

Financial Mathematics

MATH 5870/6870¹
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¹Based on Robert L. McDonald's *Derivatives Markets*, 3rd Ed, Pearson, 2013.

Chapter 1. Introduction to Derivatives

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§ 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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Definition 1.1-1 A **derivative** is a financial instrument that has a value determined by the price of something else.

Example 1.1-1 An agreement where

you pay \$1 if the price of corn is greater than \$3

and

you receive \$1 if the price of corn is less than \$1

is a derivative.

This contract can be used to

speculate on the price of corn

or

it can be used to reduce risk.

Hence, it is not the contract itself, but how it is used, and who uses it, that determines whether or not it is risk-reducing. It all depends on context.