

# Risk Management

Mohammed Alsulaiman

**Introduction:** Risk management involves identifying potential events that pose threat to a firm's cash flows. This also minimizes the likelihood of those events or minimizing their impact on the firm's cash flows. The process of risk management includes firm-specific events like worker's compensation claims, product recalls, loss from fire, flood or other emergencies, and other product liability claims. It is the process of identifying, measuring, and managing all types of risk exposures like interest rate, commodity, and currency risk exposures (Graham and Smart, 2011). In this report, we look into the different financial risk management tools: hedging, derivatives, and hybrid debt securities.

Hedging is the most commonly used financial risk management tools. Aside from hedging, financial derivatives are also used to minimize risk. The classic example explains how both the farmer and a corresponding grain processor use the futures markets to reduce preexisting risk that they face in the conduct of their businesses. Traders can use derivatives markets to reduce risks that they face in the ordinary conduct of business. Because the derivatives markets provide this possibility, they provide a very real benefit for society.

---

◆

## Hedging

Hedging is a strategy applied to minimize risk. It may also involve synthetic insurance such as the implementation of dynamic trading strategy that is implemented to determine the value of a position (Wankel, 2009). It is the process of using derivative financial instruments to reduce the price risks that rise within the course of normal business operations or those risks that are associated with investments. This serves as one of the most important functions of financial markets. Oftentimes, hedgers are investors, producers, and major users of a specific commodity. Hedgers have pre-existing risks associated with the price fluctuation of that specific commodity (Darity, 2008). In this way, hedging stabilizes market because it removes potential shocks to balance sheets which can cause destabilization of the financial system.

A hedge is perfect if the gain on the futures market matches perfectly with the loss on the spot market. However, in practice, hedging may not be perfect because the difference between the spot price and the futures price may not converge to zero at the time the futures position is closed. Hedging effectiveness measures the extent to which the price risk is reduced through hedging. A hedge ratio is the number of derivative contracts transacted to reduce the price risk of a given position in the underlying asset. Hedging strategies are formed to choose the suitable

derivative contracts and the amount of such contracts to be used. Traditional views hold that the optimal hedging strategy is one that maximizes the expected utility or minimizes the variance of the value of the hedged portfolio. Recent developments explore alternative approaches. For example, it is argued that a one-sided measure for hedging, such as the downside risk, is more accurate.

With the internationalization of financial markets, currency derivative instruments have increasingly been used to hedge currency risks in an international portfolio, which usually contains multiple risks. Optimal coordinated hedging strategies, which consider the effects of correlation among multiple risk factors in a portfolio, can be applied to hedge multiple risks and to achieve optimal hedging effectiveness. The recognition of hedging as a purpose of derivatives transactions is important. Accounting rules treat the changes in the fair value of derivatives differently depending on the purpose for which the derivatives positions are entered. New derivatives that have been developed recently are intended to reduce quantity or revenue risks, which may complicate the appropriate accounting treatment. Hedging can be implemented through derivative instruments including futures contracts, forward contracts, options, and swap agreements.

## **Derivatives**

Derivatives are financial instruments whose value is derived from the value of another entry. Derivative instruments are used as financial management tools to enhance investment returns and to manage such risks relative to interest rates, exchange rates, and financial instrument and commodity prices. Several local and international banks, businesses, municipalities, and others have experienced significant losses with the use of derivatives.

However, their use has increased as efforts to control risk in complex situations are perceived to be wise strategic decisions(Casabona, 2007).A derivative is a set of financial instruments that includes futures, forwards, options, warrants, and swaps. A derivative is a financial product that could, conceivably, take any form whatsoever. There are only two constraints on the creation of such products: the willingness of market-makers to innovate in areas outside their technical expertise, and the willingness of market participants to be persuaded that new products offer greater advantages than established ones. The term “derivative“has a literal meaning. The price at which a derivative contract is traded is derived from the price of the underlying commodity, security, index, or event to which it is related. Derivatives are traded on secondary markets, which, under the influence of purely passive hedging strategies, respond solely to price changes exhibited by the underlying asset in the primary market(Casabona, 2007).

The derivatives market serves the needs of several groups of users: hedgers, speculator, and arbitrageur .A hedger enters the market to reduce risk. Hedging usually involves taking a position in a derivative financial instrument, which has opposite return characteristics of the item being hedged, to offset losses or gains. A speculator enters the derivatives market in search of profits, and is willing to accept risk. A speculator takes an open position in a derivative product. An arbitrageur is a speculator who attempts to lock in near riskless profit from price differences by simultaneously entering into the purchase and sale of substantially identical financial instruments.Other participants include clearinghouses or clearing corporations, brokers, commodity futures trading commission, commodity pool operators, commodity trading advisors, financial institutions and banks, futures exchange, and futures commission merchants(Casabona, 2007).

There are two reasons as to why markets in derivative products are developed. First, derivatives help investors to reduce their risks through hedging their position in the primary market by countervailing their investment in a related secondary market. In turn, this enables investors to protect the value of their existing asset holdings without recourse to regulatory devices whose origins are external to the market mechanism. Oftentimes, governments tend to promote derivatives markets that are used by investors in this way. The hedging strategies that derivatives markets make possible provide a means of stability and self-governance for the financial system (Bevir, 2007). Secondly, the development of derivatives market may present dilemmas for public authorities in governing financial market. The demand for a derivative product is a derived demand for the characteristics embodied in it. A new product tends to exist in an unregulated environment. Hence, given the potential for permanent innovation in the provision of financial instruments, regulators will always be one step behind the innovators. Secondary markets which are governed by regulatory devices will always look towards creation of alternative products which are identical in composition to the newly regulated products, offering the same investment opportunities, but which escape regulation (Bevir, 2007).

Financial derivatives commonly embody very high leverage; that is, the price of a financial derivative is often very sensitive to the price of the underlying financial instrument, or equivalently, a small movement in the price of an underlying financial instrument can cause a very large percentage price movement in a financial derivative built on that instrument. For example, a 1% movement in the price of a stock could easily cause a 10% movement in the price of an option on that stock. This means that an apparently benign position in a financial derivative can suddenly generate very substantial profits or losses. This happens particularly when some sudden event causes a dramatic swing in financial markets. For example, a sudden interest rate

rise can cause debt instruments themselves to have a sudden price drop, and debt derivatives will typically respond to the same interest rate shock with a much larger percentage price movement.

Because financial derivatives tend to be complex and difficult to understand, senior management in firms often lacks a full grasp of the financial implications of the derivatives positions the firm holds. Because of the complexity of financial derivatives, top management sometimes leaves oversight of these instruments to specialists. This lack of control has led to some spectacular business disasters involving financial derivatives that even include the ruin of entire firms, and they have often been used as vehicles for irresponsible speculation and gambling. In some spectacular instances, junior derivatives traders have used the firm's resources to place huge bets via financial derivatives, and the resulting losses have resulted in bankruptcy. Nevertheless, the weaknesses of derivatives are being addressed based on the different types of derivatives. The types of derivatives are: forwards, futures, options, and swaps.

### ***Forwards***

Forwards is a non-standardized transaction to purchase or sell a specific financial instrument or asset at some period in the future at a specified price. Forward contracts may be written on Treasury debt, currencies, commodities, or any other investments. However, unlike future contracts which includes standardized terms and can be traded in the secondary market. Forward contract has unique terms. However, forward contracts also are subject to credit risk factors of the counterparty, or the person with whom the transaction is done and is eliminated in the futures market because the clearinghouse guarantees payment. Forwards is a written agreement between two parties regarding actual sale or purchase of a particular financial instrument, commodity or currency at a price stipulated at the current time with settlement to

occur at a later date. Forward contracts are negotiated between two parties, with no formal regulation or exchange, to purchase (long position) and sell (short position) a specific quantity of a specific quantity of a commodity (i.e., corn and gold), foreign currency, or financial instrument (i.e., bonds and stock) at a specified price (delivery price), with delivery or settlement at a specified future date (maturity date). The price of the underlying asset for immediate delivery is known as the spot price. Forward contracts may be entered into through an agreement without a cash payment, provided the forward rate is equal to the current market rate. Forward contracts are often used to hedge the entire price change of a commodity, a foreign currency, or a financial instrument, irrespective of a price increase or decrease (Casabona, 2007).

### ***Futures***

Futures are standardized contracts traded on a regulated exchange to make or take delivery of a specified quantity of a commodity, a foreign currency, or a financial instrument at a specified price, with delivery or settlement at a specified future date. Futures contracts involve U.S. Treasury bonds, agricultural commodities, stock indices, interest-earning assets, and foreign currency. A futures contract is entered into through an organized exchange, using banks and brokers. These organized exchanges have clearinghouses, which may be financial institutions or part of the futures exchange. They interpose themselves between the buyer and the seller, guarantee obligations, and make futures liquid with low credit risk. Although no payment is made upon entering into a futures contract, since the underlying (i.e. interest rate, share price, or commodity price) is at-the-market, subsequent value changes require daily mark-to-market by cash settlement (i.e. disbursed gains and daily collected losses). Similarly, margin requirements

involve deposits from both parties to ensure any financial (Casabona, 2007).Futures contracts are used to hedge the entire price change of a commodity, a foreign currency, or a financial instrument since the contract value and underlying price change symmetrically.

As an example of hedging with futures contracts, consider a corn farmer who anticipates selling certain bushels of corn three months from now and is concerned that the price of corn might fall in the next three months. The farmer may sell corn futures contracts for hedging. If corn prices in both spot and futures markets fall, the loss on the spot market will be offset by the profit on the futures market. Another example is related to a food-processing company that plans to purchase corn and is concerned that the price of corn might rise. The company can buy corn futures contracts for hedging. If the corn price rises, a loss on the spot market is met with a profit on the futures market, resulting in a reduced price risk.

For example, a futures contract allows the holder to carry out a transaction in the future at a price determined in the present. The value of the contract therefore depends upon the asset or commodity underlying the transaction. Hedging with futures contracts is fairly straightforward. Hedgers can hedge by either buying or selling futures contracts as a temporary substitute for a transaction to be made in the spot market. As long as spot and futures prices move together, any loss realized on one market (whether spot or futures) will be offset by a profit on the other market. Using options for hedging purposes is more complicated as it requires an analytical determination of the appropriate number of options contracts to buy or sell.

### ***Options***

Options are rights to buy or sell. For example, the purchaser of an option has the right, but not the obligation, to buy or sell a specified quantity of a particular commodity, a foreign currency, or a financial instrument, at a specified price, during a specified period of time (American option) or on a specified date (European option). An option may be settled by taking delivery of the underlying or by cash settlement, with risk limited to the premium (Casabona, 2007). The two main types of option contracts are call options and put options, while some others include stock (or equity) options, foreign currency options, options on futures, caps, floors, collars, and swaptions.

- American call options provide the holder with the right to acquire an underlying product (e.g., stock) at an exercise or strike price, throughout the option term. The holder pays a premium for the right to benefit from the appreciation in the underlying.
- American put options provide the holder with the right to sell the underlying product (e.g., stock) at a certain exercise or strike price, throughout the option term. The holder gains as the market price of the underlying (stock price) falls below the exercise price.
- An interest rate cap is an option that allows a cap purchaser to limit exposure to increasing interest rates on its variable-rate debt instruments.
- An interest rate floor is an option that allows a floor purchaser to limit exposure to decreasing interest rates on its variable-rate investments.

Option contracts are used to hedge a one-directional movement in the underlying commodity, foreign currency, or financial instrument.

### *Swaps*



A swap is a flexible, private, forward-based contract or agreement, generally between two counterparties to exchange streams of cash flows based on an agreed-on (or notional) principal amount over a specified period of time in the future. Swaps are usually entered into at-the-money (i.e., with minimal initial cash payments because fair value is zero), through brokers or dealers who take an up-front cash payment or who adjust the rate to bear default risk. The two most prevalent swaps are interest rate swaps and foreign currency swaps, while others include equity swaps, commodity swaps, and swaptions. Swaptions are options on swaps that provide the holder with the right to enter into a swap at a specified future date at specified terms (stand-alone option in a swap) or to extend or terminate the life of an existing swap (embedded option on a swap). Swap contracts are used to hedge entire price changes (symmetrically) related to an identified hedged risk, such as interest rate or foreign currency risk, since both counterparties gain or lose equally (Casabona, 2007).

### **Hybrid Debt Securities**

Hybrid debt securities are securities that have the characteristics of more than one asset class. This may include convertible bonds were one of the earliest hybrid securities. They have both risk and return characteristics of debt and equity. Various types of structured securities like equity notes are just some of the recent manifestations of hybrid securities. Some of them may also have as many as three different asset classes. They combine two or more different financial instruments. They are also oftentimes referred to as hybrids. The most common example is the convertible bond that is heavily influenced by the stock market. In practice, hybrids serve two functions. First, they provide companies with means of raising capital at reasonable cost. Second, they also provide investors with an alternative and attractive method of investment by supplementing to debt and equity in their investment portfolio (Coyle, 2002).

# IJSER

**References:**

Bevir, M. 2007. Derivative. *Encyclopedia of Governance*. September 2007, pp.218-219.

Casabona, Patrick. "Derivatives." *Encyclopedia of Business and Finance*. Ed. Burton S. Kaliski. 2nd ed. Vol. 1. Detroit: Macmillan Reference USA, 2007. 195-198. *Gale Virtual Reference Library*. Web. 2 Dec. 2013.

Coyle, B. 2002. *Hybrid Financial Instrument*. UK: Financial World Publishing.

"Hedging." *International Encyclopedia of the Social Sciences*. Ed. William A. Darity, Jr. 2nd ed. Vol. 3. Detroit: Macmillan Reference USA, 2008. 450-451. *Gale Virtual Reference Library*. Web. 2 Dec. 2013.

IJSER