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EXCHANGE RATE AND ITS IMPACT ON FOREIGN ECONOMIC ACTIVITY

Метою статті є розгляд механізму впливу співвідношення паритету купівельної спроможності і ринкового валютного курсу національної валюти на реалізацію інтересів експортерів та імпортерів товарів і капіталу, а також розробка методики рейтингування країн залежно від ступеня і напрямів цього впливу. Крім того, на підставі розробленої методики рейтингування в статті подано оцінку валютної складової у зовнішньоекономічній діяльності України.

Целью статьи является рассмотрение механизма влияния соотношения паритета покупательной способности и рыночного валютного курса национальной валюты на реализацию интересов экспортеров и импортеров товаров и капитала, а также разработка методики определения рейтинга стран в зависимости от степени и направления этого влияния. Кроме того, на основе разработанной методики рейтингования в статье представлена оценка валютной составляющей во внешнеэкономической деятельности Украины.

In the article the influence of a market exchange rate and its ratio with purchasing power parity of national currency on behavior motivation of the subjects of foreign trade activities is analyzed. The system of the country rating estimation depending on currency conditions of foreign trade activities is developed. The evaluation of currency component in foreign trade activities of Ukraine is presented.

exchange rate, foreign business entities policy, purchasing power parity, foreign direct investments, comparative price level, motivation of subjects of foreign trade activities

Introduction

An exchange rate is known to be one of the major factors which define the tendencies, efficiency and rates of foreign economic activities. It is the factor that in many respects affects export and import evolution, the scope of foreign direct investments, balance of payments, etc. This issue has been rapidly gaining its applicability during the period of the world financial crisis with highly volatile exchange ratio which is arduous to predict. The theoretical base of the research into exchange rate and its impact on foreign economic activity includes the scientific works of both domestic and foreign scientists, such as L. Balcerowicz, B. Behrens, I. Blank, M. Burmaka, D. Lukianenko, Y. Makogon, H. Markowitz, F. Modigliani, Y. Pakhomov, M. Porter, O. Rohach, W. Rostow, A. Rumyantsev, J. Stiglitz, J. Tobin, A. Fillipenko, W. Fisher, W. Sharpe, etc. It is worth mentioning, however, that the majority of works concern the impact of the market exchange rate. There is hardly any research that would analyze the impact of purchasing power and market exchange rate parity on foreign economic

activity directions. It is quite common, though, that market exchange rate stability often conceals the processes which even to a greater extent define exporters, importers, investors and recipient countries policies.

The main purpose of this article is to study the impact of purchasing power parity / national currency free exchange rate ratio on product and capital export and import, as well as develop the methods of rating countries in accordance with the extent and directions of this impact.

1. Exchange rate and foreign business entities policy

One of the major principles of classical political economy is the so-called **law of one price**, which states that in an efficient market which implies free trade and absence of different barriers to trade (e.g., tariffs), all identical goods in different countries should have the same price if it is expressed in the same currency [1, p. 370]. This means that purchasing power of currency, e.g., the dollar or euro, will be the same in each country, and its national exchange rate will be calculated by the price level ratio expressed in both national and foreign currencies.

However, at the beginning of the 1900-s it was noticed that in reality this law only worked as a long-term tendency. Thus, the concept of purchasing power parity was developed in addition to it. The profound insights which were taken to substantiate this concept were developed by a number of British economists; among them it is worth mentioning David Ricardo as the author of relative advantages in foreign trade theory. In the 20th century the purchasing power parity theory was considerably developed by the Swedish scientist Gustav Cassel who generalized it to the base of the currency exchange rate theory.

The theory of **purchasing power parity (PPP)** states that exchange rates between currencies are in equilibrium when their purchasing power is the same in each of the two countries. This means that the exchange rate between two countries should equal the ratio of the two countries' price level of a fixed basket of goods and services [2, p. 352]. The difference between purchasing power parity and **market exchange rate (ER)**, as the price of a currency unit of one country which can be paid for it in another country's currency, has been caused by a number of reasons. We believe that the most decisive reasons among them are:

1. In practice free competition conditions in foreign trade, as well as free goods exchange between countries, are impossible (and cannot be possible).

2. Purchasing power parity and market exchange rate are formed under the influence of a number of factors. Purchasing power parity is based on price level ratio in each country whose currencies are being compared, and its evolution depends on inflation ratio in these countries. The market exchange rate, in its turn, is formed under the impact of foreign currency supply and demand ratio on a corresponding market. Although in the long run purchasing power parity and market exchange rate mostly depend on commodity and currency flow intensity in foreign trade, in every single moment they can have substantial differences.

3. Moreover, market exchange rate is always under considerable influence of the government policy implemented at a certain period of time; therefore, market exchange rate tends to be more dynamic than purchasing power parity, although a lot of cases are known when the actual evolution of these factors has different speed and trend. It is worth mentioning the Ukrainian currency rate evolution in recent years. From spring 2005 to autumn 2008 hryvna market exchange rate in relation to the dollar was stable despite the fact that inflation processes in Ukraine surpassed the rise in prices in the USA. On the contrary, the inflation rate in Ukraine slowed to a certain extent within the last months of 2008 when considerable hryvna market exchange rate drop was observed.

Purchasing power parity of national currency and its market exchange rate influence importer, exporter, investor and recipient's motivation in different ways, therefore, their motivations are worth studying using the iteration approach.

Importer. The importer's activity can be divided into three major iterations; in every one of them the PPP and ER ratio roles are different:

Iteration 1. Foreign currency purchase for buying goods abroad. For this iteration importers would prefer an increase in market exchange rate for their national currency. It is this that determines what amount of national currency is due to be paid in order to buy necessary foreign currency amount:

$$M_{hr} = \frac{M_{\$}}{ER_{\$/hr}}, \quad (1)$$

where M_{hr} – represents the amount of national currency (hryvnas);
$M_{\$}$ – represents the amount of foreign currency (US dollars);
$ER_{\$/hr}$ – represents the market exchange rate (US dollars).

Iteration 2. Choice of the supplier. When choosing a foreign partner, an importer, all other things being equal, would prefer the country where purchasing power parity of national currency is higher than its market exchange rate. The bigger a margin between these indexes is, the more preferable for importer it would be. It is quite clear that an importer tries to minimize goods purchasing price or maximize their quantity using certain currency amount. For instance, when a Ukrainian importer buys goods in Poland, the quantity of goods being purchased can be calculated as follows:

$$K = \frac{M_{\$} \cdot ER_{zl/\$}}{P_{zl}}, \quad (2)$$

where P_{zl} – represents the price of goods in zloty;
$ER_{zl/\$}$ – represents the dollar market exchange rate in zloty.

When studying formula (2) it is easy to notice that the amount of goods bought for Poland domestic prices and the amount of goods bought for the USA prices have the same ratio as purchasing power parity and zloty market exchange rate. Therefore, it can be concluded that at the second stage of import activity it is not the exchange rate that takes the first place but its ratio with purchasing power parity in the partner country.

When analyzing this iteration a suggestion was made that the purchase of imported goods in the partner country is done in national prices, which is quite possible. For example, enterprises importing Polish footwear into Ukraine actually buy it directly from the producer at the price existing on the Polish domestic market. However, a Ukrainian importer is very often opposed not to a producer, but to an exporting intermediary, whose main aim is to approximate prices to those on the world market. Though, even under such conditions it is more preferable to trade with the country where purchasing power parity exceeds national currency market exchange rate as the partner would have better opportunity to lower the price and he would be more likely to agree on contract price proposed.

As a rule, after the second iteration an importer conducts a certain production process. If the raw materials are imported for the enterprise's own consumption, the real goods are produced. And if the goods are bought for resale, the production process adds up to transportation, storage, opening of retail outlets, etc. Nevertheless, in both cases production process is not related to market exchange rate and consequently is not considered to be a separate iteration.

Iteration 3. Goods sales on domestic market. In this section several issues should be taken into serious consideration. Firstly, an importer is unable to randomly form the price of imported goods as he has to comply with general price level in the country; therefore, national currency purchasing power parity is preferred not to be considerably different from its market exchange rate. Secondly, as the selling price is formed out of purchasing price expressed in the dollars, national currency market exchange rate and economic interest factor (k), the implementation of the latter considerably depends on the national currency market exchange rate:

$$P_{hr} = \frac{P_{\$} \cdot k}{ER_{\$/hr}}. \quad (3)$$

Therefore, the importer's interests in currency exchange rates sphere may be laid down as follows:

– stability or increase of national currency market exchange rate;

– search for partner country where the margin between purchasing power parity and national currency market exchange rate is the biggest;

– the margin between purchasing power parity and national currency market exchange rate of importing country is the smallest.

The approximation of purchasing power parity may occur in several ways:

1) national currency market exchange rate increases when purchasing power parity remains unchanged. The latter occurs on condition that the inflation rate in a country coincides with that in the international currency issuer;

2) inflation rate in a country accelerates when national currency exchange rate is stable. It is very important to take this factor into account because, frequently, the conclusion about foreign trade security is drawn from national currency exchange rate stability. However, in reality it is not always so;

3) simultaneous increase in national currency market exchange rate and decrease in purchasing power parity as a result of accelerated inflation. The latter is especially favorable for an importer.

Exporter.

Iteration 1. Selling goods abroad. As every business unit's activity forms a cycle, it can be analyzed starting from any stage, but the main task of the exporter is to sell goods not in the country of production. So we will start analyzing his activity from this stage.

The exporter's aim is to gain maximum revenues on selling certain amount of goods. These revenues depend on: a) selling prices on the country partner domestic market; b) national currency market exchange rate in partner country:

$$M_{\$} = \frac{P_{zl} \cdot K}{ER_{zl/\$}}. \quad (4)$$

In its turn, price level in a country is reflected in purchasing power parity index [3]. Therefore, exporter is interested not in market exchange rate as it is, but in its correlation with purchasing power parity. For example, every Euro-zone country exchanges the dollars at one and the same rate, but purchasing power of the money received will be different.

In its turn, the price level in the country is reflected in an indicator of purchasing power parity [3]. So, in Luxembourg the price level is equal to 112,4% of an average price level in the European Union, whereas in Spain only 92,4% [4]. Hence, with other things being equal the exporter will prefer Luxembourg to Spain. In other words, the less difference there is between purchasing power parity of national currency and its market exchange rate, the more the dollar receipts of the exporter will be. Therefore, the countries with big difference between these indicators in favor of parity of purchasing capacity are unattractive for import of the goods from abroad.

Iteration 2. An exchange of the dollar gain for national currency. This iteration is, as a matter of fact, a mirror reflection of iteration 1 for an importer; the exporter's interest is opposed to the one of the importer: a decreasing market exchange rate of the national currency is more preferable to him.

Iteration 3. Purchase of the goods on domestic market. There is no basic distinction whether the exporter is the intermediary or he produces the goods himself. In both cases he is compelled to buy either ready-made goods or raw materials from which the goods for export will be manufactured. Naturally, in this situation an exporter is not interested in market exchange rate, but in the purchasing power parity of the national

currency of the country he exports to. The bigger the difference between purchasing power parity and national currency market exchange rate is, the more profit the exporter will gain. Not taking into account this circumstance and basing only on the market exchange rate it is possible to draw false conclusions about export conditions. The stable rate of exchange does not necessarily guarantee stable conditions of export activity: they can worsen if the purchasing power parity decreases.

Thus, preferences of the exporter concerning both the market exchange rate and its ratio with purchasing power parity are exactly the opposites of preferences of the importer.

The foreign investor. Research in the influence of *PPP* and *ER* ratio on motivation of a foreign investor has special value as it is necessary to consider long-term tendencies in dynamics both of the first and the second indicators, since all investments, as a rule, are usually long-term.

The proportion according to which the dollars are exchanged into hryvnas has no importance for the investor. Making the investment decision, the investor, with other things being equal, will pay attention to the following two circumstances:

a) the direction of alteration in the national currency market exchange rate. If the market exchange rate tends to be strengthening, such a situation is favorable for the investor, as after investments come back to him in the initial (monetary) form of investment, the obtained sum of national currency can turn out to be a bigger sum of foreign currency and the investor, except for regular profit, will receive the super profits connected with the change of exchange rate. On the contrary, when devaluation of national currency is bound to happen, investors aspire to leave the country as soon as possible to minimize the losses from currency risks. This dependence is investigated well enough; therefore, there is no need to pay more attention to it.

b) what ratio of purchasing power parity and the market exchange rate has developed at present time, and what a tendency it has. According to Eurostat, the general price level in Poland in 2007 made 63,7% of an average level in the European Union; it means that each 1000 euros, invested by foreigners in the Polish economy, on its real purchasing force is equal to 1500 euros invested in Austria where the price level practically coincides with the Central European (101,4%). It is necessary to underline that investing money in Poland, a foreign investor can gain profit from a scale effect, as he has an opportunity of taking control of the enterprise one and a half times as big as for a similar amount of money invested in any other country of the European Union.

The ratio under consideration can also essentially affect a choice of the form of investment (monetary or natural). If a price level in the recipient country is less than a price level in the investor country it would be more preferable to participate in monetary investments. The opposite ratio would stimulate natural investments.

It is necessary to give special attention to profit reinvestments stimuli received by a foreign investor. If compared with the «body» of the investment which, as a rule, is connected with any material form of assets and cannot quickly be transformed into a monetary form, the profit received by the investor is liquid enough. Very often researchers draw analogies between motivations to reinvestments and initial investment. However, it is necessary to consider the following circumstances:

1. If a foreign investor carries out export activity (which happens quite often), his profit will be received in hard currency, and the motivation of its further application will coincide with the motivation of initial investments.

2. If a foreign investor works for domestic market, the received profit will be expressed in national currency. In this case, the choice of the investor is essentially influenced by a national currency market exchange rate. If the national currency depreciates, the investor can refuse an immediate acknowledgement of the losses and withdraw his profit from the recipient country by converting it into foreign currency, but vice versa, he can take advantage of an increasing rupture between PPP and EX

and reinvest the received profits in the hope of profit increase (or at least minimization of losses) in future.

Certainly, the concept of the average price level can hide quite a big deviation of prices depending on types of goods. For example, it is well-known that although the average price level in Ukraine is approximately twice as low as in Europe as a whole, the prices for the real estate in 2008 were not lower (and at times higher) than in Central Europe. At the same time, the prices for some resources (for example, labor) in Ukraine are 4–5 times lower than in the developed European countries.

The analysis of influence of the market exchange rate and its ratio on motivation of subjects of foreign trade activities allows offering to rate the criteria of countries judging by favorable/adverse conditions for the importer, the exporter, and the foreign investor. Tab. 1 offers the score system of conditions evaluation (from +4 to −4 points) of foreign trade activities. When applying the system, it is necessary to consider a number of circumstances:

a) the system cannot give an accurate evaluation of the country rating, it only gives the chance to estimate with approximate accuracy the influence of the rate of exchange on foreign trade activities. As a matter of fact, it is impossible to count on

Table 1

Countries rating criteria depending on influence of the exchange rate on motivation of subjects of foreign trade activities

Indicator	Value of a rating for:		
	The importer	The exporter	The foreign investor
National currency market exchange rate:			
– Has the steady tendency to increase	4	−4	4
– Fluctuates with the prevailing tendency to increase	2	−2	2
– Stable	0	0	0
– Fluctuates with the prevailing tendency to decrease	−2	2	−2
– Has the steady tendency to decrease	−4	4	−4
Ratio between PPP and ER:			
– PPP of national currency is 40% more than ER and this difference tends to increase	−4	4	4
– PPP of national currency is 40% more than ER and this difference tends to decrease	−3	3	3
– PPP of national currency is 40% less than ER and this difference tends to increase	−2	2	2
– PPP of national currency is 40% less than ER and this difference tends to decrease	−1	1	1
PPP has a deviation from ER within 5%	0	0	0
– PPP of national currency is 40% less than ER and this difference tends to decrease	1	−1	−1
– PPP of national currency is 40% less than ER and this difference tends to increase	2	−2	−2
– PPP of national currency is 40% more than ER and this difference tends to decrease	3	−3	−3
– PPP of national currency is 40% more than ER and this difference tends to increase	4	−4	−4

rating accuracy based on prognostic indicators found from tendencies extrapolation into the future. The main point it gives is a general estimation of interaction of two course indicators: purchasing power parity and national currency market exchange rate. Ignoring their ratio when estimating motivation of foreign trade activities can lead to inaccurate conclusions;

b) when estimating the ratio between PPP and ER we have selected 40% deviation. Certainly, for more exact evaluation it is possible to use more fractional deviations with a rating step less than 1 point. But, in our opinion, it is not necessary to consider deviations less of than 20%, because in this case there will be a contradiction between excessive accuracy of one component and generalization of the task as a whole. There is no necessity to calculate the distance between two cities in meters if we try to define how long it would take a bus to cover this distance;

c) it is necessary to underline, that rating evaluations of indicators under consideration on motivation of actions of the importer and the exporter have identical value on the module and differ with opposite signs. Influence of the market exchange rate of the foreign investor coincides with its influence on behavior of the importer, and the ratio between PPP and ER – with its influence on the exporter.

More often a «genuine» foreign investor (i.e., who is not connected with export or import) is a scientific abstraction. The overwhelming majority of direct investors are connected with international trade. Nowadays it is possible to find many enterprises which, for example, are registered in Moldova and have as the basic investor an American citizen and are selling Chinese goods in Ukraine. However, the motivation analysis of «genuine» importers, exporters, and investors gives the tool for research of complicated real formations by dividing them into more simple ones. Thus, the actual behavior of this or that subject should be considered as equally effective to directed motives and stimuli.

2. Purchasing power parity and ratings of EU member states

The newest economic history including Ukraine, gives the richest material for the analysis of influence of a ratio between purchasing power parity and the market exchange rate on international trade and migration of capital. First of all, a research in a comparative price level in European countries supports statistically the law of one price as a tendency. In table 2 comparative price levels for some countries in the world are given. The price level in the European Union (27 countries) is accepted as 100%. The price level is calculated as the ratio between purchasing power parity of euro to its market exchange rate in this or that country. If for any country a comparative price level is higher/lower than 100, this means that the goods in this country are more expensive/cheaper, than on average in the EU.

Apparently, in the last decade there has been a price level approximation practically in all European countries. Even those countries, where the price level in 1996 was absolutely incomparable with Central European one (Bulgaria, The Czech Republic, Estonia, Latvia, Lithuania, Romania, Slovakia), had considerably closed the gap by 2007. This tendency can be proved by the price variability coefficient, calculated for EU countries (tab. 3). It is known, that if the factor of price variability coefficient for a group of countries decreases/increases, it means, that national price levels of member countries of a group draw closer/move away. Price level deviations in the countries using the general currency (euro) are especially insignificant. Though, it is necessary to admit, that such condition is not likely to be the result of euro introduction.

At the same time, it is easy to notice an exception to the general rule. It concerns the ratio between PPP and ER for the United Kingdom and the United States of America. The directions of comparative price level dynamics for these countries in relation to Central Europe practically coincide: increase in 2000–2002 and decrease in the next years. It is possible to explain that when euro was introduced in a non-cash

Table 2

Comparative price level*

Country	1996	2000	2001	2002	2003	2004	2005	2006	2007
EU (27 countries)	100	100	100	100	100	100	100	100	100
EC (25 countries)	101,5	101	101,1	101,1	101,1	101,2	101,1	101,1	101,1
EC (15 countries)	105,9	104,9	104,7	104,9	105,2	105,4	104,8	104,9	104,7
Euro zone (15 countries)	:	100,5	101,0	101,0	103,4	103,5	102,5	102,5	102,4
Euro zone (13 countries)	107,2	100,5	101	101,1	103,5	103,6	102,6	102,6	102,4
Euro zone (12 countries)	107,3	100,6	101,2	101,2	103,6	103,7	102,7	102,7	102,5
Belgium	109,9	102	103,2	101,5	106,5	106,7	106,4	106,7	106,3
Bulgaria	27,3	38,7	41	40,8	40,7	42	43,2	44,6	46,5
The Czech Republic	43,8	48,1	50	57,1	54,5	55,4	58,1	61,4	62,4
Denmark	135,8	130,3	135,2	133,8	141,1	139,6	140,4	138,4	137,7
Germany	114	106,6	107	106,6	106,1	104,7	103,3	103	103,1
Estonia	49,6	57,3	61,1	60,8	62	63	64,7	67,4	71,5
Ireland	103,3	114,9	119,3	125,2	126,4	125,9	123,4	124	124,5
Greece	85,8	84,8	82,3	80,2	85,9	87,6	88,2	88,8	89,4
Spain	90,7	85	85,4	84,6	88,3	91	91,1	91,8	92,4
France	117,1	105,9	104,1	103,5	110	109,9	108,2	108,8	108,3
Italy	99,2	97,5	99,7	102,7	103,6	104,9	104,7	104,3	103,9
Cyprus	86,2	88,1	88,9	89,1	90,9	91,2	90,3	90,5	88,8
Latvia	42,8	58,8	59	57	54,4	56,1	57	60,5	65,8
Lithuania	36,4	52,7	54,1	54,2	52,3	53,5	54,8	57,1	59,6
Luxembourg	108,9	101,5	103,5	102,1	103,2	103	111,6	111,8	112,4
Hungary	44,3	49,2	52,9	57,4	58,2	62	63,3	60,3	66,1
Malta	67	73,3	74,8	74,6	72	73,2	73	74,6	73,3
The Netherlands	107,3	100	103	102,9	107,8	106,1	104,7	104,1	103,4
Austria	111,7	101,9	104,8	103,4	103,3	103,3	102,5	102	101,4
Poland	50,6	57,9	64,8	61,2	54,4	53,2	61,1	62,1	63,7
Portugal	83	83	84,4	86,3	86	87,4	85,1	84,9	84,6
Romania	30	42,5	41,7	43	43,4	43,3	54,4	57,1	61,5
Slovenia	72,5	72,9	73,9	74,4	76,2	75,5	76	76,8	77,8
Slovakia	40,3	44,4	43,4	44,8	50,7	54,9	55,4	57,4	63,5
Finland	127,9	120,9	124,8	123,9	126,6	123,8	123,6	122,6	122,5
Sweden	134,7	127,6	119,9	121,7	123,5	121,4	119	118,5	117,3
The United Kingdom	92,6	120	116,8	117,1	107,8	108,5	109,7	110,3	110,3
Turkey	:	62,5	47,7	51,6	57,2	59,1	66,7	66,3	71,5
Iceland	117,9	144	127,9	134,6	138,4	137,9	153,3	144,2	148,1
Norway	133	137,7	141,8	151,2	142,1	135,2	140,7	139,7	139
Switzerland	146,5	142,6	146,3	146,7	143,8	140,8	137,6	134	126,1
The United States	90,1	121	126,1	119,7	101,4	92,8	92,5	92,1	84,6
Japan	159,6	198,4	177,7	156,3	136,5	129,5	120,3	109,7	96,6

*The calculation is done on the basis of materials retrieved from Eurostat (http://epp.eurostat.ec.europa.eu).

and cash turn the new currency has been underestimated in relation to traditional world currencies. In the next years export orientation of the USA policy, on the one hand, and aspiration of the European bank to achieve the use of euro in international payments, on the other hand, led to some revaluation of the euro in relation to the dollar, which reached peak by 2008 and tending to reduce during world financial crisis.

Table 3

Factor of variation of a comparative price level for the EU countries and euro zone*

Country	1996	2000	2001	2002	2003	2004	2005	2006	2007
EC (27 countries)	40,9	33,4	32,4	32	32,9	31,7	29,7	28,5	26,5
EC (15 countries)	14,7	13,7	13,8	14,2	14	13	13	12,6	12,5
Euro zone (13 countries)	14,6	13,2	14,1	14,6	14,1	13,3	13,2	13	12,8
Euro zone (12 countries)	12,1	11,1	12,2	12,9	12,3	11,2	11,1	11	11

*The calculation is done on the basis of materials retrieved from Eurostat (http://epp.eurostat.ec.europa.eu).

The analysis of factors causing approximation of a price level, allows to find out practically all possible variants stated above. For instance, advancing rates of inflation in Bulgaria in comparison with average rates of price rise in EU as a whole could have lead to general price level in this country to make 50,3% of the Central European one in 2007. However, owing to national currency devaluation it has reached only 46.5% (tab. 4). In Belgium at stable euro market exchange rate slower rates of inflation have led to some increase of comparative price level. In Poland price level approximation to the European one took place both as a result of faster inflation and national currency strengthening.

Table 4

Factors of comparable price level change *

Country	Comparable price level (%)		Rate of inflation (2000 = 100%)	Rate of national currency (the price of 1 euro expressed in national currency)	
	2000	2007		2000	2007
The European Union	100	100	116	1	1
Belgium	102	106,3	115	1	1
Bulgaria	38,7	46,5	151	1,9522	1,9558
Poland	57,9	63,7	119	4,0082	3,3328

* The calculation is done on the basis of materials retrieved from Eurostat (http://epp.eurostat.ec.europa.eu).

Evaluation of market exchange rates is of the greatest importance when making commodity and financial flow forecast. It is difficult enough to do such a forecast for the countries where deviations of indicators are within the limits of statistical error. For example, for the countries of the Euro zone the influence of the market exchange rate on mutual trade is equal to zero as all its participants use identical currency. The deviation of price level within 3–5% cannot form the basis for more or less credible forecast. Therefore we will apply the rating technique suggested above to the countries which only recently have became members of EU and continue to use their national currency (tab. 5). These ratings evaluate the influence of exchange rates on mutual

trade and movement of capital within the European Union where euro is used as an official currency. The results could be different if the dollar were the currency for payments and investments as dynamics and an orientation of national currency market exchange rate in relation to euro and the dollar these years were different.

Table 5

Evaluation of individual countries ratings based on influence of exchange rates on motivation of subjects of foreign trade activities during 2005–2007

The country	The subject	Rating of market exchange rate of a national currency:	Ratio between PPP and ER	Cumulative rating
Bulgaria	*The importer*	0	−3	−3
	The exporter	0	3	3
	The investor	0	3	3
The Czech Pepublic	*The importer*	4	−2	2
	The exporter	−4	2	−2
	The investor	4	2	6
Estonia	*The importer*	0	−2	−2
	The exporter	0	2	2
	The investor	0	2	2
Latvia	*The importer*	−2	−2	−4
	The exporter	2	2	4
	The investor	−2	2	0
Lithuania	*The importer*	0	−3	−3
	The exporter	0	3	3
	The investor	0	3	3
Hungary	*The importer*	2	−2	0
	The exporter	−2	2	0
	The investor	2	2	4
Poland	*The importer*	2	−2	0
	The exporter	−2	2	0
	The investor	2	2	4
Romania	*The importer*	−2	−2	−4
	The exporter	2	2	4
	The investor	−2	2	0

As the ratings prove, only one country had favorable conditions for the importer: in The Czech Republic these conditions are estimated by rating 2 reached due to the steady tendency of growth of the national currency market exchange rate. In all other countries these conditions are either neutral (Hungary, Poland – the rating is equal to 0), or negative (−4 for Latvia and Romania, – 3 for Bulgaria and Lithuania, – 2 for Estonia). Ratings of currency conditions for export will be absolutely opposite: the most favorable for Latvia and Romania and adverse for The Czech Republic.

Rather interesting results can be received if we connect the analysis of currency conditions for the exporter and the importer with the estimated conditions for the foreign investor. In this case, it is possible to receive the answer not only to a question «whether the country is attractive to investors», but also to another question «hat fields of activity are more preferable for investments».

As the classification of the countries studied is being done depending on the directions of investment activity of the foreign investor, motivated with dynamics of a market rate of national currency and its ratio with parity of purchasing capacity (tab. 6), it is possible to allocate only two countries where the listed factors are not essential: Latvia and Romania. For them negative influence of directions of change of the market exchange rate will be neutralized by positive influence of parity between PPP and ER, and therefore the general rating is equal to 0.

Table 6

Classification of the countries depending on currency motivations for foreign investors

The country	Directions of investment activity for the foreign investor
Bulgaria Estonia Lithuania	Investment in export-oriented branches using mainly national resources
The Czech Republic	Investment in the branches working on home market with possible use of imported raw materials
Hungary Poland	Investment in the branches mainly working on home market with use of internal resources
Latvia Romania	Influence of the rate of exchange on investment activity is neutral

The optimum conditions for the foreign investor are in the Czech Republic where the general rating for investment reaches 6. Thus, as economy is inclined to encourage import (first of all because of steady growth of a rate of national currency), attraction of imported resources that will promote the general growth of profitability of investments is possible. However, manufacture should be guided by home market and satisfaction of internal demand, resulted from negative rating of export conditions. On the contrary, foreign investments into Bulgaria, Estonia and Lithuania are expedient to direct to export-oriented branches which use mainly national resources. A rather interesting situation is observed in Hungary and Poland: taking into account the existing tendencies for changes of the indicators studied it is the most expedient for foreign investor to invest money in the enterprises which are oriented towards production for home market with the use of national resources. In our opinion, it is possible to consider such conditions as the most corresponding to strategic targets of the countries, aspiring to combine the use of advantages of the international division of labor with accelerated development of home market in order to increase the competitiveness of national economy.

Certainly, the value of these considerations should not be exaggerated, for they only give a chance to evaluate the influence of one of the numerous factors defining motivation of behavior of subjects of foreign trade activities. In particular conditions of this or that country during an exact period of time this factor can play a principal role, in any other situation it can become the subordinate one. However, in any case the offered technique allows isolating and evaluating the important component of formation of directions of activity of importers, exporters and investors.

3. Currency component of foreign trade activities of Ukraine

During the period of world financial crisis 2008–2009 the currency system of Ukraine is exposed to a number of various challenges when falls in the market rate of national currency at times can double as compared to the period before the crisis. Economists (and especially politicians) have opposing opinions about the current situation. Some of them claim that there are no objective reasons for such market exchange rate falls, which are the consequence of mere speculations. Others, on the

contrary, see the prospects of triple depreciation of national currency as a result of the default announcement [7]. Certainly, dynamics of the exchange rate in a crisis, the reasons which have caused such fluctuations deserve special research. However, proceeding from the purposes of our analysis, we will concentrate mainly on the period before the crisis and evaluate the influence of currency component on strengthening or easing of different directions of foreign trade activities of Ukraine.

For the last four years the official exchange rate practically coincided with the market exchange rate and remained invariable (up to autumn 2008 when there was at first an insignificant revaluation of hryvna, and then its prompt fall). It is possible to regard the period of April-May, 2005 as a crucial one when hryvna rate was revalued from 5.35 UAH to 5.05 UAH per 1 USD in the short run. Thereby, favorable conditions for expansion of import and export restrictions have been created, which did not take long to affect the trading balance: its negative value appeared in 2006 and by the end of 2008 it reached more than 16 billion US dollars.

The information given can provoke a false idea that with a stable market and official currency exchange rates the currency component was neutral as to motivation formation of subjects of foreign trade activities in Ukraine. However, as it has been proved above, foreign trade activities are essentially influenced by PPP and ER ratio; because of the accelerated inflation these indicators for Ukraine approximated (fig. 1).

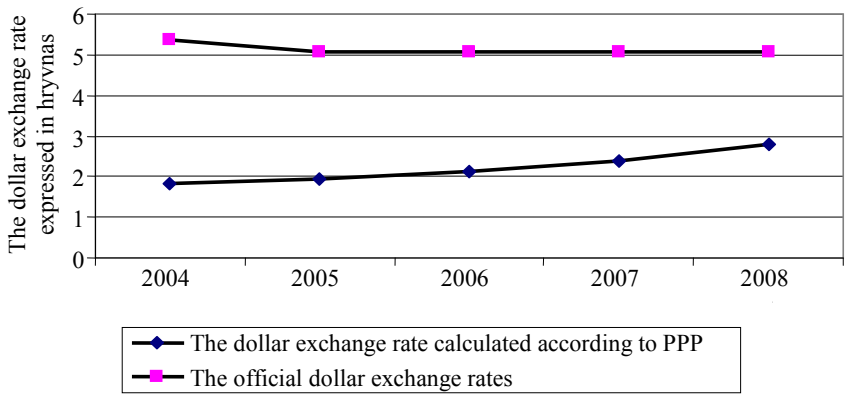

Fig. 1. Dynamics of the dollar exchange rate expressed in hryvnas: official and calculated according to purchasing power parity

According to our calculations done on the basis of the data from Goskomstat of Ukraine and the statistical information of the official site of CIA [5,6], in 2004 with an exchange rate between Ukrainian hryvna and the dollar of 5,35 UAH per 1USD, hryvna's purchasing power parity was 1,83 UAH. In 2008 (prior to the beginning of crisis fluctuations in the rate of exchange at the end of year) this parity was 5,05 UAH. and 2,81 UAH. It led to the average level of prices approximated as well: in 2004 the price level in Ukraine was 36% from a price level in the USA, and by 2008 this indicator rose to 55%.

The calculations done allow to define the ratings of Ukraine based on the influence of exchange rates on motivation of subjects of foreign trade activities (tab. 7). On the whole, it is possible to assert, that the currency situation developed not in favor of the importer. Even after single strengthening of hryvna in April-May, 2005 in general the currency situation for the importer was adverse. It is connected with considerable rupture in a price level and insufficient purchasing capacity of the population.

Table 7

Estimation of a rating of Ukraine by influence of rates of exchange on motivation of subjects of foreign trade activities during 2005–2008

The subject	Rating of a market rate of national currency a course:	Rating Parity PPP and ER	Cumulative rating
The importer	0	–3	–3
The exporter	0	3	3
The investor	0	3	3

At the same time, analyzing the fact sheet, it is easy to be convinced, that volumes of import in 2005–2008 increased faster, than export (tab. 8). It led to considerable negative foreign trade balance in merchandise. However, the reason of such a sharp increase in import is not in currency motivation: it can be considered as a consequence of other factors, in particular, the deliberate policy of the government focused on replenishment of the market of consumer goods in order to cover an increasing demand as a result of considerable monetary payments, and also excessive orientation at expansion of consumer credit, not supported by expected real incomes for its repayment. The listed factors in perspective resulted in the development of financial and economic crisis in Ukraine.

Table 8

Rates of growth of commodity export and import of Ukraine*

Years	Rates of growth (in percentage to previous year)		Balance of trading balance (bln, US dollars)
	Export	Import	
2004	141,6	126,0	3,67
2005	105,0	124,6	–1,85
2006	112,1	124,6	–6,67
2007	128,4	134,7	–11,4
2008**	141,7	149,4	–17,71

*The calculation is done on the basis of materials retrieved from: http://www.ukrstat.gov.ua/
**For 11 months.

The analysis of geographical structure of the Ukrainian import proves one more statement suggested by us earlier: the aspiration of the importer is to find such a foreign partner, in whose country the rupture between PPP and ER is the greatest (tab. 9). For several last years the relative density of such countries as Poland, China, Turkey increases in structure of the Ukrainian import. By our estimations, the ratio of the dollar exchange rate calculated at purchasing power parity of national currency, to its official rate in these countries was in 2008 (prior to the beginning of the world financial crisis), accordingly, 82%, 54% and 86%. Relative density in Germany, where such parity is more than 100% [5], is simultaneously reduced.

The positive rating exchange rates influence on export activity is confirmed by the fact that, having come after revaluation of hryvna in 2005, the following years witnessed quite a fast growth of export: the rates of export gain exceeded the rates of gain in volumes of gross national product. The situation has changed with the beginning of the world financial and economic crisis. At the end of 2008 and in the beginning of 2009, owing to decrease in world demand for principal Ukrainian export production, there was a landslide reduction of export volumes. Even fifty percent devaluation of hryvna could not improve the situation.

The positive balance of investments movement recently was a source of compensating possible deficiency of foreign currency, caused by negative trade balance.

Table 9

Geographical structure of the Ukrainian import of the goods (in percentage of total amount)*

The country	Years		
	2004	2005	2008
The Russian Federation	41,0	35,0	23,1
Turkmenistan	6,7	7,4	6,5
Poland	3,3	3,9	5,0
Germany	9,4	9,4	8,3
China	2,5	5,0	6,4
Turkey	1,3	1,7	2,3

*The calculation is done on the basis of materials retrieved from: http://www.ukrstat.gov.ua/

Direct foreign investments into Ukraine practically annually increased more than by 8 bln. US dollars (tab. 10), whereas annual investments from Ukraine were much less – estimated in several millions of US dollars (when on January 1, 2007 all direct investments of Ukraine made 221 mln. US dollars). An exception was made 2007 when at one time about 6 bln. US dollars had been withdrawn from Ukraine, including for the fourth quarter – 5,3 bln. US dollars. It has essentially undermined the currency balance in the Ukrainian market and has in many respects served as the reason for the subsequent hryvna devaluation during the financial crisis.

Table 10

Gain of direct foreign investments into Ukraine (in mln. US dollars)*

Year	Gain of investments
2004	1696
2005	8022
2006	4811
2007	8303
2008	6234

*The calculation is done on the basis of materials retrieved from: http://www.ukrstat.gov.ua/

Conclusions.

The analysis of influence of purchasing power parity and market rate of national currency on motivation of behavior of subjects of foreign trade activities allow formulating a number of theoretical and practical conclusions.

1. The influence of an exchange rate on the conditions of foreign economic activity cannot be effectively estimated only on the basis of calculating the dynamics of the market (official) price of foreign currency expressed in national monetary units. The ratio between purchasing power parity and market exchange rate has no less important influence on the activity of an exporter, importer, and investor. The overall price level index, widely used in world statistics, sufficiently characterizes this ratio.

2. The law of one price finds its corroboration in the tendency of approximation of the overall price level in the absolute majority of countries. Some exceptions to the rule are caused by deliberate governmental actions of certain countries in order to regulate the market exchange rate.

3. Market exchange rate fluctuation and its ratio with purchasing power parity influence in different ways importer's and exporter's motivation. Investor's interests coincide with those of the exporter in terms of evaluation of the ratio between PPP and ER.

4. Market exchange rates influence on motivation of the subjects of foreign business activity can be determined by means of countries' rating, which would depend

on the speed and directions of changes in PPP and ER. The ratings obtained enable to determine those particular factors which are connected with the changes in market exchange rates.

5. The application of the rating scheme enables us to claim that the currency conditions in Ukraine in 2005–2008 were not exclusively favorable for steady growth of import; its substantial growth in comparison with that of export was predetermined by other factors, such as tariff and non-tariff regulations.

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