Econ Essentials

DIGITAL LESSON BUNDLE

Implementation Guide for Educators

#1: Futures Markets and Managing Risk

Objectives

Students will:

- **Describe** how price fluctuations present risks to both consumers and businesses.
- **Predict** price-related risks a business might encounter.
- **Analyze** a business' risks and determine how futures could help to address them.
- **Categorize** hedgers as buy-side or sell-side.
- **Explain** the role of speculators in providing liquidity in futures markets.

Overview

Fluctuations in price often cannot be controlled. However, businesses and individuals can use futures contracts to address price risks they face in the global marketplace. In this two-session lesson, students are first introduced to the notion of price fluctuation by exploring the historic prices of six common items. After discussing how consumers are impacted by price swings, the lesson shifts to a discussion of how businesses are impacted by price risk. Students participate in an activity to find partners and create matched pairs of companies and a price risk each might encounter. In the second session, students learn what futures contracts are and how businesses can use them as a tool to manage their price risk exposure. They learn about different market participants, including hedgers and speculators. They explore both buy-side and sell-side hedgers and real-world examples of each. Finally, they discover the importance of speculators and why liquidity is essential for a functioning marketplace.

Content Areas

Economics, Business, Entrepreneurship, Finance

Suggested Time

2 full class periods of approximately 45–50 minutes each

Grade Level

Grades 9–12

Essential Questions for Students

- What are futures?
- Why do businesses use futures contracts to hedge against risk?
- How do futures play a role in everyday life?

Key Vocabulary

Price, price fluctuations, risk, futures, commodities, futures contracts, hedgers, speculators, technical analysis, fundamental analysis, candlestick chart

Materials

Both Sessions

- Futures Markets and Managing Risk Implementation Guide
- The Futures Marketplace: An Introduction for Educators—one copy
- Computer with projector, television, or interactive board

Session 1

- Futures Markets and Managing Risk PowerPoint Slides 1–18
- **Price Fluctuations Student Capture Sheet**—one copy per student
- **Business Risk Matching Activity**—enough cards that each student has one, cut apart in advance
- Internet access for students to conduct research in small groups

Session 2

- Futures Markets and Managing Risk PowerPoint Slides 19–31
- **What is a Hedger? Student Capture Sheet**—one copy per student
- **Hedgers in Action Student Capture Sheet**—one copy per student
- Sticky notes or scrap paper and tape—one per student (optional)

Background

Prices on many goods and services fluctuate all the time. From the gas people put in their cars to the price of eggs at the grocery store, these fluctuations impact consumers on a regular basis. The same is true for businesses. Farmers and ranchers, for example, face fluctuating prices for their crops and livestock. Manufacturers encounter price swings in the raw materials they use to bring their products to market. These price fluctuations, along with similar shifts in interest rates and foreign currency exchange rates, are what bring many businesses to the futures marketplace.

By entering into futures contracts, businesses and individuals are either trying to manage their risk exposure or make money as an investor when prices fluctuate. Consider the farmer who often must decide how much of a crop to plant well before they know the price at which they can sell it. With many factors influencing prices, there can be significant variability. If the price is lower than expected, farmers risk making little or no profit. Enter futures contracts. That farmer can use futures contracts to lock in the price of their corn for delivery on a future date, regardless of the conditions that year that may have

THE FUTURES MARKETPLACE: AN INTRODUCTION FOR EDUCATORS

Want to better understand futures and the concepts and vocabulary students are likely to encounter in this lesson? Download this easy-to-understand resource designed just for educators.

negatively affected their harvest. In doing so, they become hedgers. In this lesson, students will focus on buy-side and sell-side hedgers concerned about price increases and decreases, respectively.

This digital lesson bundle helps to scaffold student learning by providing them with a connection to their own lives. They begin by considering the prices of everyday items and conduct research on historical price fluctuations using data available from the Federal Reserve Bank of St. Louis. Consider exploring the graphs and information students will encounter and explore in the lesson in advance so you can answer questions and guide student learning.

Building on this knowledge of price fluctuations, students consider price risks faced by businesses. The lesson uses examples from multiple industries. Some may be more familiar to students than others. For example, students in rural communities or those with a solid connection to agriculture may identify more easily with the farming and ranching examples.

To help make these concepts more relatable to students, this lesson includes examples connecting futures products to an everyday bowl of cereal. If desired, you can add additional examples that you think would resonate with your students, their experiences, and their interests.

Using this Guide

This guide aims to prepare educators to use this digital lesson bundle. It provides slide-by-slide instructions to ensure educators are prepared to explain, discuss, and facilitate the hands-on content in the presentation. The lesson is designed to cover two class sessions, but it can be flexible depending on the students' needs and available time.

The accompanying presentation was created with PowerPoint so that it can be used in a variety of classrooms. If you display the slides on a projector or television, simply progress through the PowerPoint by clicking to advance. All of the interactive aspects of the presentation occur with a click. The interactives may include images, text boxes, and links in your web browser. If you are using an interactive whiteboard, tap on each slide with your finger or stylus to activate the interactive aspects of the presentation. In the notes for each slide, there will be information on how to proceed.

EXPAND YOUR UNDERSTANDING OF FUTURES

Want to learn more about futures? Futures Fundamentals offers introductory information on futures that is appropriate for students and educators. For those wishing to dive even deeper, check out some free resources available on the site. Those related to this Digital Lesson Bundle include:

- Introduction to Futures
- Definition of a Futures Contract
- Understanding the Role of Hedgers
- The Benefits of Liquidity

Procedure

SESSION 1

ENGAGE | Slides 1–5

Overview

The session begins with an activating strategy that taps into students' prior knowledge about prices. Students consider common household expenses and their current prices. They then research historic price fluctuations for each.

Slide 1

- Ask students how much they know about the prices of everyday items.
- Pose one or more **follow-up** questions:
    - When was the last time you were at a grocery store?
    - Do you pay attention to the prices of items in a store?
    - Have you heard anyone in your family talk about the prices of items like groceries or gas?

Slide 2

- Ask students if their answers would change much based on the items shown. How close do they think they could get to the price of each of the items today?
- Direct students to work with a partner to order the items from lowest to greatest cost.
- Specify the following amounts for students as they consider the prices:
    - Bacon: one pound of uncooked bacon
    - Bread: one loaf of white bread
    - Coffee: one pound of ground coffee
    - Eggs: one dozen large eggs
    - Gas: one gallon of regular unleaded gas
    - Milk: one gallon of whole milk
- Ask pairs to submit their ordered lists with their names on them on a scrap piece of paper or electronically. Let students know that you will revisit these lists shortly.
- Inform students that the price of many common items is tracked on a regular basis by the federal government, including each of the ones shown.

Slide 3

- Share with students that the graphs show the price of two common grocery items: sugar and orange juice concentrate from which orange juice is often made.
- Explain that the horizontal or X-axis shows years while the vertical or Y-axis shows the price. The ups and downs they see in the chart point out **price fluctuations** for each item.

- Ask what they notice when looking at the two graphs. Do they see any trends? Do they have any questions about the graphs? If a student asks, let them know that the shaded areas represent periods of inflation.
- Share that the graphs come from a resource called FRED (short for Federal Reserve Economic Data) from the Federal Reserve Bank of St. Louis.
- Optional: Click on each image to access a live version of each graph on FRED. Doing so allows access to interactive features, including changing the timeframe and determining the price at specific points in time.
- Let students know that they will be using FRED to collect information on the six items for which they ordered prices.

Slide 4

- Distribute a copy of the **Price Fluctuations Student Capture Sheet** to each student.
- Invite students to work in groups to access the graphs in FRED for each item on the list. Groups can look up the information for all of the items, or you can assign groups to specific items.
- Fill in the table in editing mode with the information students provide.
- Use the most recent pricing information and order them from lowest to highest. Determine if any of the groups ordered them correctly and acknowledge correct answers.
- Debrief by asking the following questions:
    - Which of the items fluctuated the most in price over time? What about the least?
    - Do you have any ideas about why the prices changed so much at specific times?

Slide 5

- Ask students how price fluctuations relate to risk, in particular for the budgets of individuals and families.
- Discuss the challenge of rising food prices and the ability to control grocery costs and the impact of gasoline prices on people who drive to school, work, and other places.
- Challenge students to consider if consumers have a way to protect themselves from the risks posed by price fluctuations.

APPLY | Slides 6–18

Overview

You will continue this session by applying the concept of price fluctuation and risk to businesses. Students will engage in a match-making activity in which half of the students receive cards with a business, and the other half receive potential price risks. Challenge students to create matching pairs. Use the slides to explain and discuss the risks in the activity.

Slide 6

- Share with students that businesses, like people, also face risks.
- Discuss the example on the slide. Challenge students to consider why the price of corn matters to a cereal company. As a primary ingredient, if corn prices increase, then the cost to produce the

cereal increases. The business either makes less profit or needs to increase the price of its product. If it raises the price, fewer people may purchase the cereal.

- Inform students that less than 2% of the corn produced in the United States is used for cereal. (Source: U.S. Corn Growers Association)
- Prompt students to identify one or more other businesses impacted if corn prices rise. Examples include beef and chicken farms that use corn to feed their animals, producers and users of ethanol (a fuel made from corn), and companies that make or use common corn-based ingredients, such as cornstarch and high-fructose corn syrup.

Slide 7

- Connect the price fluctuations students explored for consumer products with this graph showing the **producer** price for corn.
- Optional: Click on the graph to open the interactive version of the chart on FRED. Explore the graph by adjusting the years shown and other features, as desired.
- Explain that businesses, farmers, investors, and others closely watch the price of commodities such as corn because of the impact these price swings can have on their businesses and the economy overall.

Slide 8

- Inform students that you want them to explore other businesses and price risks each might encounter. Provide each student with a card. The smaller cards with words in bold represent the businesses, and the larger cards with sentences describe the risks.
- Students should move about the room until they find a partner whose card makes a match—a business and its associated risk. Let them know there will be duplicate pairs but that each card should have a match.
- Provide each student with a card from the **Business Risk Matching Activity Student Handout**. If you have an odd number of students, pair two students and have them work together.
- Allow time for students to find their matches. If desired, they can find others with the same cards and matches to form a larger discussion group.
- Direct students to discuss the business and risk. What impact would it have on the business?

Slide 9

- Review business and risk matches with the following slides.
- For each one, direct students to raise their hands if they had the match. In this case, Resort Developer with Severe storms cause delays in construction.
- Call on students with these cards or others to answer the question shown: What impact would a construction delay have on the developer of a resort?

Slide 10

- Direct students to raise their hands if they had this match:
    - **Restaurant Chain:** Fluctuations in the price of beef can lead to unpredictable profits.
- Call on those or other students to answer the question shown: What influences the price restaurants pay for beef?

Slide 11

- Click to reveal various factors that influence beef prices. Comment on any factors students may have mentioned in their previous responses.
- Challenge students to consider which, if any, factors a restaurant can control.
- Discuss the inability of restaurants to control these costs and the impact that might have on a restaurant.
- Ask students how changes in beef prices for restaurants might impact them as consumers.

Slide 12

- Ask which students had the match:
  - **University Endowment:** The value of its investments could decrease from changes in U.S. Treasury Bond Rates.
- Students may not be familiar with university endowments. Tell them that people often donate money to the college or university they attended. An endowment usually manages this money, which is invested, hoping its value will increase over time.
- Let students know that university endowments often provide grants and scholarships to students. How well their investments do can influence how many students the endowment can help. One option for investing is in U.S. Treasury Bonds.
- Click and discuss factors influencing bond prices, including interest rates and inflation. Bond prices and market interest rates move in opposite directions, which means when interest rates rise, bond prices fall and vice versa.

Slide 13

- Direct students to raise their hands if they had this match:
  - **Wheat Farmer:** Prices could fall between the time a crop is planted and when it is harvested.
- Call on those or other students to answer the question shown: Why would a change in price influence a farmer's decision about how much to plant?

Slide 14

- Ask which students had the match:
  - **Auto Manufacturer:** Changes in the price of metals could make it hard to sell new products at a low cost.
- Pose the question on the slide, "Which of the previous examples are similar to this one and why?"
- Discuss the relationship between metals and automobiles. The price of metal is a component of the cost of producing a vehicle. The price of fuel for airlines and beef for restaurants also affect those businesses. Like both of those, auto manufacturers have little control over the cost of metal, and price changes can impact their ability to produce a product at a given amount. For consumers, this means that prices of new vehicles could increase if the price of metal is more than expected.

Slide 15

- Direct students to raise their hands if they had this match:
    - **Airline Company:** Rising fuel prices could eat into forecasted profits.
- Share with students that, according to the U.S. Department of Transportation, fuel costs represent approximately 15–20% of airline expenses.
- Discuss the variable nature of fuel costs for airline companies. It changes and can be hard to predict.
- Tell students that the average airplane uses 1 gallon of fuel per second in the air.
- Challenge students to do some quick math. If a non-stop flight from Houston, Texas, to Chicago, Illinois, takes about 2 hours and 35 minutes, how much fuel is used? At about a gallon of fuel per second, the flight would use approximately 9,300 gallons of fuel. Two hours and 35 minutes is equivalent to 155 minutes. Multiplying 155 by 60 gives the number of seconds: 9,300.
- Pose the question shown: How do increasing fuel prices impact people who travel by air? Airlines often pass the increase in price along to consumers, leading to higher ticket prices.
- If students are interested in how much fuel airlines use, share data from the U.S. Department of Transportation's Bureau of Transportation Statistics: https://www.transtats.bts.gov/fuel.asp

Slide 16

- Ask students if any of them know how the price of gasoline is set.
- Play the video, *The Story of Oil*.

Slide 17

- Reinforce that many factors impact the price of gas by revealing each factor and description one at a time. Review each one as they appear.
- Challenge students to think back to the other businesses in the activity and consider which of them might also be impacted by gas prices, in addition to airlines.
- Discuss how the price of gas impacts just about every company that must ship goods to market or relies on some form of transportation to receive raw materials used in production.
- Remind students that futures were mentioned in the video as a tool many businesses use to manage the price risks they face. Let them know that you will explore futures contracts more in the next session.

Slide 18

- Conclude the session by challenging students to write a "six-word story" summarizing the relationship between businesses and risk and/or the impact this risk can have on consumers.
- Call on several volunteers to share their stories.

SIX WORD STORY

This teaching strategy allows students to practice summarizing and selective word choice. Students use what they have learned as the basis for a story that conveys a big idea using only six words.

SESSION 2

CONNECT | Slides 19–31

Overview

This session introduces students to the concepts of futures and how companies come to a futures marketplace to remove risk from their business. Students will watch several videos to learn more about futures, hedging, speculating, and liquidity. Students also examine how futures impact their daily lives.

Slide 19

- Ask students to recall the previous session and the discussion of price risks.
- Remind them that they watched a video on how gas prices are set. Let them know that you are going to replay just a portion of that video.
- Play the video.

Slide 20

- Tell students that you must first understand cash markets before diving into futures. This is the "traditional" method of selling a product. A business makes the product and then sells it to consumers.
- Click and explain that these are often called spot markets because items are bought and paid for "on the spot."
- Click again to show the definition of a futures market. Explain that sale conditions are agreed to in advance for a future time and a specific price in a futures market.
- Click a third time and share that these markets rely on futures contracts that lock in the terms and are traded on futures exchanges.

Slide 21

- Read aloud from the slide about Farmer A.
- Ask students what risks Farmer A faces by using a cash market system. Make sure students understand that one of the risks is that the price of corn could decrease, and Farmer A could make less profit or lose money from the season.
- Click and read about Farmer B.
- Challenge students to consider which approach is better and why.

Slide 22

- Distribute a copy of the **What is a Hedger? Student Capture Sheet** to each student.
- Let them know that they will be completing the handout in pairs after watching a short video. Encourage them to review the handout before watching the video.
- Play the video, *Understanding the Role of Hedgers*.

Slide 23

- Divide students into pairs and provide time for them to complete the graphic organizer.
- Encourage them to write the definition using their own words.
- If needed, replay the video.
- Call on students to share portions of their organizers.

Slide 24

- Review the difference between buy-side and sell-side hedgers.
- Ask students which type of hedger is concerned about rising prices.
- Click to reveal the answers. Buy-side hedgers use futures to protect against the risk of rising prices. Sell-side producers use them to protect against the risk of lower prices.
- Challenge students to consider the examples from the first session.
- Is the producer of bacon a buy or sell-side hedger? Are they more concerned with rising or falling prices of a commodity? Click to reveal the answer. Bacon producers are buy-side hedgers.
- Who are the supply-side hedgers when it comes to bacon? Click to reveal that pig farmers can be supply-side hedgers, since they would be concerned about the price of their livestock falling.

Slide 25

- Remind students that many types of businesses use futures contracts to hedge against risk. While this might seem like an abstract concept, it has an impact on many aspects of their everyday lives.
- If students had a hard time making a personal connection to hedgers when completing the **What is a Hedger? Student Capture Sheet**, encourage them to revisit or add to it as you explore this example.
- Click through and review how a cereal bowl provides examples of the following types of futures:
    - Grain
    - Energy
    - Interest Rate
    - Dairy
    - Steel

Slide 26

- Distribute a copy of the **Hedgers in Action Student Capture Sheet**.
- Divide students into pairs and challenge them to consider the role futures and hedging plays for each business.
- Review answers with students. Some answers may vary depending on student responses.

Business	Commodity Traded	Buy or Sell-Side Hedger
Cereal Manufacturer	Corn or Wheat	Buy-Side
Airline	Jet Fuel	Buy-Side
Restaurant Chain	Beef	Buy-Side
Wheat Farmer	Wheat	Sell-Side
Auto Manufacturer	Metals	Buy-Side

Slide 27

- Share with students that futures exchanges wouldn't work well with hedgers alone. While there are both buy-side and sell-side hedgers, they only make up one side of the trade. Another type of trader—the speculator—is needed to help bring balance to the trade and futures marketplace.

Slide 28

- Inform students that speculators come to the futures marketplace to accept price risk in search of a profit.
- Point out that:
    - Speculators assume risk, rather than try to reduce it.
    - In trading terms, speculating is the opposite of hedging. Hedgers transfer risk to make their costs or profits more predictable. Speculators accept risk in hopes of profiting.
    - Speculation involves complex economic calculations and market forecasts that shape trading decisions. The speculator uses this research to anticipate future price movements and accept market risk in an attempt to profit from buying and selling futures and options contracts.

Some students may recall that there were two other examples of businesses and risks. Discuss each of these, if desired.

- Resort Developer: A developer could use futures to lock in the price of building materials that could rise with delays in construction.
- University Endowment: The example that was discussed previously related to U.S. Treasury Bonds. An endowment could trade interest rate futures related to these bonds as a tool to manage risk.

- Speculators play an essential role in maintaining effective markets because they assume the risk other market participants may not want.
- The two types of trading—hedging and speculating—go hand-in-hand. You can't have a free market without a balance of both.

Slide 29

- Remind students that the video about oil prices mentioned another factor in futures markets: liquidity.
- Point out that liquidity is a result of many hedgers and speculators in a market, making it more balanced and efficient.
- Note that without liquidity in the market and the ability for every buyer to find a seller (and vice versa), the futures market does not work.
- Play the video.

Slide 30

- Ask students what they thought about the goldfish analogy for liquidity. Did it help them to better understand why more participants in a marketplace is better?
- Challenge students to work in small groups or independently to devise their own visual, analogy, or movement-based activity to demonstrate liquidity.
- Share the results in class.

Slide 31

- Ask students if they have ever seen the television game show Jeopardy. Let them know that the premise of the game is that contestants are given clues in the form of an answer and challenged to respond in the form of a question.
- Challenge students to write an answer to which the question would be: What are futures?
- Invite students to share their answers aloud or write them on sticky notes and place them on the board.

National Content Standards

- Voluntary National Content Standards in Economics from the Council for Economic Education
    - Standard 1—Scarcity (Grade 12 Benchmark 1): Choices made by individuals, firms, or government officials are constrained by the resources to which they have access.
    - Standard 2—Decision Making (Grade 12 Benchmark 6): Some decisions involve taking risks in that either the benefits or the costs could be uncertain. Risk taking carries a cost. When risk is present, the costs should be treated as higher than when risk is not present.
    - Standard 7—Markets and Prices (Grade 12 Benchmark 1): Market outcomes depend on the resources available to buyers and sellers, and on government policies.
    - Standard 7—Markets and Prices (Grade 12 Benchmark 4): Shortages of a product usually result in price increases in a market economy; surpluses usually result in price decreases.
    - Standard 8—Role of Prices (Grade 8): Markets are interrelated; changes in the price of one good or service can lead to changes in prices of many other goods and services.
    - Standard 8—Role of Prices (Grade 8): Scarce goods and services are allocated in a market economy through the influence of prices on production and consumption decisions.
    - Standard 8—Role of Prices (Grade 12): Changes in supply or demand cause relative prices to change; in turn, buyers and sellers adjust their purchase and sales decisions.
- The College, Career, and Civic Life (C3) Framework for Social Studies State Standards from the National Council for the Social Studies
    - Economic Decision Making (D2.Eco.1.6-8): Explain how economic decisions affect the well-being of individuals, businesses, and society.
    - Economic Decision Making (D2.Eco.3.6-8): Explain the roles of buyers and sellers in product, labor, and financial markets.
- National Standards for Business Education from the National Business Education Association
    - Economics—Economic Institutions and Incentives (Level 3, Standard 12) Explain the roles of profit and competition in a market-oriented economy.
    - Economics—Economic Institutions and Incentives (Level 3, Standard 16) Explain how efficient production and allocation of goods and services in a market economy are based on pricing information.
    - Economics—Economic Institutions and Incentives (Level 3, Standard 17) Explain why changes in prices of resources create incentives/disincentives for resource allocation in the U.S. economy.
    - Entrepreneurship—Economics (Level 4, Standard 7) Compare and contrast pricing approaches for an entrepreneurial venture.

Price Fluctuations

Directions: Use the QR codes below to access historic price information for each item. Complete the chart with the information you found.

	Price of Each Item					
Item	**Most Recent**	**1 Year Ago**	**5 Years Ago**	**10 Years Ago**	**Highest** (with date)	**Lowest** (with date)
Bacon						
Bread						
Coffee						
Eggs						
Gas						
Milk						

Business Risk Matching Activity

Directions: Make enough copies that each student will have either a business card (left column) or a risk card (right column). Cut the cards along the dotted lines. Distribute one card to each student. If you have an odd number of students, create a pair and have them work together. Keep an uncut copy to check student answers. The business and risk matches are shown next to each other below.

Resort Developer	Severe storms could cause delays in construction.
Airline Company	Rising fuel prices could eat into forecasted profits.
Restaurant Chain	Fluctuations in the price of beef can lead to unpredictable profits.
University Endowment	The value of its investments could decrease from changes in U.S. Treasury Bond rates.
Wheat Farmer	Prices could fall between the time a crop is planted and when it is harvested.
Auto Manufacturer	Changes in the price of metals could make it hard to sell new products at a low cost.

What is a Hedger?

Directions: Complete the graphic organizer.

HEDGER

Definition	**Types**
Examples	**Personal Connection**

Hedgers in Action

Directions: Complete the table with information about how each business could hedge against risk using futures.

Business	Commodity Traded	Buy- or Sell-Side Hedger	Risk(s) Avoided by Hedging
Cereal Manufacturer			
Airline			
Restaurant Chain			
Wheat Farmer			
Auto Manufacturer			