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# *Risk Management of Commercial Banks under Interest Rate Marketisation*

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***Abstract:*** In recent years, various countries have embarked on the path of interest rate marketisation to enable the market to determine interest rates autonomously. This paper adopts the method of literature review and literature analysis to investigate the impact of interest rate marketisation on commercial banks and the risk management of commercial banks under interest rate marketisation. It is found that the marketisation of interest rates will directly affect the deposit and lending rates of commercial banks, thus affecting their asset-liability business and structure as well as net interest margin to facilitate business transformation. Meanwhile, the risk of interest rate marketisation can be classified into stage risk and everlasting risk according to the duration, the former is mainly from three aspects, namely, adverse selection risk, risk concentration risk and market competition risk, while the latter is classified into four types, namely, re-pricing risk, yield curve risk, benchmark risk and selective risk.

***Keywords:*** Interest rate marketisation, Commercial bank, Risk management

## 1. Introduction

Interest rate marketisation refers to the process whereby the market has the power to determine interest rates autonomously. Its reform originated from the financial repressive policy of interest rate control. After World War II, global inflation was severe, the original fixed exchange rate system collapsed, and the world economy was in depression. Thus various countries have implemented the financial suppression policy to highly regulate interest rates By the 1970s, the shortcomings of interest rate control were becoming increasingly apparent, bringing about many problems such as negative real interest rates and financial disintermediation, which seriously constrained economic development.

In 1973, Mckinnon and Shaw put forward the theories of "financial inhibition" and "financial deepening", and they believed that countries should lift financial inhibition, gradually give up excessive government intervention in the financial market, and carry out financial deepening represented by interest rate market reform. Under the influence of Mckinnon and Shaw's theory, the objective demand to overcome the defects brought about by financial inhibition, and the impetus of flourishing financial innovation, more and more countries and regions have embarked on the road of interest rate marketisation since the 1970s.

This paper specifically examines the impact of interest rate marketisation on commercial banks' deposit and loan rates, deposit and loan spreads, asset-liability structure, net interest margins and business transformation through the methods of literature analysis and review. As well as the resulting

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transitional risk and everlasting risk. It enables commercial banks to better cope with the risks brought about by interest rate marketisation and to carry out reasonable risk management. It also provides a reference idea for relevant departments and individuals to distinguish the risks of commercial banks.

## 2. Objective Impact of Interest Rate Marketisation on Commercial Banks

### 2.1. Impact on Bank Deposit and Loan Rates as well as Deposit and Loan Spreads

Analyzing the level of interest rates in various countries around the world, it can be found that the overall level of real interest rates has been on an upward trend with the process of interest rate marketisation, i.e. in the 1980s. It is because after the lifting of interest rate restrictions, the level of interest rates in the supply and demand relationship determines the equilibrium rate of interest, which inevitably leads to interest rates from the long-term interest rate control under the level of negative or lower levels of interest rates to positive or higher levels.

Overall, the global trend is that the deposit and loan spreads after interest rate marketisation do not narrow individually as theoretical analyses suggest, but rather show a narrowing in the early stages of interest rate marketisation and then a rise in the long term. This is because in the early stage of interest rate deregulation, competition in the banking industry intensified, and banks had to raise deposit rates to obtain a stable source of funds and to control lending rates in order to attract high-quality customers, so there is a tendency to narrow the spread between deposits and loans. In developed countries, the diversification of financing channels due to financial innovation has led to less room for the rise of lending rates.

In the late stage of interest rate marketisation, interest rate competition basically tend to be stable, non-price competition has become the main form of competition, at the same time, banks' bargaining power and liability management ability have also improved a lot, so that the effect of long-term spreads increased. In developing countries, due to the monopoly of banks in the capital market, even higher deposit and loan spreads were observed after the marketisation of interest rates.

### 2.2. Impact on the Structure of Bank Assets and Liabilities

At the beginning of the completion of interest rate marketisation, the proportion of deposits remained roughly unchanged, and the proportion of loans increased. The competitiveness of the banking sector in comparison with the money and capital markets has increased, promoting banks to absorb deposits, ensuring a more stable source of deposit funds for banks, thereby reducing liquidity risk, which makes the loan-to-deposit ratio maintain a steady rise during the period.

Interest rate marketisation can ease the "financial disintermediation", so that the problem of the weakening of deposit-taking capacity of deposit institutions has been alleviated, providing banks with a more stable source of deposit funds, accompanied by a gradual increase in the proportion of lending business, i.e., the asset-liability structure of the banking industry has been improved. At the same time, due to the impact of interest rate easing on the traditional banking industry, residents have more diversified investment channels, thus reducing the tendency to save in the bank, resulting in the conversion of low-cost deposits to high-cost deposits in the deposit structure of the bank; at the same time, it also makes the bank's cost of funds rise, deposits absorbed by the bank will be used in the high-interest rate loans to provide indirect financing for the private sector of the higher risk, which will also stimulate the risk appetite of the loan customers. In a result, it increases the operational risk of banks and reduces the overall asset quality of the banking sector.

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### 2.3. Impact on Banks' Net Interest Margins

The net interest margin is the ratio of the bank's net interest income to the bank's total interest-earning assets. In contrast to the spread between deposits and loans, the interest-earning assets and interest-paying liabilities of banks in the calculation of the net interest margin include not only deposits and loans, but also benefit cost differentials from other investments.

Regarding the interest rate marketisation in the United States in the 1980s, on the one hand, due to changes in the structure of deposits and loans, the proportion of loans in interest-earning assets rose, and the loan-to-deposit ratio increased, thus improving the net interest spread; on the other hand, due to a more stable source of deposits, the bank's efficiency in the use of funds and pricing ability has also continued to increase, so that the loans in volume and price have improved, which partially offset the negative effect of the deregulation of interest rate on the deposit and loan spreads [1]. As a result, while deposit and loan spreads narrowed significantly, net interest margins grew gently. However, other related factors have also led to strong differences in the trends of net interest spreads across countries. For example, in Japan, after the marketisation of interest rates, the loan-to-deposit ratio of the banking sector dropped sharply, leading to a more drastic decline in net interest margins.

### 2.4. Impact on the Transformation of Banking Business

Due to the shrinkage of traditional business caused by the marketisation of interest rates, in order to enhance the profitability of the banking industry, commercial banks have actively transformed from financing intermediaries to service intermediaries, accelerated the development of off-balance sheet business that does not rely on spreads, and continuously developed new financial products, thus promoting the business transformation of the banking industry towards off-balance sheet business and the transformation of integrated operations. In the long run, the transformation of banking business can also play a significant role in promoting and facilitating the deepening of financial liberalization in all countries, also the interpenetration and cross-fertilization of business among financial institutions. However, it will increase the instability of banks to some extent at the same time, and even financial institutions.

When a mass of banks flood into new business areas, it will lead to an increase in operational risks; meanwhile, due to the relative unfamiliarity with the business, it will also lead to an increase in operational costs and a decrease in revenues, which will lead to a decrease in the ability to withstand risks. For developing countries in particular, the risks associated with such business transformation are much higher than in developed countries because of their lower level of familiarity with new business areas, weaker resilience to risk, and lack of sound systemic risk prevention measures.

## 3. Risks Arising from Interest Rate Marketisation

### 3.1. Transitional Risk

In order to facilitate the description, this paper chooses to divide the risk according to the duration, and the risk of interest rate marketisation is divided into transitional risk and everlasting risk.

Transitional risk of interest rate marketisation refers to the risk arising from the inability of commercial banks to adapt to the market interest rate environment at the early stage of interest rate marketisation, i.e. the transition from regulated interest rates to market-based interest rates. Transitional risk has a significant systemic nature, and will gradually disappear with the completion of the interest rate transition stage.

According to the different sources of risk, they are divided into adverse selection risk, risk concentration risk and market competition risk.

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a. Adverse selection risk. From the "adverse selection effect", it can be seen that in the process of interest rate marketisation, as the interest rate level rises, high-risk borrowers will be more willing to borrow from the bank, while less-risk borrowers may gradually withdraw from the ranks of loan applicants [2]. As high-risk borrowers flood the credit market, the likelihood of loan contract defaults will increase greatly. The original risk averse borrowers of hedge-financed firms also tend to change the nature of their own projects, so that it has a higher level of risk and return to make up for the increase in interest payments, which produces a "risk incentive effect" [3]. This led to a decline in the average quality of commercial bank assets and a sudden increase in credit risk after the marketisation of interest rates. Worse still, because of the asymmetry of information between banks and their creditors, there is not a monotonically positive relationship between loan risk and loan interest rate. Moreover, according to the principal-agent theory, when banks face the problem of declining profit level, they tend to shift the risk to depositors, which leads to further amplification of the negative effect of such adverse selection and risk incentives [4].

b. Risk concentration risk. After the marketisation of interest rates, the level of deposit interest rates increases, and if the level of lending interest rates increases simultaneously, the high interest rates are passed on to the enterprises, which is actually equivalent to lowering the profit level of the enterprises. Enterprise profits decline, self-accumulation capacity is weakened, which will lead to an increase in corporate debt ratio or a decline in demand for loans. If not, the increase in funding costs caused by the unilateral rise in deposit rates can only be compensated for by the bank's own efficiency. In both cases, the risks originally borne by dispersed depositors now fall mainly on the banks. In addition, bank risk will be further increased if banks have large external debts or if they are unable to escape from the problem of government coercion to finance them after financial liberalization [5].

c. Market competition risk. After the marketisation of interest rates, the gap in interest rate levels between various financial institutions or instruments has narrowed, and the original advantages of commercial banks no longer exist. Also, residents have more diversified investment channels, the tendency to save in the bank is significantly reduced, resulting in increased competition among commercial banks in the source of funds. At the same time, the marketisation of interest rates will also make some of the banks' original simple and easy business with high rates of return no longer viable. For example, previously in China, commercial banks could earn a high spread by transferring or investing foreign currency deposits taken in domestically abroad because international market interest rates were significantly higher than domestic foreign currency interest rates. After the liberalization of domestic and foreign currency interest rates, the stable spread of banks' foreign exchange loan business no longer exists.

### 3.2. Everlasting Risk

The everlasting risk of interest rate marketisation is what is commonly referred to as interest rate risk. Unlike transitional risk, everlasting risk arises from the uncertainty of changes in market interest rates and is long-term and non-systematic in nature. That is to say, as long as the marketisation of interest rates is implemented, everlasting risk is unavoidable. The Basel Committee, in its *Principles for the Management of Interest Rate Risk*, divides interest rate risk into four categories: repricing risk, yield curve risk, benchmark risk and selective risk.

a. Repricing risk. Repricing risk (also called maturity mismatch risk) is the most important and common interest rate risk. As a result of the mismatch between interest rate sensitive assets and interest rate sensitive liabilities of commercial banks, changes in interest rates will have an impact on the net interest margin income of the banks. When interest rates rise, if the bank's interest rate-sensitive assets are less than interest rate-sensitive liabilities, the bank's net interest margin income will decrease. When interest rates fall, if the bank has more interest-sensitive assets than interest-

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sensitive liabilities, the bank's net interest margin income will also decrease. Such interest rate risk does not exist until the average life cycle (i.e., duration) of the bank's assets and liabilities are matched.

b. Return curve risk. Yield curve risk is an unfavorable change in the returns or intrinsic economic value of the economic agents concerned as a result of an unexpected shift or change in the slope of the yield curve.

Generally speaking, long-term interest rates are always higher than short-term interest rates. However, during the expansionary phase of the business cycle, short-term interest rates are higher than long-term interest rates as a result of the reversal of monetary policy. Long and short-term interest rates inverted, making the bank's original expectative spreads on assets and liabilities to fall through.

c. Benchmark risk. Benchmark risk is caused by the incomplete correlation between interest payments and interest adjustments on different instruments with similar pricing properties. When interest rates change, these differences can lead to unpredictable changes in cash flows and yield spreads between assets, liabilities and off-balance sheet instruments with the same maturity or repricing. Further, even if economic agents reprice assets and liabilities at the same time, they are exposed to basis risk as long as interest rates on assets and liabilities do not adjust by the same amount. The asynchronous movement of deposit and lending rates stems from the market's judgement of the degree of risk associated with different financial instruments and the degree of competition among financial institutions. Obviously, a higher increase in deposit rates than in lending rates reduces the net interest margin income of banks.

d. Selective risk. Selective risk is also called option risk, mainly refers to the implied option risk reflected in the economic entity's balance sheet operations. Relative to the buyer of the option, both direct and implied option instruments have asymmetric payment characteristics and bring a very high risk to the seller. In most loan contracts, there are various options related to interest rates, such as early repayment of loans; in national financial laws, the freedom of depositors to make early withdrawals is provided. When interest rates fall, there is a tendency for lenders to repay loans early and re-finance them at lower rates; when interest rates rise, depositors also tend to switch deposits. In the event that the penalties levied by the bank for this purpose are not sufficient to offset the loss in spread, the net interest margin of the bank is subsequently reduced.

## 4. Interest Rate Risk Management

In order to effectively reduce risks, commercial banks should accurately analyze their own advantages, identify their shortcomings and take a differentiated development route. At the same time, they must improve their business management level, strengthen their awareness of risk control, increase their means and ability to cope with changes in different economic environments, and make better use of financial resources and provide services. It is also possible to learn from some western commercial banks that have set up special organizations - Asset/Liability Committee (ALCO) - to manage interest rate risks.

It is also important to consider that the impact of interest rate marketisation on the financial system is linked [6]. While the implementation of interest rate marketisation has been effective in reducing the liquidity risk of banks as a whole, categorically, different types of banking sectors are still subject to constraints in terms of interest rates on deposits and ceilings on interest rates quoted in the lending market [7]. Therefore, a series of regulations such as the relevant exchange rate regime and capital controls need to be reformed in parallel. Meanwhile, commercial banks also need diversified financial instruments to hedge interest rate risk, so financial regulators not only need to regulate, but also counselling on the development of the financial derivatives market.

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## 5. Conclusion

This paper begins with a brief discussion of the process of interest rate marketisation, by analyzing its objective impact on commercial banks, leads to a discussion of the risks faced by commercial banks under interest rate marketisation, and finally gives some feasible risk management measures. Due to the necessity of marketisation of interest rates, a wave of interest rate marketisation was launched globally in the 1980s. However, while alleviating the drawbacks brought about by interest rate control and giving full play to the dual attributes of interest rates as the price of money and funds and as a tool of monetary policy, it has also brought about new problems. It has had a great impact on the deposit and loan rates, deposit and loan spreads, asset-liability structure, net interest margin and business transformation of commercial banks, increasing the operating costs of commercial banks and significantly intensifying the competition they face. The interest rate marketisation risk faced by commercial banks can be divided into transitional risk and everlasting risk according to the duration, the former will gradually disappear with the completion of the interest rate transition stage, while the latter cannot be prevented. To promote the reduction of interest rate marketisation risks for commercial banks, commercial banks themselves and other sectors should work together to promote the smooth development of the economy.

The analysis of the risks faced by commercial banks in this paper may not be comprehensive enough, and the proposed risk management measures need to be further researched and demonstrated before they can be useful. With the continuous development of the times, there will be new countermeasures that can be used to solve the existing problems, which deserve further research. Finally, it is hoped that the research in this paper will do its part in risk management in commercial banks.

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