The market for structured products in the context of inflation

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Abstract

The article presents the structured products market in Poland in the context of profit from completed investments in structured products. Gross profit and yearly net profit were delimited from completed structured products in years 2000-2013. Profit from structured products was listed with inflation and the average annual interest rate on deposits for a period of 12 months. The best and worst in terms of gross profit, described in detail, structured product completed on the polish capital market in years 2000-2013.

Structured products as defined by the Warsaw Stock Exchange are financial instruments whose price is dependent on the value of a specific market index (eg exchange of shares or baskets of shares , stock exchange indices , exchange rates) . They are issued by financial institutions, mostly banks or brokerage houses. The issuer of a structured product undertakes in relation to the buyer (investor) at maturity of the instrument to pay the settlement amount calculated according to a specific pattern .

Keywords: structured products, alternative investments, finance, capital market.
JEL Classification: G10, G19, E00.

1. Introduction

Structured products belong to the genre of so-called alternative investments, these are investments that their positive result does not depend on continuous positive gains on the stock markets. According to the Warsaw Stock Exchange, they are financial instruments which price is dependent on the value of a particular market index. They are issued by financial institutions, mostly banks or brokerage houses. The issuer of a structured product is bound to, in relation to the buyer (investor), pay the settlement amount calculated according to a specific pattern at maturity of the instrument.

Thanks to its specific construction structured products provide investors with capital protection (full or partial), and at the same time make it possible (although not certain) to obtain income, and the payoff function is always the option plan. As in the case of other investment products, the rate of return is not known ex ante.

Despite the similar structure and function of economic, structured products exist in various forms and therefore are cross. To structured products can belong: deposit where the interest rate does not depend only on interest rates, but depends for example on the share price, the price of oil or gold, insurance product, bond or investment certificate. The specific legal form

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does not prejudge the fact that the distributor is a financial entity with the relevant sector - for example, banks offer to the customers structured products in form of insurance products. Due to the nature of the functional, structured products are treated as a combination of savings and investment instruments (Węgrzyn, 2013, Sroczyńska-Baron, 2013).

Financial institutions that bring to the market this kind of instrument gain income (margin), which amount depends on the design of a specific product and is determined by ex ante, i.e. at the time of closing of the subscription. The amount of margin is usually not shown to the public. Thus, at times when banks and various financial institutions offer very low interest rates typically in the range of inflation on traditional banking products such as bank deposits (see Fig.1), the most appropriate form of investment seems to be an investment in structured products.
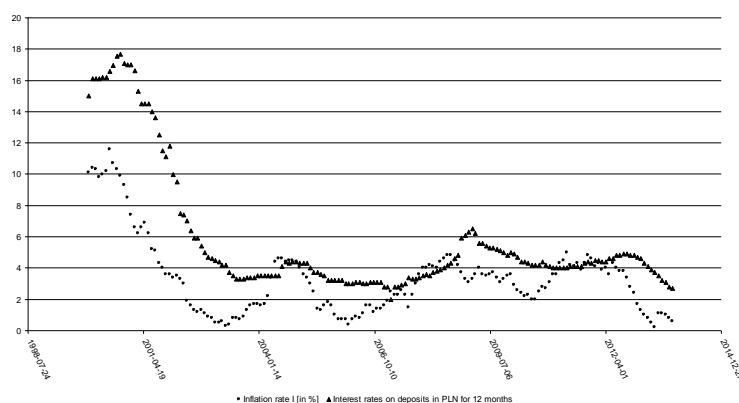

Fig. 1. Summary of the rate of inflation with [in%] (relative to the corresponding month of the previous year) interest rate cash of deposits in major commercial banks during a period of 12 months [in%]. The data relate to the period 2000-2013.

It is appropriate for all investors, however, it can be concluded that it is addressed, in particular, to people who are not interested in investing on the stock exchange floors due to lack of experience and high risk aversion which is accompanied by an investment exchange, but those who are interested in a multiplication of their assets in a non-classical and in some way connected with the stock market. Therefore, it can be argued that at the present time, investments in structured products are the complement or even replacement of more traditional investments in stocks, bonds and investments. They give the ability to connect the investing with their own hobbies and more than average profits (Hadaś-Dyduch, 2013a).

But the question should be put in this place if the investment in structured products is always actually profitable, giving above average profits and favorable to the investor. Is a profit

which investor has in front of the eyes reading the information about the investment real? Or is it just an illusion and dream? Is investing savings in structured products really worth it? Is it a worthwhile investment decision? The answer these and other questions can only be thorough the understanding of the structured products on the market and the following profit and loss analysis completed on the polish capital market of structured products (Węgrzyn, 2013). In the analysis, there are presented structured products which were made in period from early 2000 to the end of 2013. 1820 structured products were tested. In case of 149 structured products, representing 8.19% of the total carried out structured products, there is lack of data allowing the determination of gross profit (Hadaś-Dyduch, 2013).

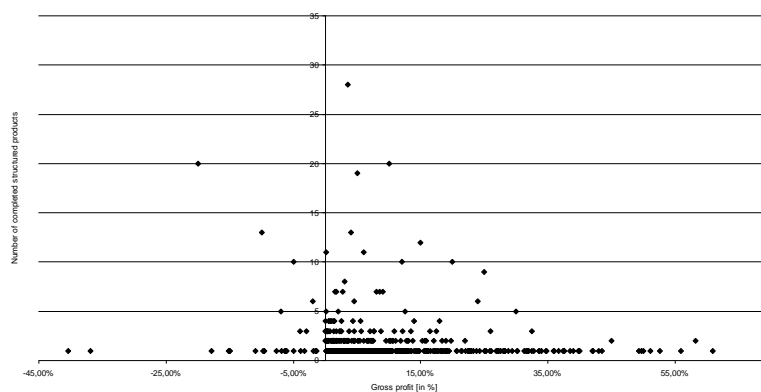## 2. Gross profit of structured products ended in the years 2000-2013

Gross profit of structured products ended in the years 2000 - 2013 was in the range of -62.83% to 154.33% (see Fig. 2).
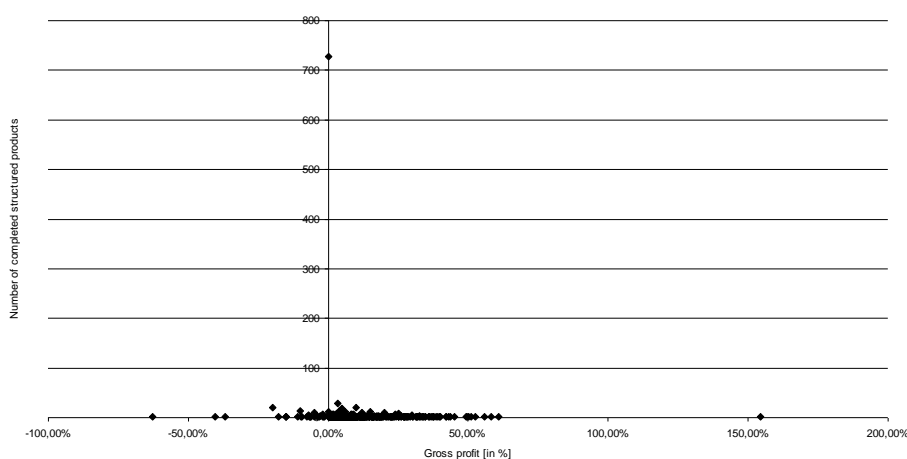
Fig. 2. Gross profit of structured products ended in the years 2000-2013 in Poland.

The worst results, i.e. -62.83% reached the structured product, which distributor was the institution of Wealth Solutions, and a partner of Royal Polish Tuż (Fig. 3).

It was the product of a 6-month duration and minimum investment amount of 10 000 PLN. The product had the legal form of group life insurance and endowment insurance where the contracting insurance company was the Royal Polish Life Insurance Company SA and Wealth Solutions Ltd. Deposit paid by the investor is the insurance premium. Sums paid out after the duration of the policy were the provision of insurance for endowment. The sum on which the person is insured in case of death was 101% of the invested premium. The assured sum in case of traffic accident was 106 % of the invested premium.

Fig. 3. Gross profit of ended structured products in Poland in years 2000-2013 without extreme values.

Statistics	Gross profit	Inflation
Average	0.043	3.335
Standard error	0.002	0.187
Median	0.001	3.300
The standard deviation	0.101	2.425
The variance of the sample	0.010	5.880
Range	2.172	11.400
Minimum	-0.628	0.200
Maksimum	1.543	11.600

Table 1 Basic statistics, presenting a series of pre-tax profit of structured products completed in years 2000-2013 [in%] and the inflation rate and [in%] in relation to the corresponding month of the previous year.

Profit was based on a basket composed of 6 shares of Russian companies: Lukoil, Gazprom, Rosneft, Norilsk Nickel, Surgutneftgaz, Tatneft. The structured product information sheet stated: Investment "(...) gives a chance for 13 % of profit from invested capital after 6 months". Profit, tax-free beams, will be paid out when the listing of the shares of any of the six companies in the course of the investment will not fall by 30% or more in relation to their value at the start of the investment. Where the quotation of at least one of the companies will fall by 30 per cent or more below the level from 27th June, at the end of the investment, the investor will receive 113% of the invested capital, reduced with the lowest return rate achieved on the day of ending of investments among the results of all six companies (on condition that it will be negative rate of return).

Specification	Number of the ended structured products	The percentage of products in relation to the total number that ended structured products with a designated profit
ended in the red	81.000	4.850%
ended with a profit 0%	728.000	43.570%
ended in the black	862.000	51.590%
profit NC	149.000	8.920%
profit in the interval [-1 do -10)	40.000	2.390%
profit in the interval [-10,-20)	18.000	1.080%
profit level of -20%	20.000	1.200%
profit level of -36,87%	1.000	0.060%
profit level of -40,37%	1.000	0.060%
profit level of -62,83%	1.000	0.060%
profit in the interval (0%, 1%)	101.000	6.040%
profit in the interval [1 %, 2%)	77.000	4.610%
profit in the interval [2%, 3%)	73.000	4.370%
profit in the interval [3 % , 4%)	79.000	4.730%
profit in the interval [4%, 5%)	56.000	3.350%
profit in the interval [5% , 6%)	45.000	2.690%
profit in the interval [6%, 7%)	37.000	2.210%
profit in the interval [7%, 8%)	37.000	2.210%
profit in the interval [8 %, 9%)	34.000	2.030%
profit in the interval [9%, 10%)	25.000	1.500%
profit in the interval [10%, 11%)	41.000	2.450%
profit in the interval [11%, 12%)	17.000	1.020%
profit in the interval [12%, 20%)	132.000	7.900%
profit in the interval [20%, 30%)	60.000	3.590%
profit in the interval [30%, 50%)	40.000	2.390%
profit in the interval [50%, 155%)	8.000	0.480%

Table 2 Summary of the results in the context of gross profit from completed structured products in years 2000-2013.

However, if at the end of the investment period, despite the overcoming of barrier "-30 %", any of the companies will not have a negative rate of return, an investor receives profit of 13% of the invested funds. "During the investment it was possible to withdraw funds with the current value financial instruments that compose the investment. The fee for withdrawing the funds equaled 0%. The highest gross profit is a profit on the level of 154.33%, reached the structured product called Arka Global Index in 2007, which issuer was the institution BZ WBK AIB TFI. It was a product in the form of Closed Investment Fund, a 48-month duration and a minimum amount of investment of PLN 5 000. Profit from investments was based on a basket consisting of the indices of the S & P 500, DJ Eurostoxx 50, Nikkei 225.

Average gross profit of structured products ended in years 2000-2013 is 4.31%, which is 1% higher than the average rate of inflation in years 2000-2013. 50% of the completed structured products with a designated profit is gross profit which ranges at most up to 0.1% (Table 1).

The most often, finished products had a gross profit of 0%, such structured products was 728 during the period, representing 40% of all completed structured products on the polish capital market and 43.57% of all the products for which a profit is known at the end of the investment. Among the 1,820 completed structured products in years 2000-2013, 1671 have defined gross profit, from which 862 structured products ended with positive territory and 81 in the red (see Table 2).
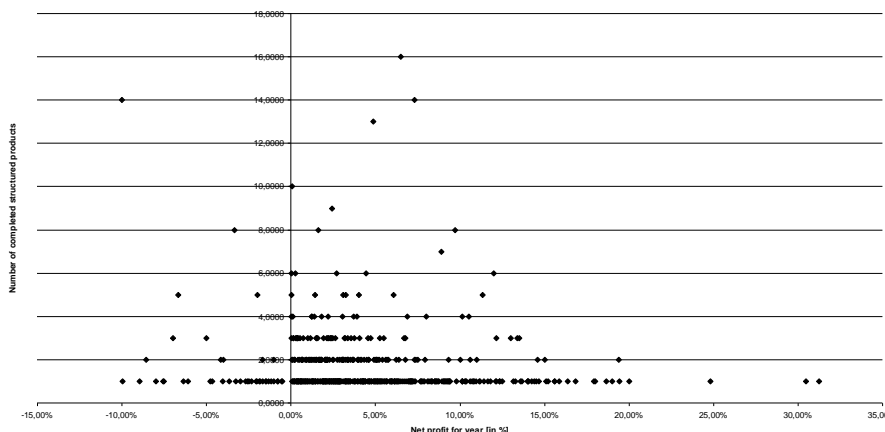
3. Yearly net profit from the ended structured products in years 2000-2013

In addition to the gross profit from investments in structured products, we can also talk about the effectiveness of products through the analysis of the annual net profit of the enclosed structured products. Net profit from ended structured products in years 2000-2013 was in the range from -125.66% to 31.25% (see Fig. 4).

| Statistics	Yearly net profit	The interest rate on deposits for 12 months
Average	2.140%	5.800%
Standard error	0.130%	0.310%
Median	0.080%	4.300%
Minimum	-125.660%	2.000%
Maksimum	31.250%	17.600%

Table 3 Basic statistics presenting series of annual net profit from ended structured products in years 2000-2013 [in%] and the interest rate on deposits for 12 months.

The average annual net profit, ended in the years 2000-2013 structured products is 2.14% and is 3.66% lower than the average annual income from investments designated based on observations from the period January 2000 – December 2013, and is increased by 1.19% of the average level of inflation during the period (Table 3, Fig. 5, Fig. 6).
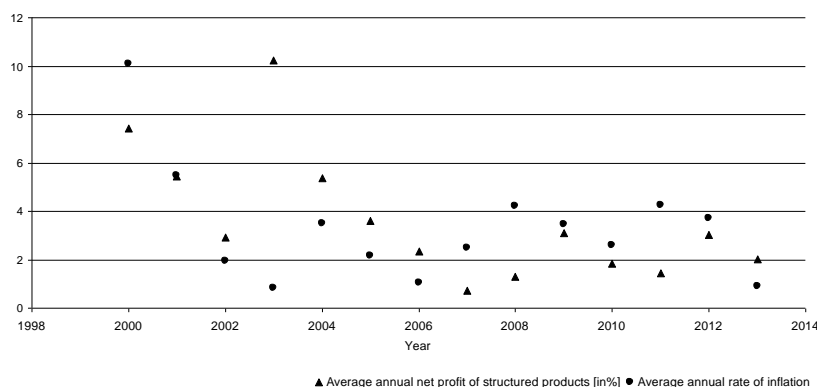

Fig. 4. Yearly net profit from ended structured products in Poland in years 2000-2013 without extreme values.

Most finished products had annual net profit at 0%, such structured products was 730 during this period, which represents 40,11% of the total number of completed structured products on the polish capital market and 43.69% of the products where the annual net profit is at the end of the investment. Among 1,820 completed structured products in years 2000-2013, in 1671 of them it was possible to determine yearly net profit, where 860 of structured products ended in the black.

▲ Average annual net profit of structured products [in%] ● The average annual interest rate on deposits for 12 Months [in%]
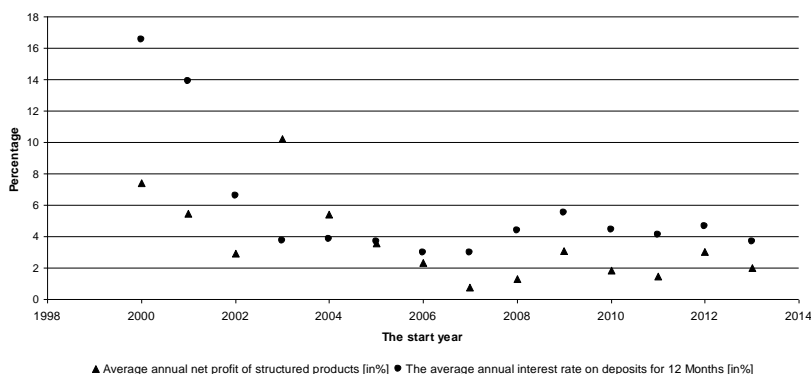
Fig. 5. The average annual net profit from ended structured products in Poland in years 2000-2013 in comparison with the average annual interest rate on deposits for 12 months [in%].

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Fig. 6. The average annual net profit from ended structured products in Poland in years 2000-2013 [in%] in comparison with the average annual level of inflation.

Institution	Name of product	Basket	Duration in months	Beginning of the investment-date	Gross profit	Yearly net profit	Legal form
BZ WBK	Amer Index	S&P500	48	2003-10-17	0.197	4.000%	deposit invest.
BZ WBK	Euro Index	DJ EuroStoxx 50	48	2003-10-17	0.226	4.600%	deposit invest.
BZ WBK	Amer Index	S&P500	48	2003-06-06	0.259	5.300%	deposit invest.
Bank BPH	Lokata Eurozysk	DJ Euro Stoxx 50, WIG20	36	2003-10-31	0.227	6.100%	bank securit.
BZ WBK AIB TFI	Arka Global Index 2007	S&P500; DJ Eurostoxx 50; Nikkei 225	48	2003-12-29	1.543	31.300%	FIZ

Table 4 Structured products ended in 2003.

The worst annual net profit recorded in 2003 (Fig. 5, Fig. 6), was 0.731%. The institutions BZ WBK and Bank BPH created it, as it is presented in detail in Table 4.

Data on income from structured products can be used for further research in the field of investment by various methods. One method may be the method proposed in (Sroczyńska-Baron, 2013, Sroczyńska-Baron, 2013a), taking into account the specific nature of the capital market (Węgrzyn, 2013, Węgrzyn, 2013a) and insurance (Wolny-Dominiak, 2012, Wolny-Dominiak, 2013, Wolny-Dominiak, 2009, Wolny-Dominiak and Trzesiok, 2008).

Conclusion

The article presents the market of structured products in Poland in the context of profit from the completed investments in structured products. The gross profit and annual net profit of ended structured products in years 2000-2013 were delimited. The profit of structured products is listed with the inflation and the average annual interest rate on deposits for a period of 12 months. It should be mentioned that the obtained in the survey data as a series of hundreds of element can be used for prediction of structured products and built on the basis of their investment portfolios. Methods for the construction of portfolios can be varied, one method may be the method proposed in (Sroczyńska-Baron, 2013), taking into account the specific nature of the capital market (Węgrzyn, 2013) and insurance (Wolny-Dominiak, 2012).

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