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Academy of Professional Finance 专业金融学院

CFA Level I

Derivative Markets and Instruments

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Content

Derivative Markets

and Instruments

(Los a, b, c, d, e)

- Exchange-traded / over-the-counter derivatives
- Forward commitments / contingent claims
- Different Types of derivatives
- Derivative markets: advantage / disadvantage
- Arbitrage and its role

Alternative Investments

Exchange-traded / over-the-counter derivatives

Derivative
– a financial instrument that derives its performance from the performance of an underlying asset, such as security, physical asset, currency, index or interest rate
–in the form of legal contracts and has two parties: a buyer and a seller. The buyer is called the long and the seller is called the short.
– forward, futures, options, swaps, credit derivatives

Exchanged-traded derivatives
– standardized and backed by a clearinghouse
– futures and options

Over-the-counter derivatives
– refer to derivatives that trade via a dealer network as opposed to on a centralized exchange
– expose to default risk
– forwards and swaps, bond options

Alternative Investments

Forward commitments / contingent claims

Forward commitments

– an obligation to buy or sell in the future

– forward contracts, futures contracts and swaps

Contingent claim

– a right but not an obligation to buy or sell, the decision depends on a particular random outcome

– options (depends on the asset price)

– credit derivatives (depends on a credit event)

Different Types of derivatives

Forward contracts (forward commitments)

-- the buyer and the seller agree to buy and sell an asset at a specific price (*the forward price*) on a specific date in the future

-- to speculate on the future price or hedge the price risk

-- has a value of zero at the initiation of the contract

-- if the future price increases, the long position has a positive value and the short position has the negative value and vice versa

deliverable forward contract / cash-settled forward contract

-- deliverable: the short delivers the underlying asset to the long

-- cash-settled: one party pays cash to the other based on the difference between the forward price and the spot price at the expiration date

Different Types of derivatives

Futures contracts (forward commitments)

-- a forward contract that is standardized and exchange-traded

Standardized means:

-- specify the quality and quantity as well as the delivery procedure

-- minimum price fluctuation, daily price move limit, settlement date and the trading times

-- settlement price is the average of the prices of the closing period, the final day settlement price is the spot price of the asset

Exchange-traded means:

-- a clearinghouse is the counterparty to all future contracts

-- mark to market margin: funds must be added if the margin is below the maintenance margin

Alternative Investments

Different Types of derivatives

Swaps (forward commitments)

-- agreements to exchange a series of payments on settlement dates over a time period (e.g. quarterly payments over three years)

-- On each settlement date, the two payments are netted

-- similar to forward contracts: no payment at initiation, custom, unregulated, default risk exists, most participants are large institutions

-- plain vanilla interest rate swap

Fixed-rate interest payments exchange for floating-rate payments

The notional principal is used to calculate the interest payments

Different Types of derivatives

Options (contingent claim)

-- gives the buyer the right to buy or sell an asset at the *strike price*

-- the seller is obligated to perform if the buyer exercises the option

call option

-- the buyer has the right to purchase the asset at the strike price

put option

-- the buyer has the right to sell the asset at the strike price

Long call – the buyer of a call option

Short call – the seller of a call option

Long put – the buy of a put option

Short put – the seller of a put option

American option – *exercised at any time*

European option – *exercised at the expiration date*

Different Types of derivatives

Credit derivatives (contingent claim)

-- provides the lender with protection against a downgrade or default

Credit default swap (CDS)

-- the bondholder pays a series of cash flows to the seller and receives a payment if the bond issuer defaults

Credit spread option

-- if the bond's credit quality decreases, the bondholder will get paid

Alternative Investments

Derivative markets

Disadvantage

-- too risky because of the high leverage

Advantage

-- provide price information

-- allow risk to be managed and shifted

-- reduce transaction costs

Arbitrage and its rold

-- arbitrage is riskless

-- arbitrage opportunity exists when a riskless return > risk-free rate

-- arbitrage opportunities arise when assets are mispriced

-- arbitrageurs will continue trading until the arbitrage opportunities disappear

Applications:

-- two securities that have identical future cash flows should have the same price (Law of one price)

-- If a portfolio will have a certain payoff in the future, the return will be equal to the risk free rate

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Thank You!