Derivatives Based Structured Products Solution for Meeting Stable Funding Base Requirement of Banking Companies

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Abstract. Banking companies will try to maintain and increase the funding base under increased international capital transfer conditions and prudential provisions of Basel III to assure a steady base for deposits. Under this framework there are needed innovative solutions to meet simultaneously two conditions, meaning higher interest rates for depositors under restrictive circumstances, and hedging solutions for banking companies to cap the risk involved by higher interest rates promised for depositors. In this research paper, there are presented the methodology for implementing two derivatives based structured products for the purpose of meeting Basel III requirement in the very close future.

Keywords: Structured Products, Double Knocked Forex Options, Equity Index Options, Stable Funding Base

1. Introduction

A structured product is a combination of two or more instruments meant to create comparative advantages compared with classical financial instruments, such as deposits, shares or bonds. The main feature is increased yield they offer for higher risks assumed due to complexity created by joining individual products, bearing features of different markets or portfolios. Markets and portfolios inversely correlated having potential for real development based on real economy are sources for creating structured products. Such markets are the emerging ones, like China, India or Brasilia. Each of these markets has sustainability into real economy, this way creating the foundation for structured products development on long term.

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2.1. Research methodology and literature review about structured products

In our research paper we intend to create two structured products which will be explained in details in the following two sub-chapters. Their purpose is to maintain a steady base of deposits on long term. This is a requirement of Basel III provisions (Härle, Lüders, Pepanides, Pfetsch, Poppensieker, Stegemann, 2010), according to which starting on 2012 the funding base of deposits of banking companies will be monitored by central banks. As well, starting on 2 years ahead, there will be needed complementary capital adequacy for those banking companies not having a minimum required level of steady base for deposits. Net Stable Funding Ratio requires the available amount of stable funding to exceed the required amount of stable funding over a one-year period of extended stress.

The underlying instruments in structured products can be classified under the following categories (Suvanam, Trivedi, 2010):

- Equity-linked Notes & Deposits;
- Interest rate-linked Notes & Deposits;
- FX and Commodity-linked Notes & Deposits;
- Hybrid-linked Notes & Deposits;
- Credit Linked Notes & Deposits;
- Market Linked Notes & Deposits.

Under this requirement, banking companies will try to keep their customers; otherwise they will need more capital adequacy. The image policy is a good mobile for this purpose. An exaggeration not based on

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corporate governance could jeopardize the willing to increase interest rate for deposits. An unjustified increase could be judged as a lack of strength, a desperate measure to increase liquidity, by attracting at higher interest rates on medium and long term and placing on short term. To avoid this judgement, banking companies should carefully pay attention to corporate communication and behavior as part of corporate identity and corporate governance. “Traders provide market liquidity, and their ability to do so depends on their availability of funding” (Brunnermeier, Pedersen, 2009). Structured products come with innovative solutions under this lack of funding availability.

“The financial market turmoil in 2007 and 2008 has led to the most severe crisis since the Great Depression and threatens to have large repercussions on the real economy” (Brunnermeier, 2009). Under these circumstancesm the structured products are an alternative to classical funding restricted by large repercussions.

“Tighter risk management leads to market illiquidity, and this illiquidity further tightens risk management” (Gârleanu, Pedersen, 2007). The interbank limits are blocked and banking companies need to apply to derivatives based deposits. “The demand for the majority of structured products can only be explained by behavioral factors, specifically loss aversion” (Hens, Rieger, 2011). “For classical rational investors the utility gains from structured products are typically much smaller than their fees” (Hens, Rieger, 2011). These studies reveal a balance on long term between involved parties.

The purpose followed through this research paper is for providing liquidity. Investors looking for high returns will decrease their expectations as the time horizon increase for the benefit of guaranteeing a minimal return.

Structured products characteristics should reveal to customers the financial risk involved by the products. “Although derivatives are good instruments to expresses complex non linear views on markets, lack of sophistication and understanding has given rise to investments into structured products, which have derivative like payoffs but are bespoke and not exchange traded” (Suvanam, Trivedi, 2010). Depending of the customer category, according to MIFID (Markets in Financial Instruments Directive) provisions, there will be needed more or less information to be provided, before entering a transaction. This category of transactions should be approved as well by the authority body for financial instruments on national level. There is currently a tendency for alignment of national provisions to MIFID and ISDA (International Swaps and Derivatives Agreement) international regulations.

Having understood the features of structured products and their role in the new tendencies, principles and recommendations for banking companies on behalf of International Institute of Finance (International Institute of Finance, 2010), both parties should benefit by entering into a transaction. The structured products proposed in our research paper combine a liability position, in form of deposits with specific features, with an asset position (holding an option). In some national accountancy regulations the option product is held off-balance, but according to IFRS (International Financial Regulation Standards) it is incorporated into on-balance sheet positions. The link between the deposit and option is made by the feature stipulated into the characteristics of the products, which declare the conditions under which the increased payment is made to customer.

“The structured products market has experienced explosive growth in the United States over the last five years. The growth of this market is expected to continue” (Bethel, Ferrell, 2007). Following the Basel III requirement for stable base funding, a new motivation is given to banking companies to foster structured products development. “Many advisers are critical and disinterested due to transparency concerns, but on the flipside, they are very interested in capital protection for clients. They want the protection, but this is hard to achieve without complexity” (Mace, 2011). This announces new times for structured products.

2.2. Using of double knocked forex options and forex linked deposits

Double knocked forex (foreign exchange currency) options and forex linked deposits are the asset long call position and liability position. The “long” is meaning a buying position, since “call” means a right but not to obligation to exercise the buying in the future. Due to volatility of foreign exchange rates, the market participants have different opinions over the evolution of the foreign currency cross rates against domestic currency or other foreign currency.

Mainly, the customer is promised an increased payment on behalf of the bank for his deposit in a certain base currency in case that the base currency is going to be appreciated or depreciated outside a specified interval, lately noticed as one standard deviation against the average cross exchange rate during a specified period.

Based on experience based marketing the customer believes that market conditions will change significantly in the next trading period, that's why he is entering into the structured product trading, thinking that the cross exchange rate will be quite volatile in the next trading period. The cross exchange rate being volatile, outside one standard deviation against the average for example, the customer will earn a higher interest rate, because the banking company has promised a higher interest rate for his deposits if cross exchange rate is outside the interval. If the cross exchange rate is within of one standard deviation against the average, the bank will pay a low interest rate of about 1%.

The two scenarios to be considered are as follows: ***firstly***, when cross exchange rate is ***outside*** of one standard deviation interval left-right against the average, the bank pays a higher interest rate to customers; ***secondly***, when cross exchange rate is ***inside*** of one standard deviation left-right against the average, the bank pays just 1% to customers. In the first case, the customers are paid more because they have assumed a risky (volatile) situation, and in the second case, the customers are paid lesser because they have undertaken a lesser level of risk (without significant volatility).

In the *second case*, the banking companies are satisfied and they are not exercising the option we have mentioned, which costs about 2-3%. In the second case, the bank pays finally 1% to customer and 2 until 3% to the trading counterparty as premium for entering into the double knocked forex option. The option is called double knocked because of up and down levels of forex options. The financing cost of the bank in this case is 3 up to 4%.

In the *first case*, as mentioned, the customer is paid with an increased interest rate, 15% for example. The banking company will exercise in this case the double knocked forex options for which it has paid 2-3%, and the whole level of 15% paid by banking company to depositors is supported by the trading options partner of banking company. The financing cost of banking company is in this case 2-3%, consisting from the cost of the option.

Taking into consideration *both cases*, the maximal interest rate supported by banking company is 4%, even if the maximal amount paid to customer is 15%. In the second case, the risk of paying of higher interest rate is transferred to trading option counterparty of banking company. This last one has taken 2-3% when sold the option, but has paid 15% in the first case, and remained with the entire profit of 2-3% in the second case. Its profit and loss account is minus 12-13% in the first case. This loss is judged in terms of portfolio management against the benchmark, and never individually, this way the trading options company is benefiting from other transactions, by inverse correlations, and will try to beat the benchmark, and finally to perform into a profitable way.

This transaction is founded on studies and believes of participants. The *depositor* believes he will earn a higher interest rate because the foreign exchange rate will surpass the followed interval of one standard deviation against the average rate. He does not trust into the economic environment. As well, the *banking company* trusts the system, because has more hypothesis for handling, that's why its belief is oriented towards stability. The *trading options counterparty* is generally an international trading company which believes that base environment is not so stable as the banking company believes, because it has not peculiar information the banking companies have on base (or domestic) market, on one hand, and on the other hand the focus of international trading company is based on benchmark based trading.

2.3. Using of equity index options and capital guaranteed deposits

Equity index options and capital guaranteed deposits are the asset long call position and liability position. The deposits are taken on long term, usually 10 or 20 years. The return for deposits is a minimal amount of 50% up to 100% plus an amount related to the performance of the equity index. If deposit is broken until maturity, the depositor does not get anything.

If in case of forex linked deposits we are dealing with a short term perspective, in case of capital guaranteed deposits the perspective is on long term horizon. The medium term horizon is going to be covered by timely decreasing of long term deposits' maturities. Consequently, by these two deposits, the bank could cover its entire financing horizon.

For hedging the capital guaranteed deposits, the banking company is assuming a gradual increase of the performance of a stock exchange index, taking a long call position on a equity index option which is continuously rollovered on 10 up to 20 years in relation with the maturity of deposits. Compared with double knocked forex options, when counterparties were founding their decisions on short term movements in macroeconomics and speculative international capital transfers, in case of equity index options, the banking company is assuming a minimal performance of equity index on long term.

In order to find out what indexes we could rely on, a security market line analysis could be replaced by an analysis of economic trends and desire to obtain of a higher return with a higher volatility undertaken. These kinds of markets are represented by emerging economies, with high potential of development, like those represented into Brazilian, Chinese or Indian stock exchanges. Each of stock exchanges has a competitive economic advantage in the future world economy based on real economy. For example, Brasilia is the biggest world producer and exporter of ethanol, under times of continuously discovering of new energetic resources (Trupo, 2011). On the other hand, India has an immense resource for IT developers, which counts a lot under a more and more informatics environment. China has acquired the biggest producers in the world, and has robust investment capabilities all over the world. As well, China is the biggest investor in Africa's natural resources (French, 2010). The equity index options for these stock exchange indexes (Brazilian, Chinese, and Indian) have healthy fundamentals which we could rely on when assuming a high development on long term.

The main way for placing these kinds of capital guaranteed deposits is over the counters of banking companies, with relevant signing of MIFID required documents for declaring the type of professional. Being long term involvements, the banking companies could sign partnerships with corporate investors willing to diversify their held to maturity deposits.

The main depositors interested in long term deposits with banking companies are the pension funds and insurance companies which continuously develop their funds and need to invest them in a profitable and conservative way. This is a kind of partnership between these kinds of companies and could be sustained by insurance and pension funds companies' network to sell these investments products. In these cases, a fee is assumed to be collected by seller of the investment product.

All the parties are interest in these kinds of structured products. The banking companies are obtaining a zero return funding facility over 10 up to 20 years, paying just a lump amount at the maturity of deposits. As well, pension funds and insurance companies are interested in long term maturities, diversification of their portfolios and possibility to guarantee a minimal return to their contributors. The individuals and corporate investors placing in capital guaranteed deposits directly with the bank will find long term guaranteed return investments. The equity index option broker, by selling its products, will foster the real economy and companies listed within these stock exchanges.

2.4. Conclusions

Under a lack of funding facilities and blocking of interbank limits, banking companies should balance the components of structured products in an innovative but transparent way. The lack of transparency often concluded to banks' bankruptcy by involvement of trading desks into complex and non transparent transactions. This inconvenient could be overpassed by correct application of MIFID, through which the investors should assume their level of professionalism, by strengthening the risk limits and control over the treasury desks, sustained by Basel regulations, and by trying to find a balance between classical products and derivatives instruments to be understood by all departments within a bank and not by trading desk only.

Forex linked deposits and capital guaranteed deposits are meant to cover short and long term financing of the banking companies, which should create a constant base for their deposits, otherwise these need to put aside complementary capital, according to new Basel III provisions to be in force in the very close future.

It is a matter of competitiveness and relationships based on trustiness. Depositors will go towards those banking companies offering the best returns on short and long terms taking into considerations the overall ratings of the banks, as a measure of their trustworthiness.

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