

**INTEREST RATE DERIVATIVES IN
DEVELOPING COUNTRIES IN EUROPE**

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JEL Classifications: G15

Key words: Interest rate derivatives, developing countries, government yield curve, stabile macroeconomic environment.

Abstract: Financial derivatives (interest rate futures, options and swaps) are a very simple way to minimize interest rate risk and therefore are extremely popular. The value of interest rate derivatives transactions in the world is increasing dramatically. Unfortunately, this is not the case with developing countries in Europe. Although significantly increased in the last decade, interest rate derivatives markets in developing countries are still in nascent stage.

In most developing countries still the main problem for the interest rate derivatives development is the lack of basic conditions, including inadequate measurement of interest rate risk exposure, underdevelopment of financial markets in general and especially of market instruments that underlying derivatives, weak and/or inadequate infrastructure and legal framework, misunderstanding and lack of experience in operations with financial derivatives and the complexity of the derivatives accounting.

ISSN: 1804-0527 (online) 1804-0519 (print)

Vol.9 (3), PP. 38-42

Introduction

Interest rate risk is the likelihood of adverse impact of changes in interest rates on income, cash flows, costs and economic value of the institution. Due to the wide impact that interest rate changes have on business performance, it is very important to manage this type of risk.

Financial derivatives (interest rate futures, options and swaps) are a very simple way to minimize interest rate risk and therefore are extremely popular. The value of interest rate derivatives transactions in the world is increasing dramatically. Unfortunately, this is not the case with developing countries in Europe. Although significantly increased in the last decade, interest rate derivatives markets in

Notional amounts outstanding¹ of all types of OTC derivatives, after increase in the second half of 2009, fell by 4% to USD 583 trillion at end-June 2010. The decline was partially a consequence of deteriorated market sentiment related to the European sovereign debt crisis and depreciation of European currencies against the US dollar (in which the data are reported).

¹ Notional amounts outstanding provide useful information on the structure of the OTC derivatives market but it is not a good measure of the counterparty risk of these positions. There is no single measure of this risk, but a useful concept is the cost of replacing all open contracts at the prevailing market prices, i.e. their gross market value.

developing countries are still rather undeveloped. The problem in those countries is the lack of basic preconditions for the development of financial derivatives.

This paper examines the main reasons for poor development of interest rate derivatives markets in developing countries in Europe.

Interest rate derivatives market

Total turnover of financial derivatives on the world markets, after a drop in 2008 begun slowly to recover in the second half of 2009 and in 2010, but it has not yet reached the pre-crisis level (the second quarter of 2008), which means that the derivatives market is not yet fully recovered.

Sharp asset price movements following the bankruptcy of Lehman Brothers in 2008 resulted in a sharp rise in gross market values in the second half of 2008. Gross market values declined quite rapidly thereafter, but increased again in the first half of 2010 as markets went through another period of turbulence and reached USD 25 trillion at end-June 2010 (BIS, 2010).

Interest rate risk is the largest type of risk traded on the OTC derivatives market in terms of notional amounts as well as gross market values. OTC interest rate derivatives made up 82% of total notional amounts of OTC

instruments and 75% in total gross market values (BIS, 2010).

Notional amounts outstanding of OTC interest rate derivatives reached USD 452 trillion in the first half of 2010 compared to USD 450 trillion at the end of 2009. Single currency interest rate swaps was the dominant instrument and it made up more than three quarters of total notional amounts falling into this category, while options made up 11% and forward rate agreements (FRAs), nearly 13%. However, all of the increase in notional amounts outstanding was due to the growth of FRAs, while swaps and options recorded decrease compared to 2009.

As a result of the European sovereign debt crisis, growth was recorded only in short-term maturities, while maturities over one year recorded decrease. For the same reason, growth was recorded in notional amounts outstanding of US dollars-denominated interest rate derivatives and decline in euro-denominated.

When it comes to gross market value of interest rate derivatives, conclusions are largely the same. Growth was recorded in all types of interest rate derivatives and the total gross market value of OTC interest rate derivatives reached USD 17.5 trillion in Jun 2010 (BIS, 2010). Swaps archived the highest increase. According to the currency, the highest growth was recorded in gross market value of US dollars-denominated interest rate derivatives, followed by euro and pound sterling-denominated interest rate derivatives.

Turnover in interest rate derivatives was concentrated in a small number of financial centers - the United Kingdom was the most active location with a share of 46% of worldwide trading, followed by the United States with a share of 23%.

Interest rate derivatives in the developing countries in Europe

Although significantly increased in the last decade, especially in countries that have abolished capital controls and developed basic financial instruments, derivatives markets in developing countries are still rather undeveloped. The use of derivatives varies from country to country depending on its need for

foreign capital and the development of the financial markets.

In most developing countries in Europe, derivatives market is in nascent stage. Restrictions on the use of derivatives have been eliminated recently. Derivatives are mainly used to hedge or speculate on exchange rate. The most developed segment of the derivatives market is over-the-counter (OTC) market, while the exchange trade derivatives are marginal. The total notional amount outstanding of OTC interest rate derivatives at end-June 2010 in developing countries in central and eastern Europe was USD 70 billion, which is very small compared to USD 1.8 trillion in developing countries in Asia.

Every three years the Bank for International Settlements conducts a survey on the topic of financial derivatives market development. In this way, data on the size and structure of these markets in individual countries are comparable. The last survey was conducted in 2010 and it involved 53 countries. From countries participating in the survey, Bulgaria, Czech Republic and Poland have been chosen. Interest rate derivatives markets in chosen countries are poorly developed. The biggest derivative market is in Poland, but in comparison to some Asian developing countries it is rather underdeveloped. In these chosen countries, swaps are the most actively traded and they made 52% of total turnover. Forwards are the second best with a share of about 48% of total turnover, while the options have marginal significance. Mostly, derivatives are in local currency and in Euros and Dollars. The next part of this paper, after short description of the results of the survey conducted in Croatia, will deal with the reasons of such low interest rate derivatives development.

Croatia did not participate in the survey of the Bank for International Settlements, but in late 2006 questionnaire was conducted on the subject of banks' use of interest rate derivatives. The aim was to determine how banks manage interest rate risk, and whether and to what extent they use financial derivatives. The questionnaire was sent to 33 banks, but only 21 banks (64%) replied.

All banks have given an affirmative answer to the question of the existence of the interest

rate risk policy, which means they are aware of the importance of interest rate risk. The findings, however, showed the following:

- large number of banks has no department for risk management, or if there is any, comes to managing credit risk, which refers to evaluating the creditworthiness and solvency of clients;
- most banks have an interest rate risk policy, but it boils down mainly to the definition of interest rate risk and its measurement, while the actual management of risk does not exist;
- most commonly used method to measure interest rate risk exposure is the gap;
- when it comes to instruments of protection against interest rate risk, most banks use assets and liabilities maturities matching and the policy of fixed and variable interest rates;
- 10% of banks use financial derivatives to protect against interest rate risk, but these are major banks whose share in total assets is over 5%;
- banks that use derivatives, for counterparty typically have correspondent banks in neighboring countries.

The results showed that the use of financial derivatives for interest rate risk protection is relatively small. According to the Croatian National Bank, the share of derivatives in the consolidated banks' balance-sheet in 2006 amounted only 0.1%.

In Serbia, Macedonia, Montenegro, Bosnia and Herzegovina and Albania interest rate derivatives market does not exist.

Causes of the slow development of interest rate derivatives market in developing countries

Although in some countries financial derivatives market has grown considerably in recent years (especially in Asia), in most developing countries these markets are still very underdeveloped, especially when it comes to the markets of interest rate derivatives. The problem in those countries is the lack of basic preconditions for the development of financial derivatives.

Preconditions for financial derivatives development are:

- a stable macroeconomic environment

- transparent and comprehensive legal framework
- developed market infrastructure
- deep local market and many financial market participants
- credible database.

Sound and stable macroeconomic environment is a key factor for greater long-term engagement of domestic and foreign investors and it contributes to more efficient international diversification of capital. Most developing countries in the last couple of years went (some are still going) through the transition process, and a stable macroeconomic environment exist only till recently.

Transparent, clear and comprehensive laws and regulations, that do not change very often, guarantee property rights, encourage the use of different instruments, and are harmonized with international regulations, standards and practices (which contributes to the integration of markets and reduced transaction costs) are also an essential precondition for development of financial markets in general, and therefore the financial derivatives market as well.

In addition to stable macroeconomic environment and adequate legal system, appropriate infrastructure is also necessary in the terms of the existence of appropriate institutions (brokerage houses, clearing houses...) and regulatory bodies as well as in terms of knowledge of financial market participants and regulators.

Derivatives market cannot develop if the markets of instruments that underlie the derivatives are not well developed and deep. This primarily refers to the well-developed and efficient government bonds market, both primary and secondary. Government securities have a specific role in the financial markets. Of all financial instruments, government securities are the least risky. Credit worthiness of government is never under the question because it has a whole arsenal of measures that ensure that it will fulfill its obligations. Due to extremely high credit rating, government securities are considered risk-free, so for them market participants require the lowest yields. For securities of other issuers market participants require a higher interest rate because they carry a higher risk than the

government securities. Interest rates on government securities are the basis for all other interest rates on the market. Other interest rates are formed by adding an additional percent (premium for additional risk) on the interest rate on government securities, which depends on many factors, primarily on the credit rating of the issuer and currency denomination of the securities.

It is of huge importance that the government securities are available in many different maturities so that a government yield curve can be formed. The yield curve is set interest rates for different maturities of certain securities issuer in the same currency. The yield curve of government securities is risk-free yield curve, and the other yield curves on the market are formed by adding the risk premium on the government yield curve.

In addition to this, the yield curve on government securities also reflects the expectations regarding future interest rates movements and thus serves as a basis for investment decisions. Under normal conditions, the yield curve has a positive slope which means that interest rates increase with maturity, meaning that interest rates are higher for longer maturities. This reflects positive future expectations in the form of positive economic development, economic growth and rising inflation. Greater uncertainty over the future inflation level in the long run results in higher required rate of return for longer maturities.

When yield curve has a negative slope (inverted yield curve), interest rates for longer maturities are less than the interest rates for shorter maturities. Negative slope of the yield curve reflects negative expectations regarding future market trends. Investors will accept lower rates of return than the current, only if they expect decline in economic activity. Inverse yield curve indicates that investors expect low inflation in the future and are willing to accept lower yields because inflation will be lower (and the real yield will not necessarily be reduced). The New York Federal Reserve uses the yield curve as an indicator that can predict the recession two to six quarters ahead.

Deep government security market, that functions effectively, is the basis precondition for financial, and thus security market,

development. Therefore, the issuance of government securities should be supported by adequate policy of public debt, proper laws and regulations and infrastructure. Simplifying and minimizing costs of the secondary government securities trading should contribute to liquidity increase (so that they could be easily bought or sold). In addition to this, it is very important that there are government securities of different maturities in order to meet the different investor's needs (some invest for a period of a few months and other for a period of several decades), but, more important, as already mentioned, that a yield curve can be formed. Preferential tax treatment can also increase attractiveness and liquidity of government securities.

A large number of investors is also very important if country wants to have developed and deep local financial market, both primary and secondary. Developing countries should, therefore, support the development of private pension funds, hedge and investment funds and insurance companies, and remove capital controls so that foreign investors have access to local market. Of course, this should go hand in hand with the adequate supervision of financial institutions.

Information about developing countries markets is often incomplete, limited or unavailable, especially when there is a need for more detailed information or a longer series of data. Also, data is often not consistent and comparable. Incompleteness of data significantly increases the risk and complicates the investment decision-making process.

Conclusion

The value of interest rate derivatives transactions in the world is increasing dramatically, but this is not the case with developing countries, especially in Europe. Although significantly increased in the last decade (primarily in Asia), interest rate derivatives markets in developing countries are still in nascent stage. Some developing countries have undertaken a series of reforms to deepen the local bond market and create the necessary preconditions for the development of derivatives markets. However, in developing countries in Europe, including the countries mentioned in

this paper (Bulgaria, Czech Republic, Poland and Croatia), the main problem is still the lack of basic preconditions - inadequate measurement of interest rate risk exposure, underdevelopment of financial markets in general and market instruments that underlie derivatives, weak and/or inadequate infrastructure and legal framework, misunderstanding and lack of experience in operations with financial derivatives.

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