Research on Accounting Issues of Derivative Financial Instruments under Network Conditions

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Abstract: As a special modern accounting object, after years of continuous research on derivative financial instruments, the accounting community has made significant substantive breakthroughs. It has become the consensus of the major standard-setting bodies that derivative financial instruments should be included in the statement and measured at fair value. With the deepening development of market economy and the advent of the Internet era, China's derivative financial market has also ushered in a new period of development. Therefore, we should combine network technology to break through the traditional accounting recognition and measurement model, and reflect derivatives accounting information comprehensively and objectively in time.

1. Introduction
As an important innovative tool in the financial industry, derivative financial instruments have become a very important investment tool in the international financial field, but at the same time, they are also subject to controversy. For risk guardians, derivative financial instruments are a very effective tool to prevent interest rate risk, exchange rate risk, commodity price risk and other market risks. For speculators, derivative financial instruments can cause astronomical losses in a relatively short period of time. Therefore, derivative financial instruments pose a permanent potential threat to the world economy. Because of the complexity and particularity of derivative financial instruments and the advent of the internet era, new derivative financial products emerge in endlessly. Therefore, it is of great significance to study the accounting problems of derivative financial instruments under the condition of network.

2. The concept of derivative financial instruments

2.1. Definition of derivative financial instruments
Financial instruments can be divided into basic financial instruments and derivative financial instruments. The former mainly includes cash, accounts receivable and payable, common stock, etc. Derivative financial instruments, also known as derivatives, financial derivatives or derivatives, are a basic concept in modern finance. From a financial point of view, derivative financial instruments are essentially bilateral contracts or agreements, and their value varies with the change of contract targets. The target of derivative financial instruments can be either interest rate, exchange rate, stock price or commodity price. Therefore, derivative financial instruments include commodity derivative financial instruments and financial derivative financial instruments. The narrow sense of derivative financial instruments only refers to financial derivative financial instruments, while the broad sense of derivative financial instruments includes both financial derivative financial instruments and commodity derivative financial instruments.
2.2. Classification of derivative financial instruments

With the advent of the Internet era, new derivative financial products emerge in endlessly, and derivative financial instruments have been constantly innovated. The basic categories of derivative financial instruments can be divided into the following four categories, as shown in Table 1 below.

| Categories | Descriptions |
|------------|--------------|
| Forward    | A contract for the purchase or sale of an asset at a fixed price at a specified time in the future. |
|            | In an organized exchange, the buyer and seller reach an agreement through open bidding, and agree to deliver a standard number of specific financial instruments or commodities at a specific time in the future. |
| Futures    | The right of an option buyer to buy or sell an asset at a fixed price at a certain time after paying a certain option fee. |
|            | The parties shall exchange different financial instruments in the financial market under certain conditions. Swap contracts include currency swap, interest rate swap and currency interest rate swap. |

At present, most of the derivative financial instruments belong to one of the above four categories, or a combination of derivative financial instruments including forward, futures, options or swaps.

2.3. Characteristics of derivative financial instruments

Although the contract terms of derivative financial instruments are various and varied, they still have some common characteristics, which are derived from the characteristics of the definition of derivative financial instruments, as shown in Figure 1 below.

![Characteristics of derivative financial instruments](image)

Figure 1. Characteristics of derivative financial instruments

Derivativity is based on the price or other variables of a financial instrument, while leverage means that very high returns can be achieved with very little investment. Leverage is the most obvious characteristic of derivative financial products, which is different from ordinary financial instruments and real assets. It will have a very important impact on its accounting recognition, measurement and reporting.

3. Impact of networking conditions on the development of derivative financial instruments

3.1. Impact of networking conditions on the development of financial industry

The impact of network technology on modern financial industry, including derivatives, mainly includes three aspects. First, it promotes the use of computers to replace traditional manual internal business management in China's banks, securities and other industries. Secondly, the financial industry is no longer confined to the direct online networking of domestic banks and their branches or business outlets, but to the establishment of computer network financial transaction system between different banks and financial institutions. Finally, with the rapid development of economic globalization and the Internet, the major financial institutions in the world have realized network connection with other financial centres in the world, which can realize the rapid transfer of funds worldwide.
3.2. The promoting role of network technology in the development of derivatives
Firstly, network technology is the most important means to design and price derivative financial instruments. Because the design of contract terms of combined derivative financial instruments is extremely complex, and a lot of complex calculations are involved in pricing and valuation, network technology is a powerful booster to promote the rapid growth of the derivative market. With the development of global network, people can complete transactions instantaneously all over the world, which have objectively promoted the rapid development of derivative financial markets to a great extent.

4. Main accounting issues of derivative financial instruments under network conditions
The accounting issues of derivative financial instruments under the network conditions mainly include accounting recognition and accounting measurement, as shown in Figure 2 below.

![Figure 2. Main accounting issues of derivative financial instruments](image)

4.1. Accounting recognition of derivative financial instruments
When traditional financial accounting recognizes the two accounting elements of assets and liabilities, it takes the time of transaction as the confirmation standard. Derivative financial instruments are always closely related to risk and reward. Risk and reward refer to the inflow and outflow of future economic interests. This flow of future economic interests does not need to be based on the occurrence of past or existing transactions, but only on the signing of contracts. Therefore, the confirmation standard of financial instruments is obviously different from the existing confirmation standard of financial accounting. It is necessary for accounting to break through the traditional accounting confirmation model and use electronic data as reliable original vouchers to confirm the value changes of derivatives in time, and take risk as the object of accounting confirmation.

4.2. Accounting measurement of derivative financial instruments
As a core issue of financial accounting, accounting measurement must reflect the value of the measured object as objectively and fairly as possible in order to provide useful information for decision-making. Because the value of derivative financial instruments always changes with the changes of financial market, it is more in line with the essence of derivative financial instruments to replace historical cost with fair value. It is appropriate to use fair value to measure derivative financial instruments, which basically conforms to the characteristics of the unity of risk and benefit of derivative financial instruments. However, the profit and loss caused by the change of fair value or current market price are treated differently because of the different purposes of holding financial assets and liabilities. This not only gives the enterprise management a greater choice, but also brings difficulties to the practical operation. Therefore, the feasible solution is to adopt a simple and uniform approach, that is, either to be included in the current profits and losses, or to be deferred.
5. Conclusions

Continuous financial innovation to create rich and colourful derivative financial instruments has become an important feature of modern finance. Starting from the analysis of definition and characteristics, this paper discusses the accounting confirmation and accounting measurement of derivative financial instruments under the condition of network. Accounting shall include derivative financial instruments in the statement at the time of signing the contract. The value of derivatives implies very high risks. Therefore, the original electronic data vouchers should be used as the confirmation basis to confirm the huge value changes of derivatives in time, and it is necessary to include the risk of derivatives into the accounting object. The unique leverage of derivatives requires that the measurement of derivatives must adopt fair value, and only by adjusting the market quotation to determine fair value, can the correlation of fair value information of derivatives on balance sheet day be improved.

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