Financial Mathematics

MATH 5870/6870¹ Fall 2021

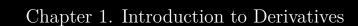
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¹Based on Robert L. McDonald's *Derivatives Markets*. 3rd Ed. Pearson. 2013.



Chapter 1. Introduction to Derivatives

- § 1.1 What is a derivative?
- § 1.2 An overview of financial markets
- § 1.3 The use of derivatives
- § 1.4 Buying and short-selling financial assets
- § 1.5 Problems

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- 1. Risk management. Derivatives are a tool for companies and other users to reduce risks (\sim hedging). Every form of insurance is a derivative.
- 2. Speculation. Derivatives can serve as investment vehicles (\sim betting).
- Reduce transaction costs. Sometimes derivatives provide a lower cost way to undertake a particular financial transaction.
- 4. Regulatory arbitrage. It is sometimes possible to circumvent regulatory restrictions, taxes, and accounting rules by trading derivatives.

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Three perspectives on derivatives

End users	Intermediaries	Economic Observers
Corporations	Market-makers	Regulators
Investment managers	Traders	Researchers
investors		
How to use a derivative	Mathematical details of	Make sense of the market
to meet the goal	pricing and hedging	

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- 1. Facilitate hedging of existing positions
- 2. Allow for creation of customized products
- 3. Enable understanding of complex positions
- 1 Render regulation less effective

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