authorized by the boards of companies planning to hedge. In many cases, a futures commission merchant (FCM) or broker will not open an account unless futures trading has been authorized by a board resolution.

In smaller organizations, the principal owners would probably be involved not only in the authorization but also in the other four stages as well. In general, a policy statement by the board should:

- Recognize that futures contracts can be an effective tool to hedge the company's inventory risk or product acquisition costs for fuel, raw materials, or metals in the event of changing prices.
- Authorize the company's officers or employees to engage only in those futures and hedging activities consistent with prudent risk-management practices and that correlate with the company's business needs and ability to satisfy such commitments.
- Implement the hedging program based on a comprehensive review of the company's price exposure.





Additionally, the board should require that the company officers evaluate and document the company's overall price exposure and whether the company could use futures or options contracts to reduce or manage those risks. The board of directors or a designated risk committee should establish guidelines for hedging transactions including permissible hedging instruments and strategies. This may include a limitation on futures and options contract activities, such as hedging only existing assets and liabilities, and placing limits on the dollar value of underlying commodities for which an individual trader may commit the company. The board must ensure that the official responsible for carrying out its futures program understands the intricacies and risks associated with futures trading.

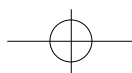
Obtaining Approval for a Futures Hedging Strategy

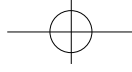
Obtaining board approval is typically accomplished by presenting a well-designed hedging strategy. Management should also present the board with details of the operating, control, and record keeping systems, and the accounting policies and procedures. These systems and procedures are not presented to the board for approval, but rather for review. This process helps management focus on how best to handle futures transactions before entering the futures markets. In addition, a presentation should include the tax and regulatory implications of these transactions.

The board of directors should approve the use of futures hedging strategies. It should also approve limitations on the dollar amount of open futures positions based on the underlying commodity (for example, limit open futures positions in crude oil to the equivalent of \$4,200,000 of the underlying crude oil). A hedging strategy can be encumbered by arbitrary limits on the number of contracts. It is more efficient, instead, for the board to authorize sufficient long and short contracts to hedge specific dollar amounts of price-sensitive products over specified periods that allow the company to manage its dollar commitments or exposures.

Responsibilities of a Hedging Committee

Once the hedging program has been approved in concept by the board, a hedging committee is typically established with overall responsibility for implementation and monitoring of the program. The hedging committee, in addition to defining the price risks associated with the company's operations and choosing the hedging strate-





gies and specific contracts to reduce those risks, should also delegate to appropriate personnel responsibility for:

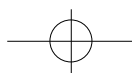
- Implementing an overall hedge strategy.
- Periodic review of the effectiveness of the specific risk reduction strategies.
- Approving all new accounts and original margin deposits with brokers or FCMs, within defined limits, as well as identifying authorized company personnel to initiate transactions with a broker or FCM.
- Ensuring appropriate controls and daily monitoring systems are in place and routinely reviewed by supervisory management and the internal audit department.
- Rotating responsibility for managing and overseeing various aspects of the hedge strategy among members of the risk committee.
- Furnishing weekly or daily reports to the risk committee and monthly reports to the board evaluating the performance of each hedging strategy.
- Reviewing maximum contract position limits and, when necessary, recommending changes to the board.

Assessing the Hedging Needs of the Organization

A determination must be made on the extent of price risk to be hedged. The basic issue therefore is one of general business philosophy: levels of price risk assumed versus management's rate of return objectives. While this issue is not easily resolved, a hedging program probably requires an implicit, but not necessarily precise, assumption about risk and return objectives.

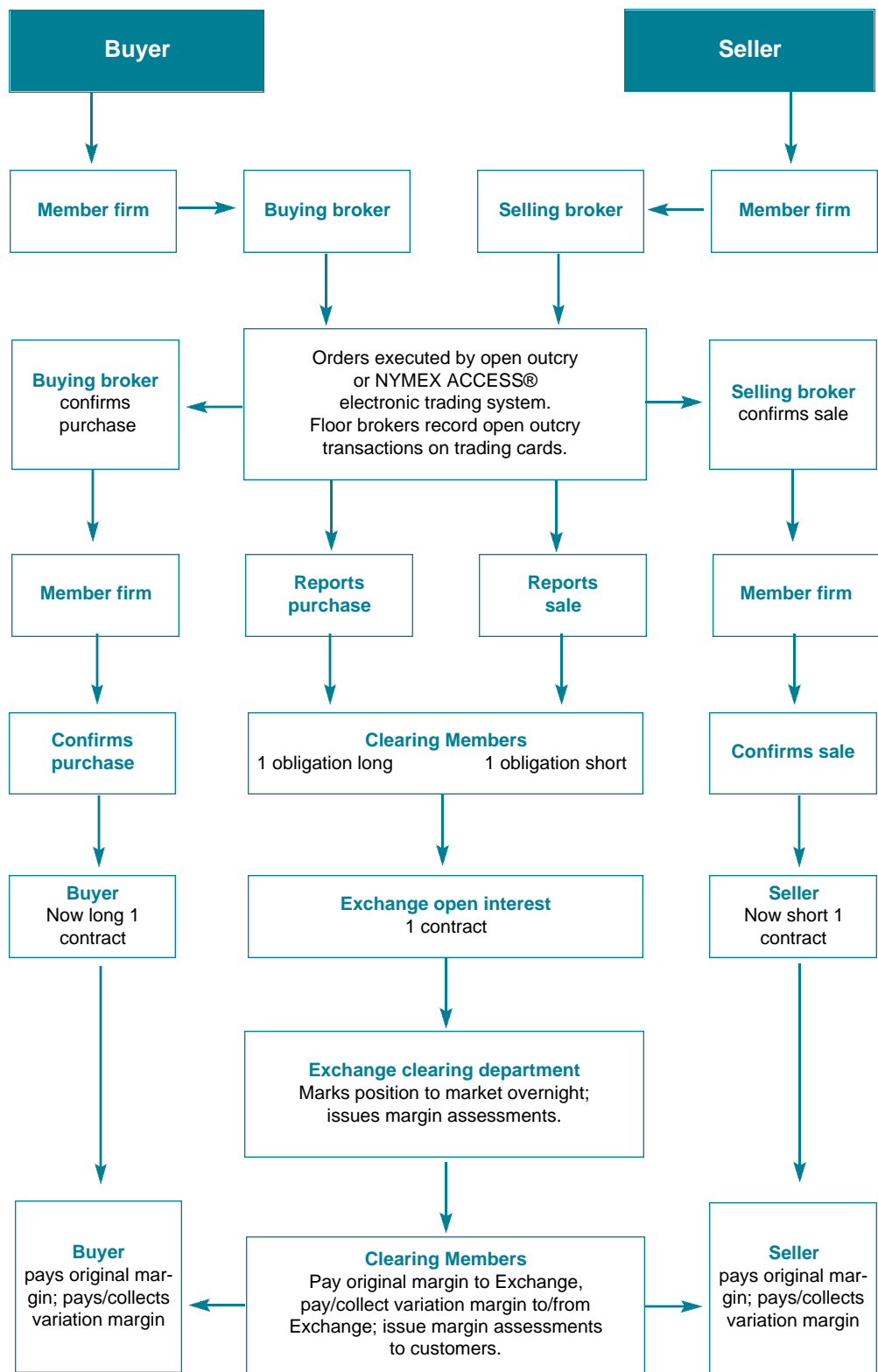
Selecting an FCM

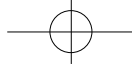
A commodity futures brokerage firm or FCM trades for customers on commodity exchanges, charging a commission for its service. Commissions are established by FCMs on a negotiated basis, while the exchange sets and collects transaction fees. Commissions and exchange transaction fees are payable when a futures contract position is closed. The FCM is subject to the rules of the Commodity Futures Trading



Initiating Trades and Order Flow for Futures Contracts

Figure 2



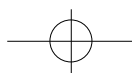


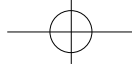
Commission, a U.S. government agency, and the rules of the various exchanges of which it is a member.

An FCM may also be a clearing member of a commodities exchange such as the New York Mercantile Exchange. This involves owning a certain number of memberships, or seats on the Exchange, meeting stricter financial requirements than those applicable to a non-clearing FCM, and being subject to capital-based position limits in the Exchange's contract markets. Clearing members accept primary financial responsibility for all trades cleared through them, and ultimately share secondary responsibility for the liquidity of Exchange clearing operations. For further information, contact the Exchange membership department.

Receipt and Filling of Orders

Customer orders are relayed by the FCM or transmitted directly to the floor of the Exchange to be executed by a floor broker. When an order comes into the Exchange, it is time-stamped and hand-delivered to the floor broker at the earliest possible moment. When the broker receives the order, he signals his offer and, upon acceptance, records it and his counterpart's code description, as well as the price. (See page 39 for a description of order types.) This information, together with quantity and month, which are already on the order, are fundamental to recording and processing orders (Figure 2).





Margin Requirements

Initial Margin

In commodity futures markets, margin requirements are essentially good-faith deposits or performance bonds which can be used to cover adverse movements in futures prices and ensure that participants have sufficient funds to handle losses. In order to protect market participants and the integrity of the market, the Exchange establishes margins

Commodity Futures Contracts: Types of Orders

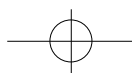
Market Order — An order to buy or sell without regard to a specific price. The broker will execute a market order for the customer at the best price available immediately on receiving the order.

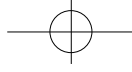
Limit Order — An order to buy or sell at a specified price. This order can be executed only at the specified price or better.

Day Order — Day order must be executed within the same trading session they are placed or they are automatically canceled. Unless specific instruction accompany an order, all orders are considered to be day orders.

Open Order — Also known as "good until canceled" (GTC). An open order also specifies a price at which the order is to be executed, but it stands until executed or canceled.

Stop Order — This type of order becomes a market order to buy or sell only if prices reach a specific level; to buy only if prices rise to a stipulated level or to sell only if prices drop to a stipulated level.





CHAPTER FOUR – INTERNAL CONTROL

at sufficiently high levels to adequately guard against the risk associated with changing market conditions. A customer's initial margin deposit must be in cash or U.S. government obligations with a maturity of less than 10 years. Government obligations are valued at 95% of par. Margins are subject to change as warranted by market conditions.

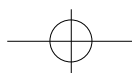
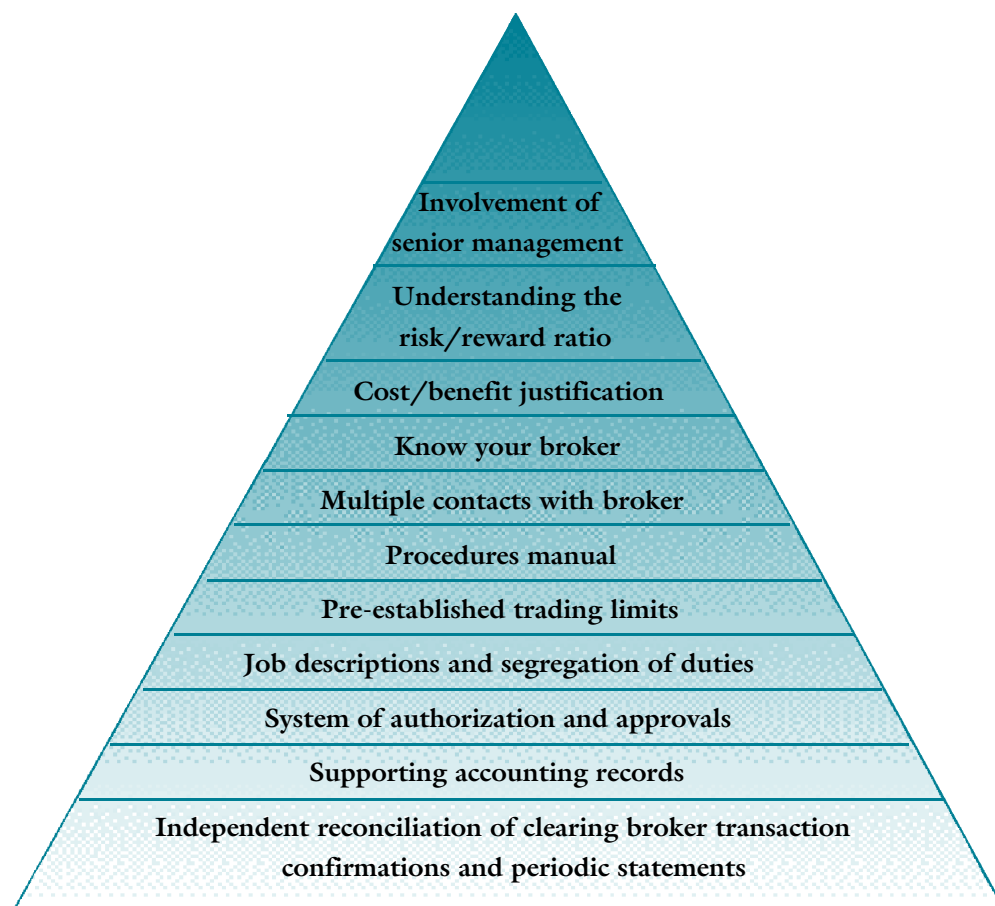
Maintenance Margin

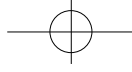
Maintenance margin is a sum which customers must maintain on deposit at all times. If the equity in a customer's account drops to or under that level because of an adverse price movement, additional payments must be made to restore the customer's equity. Margins are set by the Exchange based on its analysis of price risk volatility at that time.

The Exchange requires higher margins for any NYMEX Division spot-month position

*Overview of the Control
Environment*

Figure 3





open on the day prior to the expiration of the futures contract. COMEX Division spot-month assessments are decided on a case-by-case basis as warranted by market conditions.

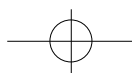
Policies and Procedures Manual

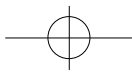
To establish an effective hedging program, a company should write formal policies and procedures stating the responsibilities of each associated person within an organization. Procedures must be established for actual execution of the futures trading activities, as well as the post-execution process in which futures transactions are recorded and verified.

These policies and procedures are necessary to ensure that hedging activities are properly documented and that the program is in compliance with accounting, tax, and regulatory requirements and practices. Policies and procedures need to be developed for each stage of the trading cycle.

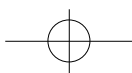
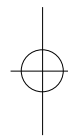
There are three main processes that make up the futures function: (1) the planning that takes place before an order is actually placed with a futures broker; (2) the execution process, which encompasses all of the activities that take place as an order is placed and when the transaction is recorded on the books; and (3) the post-execution process, which entails the verification and control of the futures transaction.

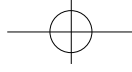
The procedures manual should also outline the company's policies for training and supervision of employees to ensure that all personnel involved in futures trading are thoroughly familiar with the concepts, terminology, and trading practices of the markets.





Futures hedging and arbitrage transactions, like any other transactions, require authorization and approval prior to execution. After the transaction is executed and recorded, the open futures positions and related items being hedged (inventory, for example) should be maintained until the hedge transaction is closed. During the life of the hedge transaction, changes in futures value must also be accounted for management reporting and financial accounting purposes. (The accounting and financial reporting requirements are analyzed in Chapter 5.) A system of internal accounting controls should provide reasonable assurance that: (1) only approved and relevant transactions are authorized, initiated, executed, and recorded; (2) the transactions are initiated, executed, valued, and recorded properly and on a timely basis; and (3) errors in execution and recording are detected as early as possible (Figure 3).





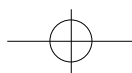
Control Objectives, Procedures, and Segregation of Duties

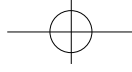
An important aspect of internal controls is to segregate the duties of operational and accounting tasks to help prevent misappropriation, fraud, or error. Segregation of duties is intricately linked to the company's overall system of internal control. The records maintained by personnel independent of the actual trading functions should contain all necessary information to: (1) verify positions with the company's FCMs; (2) provide a record of all journal entries to the subsidiary and general ledgers on variation margin, realized and unrealized gains and losses, etc.; and (3) monitor futures positions, reflected on memorandum ledgers, during the life of the contract. A company engaging in futures trading should create a set of records that mirror those of the FCM, just as the FCM's records mirror those of the Exchange clearinghouse.

The following sections detail individual control objectives and indicate which functions should be performed to ensure these objectives are met. These control objectives and procedures should be monitored by the company's internal audit department.

Control Objectives

- Futures transactions and open positions are appropriate given the company's inventory levels or firm sales commitments (existing or anticipated).
- The number of futures contracts, long or short, represents an underlying quantity of the physical commodity that relates to the quantity at risk in terms of a sale or purchase at a future date.
- The delivery month or months selected in the futures market are consistent with the month in which the user or producer either expects to have physical goods available for delivery in the cash market, or will be buying crude oil, refined products, natural gas, electricity, or metals to fulfill an obligation to supply these commodities or to refine them.
- The internal trade ticket documents the purpose and all other relevant details of the futures trade.
- The futures order is executed in a timely fashion.
- The execution price is consistent with the price limit placed by the company's trader.



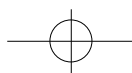


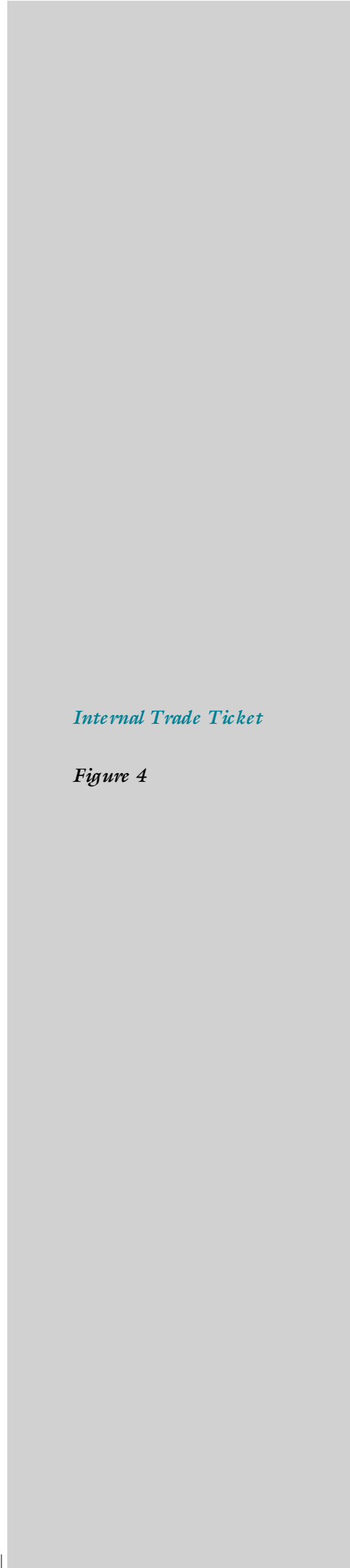
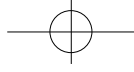
- The transaction, once executed, is properly recorded. The trading strategy is within approved guidelines.
- Trading strategies are updated on a timely basis.
- Changes in value of the futures contract are recorded daily on the company's books.
- An increase or decrease in the company's original margin deposit with the executing broker or FCM due to contract value changes is recorded in a timely fashion.
- The change in value of the futures contract is verified by the company before variation margin deposits, made by wire transfer or check, are authorized and approved.
- Financial accounting for the change in value and cash flow between the broker and the company is properly reflected in the internal and external financial statements in accordance with generally accepted accounting principles.

These control objectives may be achieved by implementing the procedures described below:

Control Procedures – Pre-Execution

- Board and hedge committee policies are documented.
- Hedging strategies are properly documented.
- The broker or FCM is chosen based on specific criteria (reputation, research capability, execution capability, margin requirements and commissions, stability of personnel, and credit worthiness).
- Traders are specifically authorized in writing to transact business with the broker or FCM.
- The broker or FCM has written authorization from the company to accept orders only from authorized persons.
- Pre-established trading limits are documented.
- A procedures manual is established describing how the futures contract's original margin deposit and subsequent changes in value are recorded in the books and records.





Internal Trade Ticket

Figure 4

- Appropriate controls and a monitoring system is in place and operational.

Execution and Post-Execution Controls

- Persons independent of the trader receive broker or FCM confirmations for verifications to the internal trade ticket.
- An independent department logs differences between broker confirmations and the internal trade ticket, and provides copies to the trader for resolution with the broker or FCM.
- A separate department (such as accounting or operations) prepares daily buy

DISTRIBUTORCO. May 10
TICKET #268 [Timestamp]

No. 2 Heating Oil November

New York Mercantile Exchange Time limit

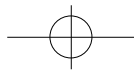
100 contracts Price limit \$0.77

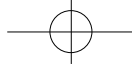
BUY _____ SELL

\$0.77
ABC-FCM
John Doe
Signature of officer approving trade

Trader

To hedge inventory held for delivery November





and sell activity ledgers, updates cumulative open position reports and contract settlement prices, and reconciles month-end open positions and money balances to the monthly statement from the executing broker or FCM.

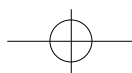
- Variation margin withdrawals and additional deposits are verified by persons independent of bookkeeping responsibilities.
- Reinvestment of margin deposit increases are approved by the treasurer.
- Reports are furnished periodically to senior management and the board summarizing activity, open positions, and hedge performance (change in spot versus future prices).
- Internal audit reviews are performed to help ensure compliance with the policies and procedures.

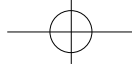
If these procedures are followed on a timely and accurate basis, it is possible to identify errors early and optimize the effectiveness of the futures hedging program. See Page 47 for a summary of the paperwork flow and related control procedures from the time a hedging transaction is authorized (trading ticket) to the production of the hedge performance tracking ledger.

Unauthorized Futures Trading

A frequently voiced concern of companies contemplating use of futures markets for hedging purposes is the potential for unauthorized trading. One method to detect this is for the company to set up a system of multiple contact with the broker or FCM who executes the order. Key procedures include authorization of all new accounts by the company treasurer, not the trader; approval of all new accounts; original margin deposits; and approval of all cash movements by responsible officers independent of the trading function. Additionally, original confirmations of transactions, monthly statements, and any other correspondence from the FCM should be sent to a person independent of the trading function, with copies sent to the trader to check against his personal records and logs.

Furthermore, senior management should have a thorough understanding of the risks associated with futures trading, the relationship between futures market positions and cash market positions being hedged (basis risk, inventory, etc.), and related commitments and anticipated transactions. Given such knowledge, senior management



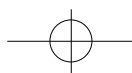


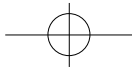
will be in a better position to monitor and evaluate futures market hedging activity.

Books and Records and Procedures

Overview of Paperwork Flow and Related Control Procedures

- Place order with FCM or the broker on the floor of the Exchange, or through the NYMEX ACCESS® electronic trading system.
- Prepare internal trading ticket
- Copy of trading ticket forwarded to:
 - Accounting department
 - Auditing (broker reconciliation) department
- Record trade on daily buy and sell registers for updating of open position reports
- Account for numerical sequence of all trade tickets
- Prepare listing of trades by broker for use in daily confirmation process
- Update open futures position report
- Reconcile open futures position report to prior day's report
- Notify independent officer of any discrepancies
- Produce reports by trader with daily, weekly, and year-to-date results, realized and unrealized and open contracts
- Compare to pre-established trading limits
- Enter settlement prices and produce mark-to-market report
- Produce daily variation margin report
- Compare broker's advice of variation margin due or owed
- Request/transmit funds
- Reconcile monthly brokerage account statements to appropriate internal reports
- Produce hedge performance report





CHAPTER FIVE – ACCOUNTING AND FINANCIAL REPORTING

Opening the Hedge Account

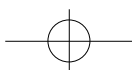
The first step in initiating a futures hedging transaction is making the original margin deposit to activate the account with the FCM. The deposit of cash with the FCM (and the FCM with the Exchange clearinghouse) is entered on the books of the company through the cash disbursements register and normal journal entry procedures. (In lieu of cash, the company may deposit U.S. Treasury bills, marginable at 95% of par, thereby minimizing interest opportunity cost.) All subsequent margin activity with respect to open contract positions due to changes in contract values would be posted to the original margin deposit account (or due to/due from the FCM account) in the general ledger with the offset either to the balance sheet or other comprehensive income or through the income statement as an unrealized gain or loss. The accounting entries to record original margin deposits are reflected in Chapter 2.

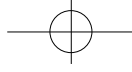
Documenting the Trade

Once a trade has been executed, the source document for posting to the books of original entry and related records is typically the multipart internal trade ticket prepared at the trader's desk. The internal trade ticket should contain information similar to that which would be included in any standard purchase (sales) order for a cash market transaction. The internal trade ticket should contain, at a minimum, the information reflected on the hypothetical trade ticket of DistributorCo. in Figure 4. (See short hedge example in Chapter 2.)

Copies of the trade ticket should be sent to various departments (such as accounting, data processing, operation, and inventory control) and, in some cases, to the FCM who executed the order. A copy would also be sent to the department head who approves the trader's transactions.

The trader should also retain a copy of the internal ticket, which would become the source for a manually prepared day log indicating all the information on the trade ticket and providing space to record the actual execution price and time of execution.





Monitoring Open Futures Contract Values

A further analysis is necessary to verify the daily change in value of futures contracts. Each day's settlement prices are entered into a copy of the open position report and a calculation of the difference between the original transaction price and the settlement price is made. The difference between transaction price and settlement price is multiplied by the number of contracts and the unrealized gain or loss computed. The change in value from the preceding day is determined and appropriate action is taken on margin deposit requirements or increased equity available for investment or withdrawal. This is generally referred to in the trade as the marked-to-market gain or loss. In addition, this ledger-type report could have additional columns for margin deposit requirements and for round-turn commissions.

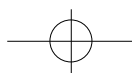
Monitoring Trader Position Limits and Variation Margin

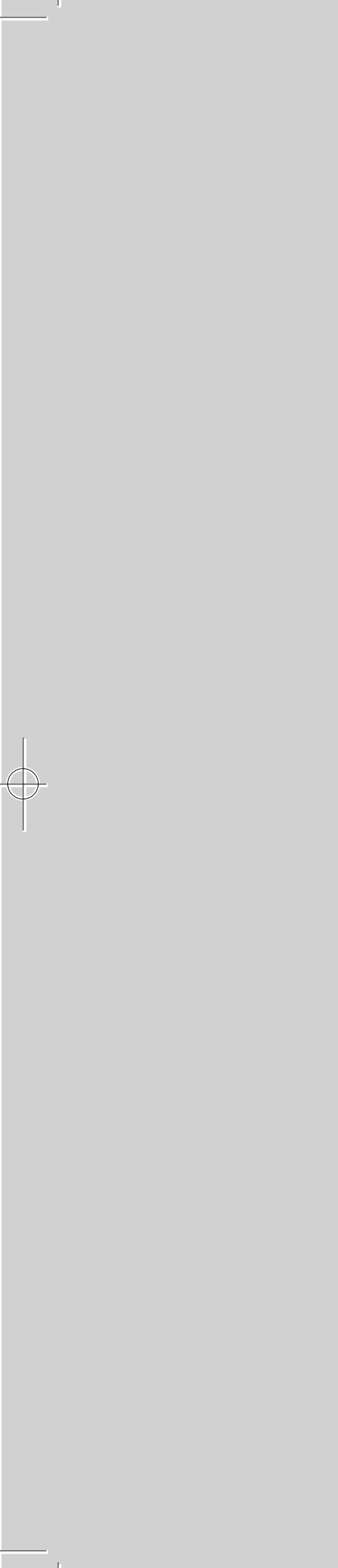
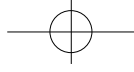
An open contract position report should also be maintained by the trader and, if more than one FCM is used for trade execution, a separate report should be prepared for each FCM. The open position report by the trader is used to ensure that he complies with pre-established position or contract limits. The broker report serves as the basis for verifying daily margin calculations. It should be prepared by a department independent of the trading function (for example, accounting or operations). A copy of this report should also be furnished to the treasurer. The treasurer should authorize transfer of additional margin deposits only after reviewing this report. The report also enables the treasurer to authorize withdrawal or investment of an increase in equity with the FCM due to favorable contract price changes.

Hedge Performance Ledger

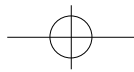
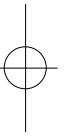
A so-called perfect hedge occurs if basis remains the same after the hedge is placed; in other words, the loss in the cash position is equal to the gain in the futures position or vice versa. However, for a variety of reasons, basis between spot and future prices will vary over the life of a hedge and change in basis should be carefully monitored. A hedge performance ledger can be introduced to track changes in the value of both the hedge and the item being hedged. Hedge performance should be measured daily (especially for entities engaging in a high volume and level of transactions when the markets are volatile) and reviewed by the risk committee.

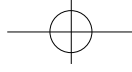
A hedge performance tracking system focuses attention on the economic results of





open hedges at a point in time. It assists all relevant levels of management to determine whether the hedge is performing as expected. The tracking ledger results are only a valid decision-making tool if the information input into the system (or manually retrieved and entered on a worksheet) is accurate, complete, and timely. Therefore, the data should be checked from supporting books and records (for example, open position report) and source documents (such as a trade ticket).





The Accounting Rules

In June 1998, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (FAS) No. 133 *Accounting for Derivative Instruments and Hedging Activities*. FAS 133 represents a comprehensive framework of accounting rules that standardizes the accounting for all derivative instruments. FAS 133 was amended by FASB Statements 137 and 138. FAS 137, *Accounting for Derivative Instruments and Hedging Activities — Deferral of the Effective Date of FASB Statement No. 133*, changed the effective date of implementation to fiscal quarters of all fiscal years beginning after June 15, 2000.

FAS 138, *Accounting for Certain Derivative Instruments and Certain Hedging Activities - an Amendment of FASB Statement No. 133*, addressed a limited number of issues causing implementation difficulties for numerous entities that apply FAS 133. These issues include scope exceptions, definition of specific risks that can be identified as the hedged risk, fair value and cash flow hedges of recognized foreign-currency-denominated assets and liabilities, and designation of certain intercompany derivatives as the hedging instrument.

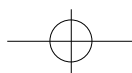
The standard applies to all entities that use derivatives for speculating and hedging. Derivatives include futures, options, forwards, swaps, and many other financial instruments that meet the definition of a derivative as set forth in FAS 133.

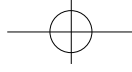
Accounting for speculative futures contracts is relatively simple. All speculative contracts must be recognized at fair value on the reporting date. The gain or loss on the contract is recognized in income as it occurs. The accounting for derivatives designated as hedging instruments is also set forth in FAS 133.

FAS 133 represents a significant departure from previous accounting practices. Implementation of FAS 133 will require companies to modify their accounting practices including documentation, accounting, and financial reporting.

The General Rule

FAS 133 requires all derivatives including futures contracts to be marked-to-market and recorded on entities' balance sheets as separate assets or liabilities at fair value. Specific criteria are required by FAS 133 when derivatives are used for "hedge accounting." While all gains and losses on the derivative hedging instrument are recognized, such gains and losses are recognized in either other comprehensive income or





current earnings. FAS 133 sets forth three types of hedging relationships:

- Cash Flow
- Fair Value
- Foreign Currency

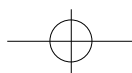
Specific rules apply to each type of hedge relationship to qualify for special accounting. To the extent that hedges are effective, the gain or loss on the derivative will be matched with the loss or gain on the underlying exposure.

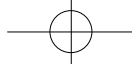
Hedging

Futures transactions can be used to manage the risk of price changes. A futures contract can be used to hedge against the risks of owning an asset, a liability, or having entered into a firm commitment. Hedge transactions involving these risks are known as fair value hedges. For fair value hedges, matching of gains and losses is accomplished by adjusting the hedged item to fair value each period for the risk being hedged. A futures contract used to hedge the variability in the cash flows of a transaction that is expected to occur in the future is a cash flow hedge.

For cash flow hedges, matching gains and losses is accomplished by deferring the gain or loss on the derivative until the underlying transaction occurs. The deferral of gain or loss is recorded in other comprehensive income. FAS 133 recognizes both types of hedges for accounting purposes. FAS 133 requires that certain criteria be met for all types of hedges to qualify for hedge accounting:

- At the inception of the hedge, there must be formal documentation of the hedging relationship and the entity's risk management objective and strategy for undertaking the hedge, including identification of the hedging instrument, the hedged item, the nature of the risk being hedged, and means of measuring the effectiveness of the hedging instrument.
- At the inception of the hedge and on an ongoing basis, the hedging relationship is expected to be highly effective in achieving offsetting changes in fair value or





cash inflows or outflows attributable to the hedged risk during the period that the hedge is designated. An assessment of effectiveness is required whenever financial statements or earnings are reported, and at least every three months.

Hedging Existing Assets, Liabilities, and Firm Commitments

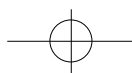
If a futures contract qualifies as a fair-value hedge, the gain or loss on the contract shall be recognized currently in earnings. The gain or loss (that is, the change in the fair value) on the hedged item attributable to the hedged risk shall adjust the carrying amount of the hedged item and also be recognized currently in earnings. If the fair value hedge is fully effective, the gain or loss on the hedging instrument would exactly offset the loss or gain on the hedged item attributable to the hedged risk. Any difference between the change in fair value of the derivative and the change in fair value of the hedged item will result in hedge ineffectiveness. All hedge ineffectiveness is recognized currently in earnings.

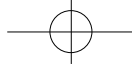
An entity can exclude part of the change in fair value from the assessment of hedge effectiveness, for example, options time value. If time value is excluded from the assessment of hedge effectiveness, it will be recognized in earnings as its fair value changes but does not affect the measurement of effectiveness.

Recording the hedged item at fair value and recognizing the change in fair value in earnings is a change in accounting practice. For example, if an entity is hedging its existing commodity inventory, it would identify a derivative which will change in value in a manner similar to the inventory. The inventory, once designated as the hedged risk, will be adjusted to fair value each period and the change recognized in earnings. Similarly, the derivative will be recorded at fair value and changes in its value will be recognized in earnings. Historically, the inventory of many companies would not be recorded at fair value when a hedging relationship was established.

Hedging Forecasted Transactions

Forecasted transactions are transactions that an entity expects to occur but is not obligated to carry out during its normal operations. The term "forecasted transaction" in FAS 133 is not intended to include transactions that qualify as firm commitments,





even though such transactions also occur in the future. Hedges of unrecognized firm commitments are considered fair-value hedges since the price or terms of the contract are fixed. In contrast, hedges of forecasted transactions (which involve the variability of cash flows) are considered cash-flow hedges under FAS 133 .

The primary purpose of a cash-flow hedge is to link together a hedging instrument and a hedged item whose changes in cash flows are expected to offset each other. In order to achieve this offsetting or "matching" of cash flows, FAS 133 requires that changes in the fair value of the futures contract (which is designated as a cash-flow hedge) be (1) initially reported as a component of other comprehensive income outside earnings and (2) later reclassified to earnings in the same period or periods during which the hedged transaction affects earnings (such as when a forecasted sale actually occurs. Only the effective portion of a futures contract's gain or loss is reported in other comprehensive income, and the ineffective portion is reported currently in earnings).

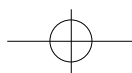
Required Disclosures

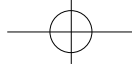
A company that accounts for futures contracts as hedges must:

- Disclose its objectives for holding or issuing those instruments, the context needed to understand those objectives, and its strategies for achieving those objectives. The description shall distinguish between contracts designated as fair value hedging instruments and contracts designated as cash flow hedging instruments.
- The description also shall indicate the entity's risk management policy for each of those types of hedges, including a description of the items or transactions for which risks are hedged.
- Qualitative disclosures about an entity's objectives and strategies for using derivative instruments may be more meaningful if such objectives and strategies are described in the context of an entity's overall risk management profile. If appropriate, an entity is encouraged, but not required, to provide such additional qualitative disclosures.

Certain Observations on FAS 133

- *Hedge effectiveness* A hedging relationship between the hedging instrument and the hedged item must be highly effective in achieving the offset of changes in those fair values or cash flows that are attributable to the hedged



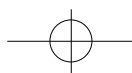


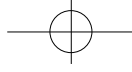
CHAPTER SIX – FEDERAL INCOME TAXES

risk, both at the inception of the hedge and on an ongoing basis. Effectiveness could thus be viewed as the derivative instrument's ability to generate offsetting changes in the fair value or cash flows of the hedged item. The high-effectiveness requirement is intended to have the same meaning as the "high correlation" requirement in FAS 80, which has been interpreted in practice, and by the Securities and Exchange Commission, to mean that cumulative changes in the value of the hedging instrument should be between 80% and 125% of the inverse cumulative changes in the fair value or cash flows of the hedged item.

- *Cross Hedging*– Many entities do not buy or sell futures contracts in the same commodity or financial instrument as the item being hedged. This is permissible under FAS 133 if all criteria for qualifying as a hedge are met and the hedge is effective.
- *Normal Purchases and Normal Sales*– FAS 133 establishes a definition of a derivative instrument. The standard also establishes certain exclusions from the definition. One of those exclusions is a normal purchase and sale contract. Contracts that contain net settlement provisions, such as futures contracts, may qualify for normal purchases and sales if it is probable that the contracts will not settle net and will result in physical delivery. In such cases, these contracts may be exempt from the requirements of FAS 133. However, net settlement of such contracts should be rare and would call into question the classification of such contracts as normal purchases and normal sales. Accordingly, contracts that require cash settlements or otherwise settle gains and losses on a periodic basis do not qualify for this exception.
- *Basis differential* - Potential basis differences may arise in commodity contracts because of quality, grade, and location factors. Such factors affect the underlying commodity subject to the hedge and the value of the hedging instrument. If the basis differential is significant, the hedge may not be effective.

For fair value hedges, both the derivative and underlying exposure is recorded at fair value at each reporting date. Any hedge effectiveness is recognized as it occurs. There are several methods that are permissible to measure hedge effectiveness. One method is known as the hypothetical derivative method. If the hedge is effective, the company will be required to keep track of the difference between the chosen hedge instrument and that of a "perfect contract". A "perfect contract" is a hedge instrument that would best hedge a given risk. The difference between the actual hedge instrument and the "perfect contract" would be recognized in current earnings as hedge ineffectiveness.





Financial statements will be affected by how a futures contract is classified and used by a company. An understanding of the hedging requirements under FAS 133 is important to be able to monitor and manage how hedge instruments will affect both income and financial position.

Options

Options on futures are another hedging alternative. Purchasing an option gives the holder the right but not the obligation to enter into a long (or short) position in the underlying commodity futures contract at a predetermined price during a specified period. A call options contract gives the holder the right to buy, and a put options contract gives the holder the right to sell. The exercise price of an option is called its strike price.

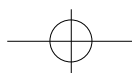
The holder of a call or put options contract pays a premium for the right to exercise into a futures position. The price paid to purchase options depends primarily on the exercise price relative to the current market price of the underlying commodity futures contract, the term of the options, the volatility of the price of the underlying futures markets, and the cost of funding.

As with futures and forward contracts, exchange-traded options contracts can be used to protect against adverse changes in commodity prices. The most common form of hedging with options contracts involves purchasing a call or a put. The advantages of being a holder of an options contract -- as opposed to a buyer or a seller of a futures or forward contract -- are that the holder retains the ability to profit from favorable changes in prices and limits his risk to no more than the premium paid for the options contract.

Options also are included within the scope of FAS 133. Option contracts must be marked-to-market and recorded on entities' balance sheets as separate assets or liabilities at fair value.

Hedge Accounting

Criteria discussed for futures contracts are also applicable to options contracts. While all gains and losses on the derivative hedging instrument are recognized, such gains and losses are recognized in either other comprehensive income or current earnings. Options premiums will generally result in hedge ineffectiveness as time value changes, and must be recorded based upon its fair value at each reporting date. Special rules apply to written options and users should refer to FAS 133 and their accounting



advisors.

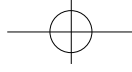
FASB Financial Instruments Project

The FASB continues to analyze the accounting and disclosure requirements of all financial instruments, including futures. As a result of this project, several standards were issued in recent years:

- Statement of Financial Accounting Standard No. 105, *Disclosure of Information about Financial Instruments with Off Balance-Sheet Risk and Financial Instruments with Concentration of Credit Risk*
- Statement of Financial Accounting Standard No. 107, *Disclosure about Fair Value of Financial Instruments*.
- Statement of Financial Accounting Standard No. 119, *Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments* .
- Statement of Financial Accounting Standard No. 133, *Accounting for Derivative Instruments and Hedging Activities*.

FAS 133 supersedes FAS 80, *Accounting for Futures Contracts* as well as FAS 105 and 119. The statement amends FAS 107 to include in Statement 107 the disclosure provisions about concentrations of credit risk from Statement 105. FAS 133 also nullifies or modifies the consensus reached in a number of issues addressed by the emerging issues task force. The FASB continues to deliberate issues relating to accounting for derivatives as described in FAS 133 and has issued numerous interpretations and provisions that clarify the original statement.

A company contemplating or entering into futures trading should assess the ramifications of the applicable statements and continue to monitor further developments of the FASB's financial instruments project.



Background

This chapter addresses the general tax issues associated with derivative instrument transactions used in connection with business operations or investment activities. In general, the tax consequences associated with derivative instruments depend upon whether the transaction qualifies as a hedging transaction for tax purposes. It is necessary to consider the tax hedging rules apart from the availability of hedge accounting, as the two areas do not necessarily coincide.

The following discussion is intended to provide a general overview of the tax rules applicable to certain derivative instruments, and not as advice with respect to any particular transaction. Please consult a tax advisor regarding specific facts and circumstances prior to entering into any contemplated transaction.

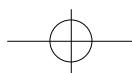
No n-Hedging Transactions

Where a derivative instrument does not qualify as a hedging transaction for tax purposes, it is necessary to consider other applicable tax rules. The form of the derivative generally controls the treatment, and in many cases, economically similar instruments produce differing results.

Internal Revenue Code Section 1256 Contracts

In general, Section 1256 provides that Section 1256 contracts must be marked-to-market at year-end and that associated gains and losses be treated as capital gains and losses, with 60% characterized as long-term capital gains or losses and 40% characterized as short-term capital gains and losses. Section 1256 contracts include:

- Regulated futures contracts
- Foreign currency contracts
- Non-equity options
- Dealer equity options.



CHAPTER SEVEN – INTERNAL AUDIT

A taxpayer may make certain elections such that the general Section 1256 rules will not apply. Such an election may be made for mixed straddles (that is straddles where at least one, but not all, of the positions are Section 1256 contracts, see page 58). In addition, the general rules of Section 1256 do not apply in the case of a hedging transaction. A Section 1256 hedging transaction must satisfy the following conditions:

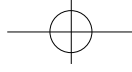
- Entered into by the taxpayer in the normal course of business primarily to reduce risk of changes to prices, foreign exchange rates, or interest rates.
- The gain or loss on such transaction is treated as ordinary income or loss.
- Before the close of business on the day on which the transaction was entered into, the taxpayer clearly identifies the transaction on the day of inception as being a hedging transaction.

To the extent that hedging transactions use futures contracts traded on a domestic board of trade, options on futures contracts, or options on physicals traded on a national exchange, or forward contracts on currencies for which there is also a futures contract, Section 1256 will apply.

Options

An options contract confers up on the holder the right, but not the obligation to purchase or sell a futures contract at a definite price by a specified future date. Generally, the options holder does not realize any gain or loss on the purchase of an options contract or on the exercise of the rights derived under the options contract -- purchasing the underlying property. A taxable event occurs when the option itself is either sold or exchanged, or the options contract is allowed to expire with the character of the resulting gain or loss determined by reference to the underlying commodity futures contract that would be purchased if the option were exercised. If the option is exercised through physical settlement, the amount paid for the options contract is added to the options holder's basis in the underlying commodity.

The grantor, or writer, of an options contract does not realize gain or loss until the option is exercised, expires, or is otherwise disposed of in a closed transaction. The writer's options premium -- the amount received for the option -- is deferred from taxable income until a taxable event occurs -- that is, when the transaction is completed. When the writer of an options contract recognizes gain from the failure of the options holder to exercise the options contract then the writer treats the gain as ordinary



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income. Additionally, gain or loss realized by the writer from the exercise or expiration of an option on stock, securities, commodities, or futures is treated as short-term capital gain or loss.

Section 988

Section 988 deals with foreign currency transactions and provides that certain foreign exchange gains or losses are treated as ordinary income or loss. Section 988 transactions generally include the following if the amount that the taxpayer is entitled to receive or required to pay is denominated in currency other than the functional currency of the taxpayer or is determined by reference to the value of one or more non-functional currencies:

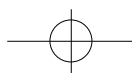
- Acquiring a debt instrument or becoming the obligor under a debt instrument.
- Accruing any item of expense, gross income, or receipt that is to be paid or received after the date on which the accrual is to be taken into account.
- Entering into or acquiring any forward contract, futures contract, options contract, or similar financial instrument.
- Disposing of any non-functional currency.

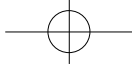
The positions in a Section 988 transaction may be integrated into a single synthetic debt instrument if they are part of a Section 988 hedging transaction, generally defined as a transaction entered into primarily to reduce the risk of currency fluctuations. The hedge must mature on or before the date the debt instrument matures and must permit calculations of a yield to maturity in the currency in which the integrated debt instrument is denominated. In addition, the hedge and the debt must be fully integrated, and the taxpayer must comply with certain identification requirements.

For purposes of determining whether an exchange-traded gain or loss is recognized on the synthetic debt instrument, the instrument is denominated by reference to either the currency to be received or paid under the hedge instrument. Where the application of these rules results in a functional currency denominated synthetic debt instrument, the taxpayer will not recognize gain or loss under Section 988 but, rather,

pursuant to the original issue discount rules. Where the synthetic debt instrument is denominated in a non-functional currency, the taxpayer will recognize any exchange gain or loss in accordance with the general rules of Section 988.

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