



THE ROLE OF FINANCIAL DERIVATIVES IN FINANCIAL RISKS MANAGEMENT

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Abstract

Financial derivatives are financial instruments whose price is derived from the basic financial instruments' prices. They represent derivative financial instruments created based on the existence of primary instruments, such as shares, bonds, stock market indices, or other forms of assets. It is precisely the benefit of using derivatives that point to their basic function. The primary function refers to risk protection and reduction of exposure to some instruments, markets, currencies, countries, regions, and others. In this case, we are talking about derivatives for hedging investments or currency positions. Those positions are taken on financial markets in specific instruments or currencies. Likewise, exposure to certain entities that issue financial instruments can be replaced or reduced to reasonable or prescribed measures by using derivatives. Derivatives offer a significant advantage: risks are transferred when they are used. Market and price risks of the underlying asset are contractually transferred to the financial derivative through the contract design. Of course, derivative financial instruments also have disadvantages. For example, there is a risk of total loss for some. The research subject in this paper is the role of financial derivatives, derived financial instruments, and their role in financial risk management. In this paper, the author emphasizes the basic types and characteristics of financial derivatives, their benefits, and the risks market participants may face if they use the derivatives.

Keywords: *financial derivatives, risk, financial risks, management, financial derivatives significance*

1 INTRODUCTION

Derivatives represent financial instruments, and their value is derived from basic financial instruments such as stocks, bonds, loans, interest rates, exchange rates, commodities, and mortgages. Financial derivatives are not original financial instruments. They are derived from classic financial instruments due to the need to solve financial difficulties that arise precisely because of the use of basic financial instruments and the impossibility of providing them with a

higher return on investment and lower financial risk.

Many previous studies have shown that derivative transactions have exceeded the value of the total trade transactions carried out in the world. Derivatives trading on the financial market in the world is much higher than the economic activities globally. The use of derivatives is generally accepted in the financial markets precisely because it is almost impossible to imagine a transnational company that does not use these instruments when managing financial risks.

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is related to risk protection and reduction of exposure to some instruments, markets, currencies, countries, regions, and others. In that case, we are talking about the use of derivatives for hedging investments or currency positions. Those positions are taken on financial markets in specific instruments or currencies. Likewise, exposure to certain entities that issue certain financial instruments can be replaced or reduced to reasonable or prescribed measures by using derivatives.

The research subject in this paper is the role of financial derivatives, derived financial instruments, and their role in financial risk management. In particular, the basic types and characteristics of financial products, their benefits, and the risks market participants may face are emphasized.

2 FINANCIAL DERIVATIVES

2.1 A term

Financial derivatives are financial instruments whose price is derived from the prices of other, basic financial instruments. They represent derivative financial instruments, created based on the existence of primary instruments such as shares, bonds, stock market indices, or other forms of assets. Financial derivatives represent financial contracts that appeared in the eighties of the last century, after the introduction of foreign exchange policy measures in the most developed world economies. Their emergence is related to the time when the foundation of the monetary system, based on the Bretton Woods agreement, was destroyed, and Britain adopted restrictive foreign exchange regulations. Then the first contracts on currency packages and interest rate swaps were developed. (Slakoper, 2009, p. 407)

As a very significant financial innovation in modern finance, financial derivatives have contributed to the progress in the field of financial risk management by expanding the number of financial instruments and facilitating the allocation of risks and thus supporting the realization of the primary functions of the financial system. Also, there is efficiency in risk distribution, which has influenced economic growth by enabling the financing of larger projects in the economy. Financial derivatives are instruments that allow for

flexible and efficient portfolio management only if they are used with the aim of risk protection, not if they are used for speculation.

The financial derivatives, or derivative financial instruments, are, therefore, forms of investment derived from simple direct financial investments. The derivative value depends on the underlying instrument (asset).

There is no universally accepted definition of derivatives. In any case, derivatives must fulfill a future contractual obligation between two or more contracting parties whose market value depends on conditions specified at the time of the conclusion of the contract (usually a change in the price of the underlying asset). At the time of the contract conclusion, significant purchase payments are not required (Beike & Barckow, 2002, p. 1f). The main criterion is the time difference between the conclusion and the fulfillment of the contract. In this sense, derivatives are also defined as "futures contracts that give the right, but not the obligation, to buy the underlying asset at the price agreed in the transaction on a date in the future (European option) or some future period (American option) or sale" (Berge, 2005, str. 44).

2.2 Characteristics of financial derivatives

When analyzing the literature, we notice that three primary characteristics of derivatives stand out, namely:

- The value of the instruments is based on changes in the interest rate, exchange rate, price of certain goods, etc.
- To enter the transaction, a small initial investment is required.
- The end is depicted in the form of money or the conclusion of a new financial derivative, i.e., by taking contrapositions, and does not include direct exchanges of derivative objects.

Derivative instruments are traded on the organized stock market but also outside the market. Derivative instruments are traded on the organized stock market but also outside the market. Apart from organized stock exchanges, there are other stock exchanges - the futures exchange.

2.3 Basic types of financial derivatives

According to the theory, it is possible to identify the following forms of financial derivatives:

- forwards
- futures
- swaps
- options
- credit derivatives.

A derivative financial instrument is a contractual agreement between at least two contracting parties which risks transfers from the basic (original) value to the other party. Derivatives refer to financial instruments whose value is derived from the market price of one or more underlying instruments and on so-called futures markets. For market participants, the reasons for futures transactions are speculation, hedging, or arbitrage. The work then deals neither with speculation nor arbitrage but attempts to hedge against commodity price risk and approximate commodity price volatility, which is called hedging. The first division is based on the base value of the derivative. Raw materials, stocks, currencies, interest rates, fixed-income securities, stock indices, or other derivatives can be used as underlying values. That protects against a wide range of market price fluctuations. Derivatives refer to futures transactions not settled immediately after the transaction is concluded, but at some point, in the future. Unlike the cash market, where the contract to buy or sell the underlying instruments on the stock, the exchange must be fulfilled immediately or very shortly within two trading days after the conclusion of the contract, the conclusion of the contract and the fulfillment of the contract differ in time for a futures transaction. Futures transactions also differ in terms of whether they are conditional or unconditional transactions, i.e., whether an exchange of services must take place, or whether the buyer of the derivative has the right to choose in terms of execution.

The term futures can most simply be interpreted as a liquid futures contract. Historically, it has roots in classic forward contracts, which are denoted by the term forward. Both instruments based on the classification fall into the so-called category of derivatives or derived securities. In essence, both futures and forwards are sales contracts. In both

cases, there are two parties, the buyer and the seller, who define the conditions for the purchase and sale of certain goods or financial instruments, and the specificity is that the delivery of the given asset and its final payment is not made immediately, but on a certain day in the future. (Erić, Bradić-Martinović, & Stefanović, 2007, p. 462). A forward is a real futures contract. If the bill of lading proves the existence of goods that are not physically present at the place of purchase, with a forwarder, the goods are not only not present but do not yet physically exist (Žarkić Joksimović, Benković, & Milosavljević, 2013, p. 164).

Table 1. Characteristics of futures contracts

1. All elements of the contract are standardized (quantity, quality, date, place)
2. Contracts are more liquid compared to forwarding contracts
3. Contract positions can be closed at any time
4. Payment of the contract is present while it lasts (margin system)
5. A clearinghouse is present as a guarantor of trading
6. The contracting parties place a deposit to protect against credit risk
7. In most cases, contracts are canceled before the expiration date
8. The contracted assets are not physically delivered, only the price difference is paid
9. The contract can be traded on the secondary financial market
10. Contracts are sold on a forward basis

Source: (Birovljev & Ercegovac, 2012, pp. 16-17)

The subject of an option transaction is the right to exercise the option, which, if exercised, consists of the purchase or sale of the underlying asset at a fixed base price. The buyer pays the option seller an option premium for that right. There are two basic forms of options transactions: In the case of a call option, the buyer acquires the right to buy a certain underlying asset, for example, a certain number of shares, at an agreed price from the seller of the call option. In return, the buyer pays the seller a premium for the option. The right

to buy these securities, which the option writer would then have to deliver, is given to the buyer only for a limited period, the term of the option. However, he is not obliged to use the option, that is, to buy the shares at the agreed base price. This transaction occurs because the buyer and the seller have opposite expectations regarding the development of the underlying asset price, the buyer expects the price to rise.

Generally, a swap is understood as the exchange of two streams of payments between two contracting parties over a specified period under predetermined conditions. Payment obligations or payment claims are exchanged. The reason for such an exchange is that the actors have different positions in different financial markets. These differences in creditworthiness can be reflected, for example, in different credit terms (terms, interest rates, credit lines). That results in certain cost advantages for individual actors, which they make available to others in exchange for cash flows for compensation. Swaps also serve to hedge against interest rate or currency risks.

Credit derivatives are a subtype of derivatives and tradable financial instruments that have loans, credits, bonds, or similar assets as their basis and hedge the potential risk of default for the protection buyer and increase the protection provider. In addition, there is a purely speculative variant of uncovered credit derivatives without the underlying asset.

3 FINANCIAL RISKS

Risk, in general, is defined as the possibility of suffering damage or loss, that is, as a factor, thing, element, or course that involves uncertainty and danger. Risks viewed as an economic category are labeled, in theory, as speculative risks. Risk and uncertainty are accompanying circumstances in economic activities. Regardless of the science and economic science progressing constantly, ignorance can have different effects on economic phenomena and processes of modern times. Human behavior in circumstances related to risk and uncertainty contributes to distinguishing one person from another. Risk tolerance, i.e., reluctance, should be evaluated for possible outcomes during decision-making.

Risk can be divided into different ways. However, the most common division in the literature

recognizes the following types of risks (Barjaktarović, 2013):

- *financial and non-financial risks*. Financial risk includes situations in which there is the uncertainty of financial (monetary) loss, while in the case of non-financial risk there are no financial consequences.
- *dynamic and static risks*. Dynamic risk is the one that arises due to changes in the economy (changes in the price level, consumer taste), and static risk includes losses that would occur even if there were no changes in the economy.
- *fundamental and special risks*; Fundamental risk includes losses that are impersonal in origin and consequences, special risk includes losses that arise because of individual events and are noticed by individuals more than the whole group.
- *pure and speculative risks*. Speculative risk represents a situation where there is a possibility of loss but also a gain. Pure risk is a situation that includes only the loss possibility (personal risk, property risk, liability risk, risk due to mistakes of others).

As for financial risk, it means risk related to money. Namely, financial risks usually refer to possible losses in the financial markets due to, for example, changes in interest rates or exchange rates. They are also characterized by complex interconnections, which can significantly increase the overall risk of exposure (Cvetinović, 2009, p. 45).

Financial risks can be grouped into several categories (Djukanović, 2009, pp. 109-111):

- *Market risk* - represents the risk of changes in market prices and exchange rates, which lead to a decrease in the value of certain financial assets and their packages (portfolios). One can further decompose market risk into two main components: the general market risk component (which applies to all market participants) and the specific market risk component (which applies to individual transactions).
- *Credit risk* - is the risk of changes in the creditworthiness of clients (customers or debtors), which can affect the change in the value of financial assets of creditors (companies or banks).

- *Liquidity risk* - covers both funding liquidity risk and asset liquidity risk.
- *Operational risk* - a specific type of financial risk that refers to potential losses of value due to inadequate organization, poor management, faulty control, fraud, theft, and human error.
- *Legal and Regulatory risk* - is a general name for various risks related to non-compliance or changes in legal norms.
- *Business risk* - involves overcoming classic obstacles in the business world, such as uncertainty regarding the movement of market demand, then determining the optimal level of the product market price, production costs, storage costs, and delivery of finished products.
- *Strategic risk* - is the risk of undertaking large investments, where there is high uncertainty regarding success and profitability, and
- *Reputation risk* - is a new dimension of risk, created after the great accounting scandals of the late twentieth century.

4 FINANCIAL DERIVATIVES AND FINANCIAL RISK MANAGEMENT

Financial derivatives have long been recognized as very effective instruments for protection against financial risks. They began to be used in risk management practice as early as the 18th century in commodity futures markets (Acharya, Brenner, Engle, Lynch, & Richardson, 2009, p. 1) in Japan and Chicago. Originally, the use of derivatives referred to the exchange of one position for another to reduce the risk of changes in the price of goods. After that, instruments were developed to protect against the declining value of foreign currencies. Thus, wholesale exporters who were affected by currency risks more often than others, to be able to ensure the values of their collections in the value valid on the day of the conclusion of the foreign trade deal, first contracted financial derivatives to protect themselves from exposure to currency risks.

Derivatives can involve high risks. However, derivatives are not inherently riskier than spot transactions. From a microeconomic point of view, derivatives are inherent in the same type of market risk as the spot transactions on which they are based. In terms of their scope, derivatives do not

create any risks that would not already exist in cash markets in the same way.

Differences in risk arise only in a direct comparison between the futures transaction and the underlying. For example, the pricing of derivatives is often less transparent, especially for private investors, as this is not (only) determined by supply and demand, as is the case with cash market securities, but other parameters (e.g., remaining maturity) can also play a decisive role in addition to the price of the underlying asset. This is often difficult for private investors to understand (complexity risk). In addition, depending on the structure of the financial agreement, there may be a risk that additional funds will have to be raised on the maturity date, contrary to the original intention.

In addition, derivative prices are also subject to the same stochastic uncertainty as the underlying asset (market risk), although the leverage effect also causes greater participation in negative price movements and thus can lead to disproportionate losses including total loss.

The risk management process goes through the following stages (Adelsberger):

- *Communication and consultation* – carried out with interested parties at any level of the risk management process and consideration of the process.
- *Determining the context* – involves determining the external, internal, and risk management context in which the rest of the process will take place.
- *Identifying risks* – when, where and why, and how events can be prevented, reduced, delayed, or increased to achieve objectives.
- *Risk analysis* – identifying and evaluating existing controls, and determining the consequences and probability, as well as the level of risk.
- *Risk assessment* – comparing the estimated level of risk with previously determined criteria and considering the balance between possible benefits and unfavorable results. That contributes to making decisions regarding the extent and nature of risk treatment.
- *Risk management* – implies specific cost-effective strategies development and implementation and plans to increase potential benefits and reduce potential costs.

- *Monitoring and review reporting* – It is necessary to monitor the effectiveness of all steps of the risk management process. That is important to make continuous progress.

Until recently, the strategy of managing the risk of changes in the balance sheet was used, thus protecting the bank from risks. However, nowadays off-balance sheet derivative financial instruments such as forwards, futures, options, and swap contracts are more often used. Along with the increase in the use of these derivatives, the fees and revenues generated by financial institutions also increase.

The primary reason financial institutions and companies enter derivative transactions are to protect themselves from the various forms of financial risk associated with their operations. The reasons market participants enter derivatives transactions differ from the perspective of the subject of the transaction. Consequently, the benefits and the risks also differ. Banks are motivated to protect the market and the credit risk of export companies, which are subject to high currency volatility, but it can also be market speculation or arbitrage. On the other hand, companies usually enter derivatives to reduce currency and interest rate risk, for example, by entering a contract with a bank, buying foreign currency on a forward basis, or changing interest rates. If commodities are traded on an exchange, futures can be concluded. They may buy a currency option if they expect the domestic currency to weaken in the future. In essence, derivatives more flexibly, efficiently, and accurately manage risks arising from business, reducing market uncertainty, and limiting risks both at the level of individual participants and on the level of the financial and economic system.

CONCLUSIONS

Risk management is a legal obligation and an indispensable part of any good management. There is a noticeable tendency to increase organizations' material, energy, and economic potential. It contributes to the increase in the scale and severity of the consequences of a risky event. The field of action of the hazard factor does not only include the system environment but very often covers the broader territory, thus endangering people, material resources, and the environment.

Therefore, it is necessary to take measures aimed at eliminating the causes of occurrence and/or minimizing the effects of a risky event, as well as ensure minimal losses and eliminate the consequences if risky events occur, which forms the basis for risk management. Risk represents uncertainty, which due to unfavorable changes in risk factors can be expressed in the form of loss. Risk factors include all causes that have an impact on risk, but which cannot be influenced.

Today, all organizations do business in an environment that is constantly changing. That is why quickly responding to changing circumstances and adapting to them are significant. Management in every organization should be ready for changes that may have to be made due to the direction of the organization changings and changes in priorities and significant parts of the business. Risk management is a tool that helps anticipate and respond to change. And so, it allows managers to foresee unfavorable circumstances or events that can be prevented, to achieve the organization's goals, and to direct control procedures and resources to the primary activities and the risks associated with them.

Financial engineers created the futures contract as one of the most significant derivative instruments to reduce the increasing risks of price and interest rate changes. Futures are instruments derived from a specific asset (commodity, securities, currency, stock index). They essentially represent purchase contracts with a forward clause, which refers to the delayed delivery and payment of market material. However, over time, the independent market life of futures and other derivatives as a sign of value about the basic asset of the contract came to be separated. Futures and other derivatives become independent objects of trade, and the asset represents only the source that indirectly affects the final value of the derivative at maturity. Also, in most cases, especially in the case of financial derivatives, the stock market effect is not delivered at the time of maturity of the contract, but only until the price difference.

Derivatives offer a significant advantage: the risks are transferred when used. Market and price risks of the underlying asset are transferred contractually to the financial derivative through the contract design. Of course, derivative financial

instruments also have disadvantages, for example, there is a risk of total loss for some.

In addition, the investment period is much shorter than with stocks or bonds, which means that it is needed to follow the development of the underlying asset much more closely and have a certain level of experience in the field of trading.

Financial derivatives have no intrinsic material value. Their value depends on the value of the underlying instrument (asset).

When trading derivatives, the trader bets on the performance of this underlying asset, such as a stock.

A prerequisite for trading financial derivatives is that the two involved parties have different expectations regarding the performance of the underlying asset.

Financial derivatives thus make it possible to separate physical ownership of the underlying asset from participation in its market opportunities and risks.

A high degree of flexibility creates an opportunity for contractual partners to design contracts individually according to their risk preferences.

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