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## **GEOGRAPHICAL RISK OF MONEY LAUNDERING IN THE EUROPEAN BANKING SYSTEM**

**JEL Classification:** G28

**Keywords:** *money laundering, geographical risk, suspicious transactions, risk based approach, rule based approach*

**Abstract:** *The issue of risk of money laundering in the European banking system was presented in the article. It describes two approaches used by regulators to prevent the mentioned phenomenon: the rule-based approach and the risk-based approach. The author also identified strategies which are used by banks as entities functioning to maximize profit in the conditions of having full and incomplete information by the FIU. Then, the European countries were analyzed with respect to participating reports on suspicious transactions in the total number of reports, which are sent by all the obligated entities to the national financial intelligence units. We also verified the value of two indicators: the value of above-threshold transactions and the value of financial penalties, which are imposed on banks for failure to comply with the rules on anti-money laundering. Some hypotheses were examined. With the increase in GDP per capita grows the maximum value of the*

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Date of submission: March 1, 2011; date of acceptance June 26, 2012.

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*mentioned financial penalties grows. There is a negative correlation between the share of banks in the total of reported suspicious transactions and GDP per capita, which is an effect of extending the list of the obligated entities and the lack of the differentiation of sanctions in the various categories of such entities. In connection with the applying of transitional period for implementing the directive by the banks, there is an inverse relationship between the amount of the penalty, and the number of suspicious transactions reports.*

## INTRODUCTION

Money laundering activity belongs to the transnational phenomenon which has negative socio-economic effects. As a result it attracts the interest of not only lawyers but also economists. The mentioned aspect creates the necessity to protect ourselves against these consequences, thus legislator has started the legislative process aimed at preventing money laundering. In this situation a lot of legal provisions have been created to solve the problem. In the European Union three directives have been implemented (Council Directive 91/308/EEC of 10 June 1991 on prevention of the use of the financial system for the purpose of money laundering, Directive 2001/97/EC of the European Parliament and of the Council of 4 December 2001 amending Council Directive 91/308/EEC on prevention of the use of the financial system for the purpose of money laundering – Commission Declaration and Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing). The European Union Member States and their neighbouring countries adjust local regulations to the requirements referred to the mentioned acts. Those regulations concerned among others the list of the obligated institutions, on which the particular obligations connected with the monitoring and informing about occurrence of the suspicious situations were imposed. Special attention was paid to banks, as entities which are used for legalizing the financial resources obtained illegally. The mentioned institutions were obliged to submit reports to the financial intelligence units, counterparts of the Polish General Inspector of Financial Information. The basic purpose of these supervisors is acquisition, collection, processing and analysing information and then taking actions for combating the money laundering and terrorist financing.

Paying the particular attention to banks, as the institutions obliged was an effect of using them for legalizing dirty money. Michell (2002) says that one of the most important things is the size of the financial market and the country's wealth. In the case of countries which are characterised by higher GDP per capita and more developed financial market, it is easier to legalise

finds coming from illegal activity, than in developing countries with smaller financial market and weakly established structures.

Financial institutions are one of the most important channels of legalizing dirty funds. As a result of the accepted strategy, banks can adopt passive or active position against this phenomenon, so we can distinguish the following types of entities:

- not related to money laundering;
- unintentionally involved in the legalisation of the financial resources coming from illegal activity. Their only fault is too weak implementation of regulations in those institutions. They are major entities operating in the market;
- carrying out transactions in both legal and illegal being conscious of their action;
- undercover legal operations in the financial sector, leading criminal activity. The mentioned legal activity performs supporting functions in relation to criminal proceedings (Prenzel 2001). Institutions of this type are strictly characteristic for smaller financial markets with the lack of stable laws, also in the case of countries in transitional phase and with a closely-seated basis for implementation of activities in the field of money laundering (for example production and trafficking drugs).

Financial Action Task Force (FATF) gives organizations and individual countries scoring recommendations for the level of money laundering risk represented, according to which the following ratings are distinguished:

- compliant (C) – recommendation is fully positive in terms of all criteria,
- largely compliant (LC) – there are small inaccuracies, but most of the criteria are met,
- partially compliant (PC) – is taken for regulations against the legalization of financial sources coming from illegal activity, but it is not fully implemented,
- non – compliant (NC) – the criteria for anti – money laundering are not met.

On this basis, the quality and severity of legislation introduced in the tested range is assessed.

The risk of money laundering was classified in the category of the operational risk (KNF, Basel Committee on Banking Supervision), to which financial institutions are exposed. Banks, in connection with any transaction, which are the basis for these phenomena, are primarily exposed to the reputational risk and the burden on financial and administrative penalties. In the case of smaller entities, according to the phenomenon of "hot money", which characterized the measures underlying the money laundering, liquidity risk may also occur.

The article analyzes the problem of the approach to money laundering, which is taken by regulators, operators and banks. After making a review of the mentioned approaches, these phenomena in Europe were characterized.

### **RISK MANAGEMENT FROM A LEGISLATOR'S PERSPECTIVE**

Two approaches to the analyzed phenomenon have been found in anti-money laundering policy. The first of them is named as the rule based approach. It consists in providing information about suspicious transactions based on threshold transactions (cash or non-cash transactions above the defined limit included in the act) and specified activities included in regulations. In the mentioned approach, a list of all the most probable situations, in which can occur money laundering problem is also formulated. If all the conditions are met, the reporting and analyzing process with respect to illegality particular transactions takes place (Ross, Hannan 2007). The basic disadvantage of this approach is the possibility of adaptation of indicated techniques by the entities engaged in legalizing financial resources coming from black market. As a result, the approach and policy based on them, is inefficient. Moreover, the implementations of large catalogue of suspicious activities affect delivering a large number of inefficient information concerning the legalization of funds generated by the black market. The result of the mentioned phenomenon is lower detection of suspicious transactions (Chodnicka 2011). The situation of sending the large number of low quality reports to the financial intelligence units was formulated by Takats (2007), which is known as the informational Laffer curve. The studies, which were carried out in the United States (Takats 2007; Aiolfi, Pieth 2003), Italy (Costa 2008), Great Britain (Gold, Levi 1994), confirmed the mentioned phenomenon.

The second approach for anti-money laundering is a risk-based approach. It was implemented in the European Union countries, as a result of the Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing. The reasons for these changes were innovations in the field of the criminal verification solutions that create administrative problems to establish the ex-ante criteria. A client who makes standardized operations such as cash payments generates lower costs for the banks than entities and international companies conclude the large number of transactions. Risk – based approach imposes a great responsibility on banks in connection with what duty requires them to develop their analytical facilities. It also introduces the obligation to prove their positions in the suspected money laun-

dering before the regulator or legal authorities. Banks are not always ready to make that commitment. Large entities with extensive customer base and significant assets are classified as low risk and have a tendency to refuse a transaction by the customer for trivial reason (Butler, Ribstein 2006, p. 58). Smaller banks, with a modest customer base, exposed to high competition may be willing to carry out operations aimed at legalization of income derived from activities incompatible with the law, particularly when carrying out orders amounting to a significant sum and if they attempt to combat money laundering tend to be very cost-intensive (Geiger, Wuensch 2006, p. 14). Another solution used by banks is to leave the decision of the national financial intelligence units. This strategy relies on living a decision of supervisory authorities. In the presented case, a bank minimizes ex-post risk.

The differences in the strategies which are taken by financial institutions depend on countries and the type of activity. They can be analyzed in accordance with suspicious transaction reports delivering to the national financial intelligence units. The received information can be compared with the volume of cases sent for public prosecutor offices and criminal proceeding ended convictions. The relation between reports and number of crimes is difficult to verify. There exists a weak correlation between the size of trafficking drugs or the lack of significant statistical relationship and another spheres of crimes and the value of money laundering (Cuellar 2003, p. 427-428).

The risk factors determined by each financial institution are used to determine the criteria which are helpful in the assessment of competitive advantages, such as preferential treatment by the regulator or the positive effects arising from the reputation (Geiger, Wuensch 2006, p. 15). From the banks' point of view, the most important criteria are to adapt to the requirements set by the regulator with reducing cost.

By introducing risk-based approach, the regulator aims at effective risk measurement, because a higher risk of money laundering should pay attention to these stimulating conditions (FATF, 2007). It can bring about higher flexibility of regulations, while increasing the responsibility of the national intelligence units (Draghi 2007; Ross, Hannan 2007) and obligated entities, particularly banks.

## **THE RISK MANAGEMENT FROM BANKS PERSPECTIVE**

Financial institutions play a special role in the fight against money laundering (Masciandaro 2005), as a result of that they are the most important element in this process. It is not enough to impose the obligation on

the reporting of transactions on them (Ping 2005, p. 253), but also ensure an appropriate level of cooperation with financial intelligence units (Stessens 2000, p. 172), which largely depends on the criminal responsibility of this title (Araujo 2008, p. 68).

Araujo (2008) proposes a motivation approach to combating money laundering by the regulator, which is the result of model based on agency approach formulated by Masciandaro (2005). The author analyzed the problem taking into consideration the three entities: legislator, national financial intelligence units and bank. The mentioned institutions operate simultaneously. The aim of the legislator is to create a legal model maximizing banks and financial intelligence units' efforts. This approach was limited to two entities: financial intelligence units and financial institutions. The main task of bank is to take decision on involvement in the anti-money laundering, while the assumption that as a commercial company aim at maximizing profits, in accordance with the model of Masciandaro (1999). A simplified model of profit maximization implies that bank achieves revenues resulting from the implementation of legal operations ( $y^l$ ) measured by the number of bank accounts held at a price of services  $p$ . Banks operate in the environment of monopolistic competition. As a result of their activities, they incur operational costs, which are presented by linear function of unit costs related to administration of bank accounts ( $a$ ) and the costs of complying with the anti-money laundering ( $b$ ). The function of profit is:  $Z = p(y^l)y^l - ay^l - by^l$ . In this situation, the size of coefficient  $b$  is determined by the ability of financial institutions to combating the analyzed phenomenon. The higher this value is, the more it affects the financial performance of the institution. In addition to these factors, the value of profit may be affected by a number of other variables, such as the tendency of combating this phenomenon by workers, the possibility of detriment to the institution, whether the conditions for socio-cultural traditions in the area. For these variables an institution does not have to get real influence, therefore they are permanent. Assuming full access to information, a bank must decide whether to monitor and report suspicious transactions or not. In the case of offering services to entities involved in money laundering, profit function is as follows:

$$Z^i = (1 - \delta) [p (y^i) y^i - ay^i] + \delta [p(y^i)y^i - ay^i - M],$$

where the index  $i$  means the illegal activities and the value of  $\delta$  is the probability of being punished. A bank, which decides not to take action to combat money laundering, does not bear the costs of detection and reporting.

The mentioned financial company can be punished with a fine  $M$  with a probability  $\delta$ . If the institution in normal conditions acts for maximizing the financial result, the profit is  $Z^i = \delta M$ . As a result the volume of all offered services with the probability of making illegal operations is higher than in the case of realizing only transactions consistent of the law. Therefore:

$$y^l: [p(y^l)y^l]' + p(y^l) - a - b = 0$$

$$y^i: [p(y^i)y^i]' + p(y^i) - a = 0,$$

assuming that the demand adopts linear function  $p(y) = \alpha - \beta y$ . As a result, the number of legal and illegal transactions carried out by a bank is:

$$y^l = \frac{\alpha - a - b}{2\beta},$$

$$y^i = \frac{\alpha - a}{2\beta}.$$

In the case of illegal activity, the level of services has got higher value  $\frac{b}{2\beta}$ . There is a correlation between the integrity of the bank, and the costs of AML. In the case of an honest bank, acting under the instructions of the Basel Committee and EU and national legislation, the number of bank accounts is lower. It does not mean lower profits at the same time. Unfair financial institution, despite having a larger volume of accounts, could create a lower profit than in the previously described case. It is a result of the probability of charging penalties by the financial intelligence units for entities, which do not respect the rules. The situation is presented in the following:

$$Z^l = \frac{(\alpha - a - b)^2}{4\beta} \text{ and}$$

$$Z^i = \frac{(\alpha - a)^2}{4\beta} - \delta M.$$

In the connection with the full access to information about the probability of punishment  $\delta$ , the legislator should consider the following inequality:

$$p(y^l)y^l - ay^l - by^l \geq p(y^i)y^i - ay^i - \delta M.$$

As a result of solution this inequality, the optimal level of penalty is:  $M^* = \frac{p^l y^l - p^l y^l + a(y^l - y^i) + by^l}{\delta}$ . If we put two variables  $y^l = \frac{\alpha - a - b}{2\beta}$  and  $y^i = \frac{\alpha - a}{2\beta}$  into the mentioned equation, we receive the optimal level of penalty  $M^* = \frac{b[2(\alpha - a) - b]}{4\beta\delta}$ . Tendency to the detection of money laundering  $b$  and the probability of imposition of a fine depends on:

$$b': \frac{\alpha - a - b}{2\beta\delta} = 0,$$

$$\delta': \frac{-b[2(\alpha - a) - b]}{16\beta^2\delta^2} = 0.$$

In the first case a higher tendency to detect money laundering ( $(\alpha - a) \geq b$ ) was presented, along with a lower value of fines. In the second one, more effective monitoring activity by the supervisor was observed. Usually, the supervisor does not have full information about the market. As a result, it is observed two types of financial institutions. The first one is a bank with lower liability to detection of dirty money  $b$ , so  $b_1 > b_2$ , it was named as “dishonest bank”. The second financial institution present opposite relation. A negative correlation between anti-money laundering costs and tendency to detection was assumed. If the mentioned entities have got the linear demand function, the volume of the bank accounts in the “honest bank” case is higher. Using the formula of profit maximizing  $y^l = \frac{\alpha - a - b}{2\beta}$ , the following was received for the honest bank  $y_1^l = \frac{\alpha - a - b_1}{2\beta}$  and  $y_2^l = \frac{\alpha - a - b_2}{2\beta}$  in the conditions  $b_1 > b_2$  and  $y_2^l > y_1^l$ . The value of penalties is  $M_1^* > M_2^*$  when  $b_1 > b_2$ . If a legislator and financial intelligence unit do not have full information about the market, the first institution can adopt a strategy based on simulating higher anti – money laundering costs and making only legal transactions. The supervisor must take this possibility



into consideration and maximise the following relation  $\omega\delta M_1 + (1 - \omega)\delta M_2$ , where  $\omega$  means the probability of verification the strategy of the first institution and  $(1 - \omega)$  the second one. The following conditions must be fulfilled:

$$p(y_1^l)y_1^l - ay_1^l - b_1y_1^l \geq p(y_1^i)y_1^i - ay_1^i - \delta M_1,$$

$$p(y_2^l)y_2^l - ay_2^l - b_2y_2^l \geq p(y_2^i)y_2^i - ay_2^i - \delta M_2,$$

$$p(y_1^l)y_1^l - ay_1^l - b_1y_1^l \geq p(y_2^l)y_2^l - ay_2^l - b_1y_2^l,$$

$$p(y_2^l)y_2^l - ay_2^l - b_2y_2^l \geq p(y_1^l)y_1^l - ay_1^l - b_2y_1^l.$$

In the first two cases present the situation when intuitions take strategy of maximization their profit. The second two conditions show strategy in which dishonest bank choose the option of "the false legality". The honest bank generates profit, when  $p(y_2^l)y_2^l - ay_2^l - b_2y_1^l \geq p(y_1^l)y_1^l - ay_1^l - b_2y_1^l$ . If  $b_1 > b_2$  and  $p(y_1^l) - ay_1^l - b_2y_1^l > p(y_1^l)y_1^l - ay_1^l - b_1y_1^l$ , so  $p(y_2^l)y_2^l - ay_2^l - b_2y_2^l > p(y_1^l)y_1^l - ay_1^l - b_1y_1^l$ , which means  $Z_2^l > Z_1^l$ .

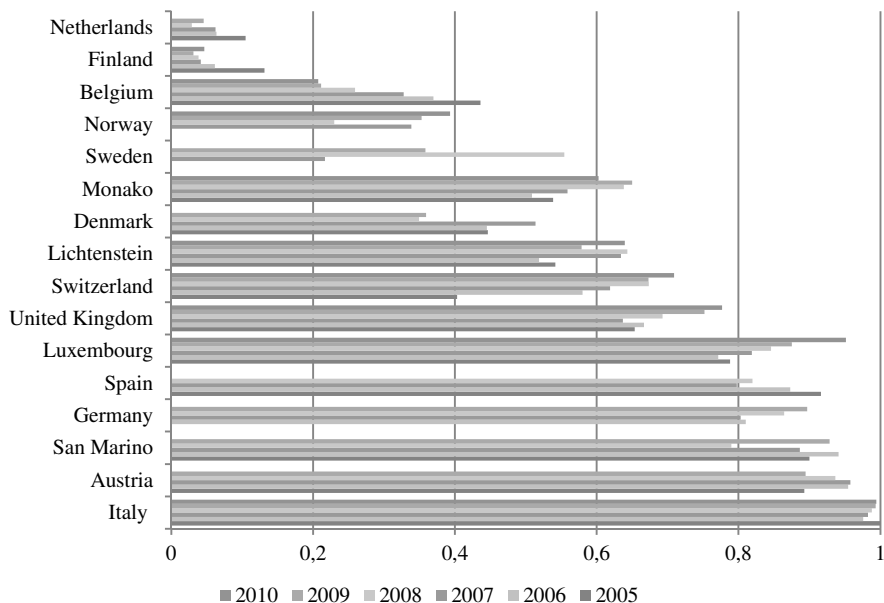
If the institution chooses the strategy of the honest bank, it generates a higher profit. As a result, the situation in which the second institution is optimal, when it offers only legal services. In the first bank case in the optimal condition lower volume of services is offered. After summing two inequalities  $p(y_1^l)y_1^l - ay_1^l - b_1y_1^l \geq p(y_2^l)y_2^l - ay_2^l - b_1y_2^l$ , and  $p(y_2^l)y_2^l - ay_2^l - b_2y_1^l \geq p(y_1^l)y_1^l - ay_1^l - b_2y_1^l$ , it was received  $(b_1 - b_2)(y_1 - y_2) \leq 0$ . If the value is  $b_1 > b_2$ , it is got  $y_1 > y_2$ .

The designated model shows that in the case of institutions which have a lower tendency to prevention of money laundering, is preferred take conditions for illegal activity. This "unfair" bank may offer the same number of transactions as an honest financial institution, but a higher volume of services contributes to the profit optimization problems. Aurajo (2008, p. 73) says that the probability of penalties imposed on banks do not hinder possibility of maximizing profits.

## THE GEOGRAPHICAL RISK OF MONEY LAUNDERING IN THE SELECTED COUNTRIES

The implementation of the Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing, introduced several regulations. One of them was the extended the list of obligated institutions. The effects of this were changes in the structure of receiving suspicious transactions and thresholds reports by financial intelligence units in analyzed countries. Two trends are observed. The first of them is the smaller role of banks in the prevention of money laundering, but it depends on the level of economic development. In the developed countries, in which new directive was implemented at first, were observed two phases. In the first stage the share of reports sending by banks in the whole reports received by financial intelligence units was smaller than the previous directive implementation.

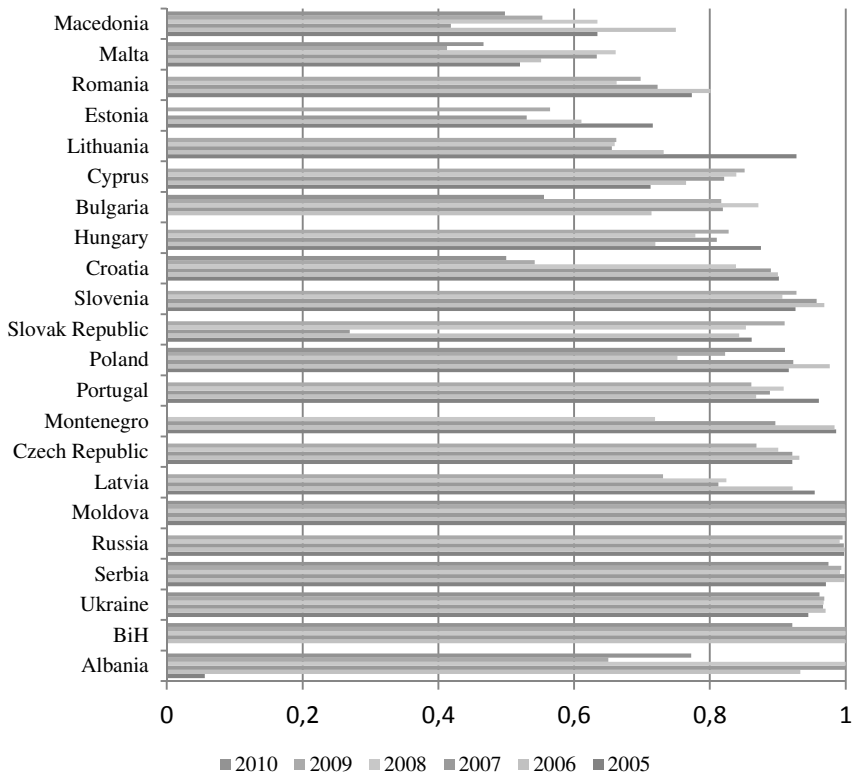
**Figure 1. The share of the suspicious transactions reports sent by banks in the volume of reports received from all obligated institutions to the national financial intelligence units from 2005 to 2010 (countries with GDP per capita in current prices above 30.000 USD)**



Source: own calculations.

Banks are the most important channel in the money laundering process, so the higher role of banks was observed in the next phase. Some of the researchers say that we have got a lot of market opportunities which are created by new technologies, product and others (Gilmore 2007). The mentioned techniques are perceived alternative for banks in the legalization dirty money coming from the black market. All new techniques can help in developing this phenomenon, but banks are very important and are used almost always for the money laundering process.

**Figure 2. The share of the suspicious transactions reports sent by banks in the volume of reports received from all obligated institutions to the national financial intelligence units from 2005 to 2010 (countries with GDP per capita in current prices below 30.000 USD)**

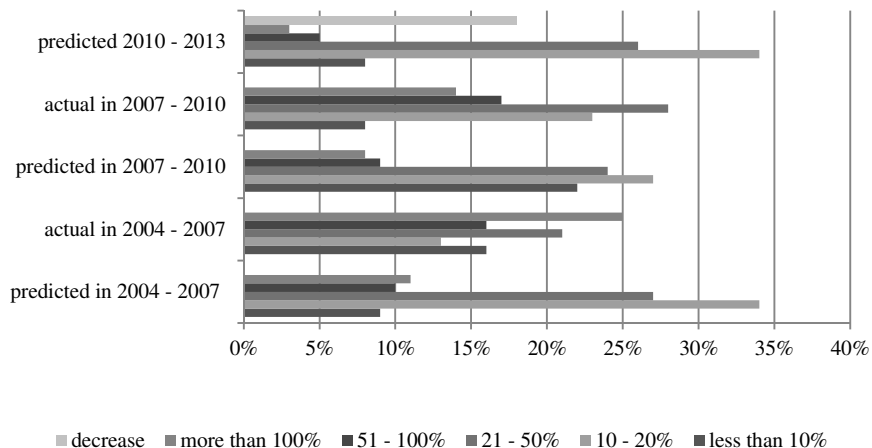


Source: own calculations.

In order to verify this problem, the information about the suspicious transaction reports included in the annual reports of the financial intelligence units was used. The mentioned data were sent from 2005 to 2010. The analyzed countries were divided into two groups according to GDP per capita in current prices. The obtained results are presented on the figure. In the developed countries it was observed the huge diversification in the share of the suspicious transactions reports, which were sent by banks in the whole volume of reports received from all obligated institutions to the national intelligence units. These situations can be an effect of the implemented list of the obligated institutions and the size of financial markets. In almost all cases the tendency which was presented before was observed. In the last year in the analyzed countries that share was higher, what can be the evidence of the existence of the described theory of the importance of banks.

In the developing or poorer countries (measured GDP per capita in current prices) the smaller diversification of the share of the suspicious transactions reports is observed. The mentioned share fluctuates between 0.5 to 1. It is also noticed the smaller tendency of sending reports by banks. It can be an effect of expanding the list of the obligated institutions.

**Figure 3. The increase of the anti-money laundering costs in Europe from 2004 to 2010 and forecast for 2010–2013**



Source: own calculations based on KPMG (2004, 2007, 2010).

During the 2008–2010 years the smaller growth or even decrease in the volume of the suspicious transactions reports was also observed. It can be an effect of transferring the capital to another sphere of the banking activities. The mentioned situation is confirmed by researches which were made by KPMG during the last years. It is observed not only in the Europe, but all over the world. The first time in this year, KPMG respondents said that in their opinions expenditures on anti-money laundering are smaller. The financial crisis forces on banks changes in the allocation financial resources. The smaller amount of money is allocated on analyzing and preventing the money laundering risk. The effect of this reallocation can be less effectiveness in combating dirty money. On the other way the previous expenditures were strictly connected with the implementation of national regulations as an effect of the adjustment acts to Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing. During 2007-2010 period of time, the value of predicted expenses on the AML was smaller. Banks managers underestimated the compliance costs.

According to Araujo and Masciandaro models it is important to check the source of prediction for the next three years. If the change is an effect of reallocation financial resources caused by the crisis, it can be observed decrease in the effectiveness of the anti-money laundering policy and increase the risk of making suspicious transactions (the operational risk).

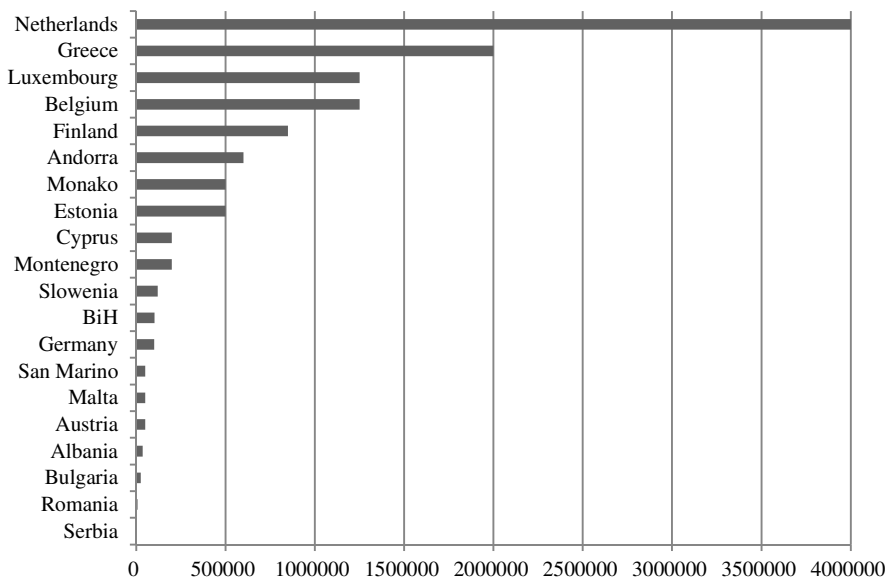
According to the presented analyzes of banks anti money laundering activity, the value of the potential fines was described, which can be imposed on banks for non – compliance in the laundry dirty money. The highest administrative and financial penalties were implemented in the developed countries. If financial sanctions are more restrictive, banks report more transactions which are suspicious for legalizing funds coming from the black market. As a result it can be assumed that more developed countries send more suspicious transactions reports to the national financial intelligence units. The volume of the reported transactions can be also strictly connected with the size of financial market, because according to the previous researches it is easier to legalize dirty money on more developed markets. The high value of fines can also lead to a lot of mistakes in receiving reports by the financial intelligence units (Takats 2007, Chodnicka 2011).

The effectiveness of analyzing information also depends on the volume of employees hire in the financial intelligence units. As it was written before, banks in the risk based approach can also transfer the responsibility on the supervisors and pursue the ex post risk strategy. Another situation is observed in the developing countries where fines are smaller. According to the described in details opinion, banks from that area may give less reports

or in the worst case do not monitor the money laundering risk. This situation is strictly connected with the cost of monitoring and reporting information and expenditures on the maintenance of departments responsible for the prevention of legalizing dirty money.

If it is evaluated the value of fines, it should be also taken into consideration two problems. One of them is the level of wealth, which can be measured by GDP per capita. The next one is that banks monitor the situation of the current worth of financial sanctions imposed on the financial entrepreneurs and another obligated institutions.

**Figure 4. The value of the potential fines, which can be imposed on banks for non-compliance in the money laundering in the particular countries in EUR**

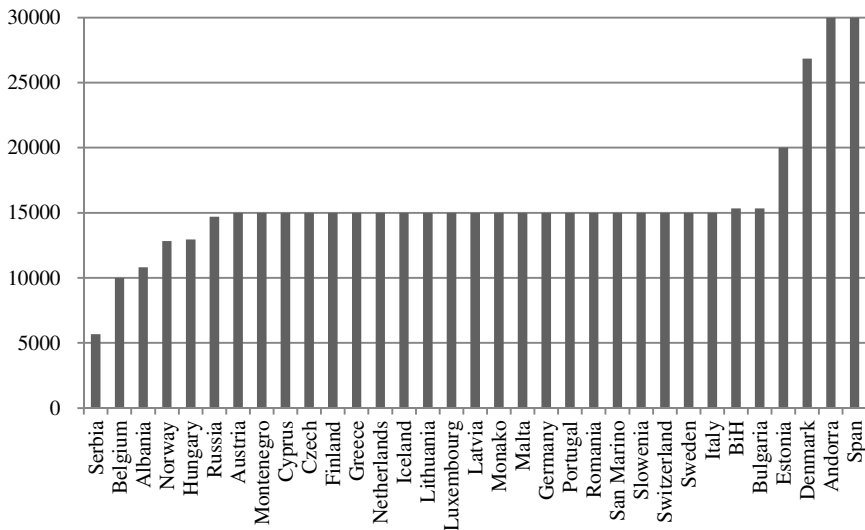


Source: own calculations.

The next step in the analyzing the money laundering problem in particular countries is the value of the minimal threshold transactions reported by banks to the national intelligence units. This is the one of the most important information for anti-money laundering policy, because these transactions are used by banks and analyzed to recognise the suspicious clients' activities. In the most of cases the national regulations include the limit

15.000 EUR, which is written in Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing. Only in some countries this value is different. The mentioned limit should be compared with the GDP per capita. If it is too high, it is difficult to find the suspicious transactions and as a result the internal anti-money laundering policy is inefficient. In the developing countries which have got the high value of the threshold transactions can exist problem with finding the mentioned situations. According to Ferwerda (2008) opinion countries which represent less restrictive regulations can be a good place for money laundering. In the other way these countries can represent the strategy, where they implement the minimal statutory requirements included in the international regulation, but only for receiving “false” good reputations. As a result all that regulations are illusory and these types of countries can laundry dirty money without international restrictions. These territories can have got the high value of geographical risk.

**Figure 5. The value of the minimal threshold transactions reported by banks to the national financial intelligence units in the particular countries in EUR**



Source: own calculations.

The mentioned conclusions were confirmed by correlation which was made on 42 European countries.<sup>1</sup> It was used information about the suspicious transactions reports which are sending from banks (variable SAR) and all received reports coming from all obligated institutions which are received by the national financial intelligence units (total SAR). The other variables are:

- “share” – the share of the suspicious transactions reports sent by banks in the volume of reports received from all obligated institutions,
- “GDP per capita” - a gross domestic product per capita in current prices in EUR,
- “under” – the minimum value of the threshold transactions in EUR,
- “fines” – the maximum value of fines which can be imposed on banks for non – compliance in the money laundering in the particular countries in EUR,
- “index under” – the index of quality of threshold transactions, which is the value of the minimal threshold transactions to GDP per capita in current prices,
- “index fines” – the index of quality of fines, which is the value of the maximum mentioned fines imposed on banks to GDP per capita in current prices.

The data which were used refers to the period of time from 2001 to 2010.

The confirmation of previous observation is the positive relationship between the GDP per capita and the maximum value of the mentioned financial penalties. In developed countries the value of penalties which can be imposed on banks is higher than in the developing areas. The received results confirm also the index of fines.

It is observed the negative correlation between the share of banks in the total of reported suspicious transactions and GDP per capita, what is an effect of the extension list of the obligated entities and the lack of the differentiation of sanctions in the various categories of such entities.

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<sup>1</sup> Albania, Andorra, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Cyprus, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldavia, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Ireland, Romania, Russia, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom.



**Table 1. The correlation matrix for selected variables**

variables	SAR	Total SAR	share	GDP per capita	under	finer	Index under.	Index finer
SAR	1.0000							
Total SAR	0.9997	1.0000						
Share	0.2690	0.2630	1.00000					
GDP per capita	0.2512	0.2490	- 0.3827	1.00000				
Under	0.3118	0.2136	0.17987	0.10600	1.00000			
Fines	0.3872	0.1259	0.13667	0.25537	- 0.1117	1.00000		
Index under.	0.3665	0.1704	0.37888	0.48484	0.29433	- 0.17797	1.0000	
Index finer	0.3119	0.1674	0.28291	0.22313	0.10043	0.95513	- 0.126	1.000

Source: own calculations.

In connection with the applying of transitional period for implementing the directive by the banks, there is the positive relationship between the amount of the maximum penalty, and the number of suspicious transactions reports. With the increase in the real value of the minimum amount of threshold transactions falls the value of the maximum penalty imposed on a financial institution. This is the effect of high penalties and the low limit of threshold transactions.

**Table 2. Countries exposed on the money laundering risk**

No	Country	The percent of global money laundering	Walker's estimation (mln USD)	IMF estimation (mln USD)
1	USA	18.9	538.145	283.5
2	Cayman Islands	4.9	138.329	73.5
3	Russia	4.2	120.493	63.0
4	Italy	3.7	105.688	55.5
5	China	3.3	94.726	49.5
6	Romania	3.1	89.595	46.5
7	Canada	3.0	85.444	45.0
8	Vatican City	2.8	80.596	42.0
9	Luxembourg	2.8	78.468	42.0
10	France	2.4	68.471	36.0

Table 2 Continued

No	Country	The percent of global money laundering	Walker's estimation (mln USD)	IMF estimation (mln USD)
11	Bahamas Islands	2.3	66.398	34.5
12	Germany	2.2	61.315	33.0
13	Switzerland	2.1	58.993	31.5
14	Bermuda Islands	1.9	52.887	28.5
15	Netherlands	1.7	49.591	25.5
16	Liechtenstein	1.7	48.949	25.5
17	Austria	1.7	48.376	25.5
18	Hong Kong	1.6	44.519	24.0
19	United Kingdom	1.6	44.478	24.0
20	Spain	1.2	35.461	18.0

Source: Masciandaro, Takats, Unger (2007).

It is also observed the correlation between the number of suspicious transactions reports and GDP per capita. It can be proof for using the developed countries with bigger financial market for legalizing financial sources coming from black market. The researches with using the Walker's model made by Unger (2007) include the list of countries exposed on the money laundering risk. The listed countries are off – shore zones and the biggest world economies.

## CONCLUSIONS

The money laundering problem has got a worldwide character. One of the most important solutions in combating this phenomenon is to create the efficient law. The risk based approach according to the Basel Committee on Banking Supervision introduces four types of risk: products, services, customers and geographical locations. In this article a geographical risk in connection with the strategy implemented by banks was presented. The most important variables which are taken into consideration, are: the value of fines which can be imposed into banks for non apply to the money laundering regulations, the value of the minimal threshold transactions, banks expenditure on anti- money laundering and share of suspicious transactions reports sent by banks to national financial intelligence units in all reports received from all types of the obligated institutions. During the crisis the expenses are allocated in other activities than anti money laundering. They are also observed two trends. The developed countries have got higher

financial sanctions, which can be imposed on banks. In this area are also introduced limit of threshold transactions included in the Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing. They implemented more restrictive regulations. As a result banks allocated in that countries are better protected from money laundering risk, despite being attractive for legalizing dirty cash. Special attention should be directed to the countries with smaller penalties and higher real limit of threshold transactions. According to Masciandaro (1999) and Ferwerda (2009) less restrictive regulations facilitates money laundering.

At the moment it is beginning the fourth evaluation round which is made by MONEYVAL. The effects of it will show how countries regulate the analyzed problem. The risk based approach gives the full freedom in estimating the risk of legalizing dirty money. As an effect during the crisis a lot of banks can take decisions which help them transfer expenditures to other activities. It is important to prevent these situations by the national intelligence units. One of the most effective tools is control them. It should be also created one international financial intelligence units, which will control the national supervisors. It will help to reduce the geographical risk, which is result of ineffective legal provisions. It should be also draw the attention to the previous national regulations, which sometimes are inconsistent with the basic acts.

Banks should monitor clients according to place of origin and types of risk which represent those countries. It will help reduce the mentioned problem and help them to hedge the operational and liquidity risk and the probability of impose the financial sanctions.

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**OECONOMIA  
COPERNICANA**

**2012 NR 3**

ISSN 2083-1277

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**RECENZJE I KOMUNIKATY**

