



FINANCIAL TOOLS USED BY THE ENTERPRISES

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Abstract: *Since the term 'structured products' does not refer to a particular investment tool it may take different forms in terms of technical and legal classifications. Structured products are investment tools based on at least two elements: one risk-free and one with higher risk, and (high) growth potential. The idea assumes that risk-free part secures the whole investment (over the investment period) and guarantees return of particular value (to the investor) when the investment is over. At the same time the 'risky' part is supposed to provide as much profit as possible but the investors must take into consideration possible losses. This paper presents the characteristics of structured products, specifics of the Polish market and structured products analysis in the years 2004-2010. Particular attention is paid to transportation and logistic companies, which were and will be financial market investors.*

Key words: *Financial Markets, Financial Tools, Transport and Logistic Enterprises.*

1 INTRODUCTION

Structured products are investment tools based on at least two elements: one risk - free and one with high growth potential. According report on structured products in Poland [1] there are four conditions necessary for the product to be classified as structured:

- partial protection of capital,
- defined time of investment,
- return rate based on defined formula,
- usage of derivative instrument.

The idea assumes that risk-free part secures the whole investment over the investment period and guarantees return of particular value to the investor when the investment is over. At the same time the 'risky' part is supposed to provide as much profit as possible but the investor must take into consideration possibility of losing it. The capital guaranteed by risk free part is usually between 70% and 100% of initial investment and it is obtained by investing risk-free part into securities of highly predictable growth like treasury bonds or inter-bank deposits. The lower the guaranteed part is the higher is the potential profit because bigger part of the investment may be committed to high growth part. The above mechanism allows limiting potential loss because guaranteed part defines the most pessimistic scenario for investor. At

the same time theoretically there is no limit of profits since it depends on construction of particular product and success of its base instrument.[3]

The variety of instruments, which may be a base for structured products, is high. The growth part of investment is based on derivative instrument like swap or option. This derivative instrument is dependent on some external factors, which are defined in structure of particular product as well as the influence of this factor on the final result of the investment. For example structured products may be dependent on values of stock, indices, currency, raw material or resources and many others. The character of structured product is clearly defined in terms of this dependency; it is devoted to particular ‘topic’ for example copper prices or exchange rate of certain currency. That is why investment in structured products in a way may be treated similarly to investment funds. Some investors may not have skills or possibility of participation in certain investment directly but they may easily invest in structured funds devoted to the same branch. On the other hand investment funds do not guarantee a return of initial capital and losses are potentially unlimited. The issuer of structured products does not have to be (and usually it is not) associated with the ‘topic’ of investment. However the character of issuer is strongly dependent on the kind of issued structured products in terms of its legal form. The details and available options of structured products classification are discussed further in this paper [2].

2 CHAPTER 1 THE STRUCTURED PRODUCTS MODEL

The general model of structure of any structured product (Figure 1) assumes division of initial investment capital into safe part and option part. The option part is reduced by issuer’s margin. The safe part generates the guaranteed capital over the whole investment period. Figure 1 presents the model assumes 100% coverage of initial capital at the end of the investment.

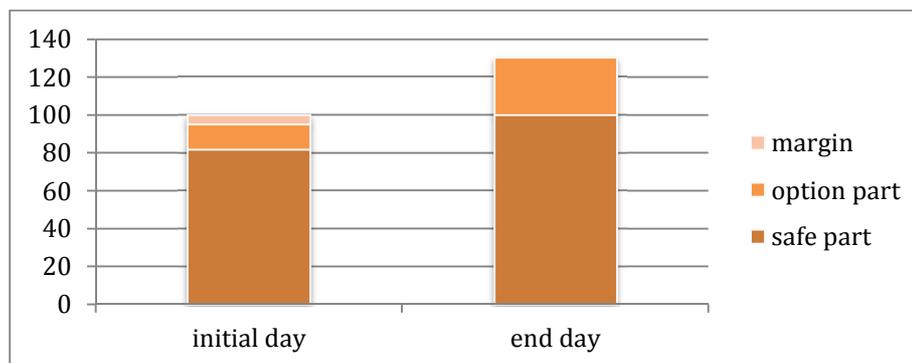


Fig. 1: Structured products' model

The calculation of total interest rate obtained by growth of safe part and option part is precisely defined in terms of offered structured product and presented to investor. The method of calculation varies depending on particular case as very the level of complexity of calculation. It is the complexity, which is often pointed out by sceptical investors as down side of structured product. The following examples are based on real products and illustrate these differences [5]:

- The structured product based on EUR/PLN exchange rate:
 - the interest rate equals 0 or if condition is satisfied it equals X (given value);
 - there is minimum X defined;

- condition: the exchange rate EUR/PLN is within specified limit on specified day.
- The structured product based on stock portfolio of five companies.

The formula is defined as product of initial investment, N and the coupon (where N is highest obtained number of observations where condition is satisfied: $S_{it} > S_{i0}$); coupon is announced rate not lower than defined minimum level. S_{i0} is value of i_{th} element of portfolio at defined day and S_{it} is value of i_{th} element on the observation day.[4] Observations are performed three times during the investment period at specified dates.

As one can notice the second example is not in fact very complicated however the form of its presentation may seem discouraging for who are not experienced and who are looking for some simple investment solution.

Also when it comes to defining costs of terminating the product before the end date different approaches can be met. It may be simply defined as table with percentage values for each day separately (the sooner the higher values) and then the cost of termination is the value of structured product for a certain day multiplied by percentage value from mentioned table. In other cases cost of termination may be defined as a formula involving current value of structured product, constant coefficient and ratio of time passed to total time expected for this particular product.

3 CHAPTER 2 THE POLISH MARKET OVERVIEW

The situation of structured products market in Poland is getting better which means that more investors are interested in that solution and more capital is invested in it. Significant rise in overall invested capital took place in 2005 and it was followed by more moderate growth of total number of investors. Since that time the market of structured products reached over 15.500.000.000 PLN in terms of overall invested capital (in 2010). The critical year 2008 did not spare the structured products market which is clearly visible in terms of annual sales data. On the other hand the structured products branch proved itself to be deeply rooted on the Polish market since general growth trend remained stable [1]. Figures 2 and 3 show tendencies of structured products market in Poland in recent years.

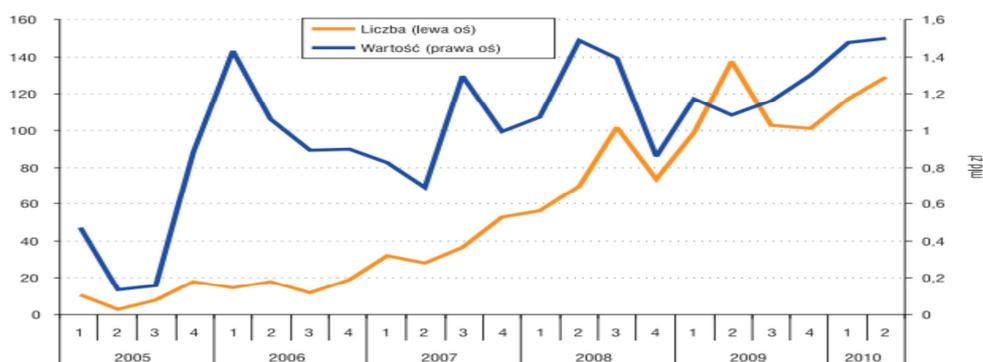


Fig. 2: Total number (left axis) and total value (right axis) of structured products sold in Poland 2005 – 2010

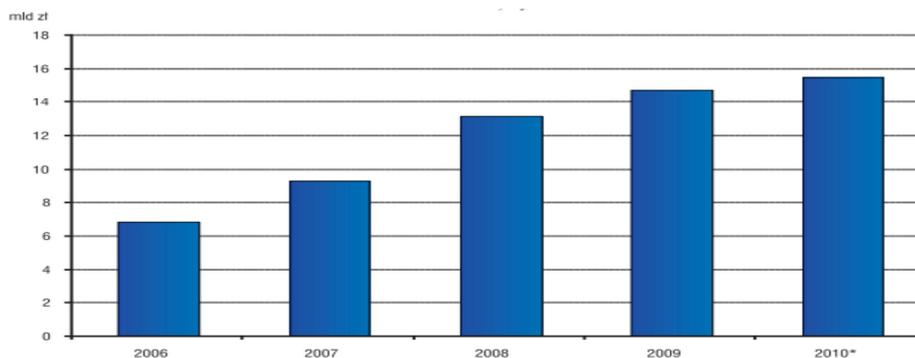


Fig. 3: Value of structured products working in Poland 2006 – 2010

These significant growth trends may lead to false conclusions about the actual strength and participation of structured products in portfolios of the Polish investors. In fact the situation here is completely opposite than the growth data suggests. According already mentioned report the measured ratio of total structured products value to GDP value gives slightly over 1.12% in 2009. Despite the fact that also in terms of above ratio there is clear growing trend. Poland is still a very long way behind countries of Western Europe. The ultimate leader – Belgium, reached 25%; Italy or Switzerland are over 10% and countries like France, Germany, Austria, Ireland, Netherlands or Sweden oscillate around 5%. What is interesting is the fact that investors of United States of America seems to be rather moderately interested in this form of investment (around 1.5%) which makes structured products a domain of Europe.

The general development of structured market in Poland is accompanied by changes in its character. Before 2004 it was treated mainly as indirect access to stock market via index or stock basket. The leaders of the market offered products based on Eurostoxx50, WIG20, or S&P500. Beginning from 2005 investors were offered more diversified options including real estate based, exchange rate based and natural resources based products. Products based on indices like EPRA or REIT joined the group of sales leaders. In most recent years (2008 – 2010) there is no distinct dominator among different kinds of structured products. However during the same period there is other significant tendency, which occurred, and it concerns the character of structured products as well. It is increasing number of offered products, which are based on more complex constructions allowing obtaining profits even at the times of recession (one may notice rapid growth of the above after 2008). About 70% of offered structured products fall within this group at the moment.

There is no legal act in Poland created specifically to control and regulate market of structured products. It may be assumed that it is due to relatively early stage of development of this branch and the fact that structured products do not necessarily require separate legal acts since they always fall within already existing and legally regulated group of investment solutions. One may expect that this will change on national or level or will be imposed by generalized standards of EU, which is not ignoring this matter. The EU is working on Packaged Retail Investment Product [6] standards, which are focused on transparency and informative regulations. Also the existing national regulations in countries with more developed market of structured products (United Kingdom, USA) are in major part devoted to education of investors, information about level of risk and details of investment.

4 CHAPTER 3 THE STRUCTURED PRODUCTS ANALYSIS

The analysis of any investment opportunity may be always treated as a tool to simplify a choice between one and another option for an investor. Making a choice between two or more options is based on comparison of features, risks and potential profits. Because of the fact that comparison is the essence of any analysis there are several difficulties associated with conducting the analysis of structured products. One should remember that structured products do not necessarily fall into one category of financial products available on the market (deposit, insurance, fund etc.) at the same time being classified as structured products. It means that despite conducting analysis among structured product only the analyst may encounter high technical diversity (different taxation rules, purchase costs, guarantees) and lack of common platform for comparison. Another difficulty is the character of structured products in terms of investment time. Unlike two other investment solutions described (investment funds and bonds) there is no possibility for multiple structured products to choose unified investment horizon and investment commencement date. The issuers impose those at the stage of offering the product to investors. At the same time the multitude of issuers and offered structured products create high diversity of investment periods.

Because of the above reasons, which would lead to significant complications while collecting data, the following analysis is based on datasets published by PFSA. The data include results obtained by structured products, which have reached their maturity between the year 2000 and 2010. Taking into consideration almost a decade of structured products activity resulted in huge amount of data, that is why it is not presented individually for each analysed product but for groups diversifying results in terms of investment horizon and maturity date. The aim of this classification is to solve already mentioned difficulties with comparability of data. The first division (investment horizon) allows comparing structured products offering similar investment period, while second classification (maturity date) allows assuming that assuming that changing in time market and economic factors have similar influence for products among one group. The analysed data is elaborated on basis of return rates from over 350 structured products offered on the Polish market during years: 2005 – 2010.

Tab. 1: Annual return rates of structured products with respect to commencement date of investment

Commencement of investment	Average return rate	Minimum return rate	Maximum return rate
2004 or before	5.93%	0%	12.76%
2005	6.21%	0%	22.38%
2006	2.48%	0%	22.13%
2007	1.28%	-3.45%	15.41%
2008	0.54%(2.31%)	-85.94%	21.80%
2009	4.02%	-4.92%	18.64%
2010	4.17%	0%	10.53%

Table 1 allows noticing that the best average return rate among structured products was achieved by these issued in 2005. Beginning from products issued in 2007 one may notice very harsh market period which resulted in lowering the minimum rates obtained. For products commenced in 2007 almost 58% resulted in 0% return rate. Only one third of investments allowed achieving return higher than guaranteed. For comparison, the average

value of the same factor for years 2004 – 2006 is almost 72% when only 10% of structured investment returned no profit. For products, which commenced after 2007 the statistics were slowly recovering reaching in 2009, 38% of those, which did not provide profits to investors, and 57% of those, which gave, profits higher than guaranteed. The data for 2010 involve only 5 structured products that commenced at that time which is not enough to be considered conclusive with respect to sample of 355 of all analysed structured products.

There is one more remark required to explain the lowest return rate achieved among all investigated structured products. The value -85.94% (Table 1) occurs for the year 2008 is caused by extraordinary failure of particular structured product issued in the middle of 2008 (six months of the investment horizon) and based on basket of Russian stocks of companies belonging to mining and natural resources industry. The failure was the result of the slump on the global commodity market at that time. Obviously the market background is the same for all structured products but in case of that particular there was additional weak point – very low guaranteed level of invested capital. Only 13% level of guaranteed return and unfortunate mistiming resulted in the worst return rate among all structured products among involved in analysis. In fact the scale of failure is so significant that the results of analysis are presented in two alternative ways where applicable. The values in brackets are calculated with exclusion of the structured product mentioned above.

Tab. 2: Annual return rates of structured products with respect to maturity date

Maturity of investment	Average return rate	Minimum return rate	Maximum return rate
2004 or before	6.49%	0%	12.76%
2005	3.58%	0%	11.00%
2006	6.32%	0%	11.36%
2007	7.16%	0%	22.13%
2008	0.55% (3.53%)	-85.94%	22.38%
2009	2.85%	-6.00%	21.80%
2010	2.83%	-5.13%	18.64%

The next part of analysis (Table 2) shows statistics for the same sample of structured products but with respect to maturity date instead of commencement date. For some records there is visible a simple one-year shift have investment horizon no longer that 24 months. The overview of these results leads to similar conclusions as previously: one may observe distinct division in results for periods before and after the year 2008. The percentage of products providing results higher than guaranteed is 90% in 2007 and only ~60% in 2008 and 2009. At the same time the percentage of 0% return rate investments increased from 6% to 20% in same years and kept rising year after year up to 50% in 2010. At the same time only 43% of structured products that reached maturity allowed to obtain profits above guaranteed values.

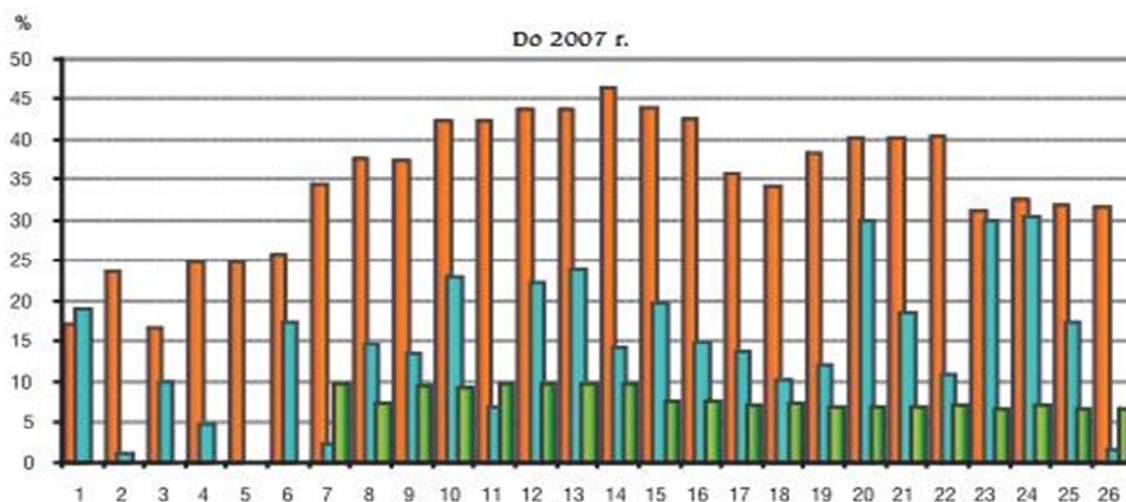


Fig. 4: Return rates of structured products, deposits and investment funds commenced up to year 2007; investment horizon 1-2 years

The strength of 2008 economic collapse and its influence on structured products market may be observed by comparing Figures: 3 and 4. Both Figures presents comparison of return rates for three categories of investment solutions: structured products, bank deposits and balanced investment funds (respectively blue, green and orange column). The numbers on x-axis represent subsequent structured products fulfilling criteria give for particular Figure. The return rates of deposits compared to each are constructed in such a way that results in obtaining the same investment horizon as structured products (for example for structured products lasting one year – deposit for one year is taken, for structured product lasting nine months – two deposits may be taken: six month and then three months). In case of investment funds used for deposits horizon is obviously not a problem as the investor may quit fund at any moment. However the funds taken for comparison are differentiated in terms of their type to match in best possible way funds' character and investment horizon of structured product (for example: money market fund for investment up to 6 months, bond fund for 6-12 month etc.). The investment horizon is 1-2 years in case of given Figures.

The Figure 4 shows optimistic image of high potential profits for investors who decide to put their capital into structured products. On average the results of structured products are between investment funds and deposits, which is coherent with the higher risk – the higher profit logic. Obtained values for structured products in most cases oscillate around the range of 15-20% with a few exceptions in both directions (max. about 31%, min. 0%). It is worth to mention that record holders (numbers 20, 23 and 24) were constructed by the same issuer – Millennium Bank, and were based mostly on basket of commodities (aluminium, copper, crude oil, natural gas), except for number 24 which besides commodities consisted also indices: S&P 500, Nikkei225, Eurostoxx50 and WIBOR.

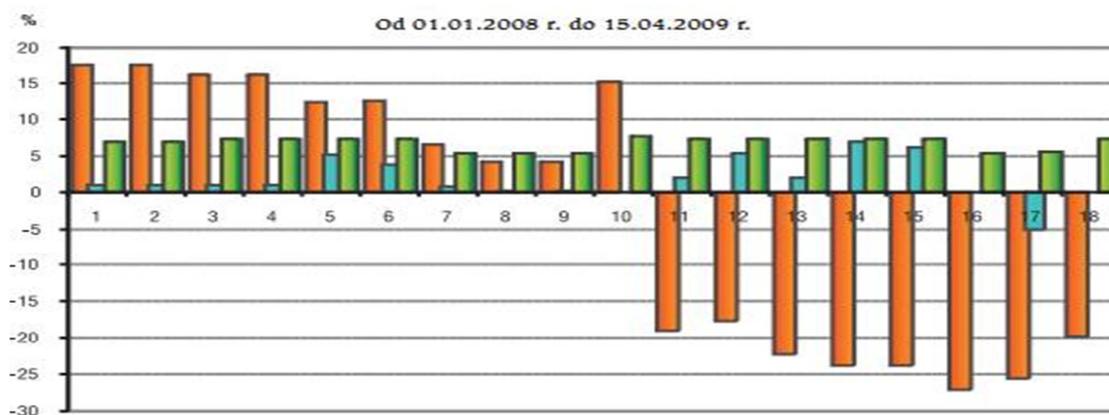


Fig. 5: Return rates of structured products, deposits and investment funds commenced between 01/01/2008 and 15/04/2009 investment; horizon 1-2 years

This stabilized and secure image of structured products has significantly changed after 2007 (Figure 5). Only four out of eighteen taken products demonstrated profits above 5% most were close to 0% and one resulted in actual loss of 5%. It was distributed by Deutsche Bank PBC and based on own EUR dependent index. The general destabilization of the market is visible among results of investment funds as well – eight of them achieved negative results.

Tab. 3: Annual return rates of structured products with respect to investment horizon

Investment horizon	Average return rate	Minimum return rate	Maximum return rate
Up to 6 months	2.65% (3.79%)	-85.94%	22.13%
6 months to 1 year	4.79%	-6.00%	21.80%
1 – 2 years	2.64%	-5.13%	15.41%
2 – 3 years	3.38%	-3.45%	22.38%
Above 3 years	3.95%	0%	8.87%

Another point of view available for analysis of return rates given by structured products is their investment horizon. The investigated group of products was divided into five groups in terms of that condition. The quantitative analysis demonstrates the highest popularity of products with horizon between one and two years (28%) and between two and three (24%). The least popular are products with investment horizon longer than three years (6.8%). In terms of results it is hard to identify any clear pattern or rule-defining rate to horizon relationship. The averages vary insignificantly within the range of 2.64% to 4.79% where the highest value is for 6-12 months horizon. The extreme value among minimum rates is in fact extraordinarily low but it is caused by already mentioned particular structured product extremely deviating from the market.

Tab. 4: Annual return rates of structured products with respect to base instrument

Base instrument	Average return rate	Minimum return rate	Maximum return rate
Indices	5.09%	-6.00%	21.80%
WIG20	5.42%	-6.00%	21.80%
Indices basket	3.69%	-4.92%	10.91%
Currencies	2.85%	-3.37%	22.13%
EUR/PLN	4.48%	0%	22.13%
Commodities	3.41%	-2.53%	15.41%

According to division of return rates with respect to base instrument for structured products one may observe that the only average value deviating from general standard is for currencies in general. The average return rate here is 2.85% while remaining averages stay within 3.41% - 5.42%. On the other hand products based specifically on EUR/PLN exchange rate produced return rate, which fits perfectly in mentioned range. The leading position belongs to stock based products. One should bear in mind that is not referenced to commencement or horizon of investment, which makes given data applicable for the whole period (2005 – 2010).

Table 5: Annual return rates of structured products with respect to issuer

Base instrument	Average return rate	Minimum return rate	Maximum return rate
mBank (BRE Bank)	2.50%	0%	10%
BZ WBK	4.62%	0%	15%
ING Bank Śląski	2.11%	0%	9.86%
Deutsche Bank PBC	3.71%	-3%	17.23%
Bank Pekao	2.78%	0%	16.38%
BRE Bank	3.50%	0%	15.41%
Bank Millenium	8.16%	1%	22.38%

There are seven most active issuers that offered structured products during investigated period. Classification by issuer allows looking on results of structured products from one more angles. Also in this case commencement date and horizon did not influence the data so final return rates are products of different economic periods. Most of the average return rates tend to stay close to certain range with only one exception, which is for the Millenium Bank. While the products created by the competition reached between 2.11% to 4.62% the five years average achieved by Millenium was 8.16%. At the same time Millenium Bank is the record holder among listed issuers by means of the highest value among maximum return rates. Worth to be mentioned that these results were produced by products overlapping with beginning of 2008 global crisis, when many others failed to even to reach positive result.

All of the above classifications of return rates obtained within the period of 2005 – 2010 may be very interesting source of information, however the actual analytical value is somehow doubtful. Lack of clear pattern of dependencies between return rates and chosen aspect of classification makes it hard to create conclusions valuable from the investor's point of view. Very high diversification of structured products in terms of technical aspects or market aspects is additional reason causing problems while attempting to create unified and constructive analysis. The only clear observation that may be stated with no doubt is the

expected negative result of the financial crisis which may be noticed by comparing trends up to year 2007 and behaviour of structured products after 2007.

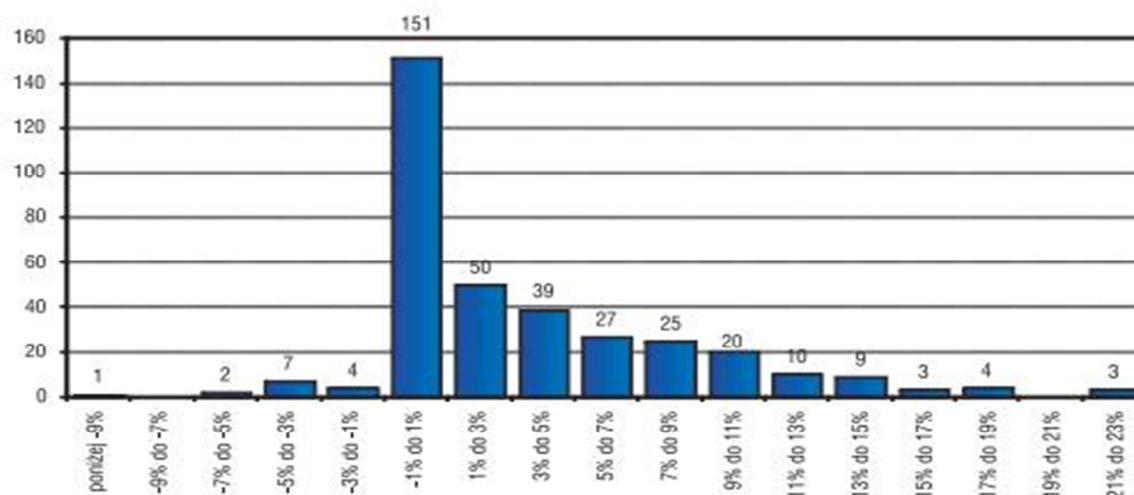


Fig. 6: Annual return rates for structured products in Poland 2000 – 2010

Figure 6 illustrates collection of structured products into classes of obtained annual return rates. As one may notice there exist a distinctive domination of products in -1% to 1% class, which effectively means return of invested capital with no profit as guaranteed by most of issuers (100% of capital). Over 42% of issued structured products reached maturity with that result. Total number of products from within 1% to 7% is 116, which stands for almost 33% of total number. Assuming that 7% is the limit which in current market conditions absolutely cannot be exceeded by risk free investments it can be easily calculated that only 49 out of 355 (14%) issued structured products returned risk premium to investors. More thorough analysis of this aspect performed by PFSA, which takes into consideration precise value of deposits' return rate offered at time respective to particular structured products leads to more optimistic result: 108 out of 355 (over 30%). The extreme results both in terms of profits and losses occurred very rarely (4 products, about 1%).

6 CONCLUSIONS

The obtained results of structured product analysis demonstrate very high differentiation and lack of general trends or behaviours common for all of the structured products. Multiplicity of possible forms of structured products (deposit, insurance etc.), diversity among base instruments and several issuers are the main drivers of this differentiation. It is a significant complication when it comes to discussing patterns of behaviour of structured products. The only strong common point of structured products demonstrated by average return rates was the reaction to global financial crisis. Basing on analysed data structured products appear as instruments of high risk and high potential at the same time which is usually a domain of investment products targeted at experienced investors, but at the same time structured products are appealing mostly to people who are not very well acquainted with investment possibilities. Some features offered by structured products seem similar to those associated with investment funds, for example easy access to markets and products usually inaccessible for individual investor. On the other hand however, in opposition to investment funds structured products significantly limit possibilities of controlling the investment (entering or quitting at any moment). What is more, none of

available investment funds provides guarantee of capital, which is usually a standard solution for structured products. High dependency on the market and limitations in terms of controlling make structured products inappropriate solution for people who tend to keep close track of their investment and have power of quick investment decisions.

Obtained results were within very wide range of -85.94% to 22.38%. The period between 2007 and 2008 had significant impact on optimistic image associated with structured products before. The symmetry between potential profits and risks has been revealed which proved how important are the detailed specifications concerning payment of profits and guarantees of capital. The vast majority of products offer 100% guarantee but it is not an obligatory requirement and there are exceptions which may generate significant losses if market behaviour differs from issuer's expectations.

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