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Review Answer On

⌚ This Question: 00:01   ⌚ Total: 06:06   Done Practicing

Introduction to Commodities and Commodity Derivatives

✓ **Correct**

	Correct Answer	Your Answer
A	A	✓
B		
C		

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Mary McNeil is the corporate treasurer at Farmhouse, which owns and operates several farms and ethanol production plants in the United States. McNeil's primary responsibility is risk management. Katrina Falk, a recently hired junior analyst at Farmhouse, works for McNeil in managing the risk of the firm's commodity price exposures. Farmhouse's risk management policy requires the use of futures to protect revenue from price volatility, regardless of forecasts of future prices, and prohibits risk managers from taking speculative positions.

McNeil meets with Falk to discuss recent developments in two of Farmhouse's commodity markets, grains and livestock. McNeil asks Falk about key characteristics of the two markets that affect revenues and costs. Falk tells McNeil the following:

Statement 1 The life cycle for livestock depends on the product and varies widely by product.

Statement 2 Grains have uniform, well-defined seasons and growth cycles specific to geographic regions.

A material portion of Farmhouse's revenue comes from livestock exports, and a major input cost is the cost of grains imported from outside the United States. Falk and McNeil next discuss three conclusions that Falk reached in an analysis of the grains and livestock markets:

Conclusion 1 Assuming demand for grains remains constant, extreme heat in the regions from which we import our grains will result in a benefit to us in the form of lower grain prices.

Conclusion 2 New tariffs on cattle introduced in our primary export markets will likely result in higher prices for our livestock products in our local market.

Conclusion 3 Major improvements in freezing technology allowing for longer storage will let us better manage the volatility in the prices of our livestock products.

McNeil asks Falk to gather spot and futures price data on live cattle, wheat, and soybeans, which are presented in Exhibit 1. Additionally, she observes that (1) the convenience yield of soybeans exceeds the costs of its direct

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Exhibit 1:

Selected Commodity Price Data*

Market	Live Cattle Price	Wheat Price	Soybeans Price
Spot	109	407	846
Futures	108	407	850

* Live cattle: US cents per pound; wheat and soybeans: US cents per bushel.

A key input cost for Farmhouse in producing ethanol is natural gas. McNeil uses positions in natural gas (NG) futures contracts to manage the risk of natural gas price volatility. Three months ago, she entered into a long position in natural gas futures at a futures price of $2.93 per million British thermal units (MMBtu). The current price of the same contract is $2.99. Exhibit 2 presents additional data about the three-month futures position.

Exhibit 2:

Selected Information—Natural Gas Futures Three-Month Position*

Commodity	Total Current $ Exposure	Position	Prices	
			Near-Term Futures (Current Price)	Farther-Term Futures
Natural Gas (NG)	5,860,000	Long	2.99	3.03

* NG: $ per MMBtu; 1 contract = 10,000 MMBtu.

The futures position is fully collateralized earning a 3% rate. McNeil decides to roll forward her current exposure in the natural gas position.

Each month, McNeil reports the performance of the energy futures positions, including details on price returns, roll returns, and collateral returns, to the firm's executive committee. A new committee member is concerned about the negative roll returns on some of the positions. In a memo to McNeil, the committee member asks her to explain why she is not avoiding positions with negative roll returns.

Practice Problem

Q. Based on Exhibit 2, the total return from the long position in natural gas futures is *closest* to:

A. 1.46%.
B. 3.71%.

Correct

	Correct Answer	Your Answer
	A	✓
	B	
	C	

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A is correct. The total return for a fully collateralized position is the sum of the price return, the roll return, and the collateral return:

Price return = (Current price − Previous price)/Previous price

= (2.99 − 2.93)/2.93

= 2.05%.

Roll return = (Near-term futures closing price − Farther-term futures closing price)/Near-term futures closing price × Percentage of position in futures contract being rolled

= [(2.99 − 3.03)/2.99] × 100%

= −1.34%.

Collateral return = Annual rate × Period length as a fraction of the year

= 3% × 0.25

= 0.75%.

Therefore, the total return for three months = 2.05% − 1.34% + 0.75% = 1.46%.

Correct

Correct Answer	Your Answer
A	✓
B	
C	

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