

# Financial Mathematics

MATH 5870/6870<sup>1</sup>  
Fall 2021

Le Chen

lzc0090@auburn.edu

Last updated on  
September 13, 2021

Auburn University  
Auburn AL

---

<sup>1</sup>Based on Robert L. McDonald's *Derivatives Markets*, 3rd Ed, Pearson, 2013.

# Chapter 5. Financial Forwards and Futures

# Chapter 5. Financial Forwards and Futures

§ 5.1 Alternative ways to buy a stock

§ 5.2 Prepaid forward contracts on stock

§ 5.3 Forward contracts on stock

§ 5.4 Futures contracts

§ 5.5 Problems

# Chapter 5. Financial Forwards and Futures

§ 5.1 Alternative ways to buy a stock

§ 5.2 Prepaid forward contracts on stock

§ 5.3 Forward contracts on stock

§ 5.4 Futures contracts

§ 5.5 Problems

## Four different payment and receipt timing combinations

1. **Outright purchase**: ordinary transaction
2. **Fully leveraged purchase**: investor borrows the full amount
3. **Prepaid forward contract**: pay today, receive the share later
4. **Forward contract**: agree on price now, pay/receive later

	Day 0	Day $T$	Payment
Outright purchase	pay+receive	—	$S_0$
Fully leveraged purchase	receive	pay	$S_0 e^{rT}$
Prepaid forward contract	pay	receive	?
Forward contract	—	pay+receive	$? \times e^{rT}$