

# Overview and introduction to equity derivatives

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## 1. Introduction\*

### 1.1 Introducing equity derivatives

*"To a bystander like me, those who made £190 million deliberately underselling the shares of HBOS, in spite of its very strong capital base, and drove it into the bosom of Lloyds TSB Bank, are clearly bank robbers and asset strippers."*

The Archbishop of York was thus criticising users of the equity derivative strategy of short selling in a speech at The Worshipful Company of International Bankers dinner on September 24 2008.

Equity derivatives are currently both a hot topic, provoking strong opinions not just from the Archbishop of York, and a hot product. The size of the over-the-counter (OTC) equity derivatives market alone reached \$11.9 trillion of outstanding notional contracts by mid-year 2008,<sup>1</sup> with an annualised growth rate of 19%. This was up nearly \$9 trillion on 2002 levels.<sup>2</sup>

Although nothing new (put and call options and forward contracts on equities have been traded in the City of London since the seventeenth century)<sup>3</sup> the rise in popularity of equity derivatives in recent years has been spectacular.

### 1.2 Structure and rationale of book

An equity derivative is a financial instrument referencing an underlying equity asset or other variable, from which the financial instrument's price or value is derived, entered into by the parties for a purpose.

That definition (slightly longer, but more logical than the norm) is the thread that runs through this book.

Part I focuses on an overview of equity derivatives, the assets that underlie equity derivatives and the reasons why entities use equity derivatives, together with the value which can be derived from equity derivative contracts.

Part II focuses on the financial instruments themselves (OTC derivatives, structured products and exchange-traded derivatives). Part III covers ISDA's documentation platform for OTC derivatives.

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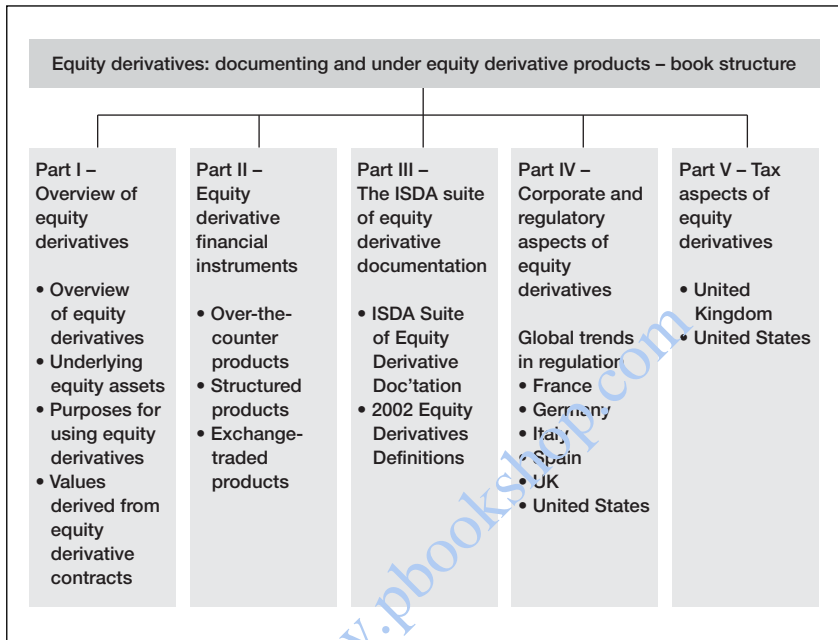
\* Examples are used throughout the book as a means of illustrating transactions and related issues. Any example should not be understood as referring to real situations unless otherwise indicated.

1 ISDA Market Survey Mid-Year 2008. ISDA is the International Swaps and Derivatives Association, Inc.

2 ISDA Market Survey Year End 2002.

3 *Building the Global Market, A 4,000-Year History of Derivatives*, by Edward J. Swan, p.163

The purposes of use, and the underlying equity assets themselves, mean that equity derivatives are subject to complex regulatory and tax treatment. This varies in each principal jurisdiction in which a product is used or adapted. Parts IV and V look at these areas across a number of jurisdictions.



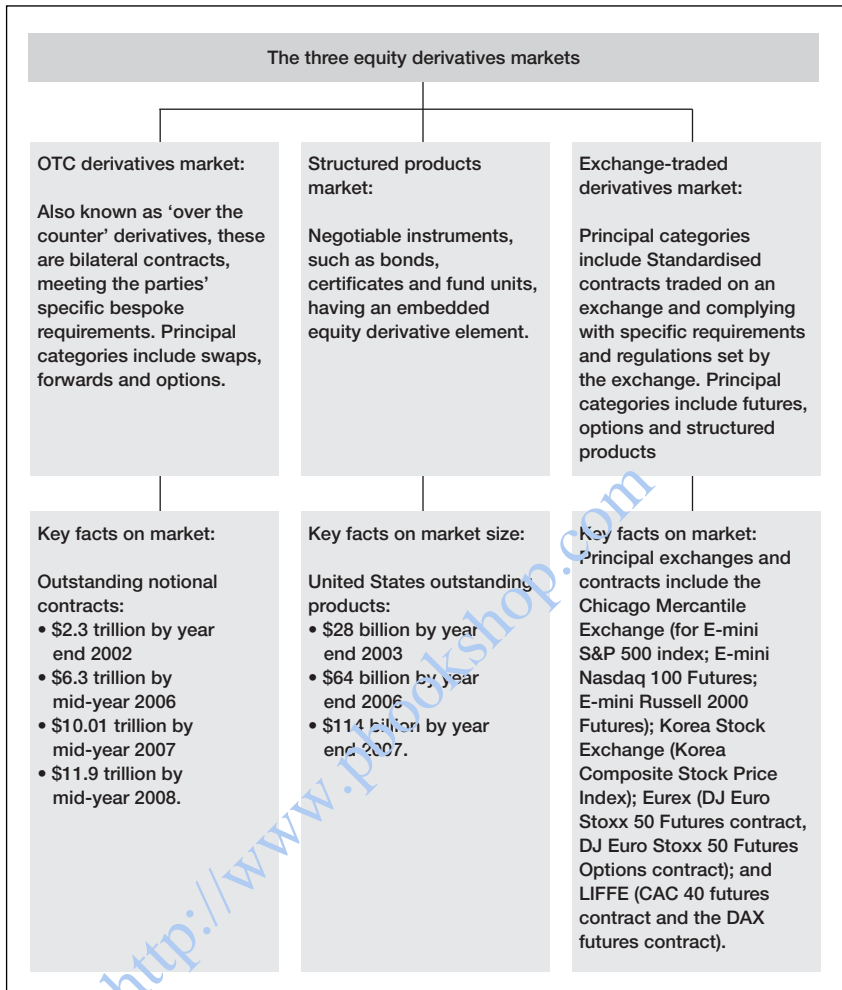
## 2. Size and history of the equity derivatives market

There are three categories of equity derivative financial instrument, each having different market size characteristics, and history: OTC derivatives, structured products and exchange-traded derivatives.

### 2.1 OTC derivatives

Equity derivatives are nothing new. Forward contracts have been around for hundreds of years, but it is only in the last 15 years that the product has gained momentum. Looking at ISDA's market survey displayed on its website, the organisation only began to publish data on the size of the equity derivatives market in the second half of 2002 (similar data for interest rates and currency swaps and options has been published since 1987). Although ISDA had published the 1996 ISDA Equity Derivatives Definitions several years previously, the notional amount outstanding of equity derivatives, which consist of equity swaps, options, and forwards, stood only at \$2.3 trillion by year end 2002 (10% of the size of the interest rate swap market five years earlier).

Since then the growth of the OTC equity derivative market has been spectacular. The market grew to \$6.3 trillion by mid-year 2006. It reached \$10.01 trillion by mid-



year 2007. And in spite of (or perhaps because of) the tough market conditions in the equity markets in 2008, the size of the equity derivative market has continued to grow, reaching almost \$11.9 trillion of outstanding contracts by mid-year 2008.

## 2.2 Structured equity products

The market for structured equity products is also a success story. Each different negotiable financial instrument (eg certificate or fund unit) is called a 'wrapper'. With many products privately traded and tailored to specific investor requirements, estimating the precise size of the market is very difficult.

However, in the UK the first retail investment products began to appear in 1990. In the United States, which has traditionally lagged behind Europe in the popularity of structured products, sales grew to \$114 billion by 2007.

### 2.3 Exchange-traded equity derivatives

Some of the principal exchanges for exchange-traded equity derivatives include the Chicago Mercantile Exchange (CME), which trades the E-mini S&P 500 index, the E-mini Nasdaq 100 Futures and the E-mini Russell 2000 Futures; the Korea Stock Exchange which trades the Korea Composite Stock Price Index or KOSPI contract; Eurex, which trade the DJ Euro Stoxx 50 Futures contract and the DJ Euro Stoxx 50 Futures Options contract; and LIFFE, which trades the CAC 40 futures contract and the Dax futures contract.

A more recent innovation has been the introduction of hybrid trading platforms such as Bclear, which was launched by LIFFE in 2005 and by September 2007 was processing an average daily volume of 1 million contracts. LIFFE claims that Bclear offers the flexibility and anonymity of OTC contracts while retaining the benefits of an exchange-traded transaction such as the use of a central counterparty and automated processing.

The notional value of exchange-traded derivatives has exhibited a steady rise, as compared with the near exponential rise in the OTC derivatives market in the same period.

To give some idea of the size of the equity derivatives market, for the third quarter of 2008 the CME Group E-mini equity index volume averaged a record 4.8 million contracts daily, an increase of 66% compared with the same period in 2007.

### 3. What is an equity derivative? Understanding the four constituent parts of an equity derivative

An accurate definition of an equity derivative is: a financial instrument referencing an underlying equity asset or other variable, from which the financial instrument's price or value is derived, entered into by the parties for a purpose.

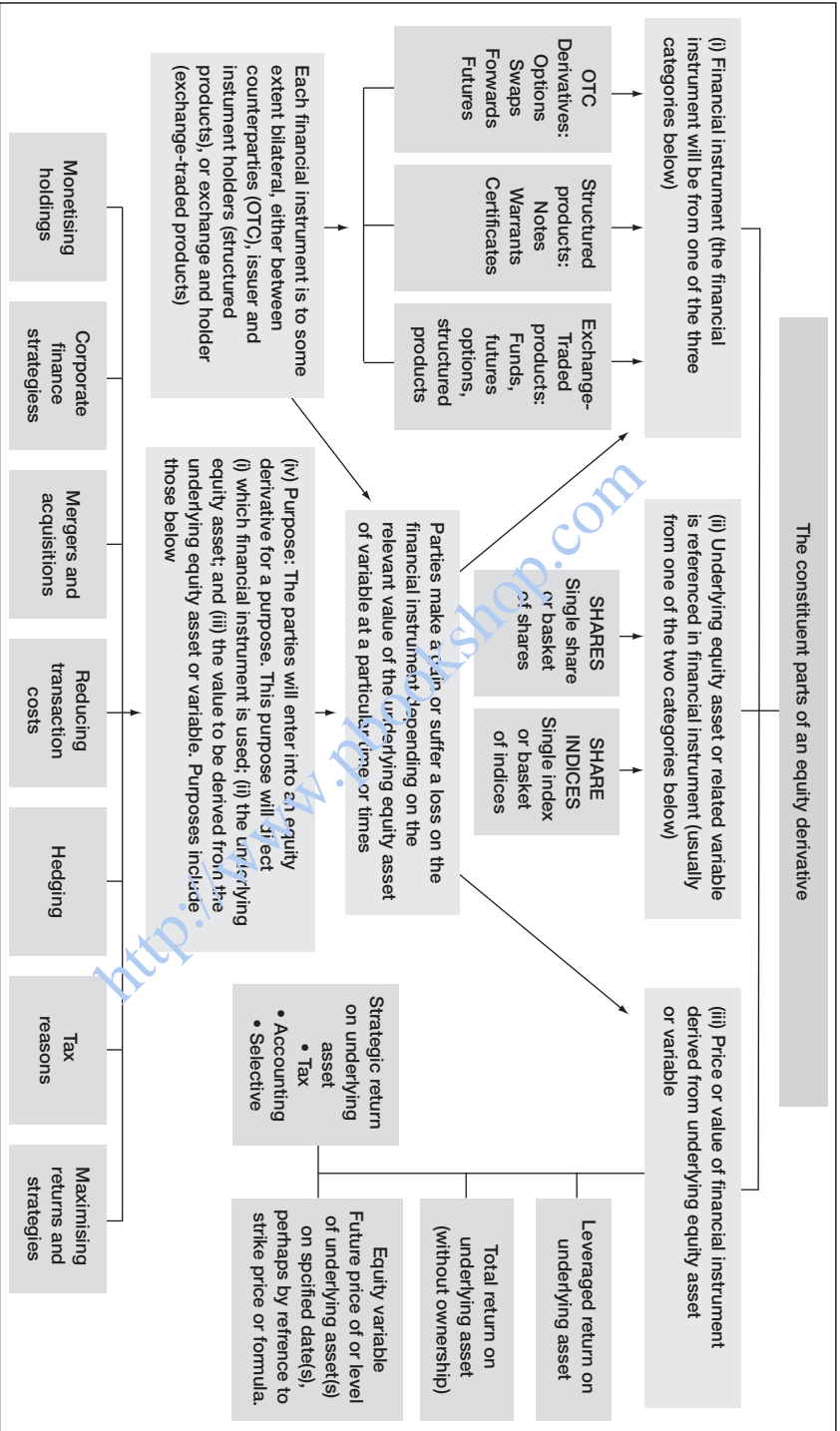
This is slightly more long-winded than the traditional definition of equity derivative. But, by setting it out in this way, it becomes clear that all equity derivatives are made up of four constituent parts. These are:

- a financial instrument referencing
- an underlying equity asset or other variable, from which
- the financial instrument's price or value is derived
- entered into by the parties for a purpose.

This allows us to analyse each constituent part in turn to form a more complete picture of what equity derivatives are.

#### 3.1 The financial instrument

The financial instrument, the first constituent part, will be of a type falling into the three main categories of equity derivative financial instrument: OTC derivatives; structured products; and exchange-traded products. In an OTC derivative, the financial instrument will be one of a swap, forward or option. In a structured product it will be a note, certificate, warrant or a fund unit. In an exchange-traded product, it will be a future, an option, or one of the structured products.



### 3.2 The underlying equity asset

The second constituent part, the underlying equity asset or other equity variable, will usually be a share or a basket of shares, an index or basket of indices, or a variable linked to these.

### 3.3 The price or value of the underlying equity asset from which the financial instrument derives its value

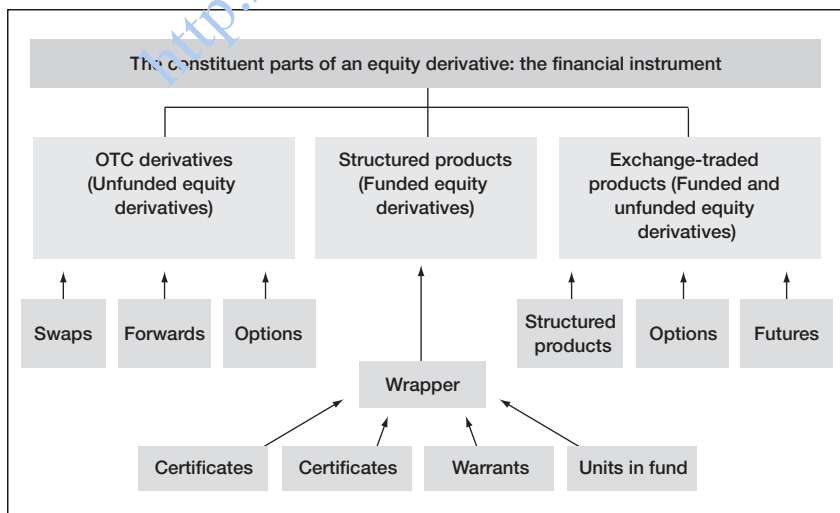
The third constituent part, the price or value of the underlying equity asset from which the financial instrument derives its value, may be the change in the price or level of the underlying asset over a period of time. Alternatively, it may be the relative price or level of different underlying assets over a period of time; or the total return on single or multiple underlying assets over a period of time. These prices or levels may be determined on specific or multiple dates, often in accordance with a formula.

### 3.4 The purpose for which the parties enter into an equity derivative transaction

Parties may enter into an equity derivative transaction for many reasons. These may involve monetising an existing shareholding; pursuing a corporate finance strategy; building up a stake prior to a mergers and acquisitions (M&A) bid; reducing transaction costs; pursuing an investment strategy or investing portfolio returns; gaining market access; hedging; or obtaining a tax advantage.

Equity derivatives can be described, with some licence, as bilateral products. OTC derivatives are genuinely bilateral. Structured products can be viewed as bilateral in the sense that the issuer contracts with the instrument holders. Exchange-traded products (apart from structured products) involve a contract by a broker with the exchange itself. The exchange will then make a corresponding contract with a counterparty (which can be viewed as the true bilateral counterparty).

We will now look at each of the four constituent parts of equity derivatives in further detail.



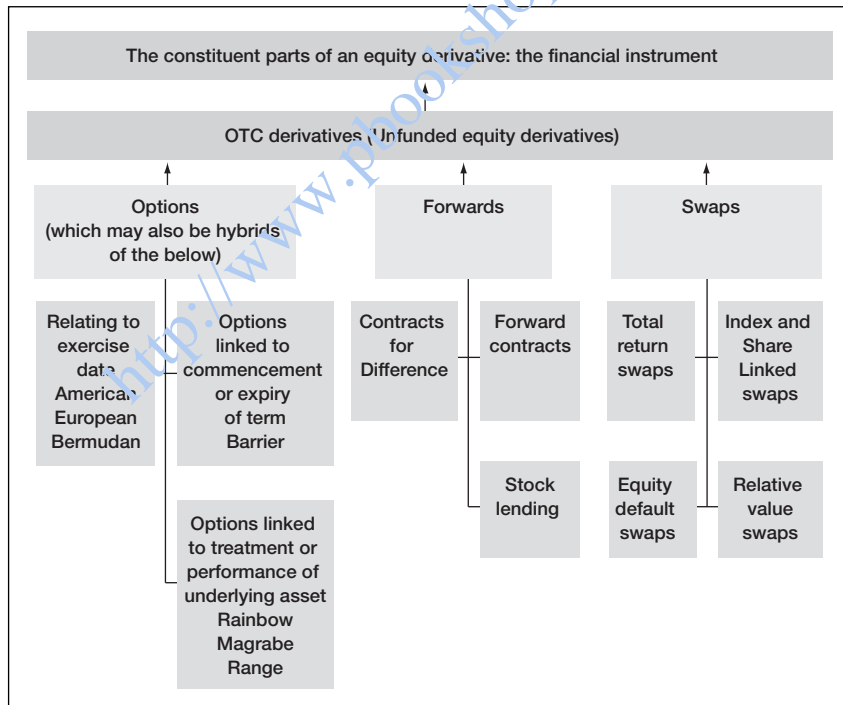
**4. The first constituent part of an equity derivative: the financial instrument**

Any equity derivative financial instrument will be of a sub-type of at least one of the three equity derivative categories: OTC derivatives; structured products; and exchange-traded products.

An OTC derivative financial instrument will be a swap, a forward or an option. A structured product financial instrument will be one of a note, a certificate, a warrant or a unit in a fund. An exchange-traded product financial instrument will be a future or an option, or, if it is listed on an exchange, one of the four types of structured product financial instrument.

**4.1 OTC derivatives**

There are three categories of equity derivatives OTC financial instrument: options, forwards and swaps. Each type has various sub-types. Amongst the sub-types of option are: European, American, Bermudan, Asian, barrier and range options. Amongst the sub-types of forward are: stock lending transactions, forward transactions and contracts for difference. Amongst the sub-types of swap are: total return swaps, index and share linked swaps, relative value swaps, equity default swaps and equity default swaps.



**4.2 Options**

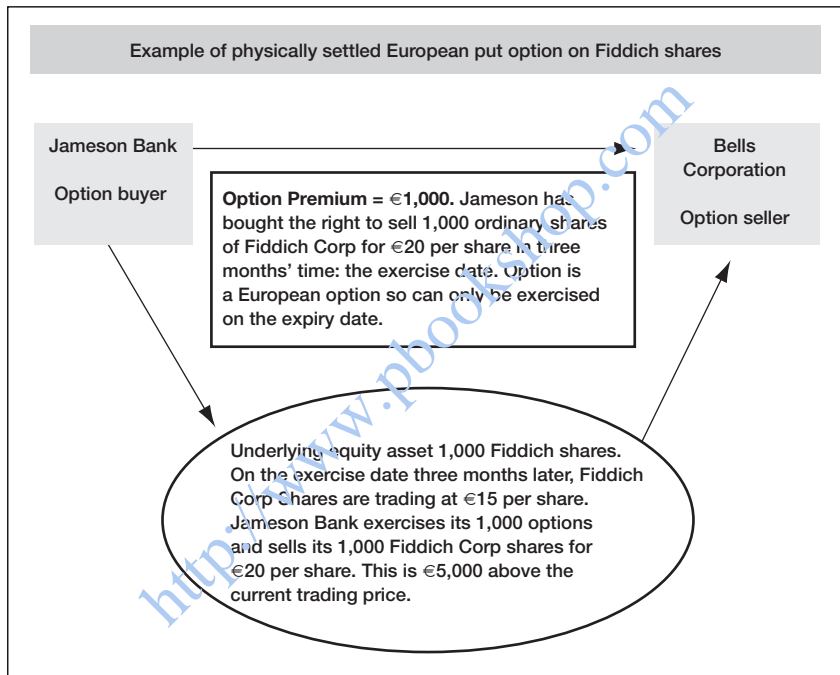
An option is a bilateral contract. The buyer of the option acquires a right to buy (or sell) to the seller of the option a defined amount of an underlying equity asset at a

price agreed at the contract's outset (the strike price). This price will either be a specific price or one determined by reference to a formula or set of rules laid out in the confirmation. The underlying asset is usually a share or basket of shares, or an index or basket of indices.

The option buyer pays an amount of money (a premium) to the option seller, as determined in the relevant transaction confirmation, to compensate it for providing the option.

Options are either call options or put options, and are also either cash settled or physically settled.

(a) **Physically settled option**



In a physically settled put option the buyer has a right to sell shares or baskets of shares to its counterparty at an agreed price (the strike price) on a future date. In a physically settled call option, the option buyer has a right to buy shares (or baskets of shares) at the strike price. Whether or not the option buyer chooses to exercise its option will depend on whether the underlying equity asset is trading above or below the strike price. Naturally, the call option is only worth exercising if the shares are trading above the strike price at the exercise date, and the put option is only worth exercising if the shares are trading below the strike price at the exercise date.