The Formation of the Deposit Portfolio in Macroeconomic Instability

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Abstract. In 2014 the main tendency of Ukrainian economy was the losing of great deposit value. In this article we wish to explore a deposit portfolio structure in macroeconomic instability. We applied two approaches to the standard optimization portfolio: risk minimization for a given maximum return and return maximization for a given maximum risk. Of the two approaches to the standard optimization problem of portfolio: risk minimization at a given minimum return and return maximization for a given maximum risk the advantage was given the latter. The exchange rate risks are the main factors that have a significant impact on the end result. The optimum structures deposit portfolio was calculated for six different situations in national and world financial markets. Comparison of the optimal portfolio structure with real historical data showed that customers of the banking system over evaluate the reliability of the financial system.

Keywords. deposit, devaluation, portfolio, optimization, return, revaluation, risk.

Key Terms. Data, DecisionSupport, Development, FormalMethod, Management, MathematicalModel.

1 Introduction

The unstable macroeconomic situation in Ukraine and the crisis of the banking system caused distrust in the banking institutions. According to the opinion of experts, the Ukrainian population kept at home cash equivalent to $10 billion USA. In recent years was observed the following tendency: in 2014 banks lost deposits in the amount of 126 billion UAH, and around 18 billion UAH during first two months of the current year [3]. However, storage of money at home has several disadvantages: for example lack of income from capital and high risks, which lead to additional costs for the implementation of the safety of their own homes and significantly decrease the level of living.

Banking experts usually advise to divide money into three equal parts, two of which are nominated into euros and US dollars according to the current exchange rate, and put on deposit accounts in different banks which can be considered reliable

(it is advisable to choose banks which are included in the deposit insurance program NBU) and wait for interests during this period (simple diversification). Unfortunately, this method is connected with difficulties. It is almost impossibile to convert legally the accumulated funds into any reliable currency, besides it is rather difficult to find a reliable bank. This study is limited to two currencies - US dollars and euros, however, presented method can be used to form a deposit portfolio using other currencies.

There are two approaches to the portfolio optimization problem: risk minimization at a given minimum return and return maximization for a given maximum risk. For portfolio optimization you need to determine in which currency to evaluate the result. We can ask a question: "Why do we save money?" The answer can be the following: "In order to increase consumption during our life (real estate, household appliances, automobiles, traveling)" [2]. The vast majority of consumed goods in Ukraine are produced outside the country and therefore it is better to measure the cost by the most stable currency, which is now can be considered the US dollar. Alan Greenspan devoted attention to keeping a low dollar inflation level than in the past since such a policy, combined with the larger predictability of monetary policy, contributed to making dollar capital denomination most attractive [11].

2 Markowitz Problem under Devaluation Condition

The Markowitz's portfolio optimization problem can be solved using the well-known term of return and risk (variance of return) components portfolio. If return is measured as the deposit interest, the rate of risk is measured by its dispersion [4]. Linear model was proposed for credit risks in order to maximize bank profit [6, 10]. However, there is a factor that has a significant impact on the end result - an exchange rate risks, which is more important for unstable economics [3]. Of course interests on deposit and credit accounts for exchange rate risks, as the interest on UAH deposit twice as much than the dollar deposit [1, 12]. The importance of foreign exchange component in the sustainability of the banking system was emphasized in a number of research [5, 13]. In this study we wish to evaluate the optimal structure of the deposit portfolio during economic turbulence and make a comparison between real and optimal structure deposit portfolio.

Exchange rate risks can be taken into account, if a devaluation matrix is specified.

We will consider the case-study of placing deposits for one year. We assume that three macroeconomic situations, which determine the devaluation processes in the country $\theta_1;\theta_2;\theta_3$, which are defined probabilities $p_1; p_2; p_3(\sum_{i=1}^{3} p_i = 1)$. Each situation corresponds to a certain devaluation factor relative to USD defined as the ratio of the exchange rate in a current moment to exchange rate what will be in a year. We will denote devaluation multiplier for each economic situations $\phi_i(i = 1,2,3)$. If we know the value of a random variable and the corresponding probabilities, we can estimate the expected value of depreciation factor and its variance:

$$\bar{\phi} = \sum_{i=1}^{3} p_i \phi_i ; \sigma_{\phi}^2 = \sum_{i=1}^{3} p_i \phi_i^2 - \bar{\phi}^2 \quad (1)$$

Later we will consider the case of uniform distribution of devaluation multiplier.

If $\bar{\phi} < 1$ then dominate devaluation expectations, if $\bar{\phi} > 1$ then dominate revaluation expectations. There were short periods of revaluation of UAH, but we observe the tendency of devaluation according to results of any year.

It is supposed to use the share denominated in euro for deposit portfolio, which has currency instability relative to leading world currencies and the objective function is denominated in USD, we need to specify the expected devaluation and its variance in EUR against the USD for the next year. We will denote these parameters: $\bar{\varphi}; \sigma_{\varphi}^2$.

In this formulation dollar deposits is completely risk-free, which is rather optimistic assumption. During the year, the interest on dollar deposits was changeable, which can be used as a risk assessment. We denote the variance of interests on USD deposits $\sigma_{\$}^2$. We assume that the current interest on USD deposits is in the interval 9-11% [8] and is characterized by a uniform distribution, the dispersion interest is approximately equal $\sigma_{\$}^2 \approx 3{,}3 \cdot 10^{-5}$.

We consider the standard formulation of the Markowitz problem taking into account the expected devaluation (revaluation) processes.

We present the particles deposit portfolio in UAH, EUR and USD: $d_1; d_2; d_3$ $(d_1 + d_2 + d_3 = 1)$, percentage interests $r_1; r_2; r_3$ $(r_1 >> r_2 > r_3)$ are ranged under level of risk of deflationary expectations. If an initial investment is S_t than in a year the expected amount of the deposit portfolio and its dispersion will be:

$$\begin{aligned} S_{t+1} &= d_1 S_t (1 + r_1)\bar{\phi} + d_2 S_t (1 + r_2)\bar{\varphi} + d_3 S_t (1 + r_3), \\ \sigma_{\Pi}^2 &= d_1^2 S_t^2 \sigma_{\phi}^2 + d_2^2 S_t^2 \sigma_{\varphi}^2 + d_3^2 S_t^2 \sigma_{\$}^2. \end{aligned} \quad (2)$$

There are no members in portfolio variance that appear as a result of presence of the connection between return components of portfolio. The reason is that in this case independent devaluation processes influence on the profitability: euro and US dollar and the processes of devaluation of the national currency because of macroeconomic instability in the country. Therefore, we can assert absence of connection between return of the portfolio shares denominated in different currencies in the proposed formulation.

If the level of devaluation is high, the depositor will have loses $(S_{t+1} < S_t)$, that is why we will limit the possible risk-free profit according to the interest which is equal to r_3 (the return of dollar deposits):

$$d_1 S_t (1 + r_1)\bar{\phi} + d_2 S_t (1 + r_2)\bar{\varphi} + d_3 S_t (1 + r_3) > S_t (1 + r_3) \quad (3)$$

From the last expression we can get maximum portfolio share of deposits denominated in UAH $\bar{\varphi} = 1$:

$$d_1 < \frac{d_2(r_2 - r_3)}{1 + r_3 - (1 + r_1)\bar{\phi}} \tag{4}$$

We estimate the maximum share of UAH deposits in terms of catastrophic devaluation in 2014. The difference in interests denominated in euros and dollars is less than 2%, the maximum value of the numerator is less than 0.01.

Devaluation multiplier for the previous year is approximately equal to 0.4 (8 USD / UAH 20 = 0.4). Interests on deposits are $r_1 = 25\%; r_3 = 10\%$. Therefore, the share of UAH deposits in terms of landslide devaluation should not exceed 2%.

3 Optimal Portfolio Structure

We estimate the portfolio structure with maximum profitability and limited risks for different combinations of UAH/USD and EUR/USD devaluation multiplier factors. Evaluation of devaluation multiplier factors is based on monthly time series of UAH/USD (03.1997 - 02.2015) and EUR/USD (02.2007 - 02.2015) exchange rates.

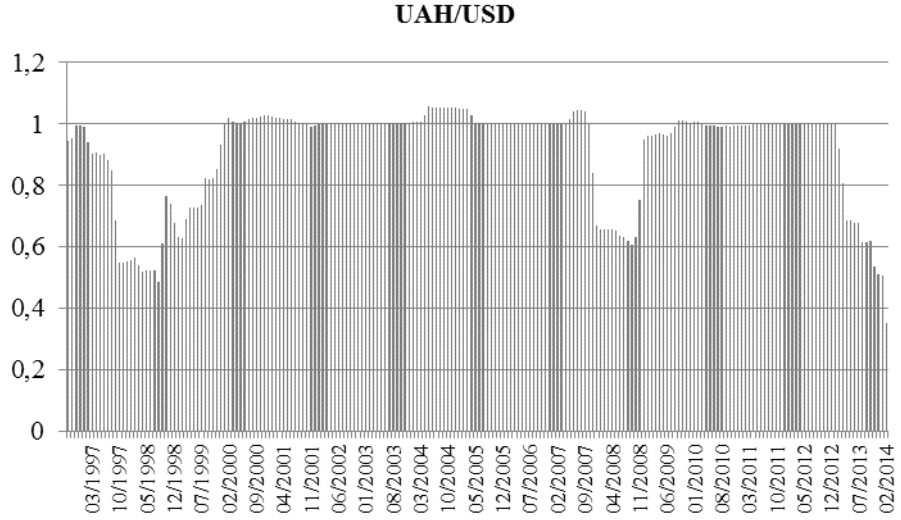

Fig. 1. Dynamics of devaluation multiplier UAH/USD

Devaluation multiplier measured with one year interval (deposit time in optimization problem) and currency pairs we calculated every month from March 1997 to February 2014 (210 observations UAH/USD) and form February 2007 to February 2014 (98 observations EUR/USD). (Fig. 1, 2).

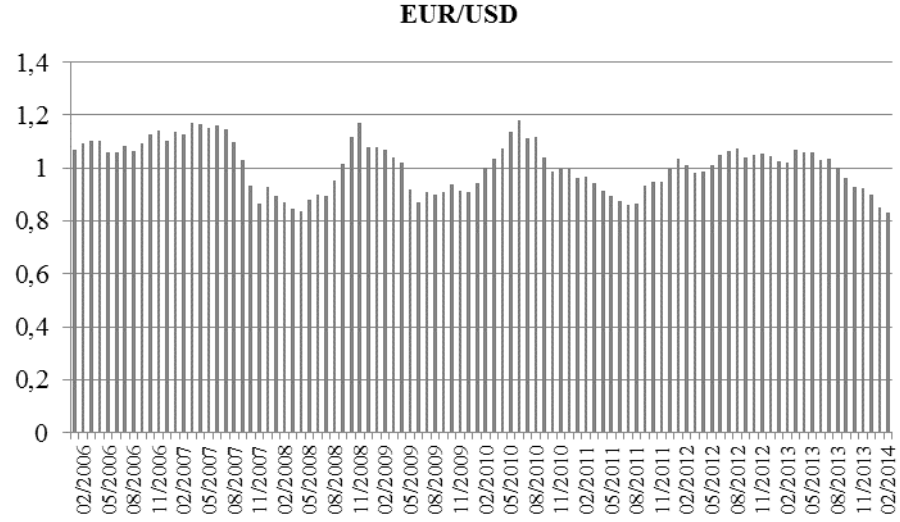

Fig. 2. Dynamics of devaluation multiplier EUR/USD

The period (1997-2014 for UAH/USD) consists of periods of economic growth with fixed course and periods crisis when monetary system tends to new equilibrium.

Devaluation multiplier factor UAH/USD $\phi \geq 1$ under 155 observations (minor revaluation probability $p_r = 0{,}736$), $\phi < 1$ under 55 observations (devaluation probability $p_d = 0{,}264$). Devaluation multiplier factor EUR/USD $\varphi \geq 1$ under 44 observations (revaluation probability $p_r = 0{,}449$), $\varphi < 1$ under 54 observations (devaluation probability $p_d = 0{,}551$).

Devaluation multiplier EUR/USD has more natural character, when the equilibrium is set under the influence of many non-interrelated reasons and a stable tendency is missing. The stationary hypothesis of the exchange rate of EUR/USD can be proved if we explored a long time period. The same hypothesis for exchange rate of UAH/USD must be rejected because of a full asymmetry of devaluation multiplier relatively to unity level.

We consider the optimal portfolio structure in three cases: landslide devaluation from 43% to 150% - θ_1 *(*$\phi \leq 0{,}7$*);* moderate devaluation of 11% to 43% - θ_2 *(*$0{,}7 < \phi \leq 0{,}9$*);* and a devaluation less than 11% - θ_3 ($0{,}9 < \phi \leq 1{,}0$). We regard the distribution of devaluation multiplier at each of the intervals being uniform.

We consider two possible states in the global financial market for devaluation multiplier for EUR/USD: θ_1^C *(*$0{,}8 \leq \varphi < 1{,}0$*)* and revaluation multiplier: θ_2^C *(*$1{,}0 \leq \varphi \leq 1{,}2$*)*. We present six possible situations that correspond to two situations of the world finance market (the euro-dollar) and three situations of devaluation in the domestic market (Table 1).

We have used interests of one-year deposits in banks of first group (the most reliable) to build optimization models. Of course, other banks interests can be significantly higher, but in this case it is necessary to increase the risk measures of bankruptcy probability due to the growth (receiving contributions under the insurance program of NBU connected with the loss of time and interest and primary contribution for more than 200 thousands UAH). We use the current annual deposit interests February 2015: $r_1 = r_U = 23\%; r_2 = r_E = 13\%; r_3 = r_\$ = 12\%.$

Table 1. Expected value devaluation factors for different classes of national and world economies in 2015

	θ_1 $(\phi \le 0{,}7)$;	θ_2 $(0{,}7 < \phi \le 0{,}9)$;	θ_3 $(0{,}9 < \phi \le 1{,}0)$
θ_1^C $(0{,}8 \le \varphi < 1{,}0)$	$\bar{\phi} = 0{,}55; \sigma_\phi^2 = 7{,}5 \cdot 10^{-3}$ $\bar{\varphi} = 0{,}9; \sigma_\varphi^2 = 3{,}3 \cdot 10^{-3}$	$\bar{\phi} = 0{,}8; \sigma_\phi^2 = 3{,}3 \cdot 10^{-3}$ $\bar{\varphi} = 0{,}9; \sigma_\varphi^2 = 3{,}3 \cdot 10^{-3}$	$\bar{\phi} = 0{,}95; \sigma_\phi^2 = 0{,}8 \cdot 10^{-3}$ $\bar{\varphi} = 0{,}9; \sigma_\varphi^2 = 3{,}3 \cdot 10^{-3}$
θ_2^C $(1{,}0 \le \varphi \le 1{,}2)$	$\bar{\phi} = 0{,}55; \sigma_\phi^2 = 7{,}5 \cdot 10^{-3}$ $\bar{\varphi} = 1{,}05; \sigma_\varphi^2 = 0{,}8 \cdot 10^{-3}$	$\bar{\phi} = 0{,}8; \sigma_\phi^2 = 3{,}3 \cdot 10^{-3}$ $\bar{\varphi} = 1{,}05; \sigma_\varphi^2 = 0{,}8 \cdot 10^{-3}$	$\bar{\phi} = 0{,}95; \sigma_\phi^2 = 0{,}8 \cdot 10^{-3}$ $\bar{\varphi} = 1{,}05; \sigma_\varphi^2 = 0{,}8 \cdot 10^{-3}$

We consider the problem of calculation of the share of certain currencies in deposit portfolio that maximizes the return of the portfolio for a given maximum risk level, which is equal to variance of interests on USD deposits:

$$\sigma_\$^2 = \frac{(r_\$^{\max} - r_\$^{\min})}{12}. \tag{5}$$

For $r_\$^{\max} - r_\$^{\min} = 0{,}02 \;\; \sigma_\$^2 \approx 3{,}3 \cdot 10^{-5}$.

We obtain the following problem to be resolved for finding d, $d = (d_1; d_2; d_3)$:

$$\begin{aligned} & S_{t+1} = d_1 S_t (1 + r_1)\bar{\phi} + d_2 S_t (1 + r_2)\bar{\varphi} + d_3 S_t (1 + r_3) \to max \\ & d_1^2 S_t^2 \sigma_\phi^2 + d_2^2 S_t^2 \sigma_\varphi^2 + d_3^2 S_t^2 \sigma_\$^2 \le \sigma_\$^2, \\ & d_1 < \frac{d_2 (r_2 - r_3)}{1 + r_3 - (1 + r_1)\bar{\phi}}, \\ & \sum_{j=1}^{n} d_j = 1, \\ & d_j \ge 0,\ j = \overline{1,3}. \end{aligned} \tag{6}$$

We analyze the results of the calculation of the structure of deposit portfolio with maximum return, depending on the situation in the global and domestic foreign currency markets (Table 2).

There are six situations according to the number of components in Table 2: (1, 1) - moderate devaluation of the euro and the significant UAH depreciation; (1, 2) - moderate devaluation of the euro and the moderate devaluation of the UAH (1, 3) - moderate devaluation of the euro and slight currency depreciation; (2, 1) - moderate appreciation of the euro and the significant currency depreciation; (2, 2) - moderate appreciation of the euro and moderate currency depreciation; (2, 3) - moderate appreciation of the euro and the slight depreciation of the UAH.

Table 2. Optimization of deposit portfolio according to the criterion of profit maximization

	θ_1 $(\phi \le 0{,}7)$;	θ_2 $(0{,}7 < \phi \le 0{,}9)$;	θ_3 $(0{,}9 < \phi \le 1{,}0)$
θ_1^C $(0{,}8 \le \varphi < 1{,}0)$	$d = (0;0;1)$ $S_{t+1} = 1{,}12$	$d = (0;0;1)$ $S_{t+1} = 1{,}12$	$d = (1;0;0)$ $S_{t+1} = 1{,}1685$
θ_2^C $(1{,}0 \le \varphi \le 1{,}2)$	$d = (0;0{,}73;0{,}27)$ $S_{t+1} = 1{,}1685$	$d = (0;0{,}73;0{,}27)$ $S_{t+1} = 1{,}1685$	$d = (0;1;0)$ $S_{t+1} = 1{,}1865$

In cases (1, 1) and (1, 2) optimal portfolio contains only dollar deposits with certain return. In the case (1, 3) portfolio consists only of UAH deposits (the return is corrected to the expected depreciation up to 11.1%).

In cases (2, 1) and (2, 2) the same return is defined by 73% share of deposits nominated in euros and 27% of deposits nominated in dollars. In the case (2, 3) the return which is equal to 18.65% is defined by 100% share of euro deposit. However, it is better to based the assumptions on mathematical forecast about the structure of portfolio that depends on the probabilities of the external environment: p_i – the probability of devaluation i state (i = 1,2, ..., k) cross currency exchange rate UAH/USD, q_j – the probability of the depreciation of the j-th state (j = 1,2, ..., n) cross currency exchange rate EUR/USD, $p_{ij} = p_{i\cdot} \cdot q_j$ – the probability of simultaneous occurrence of the i and j devaluation states, d_{ij} – the optimal portfolio structure according to i devaluation state of the UAH/USD and j state pair EUR/USD. Expected portfolio structure is defined as:

$$\overline{d} = \sum_{i=1}^{k} \sum_{j=1}^{n} p_{ij} d_{ij} \ . \tag{7}$$

We calculate the expected portfolio structure, assuming that the devaluation and revaluation expectations of the euro-dollar are equal.

($p_1 = p_2 = 0{,}5$), the first basic variant is calculated according to the assumption that all three devaluation states have the same devaluation probability (it is a situation

of absolute uncertainty). That is why $p_{ij} = 1/6$. This is basic structure of the portfolio and its expected return:

$$\bar{d}_{Б} = (0{,}167;0{,}41;0{,}423)\ldots \bar{r}_{Б} = 15{,}53\%; \sigma^2_{Б} = 7{,}4 \cdot 10^{-4}.$$

We consider pessimistic option in which the probability of a significant devaluation is twice higher than the probability of low, moderate devaluation and probabilities moderate devaluation is equal to the sum of probabilities of large and small devaluation:

$$p_{ij} = \begin{pmatrix} 2/12\ldots 3/12\ldots 1/12 \\ 2/12\ldots 3/12\ldots 1/12 \end{pmatrix} \tag{8}$$

In this case we obtain the following structure and return of the portfolio:

$$\bar{d}_{П} = (0{,}083;0{,}388;0{,}529)\ldots \bar{r}_{П} = 14{,}98\%; \sigma^2_{П} = 6{,}4 \cdot 10^{-4}..$$

We consider optimistic option in which the probability of a significant devaluation is twice lower than the probability of moderate devaluation but the probability of moderate devaluation is equal to the sum of probabilities of significant and moderate devaluation:

$$p_{ij} = \begin{pmatrix} 1/12\ldots 3/12\ldots 2/12 \\ 1/12\ldots 3/12\ldots 2/12 \end{pmatrix} \tag{9}$$

In this case we obtain the following structure and return of the portfolio:

$$\bar{d}_{О} = (0{,}167;0{,}41;0{,}423)\ldots \bar{r}_{О} = 15{,}53\%; \sigma^2_{О} = 7{,}4 \cdot 10^{-4}.$$

The last option is not different from the basic one. In macroeconomic environment and exchange rate instability, the banking system and its clients replace the unstable assets with stable, and this leads to an increase in dollarization of economy in general and the banking system in particular (this quantitative criteria is measured as the share of dollar deposits to the total amount of deposits [5]).

4 Historical Data Model Verification

Model verification can be made on the base of currency exchange rate (UAH/USD) measured for a long period of time and tendencies of the exchange rate of two main world currencies (EUR/USD). For model verification we use period of stable growth of Ukrainian economy from 2002 to 2007 year, which coincides with period exchange rate stability. We calculate the optimal portfolio structure for two periods: after-shock period 2002-2005 and pre-shock period 2006-2007 on the base of NBU data. Average

annual deposit interests for this period is 10%; 5%; 6% and 14%; 9%; 9% (UAH, EUR, USD).

Maximum dispersion magnitude has increased in four times in comparison with previous calculations because of possibility of substantial changes in deposit interests for long period. Optimal portfolio structure has not UAH component in all six possible situation (table 3) for 2002-2005.

Table 3. Optimization of deposit portfolio according to the criterion of profit maximization for 2002-2005 deposit interests: $r_U = 10\%; r_C = 5\%; r_\$ = 6\%$

	θ_1 $(\phi \le 0{,}7)$;	θ_2 $(0{,}7 < \phi \le 0{,}9)$;	θ_3 $(0{,}9 < \phi \le 1{,}0)$
θ_1^C $(0{,}8 \le \varphi < 1{,}0)$	$d = (0;0;1)$ $S_{t+1} = 1{,}06$	$d = (0;0;1)$ $S_{t+1} = 1{,}06$	$d = (0;0;1)$ $S_{t+1} = 1{,}06$
θ_2^C $(1{,}0 \le \varphi \le 1{,}2)$	$d = (0;0{,}2;0{,}8)$ $S_{t+1} = 1{,}0685$	$d = (0;0{,}2;0{,}8)$ $S_{t+1} = 1{,}0685$	$d = (0;0{,}2;0{,}8)$ $S_{t+1} = 1{,}0685$

Devaluation multiplier UAH/USD probabilities for Tabl.3 ranges calculated from data analisis: $p(\theta_1) = 0{,}077; p(\theta_2) = 0{,}187; p(\theta_3) = 0{,}736$. For EUR/USD devaluation multiplier probabilities: $p(\theta_1^c) = 0{,}449; p(\theta_2^c) = 0{,}551$. Next step probability evaluation of simultaneous occurrence of all 6 possible devaluation states on long time interval:

$$p_{ij} = p_i q_j = \begin{pmatrix} 0{,}035 \ldots 0{,}084 \ldots 0{,}33 \\ 0{,}042 \ldots 0{,}103 \ldots 0{,}406 \end{pmatrix} \tag{10}$$

The expected portfolio structure, for this probability matrix and optimal structure portfolio for each of six situation:

$$\bar{d}_{2004} = (0;0{,}11;0{,}89) \ldots \bar{r}_{2004} = 6{,}47\%, \sigma^2_{2004} = 2{,}5 \cdot 10^{-5}.$$

This result differs from previously obtained for period of crisis. First of all, it concerns the full absence of UAH component, and secondly, much smaller proportion of the contributions in EUR. Both features are explained by ratio of key interests. Difference in interests in UAH was not enough to compensate devaluation risk of national currency, additional interests on USD deposits for EUR provided a small share of EUR deposits.

Optimal portfolio structure for pre-crisis period 2006-2007 differs in increasing share of EUR contribution because interests on USD EUR deposits were equal, UAH share is still equal to zero (Table 4).

The expected portfolio structure for 2006-2007 years:

$\bar{d}_{2006} = (0;0{,}449;0{,}551) \ldots \bar{r}_{2006} = 11{,}4\%, \sigma^2_{2006} = 5{,}2 \cdot 10^{-4}$

Table 4. Optimization of deposit portfolio according to the criterion of profit maximization for 2006-2007 deposit interests: $r_U = 14\%; r_€ = 9\%; r_\$ = 9\%$

	θ_1 $(\phi \le 0{,}7)$;	θ_2 $(0{,}7 < \phi \le 0{,}9)$;	θ_3 $(0{,}9 < \phi \le 1{,}0)$
θ_1^C $(0{,}8 \le \varphi < 1{,}0)$	$d = (0;0;1)$ $S_{t+1} = 1{,}09$	$d = (0;0;1)$ $S_{t+1} = 1{,}09$	$d = (0;0;1)$ $S_{t+1} = 1{,}09$
θ_2^C $(1{,}0 \le \varphi \le 1{,}2)$	$d = (0;0{,}8;0{,}2)$ $S_{t+1} = 1{,}1336$	$d = (0;0{,}8;0{,}2)$ $S_{t+1} = 1{,}1336$	$d = (0;0{,}8;0{,}2)$ $S_{t+1} = 1{,}1336$

But real structure of bank deposits at that period did not correspond to optimal decision, population prefered UAH deposits because of fixed interests and higher return.

It was thought that the strategy of the fixed exchange rate provided a decrease in the level of dollarization of economy, which is defined as a ratio of foreign currency deposits to all deposits. At this entire interval optimal strategy without risk accounting consists of two key points: borrowing in foreign currency and placing of savings in the national currency. At that time, nobody knew when the period macroeconomic stability would be over, but now it has become clear that the financial crisis was only a trigger for the system that was ready to collapse. UAH savers and currency borrowers who were unable to complete their operations before 2008 crisis had losses. Banking customer behavior on the interval of economic growth can be considered on the basis of the theory of "focusing illusion" [9] when banker clients exaggerate the importance of one factor (fixed course), neglecting the influence of other factors, the effect of which may lead to opposite results.

5 Conclusion

In this research we calculated maximum profitability three components UAH, EUR, USD deposit portfolio structure (targeted function is denominated in US dollars) with risk degree limitations in the economic growth period and periods of macroeconomic instability. The exchange rate instability is regarded as main cause of deposit risks and formalized by the relationship of current currency price to currency price which will be in a year (devaluation multiplier).

Long time devaluation multiplier factor analysis gave possibility to evaluate probabilities of six possible different devaluation (revaluation) situation for pairs UAH/USD and EUR/USD. The optimal solutions were obtained for each of the six possible different situations and for three interest options (two options during economic growth and one during the period of economic turbulence). Expected deposit portfolio was determined in conditions of macroeconomic instability for three possible choices: basic (probabilities of all states are equal), pessimistic (probability of a

significant UAH devaluation is twice higher than the probability of minor devaluation) and optimistic (probability of a significant devaluation is twice less than the probability minor devaluation). For optimistic option the part of UAH deposit must be not more than 17%, in other situation expected UAH part must be not more than 8%.

Optimal portfolio structure in a period of economic grows has not UAH component because of a small difference in the interests of UAH deposits and EUR, USD deposits. But this difference was enough to provide preferred growth UAH denominated deposits. The reasons of this phenomenon is overconfidence of the clients of banking system in UAH stability caused by fixed exchange rate according to NBU strategy.

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