# Chapter 2

# Axioms of modern corporate finance

## Contents

In this chapter we list the axioms we use in the remainder of the book.

## 2.1   The Axioms

### 2.1.1   Financial Markets are Competitive

Most financial markets are examples of the typical *competitive market* of economists, that is, participants in financial markets (individuals, corporations) must take prices as *given*.

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**Example**

The current price of a contract for one dollar to be delivered in 12 months is 0.90. Even if a corporation sells one million units of this contract, it does not affect its price, the company will get

$$0.90 \cdot 1,000,000 = 900,000.$$

No more, no less.

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## 2.1.2   Value Additivity

The price of a basket of financial contracts is equal to the *sum* of the prices of each individual contract times the quantities.

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**Example**

An 8% Treasury bond with one year till maturity and $1,000 face value is really a basket of units of two financial contracts. One to deliver one dollar in 6 months (when half of the coupon is paid), and another to deliver one dollar in 12 months. The basket contains 40 units of the first contract, and 1,040 units of the second contract. If $P_1 = 0.95$ is the price of the first contract, and $P_2 = 0.90$ is the price of the second contract, then the value of the bond is:

$$P_1 40 + P_2 1,040 = 0.95 \cdot 40 + 0.90 \cdot 1,040 = 974,$$

that is, $97\frac{2}{5}\%$ of the face value of the bond.

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Do you know any supermarket that violates the rule of value additivity when ringing up a customer? Financial (super)markets don't either!

## 2.1.3   No Free Lunches

It should be impossible to sell for a positive price a portfolio which has zero payoff for sure at all future times. This is also called the "no arbitrage" assumption.

The no arbitrage assumption is intimately connected to the value additivity assumption, since a violation of value additivity will also be a violation of the no free lunch assumption. They are still different principles. One says how to compute portfolio value; the other prescribes how to price a particular portfolio.

## 2.1.4   The Efficient Markets Hypothesis

Prices in financial markets will at all times reflect unbiased beliefs about the future.

An efficient market is really never surprised. Bad news happens with a certain frequency, and the market knows this. The market just does not know how the occurrence of bad news is distributed over time. In other words: markets know the frequency with which uncertain events occur, such as default, dividend increases, democratic party presidents and magnitude 7+ earthquakes in Southern California.

Of course, the *precision* of the market's beliefs depends on the available information, but it is never *systematically* biased. Any systematic biases will be used to make profits above those justified by the risk of a strategy.