FACULTY OF ECONOMICS
Kazimierz Pulaski University of Technology and Humanities
in Radom

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE

2014
Vol. 4, No. 1

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ISSN 2082-8500

Publishing Cooperation:
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26-600 Radom, ul. Starowolska 13A
tel./fax (048) 369 80 74,
e-mail: wydawnictwo@inw-spatium.pl
http://www.inw-spatium.pl

Nakład do 200 egz.

Printing House:
Sowa-Druk na Życzenie
www.sowadruk.pl
tel. 022 431-81-40

Central European Review of Economic & Finance
Kazimierz Pulaski University of Technology and Humanities in Radom
Faculty of Economics
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CENTRAL EUROPEAN REVIEW
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Slawomir I. Bukowski[1]

DEVELOPMENT OF EQUITY MARKET AND ITS SIGNIFICANCE IN THE SLOVAK ECONOMY[2]

Abstract

The aim of the paper is to present results of the empirical research into the equity market development and its significance in the Slovak economy and especially to answer the following questions:

- *What is the significance of the equity market in Slovak economy and its impact on economic growth?*
- *What is the degree of the Slovak equity market integration with the euro area equity market?*

The following methods have been applied in the research: statistical analysis of the Slovak equity market significance in economy, analysis of the relationship between equity market development and economic growth based on the econometric model, analysis of the Slovak equity market integration with the Eurozone equity market based on the "news-based measure" and GARCH (1.1) model.

The significance of the equity market is relatively smaller in Slovak economy than in other small- and medium-sized economies in the euro area. Yet, a statistically significant correlation between equity market development and economic growth exists in the Slovak economy. Slovak equity market was more integrated with the global market in the period 1999-2004, whereas in the years 2005-2011 it revealed a higher integration degree with the euro area equity market than with the global equity market.

JEL Classification Code: **G10, G15.**

Keywords: financial market integration, degree of financial market integration, equity market, equity market integration, economic growth financial assets econometric models.

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[2] The project was financed from the National Science Centre funds on the basis of a decision No. DEC-2011/01/B/HS4/02307.

Introduction

International integration of equity markets is synonymous with their globalization. The larger the role of global shocks (common for many markets not just the local ones) in affecting yields on equity market indices is, the more integrated the equity markets are.

A special case is the monetary union where there are no barriers, not even in capital flows related to the existence of multiple currencies.

In the euro area a fairly advanced degree of the financial market (including equity market) integration has been achieved. Analogically, here as everywhere else a higher degree of integration indicates the increased proportion of shocks common for the euro area countries rather than that of the local shocks in affecting the yield.

Slovakia joined the eurozone on 1 January 2009. One of the crucial conditions of achieving a surplus of receipts over expenses in the process of monetary integration is a high degree of the financial market integration with the uniform financial market in the euro area. One of the major segments of the financial market is equity market.

The aim of this paper is to present the results of empirical research into development of the equity market and its significance in Slovak economy and in particular answering the following questions:

What is the equity market significance in the Slovak economy and in particular its impact on economic growth?

To what extent is the equity market in Slovakia integrated with the euro area equity market?

Functions of the equity market in economy and equity market integration on the international scale

Equity market plays an important role in economic development as a source of financing long-term activities of business entities being an alternative to bank credit, issuance of debt securities and other forms of financing. Thus it enables to convert financial capital into capital in-kind (productive assets). What is more, it enables valuation of a company's capital taking into account current and anticipated yields and risk related to business activity. The role of the equity market is equally important in stimulating economic growth which has been proved by a number of research works (see more: Bukowski, 2011, pp. 25-31). However, this research also points to the fact that a correlation between the equity market development or, broadly speaking, financial markets and economic growth is probably two-directional (see more: Dębski et. al., 2010). Following R. Levine the correlation between the financial market development and economic growth can be presented in the way depicted in Figure 1.

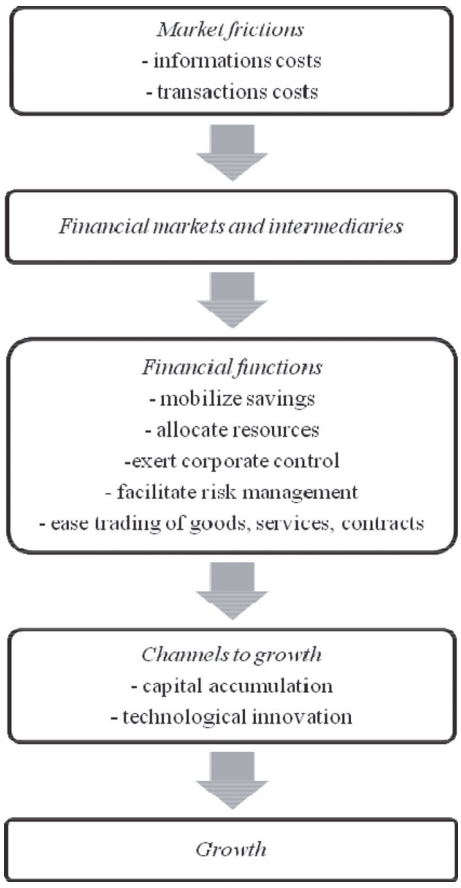

Figure 1. Theoretical correlation between finance and economic growth
Source: Levine 1997, p. 691.

International integration of financial markets plays an important role in the development of financial markets and their impact on economic growth. Equity market integration on international scale can be defined more precisely according to the law of one price. Application of the law of one price means that the assets generating identical monetary flows have the same price (rate of return, yield). In the case of shares, in two countries (regions) the price of capital raised in the financial market by issuing shares should be the same (cf. Adam et. al., p. 4). In accordance with a broader definition of the financial market integration put forward by L. Baele, A. Ferrando, O. Hördal, E. Krylova, C. Monnet (see: Baele et. al., 2004, pp. 6-7), equity markets are considered fully integrated if all the possible economic agents involved in transactions at the same price:

– are governed by the same rules when they decide to participate in share trading,

– have equal access to shares,
– are treated equally when they operate in the market.

Such a broad approach to the financial market integration implies also functioning of the law of one price. The law of one price causes that assets are characterized by identical risks and yields. The quoted definition comprises the law of one price. If the law of one price is not met, then there is room for arbitration which restores validity of the law (on condition there are no barriers to the financial market integration) (see: Baele et.al., 2004, p. 7; Kowalak, 2006, pp. 34-38).

Figure 2 depicts a theoretical correlation between the integration of financial markets (including equity market).

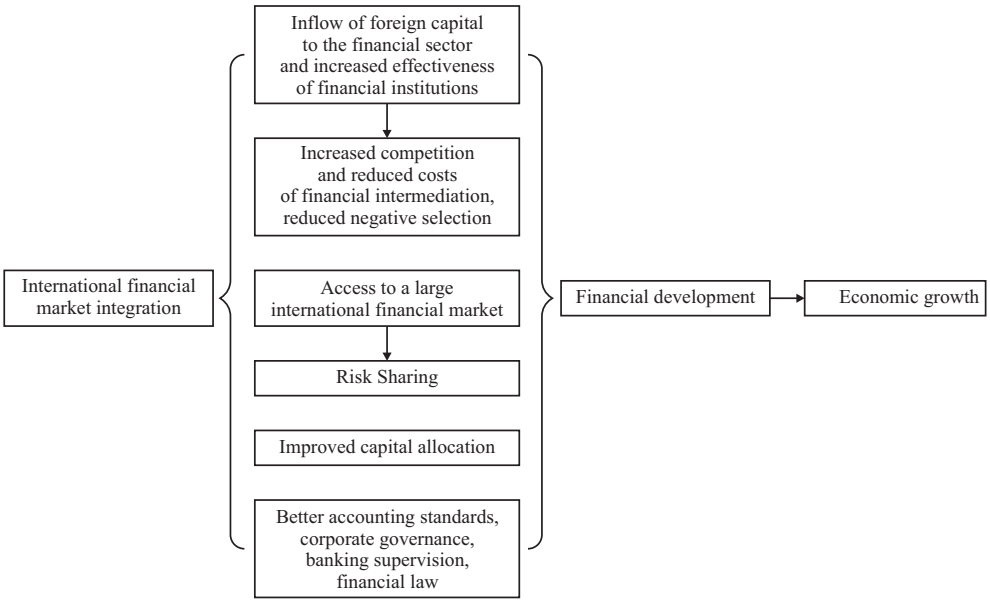

Figure 2. Theoretical correlation between international financial market integration and financial development and economic growth

Source: Bukowski, 2011, p. 35.

An increased degree of financial market integration means also an increased interdependence and sensitivity of markets to any kind of financial turbulences which may unexpectedly occur in different regions of global economy or in some countries of an integrated group. Integrated financial markets are becoming a major channel for financial turbulence transmission on an international scale. The turbulences in question are transmitted via the mechanisms of:

– changes in interest rates,

– changes in exchange rates,
– changes in financial asset prices (Bukowski, 2011, pp.52-53).

One must also point to a significant role of the financial market (including equity markets) integration in a monetary union with a uniform currency and uniform monetary policy, hence also for the economy of a country which is a member of such a union.

– levelling out of asset-generated revenues and consumption through diversification of portfolio and mechanism of risk sharing,
– better synchronization of business cycles and economic shocks,
– reducing investment risk,
– neutralization of the shock impact on the size of incomes and consumption,
– increased synchronization degree of business cycles and reduced asymmetry of economic shocks,
– better effectiveness of uniform monetary policy of the supranational central bank[3].

On the other hand it is worthwhile to draw attention to the fact that financial market integration can also be a factor strengthening economic destabilization of the monetary union economies in the environment of growing budget deficits and public debt which result mainly from a bad expansionary fiscal policy in the past and the structure of fiscal expenses as well as in the case when the share of foreign debt dominates (Bukowski 2011, p. 73).

Trends in the equity market development in Slovakia

The Stock Exchange in Bratislava was set up on 15 March 1991. The first session took place on 6 April 1993. The SAX index was introduced in March 1994[4].

The Stock Exchange in Bratislava is a small local stock exchange which is accounted for by the size of Slovak economy. Also the basic equity market development indices on the Bratislava stock exchange included in Table 1 testify to this. As the content of the Table shows the ratio of the equity market capitalization is very small and in the period 1994-2009 it never exceeded 10%. The value of the stock exchange turnover in relation to GDP increased rapidly in the years 1995-1996, but from 1997 it started to fall and between 2005 and 2009 it reached the level below that of 1994. Also following the rapid growth in the years 1994 -1997, later on, the Stock Exchange Turnover Ratio went down to a very low level. The number of companies listed on the stock exchange per 10 000 inhabitants was equally low.

[3] See more on the topic: (Bukowski, 2011, pp. 67-74).

[4] See more on the history and development of the Stock Exchange in Bratislava as an institution at: (www.bsse.sk; Bieniewicz, Mobus, 2008, pp. 497-522).

Table 1. Basic development indices for the Slovak equity market in the years 1994-2009

Stock exchange market development indices	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Stock exchange capitalization/GDP* (%)		4,85	6,16	7,02	4,81	3,35	3,78	4,60	5,14	5,66	6,81	7,23	7,32	7,77	6,48	5,44	4,94
Value of stock exchange turnover / GDP**(%)		1,87	5,67	7,85	5,50	2,53	2,29	3,09	2,63	1,82	1,27	0,60	0,12	0,08	0,03	0,11	0,20
Stock Exchange Turnover Ratio*** (%)		34,41	74,09	64,64	44,46	31,70	61,97	55,88	36,98	23,20	16,71	1,56	1,85	0,49	0,40	4,21	4,65
Number of companies listed at stock exchange per 10 000 inhabitants	0,03	0,03	1,52	1,62	1,55	0,87	0,91	0,96	0,66	0,57	0,48	0,39	0,32	0,28	0,23	0,20	0,17

*the coefficient calculated according to the formula: $\{0.5[M_t/P\_e_t + M_{t-1}/P\_e_{t-1}]\}/PKB_t/P\_a_t$, P_e_t – end-of-year inflation rate (*CPI*), *M* – equity market capitalization, P_e_{t-1} beginning of year inflation rate (*CPI*), P_a_t – average annual inflation rate (*CPI*), GDP_t – *GDP* over year *t*, *t* – year.

** T_t/GDP_t.

*** the coefficient calculated according to the formula: $T_t/P\_a_t/\{(0.5)*[M_t/P\_e_t + M_{t-1}/P\_e_{t-1}]$ where *T* is the value of total equity turnover, *M* is market capitalization value, P_e_t – end-of-year inflation rate (*CPI*) , *M* – equity market capitalization, P_e_{t-1} beginning of year inflation rate (*CPI*), P_a_t – average annual inflation rate (*CPI*), *t* – year.

Source: author's own compilation on the basis of: T. Beck, E. Al-Hussainy, *Financial Structure Dataset*, Revised March 2010, World Bank, Washington D.C. 2010.

Comparison of equity market capitalization in relation to GDP in Slovakia and in other euro area countries also reveals that the Stock Exchange in Bratislava is the smallest equity market both in the eurozone and in Europe. It is interesting that such a small country as Malta is a much bigger market (see: Table 2).

Considering the above facts, a question arises: is it worthwhile to examine the Stock Exchange in Slovakia from the point of view of its role in the process of economic growth? It seems it is, which will be proved later in this paper. The equity market in Slovakia, as a local and relatively small market. Functioning in a small economy, it is not very attractive for foreign capital. This explains the small stock exchange turnover. Certainly, in the last four years a drop in the stock exchange turnover was also affected by increased risk of investment in shares in connection with a slump in the market related to global recession and financial crisis as well as the fiscal crisis in the euro area.

Table 2. Equity market capitalization to GDP ratio* in Slovakia and eurozone countries in the years 1999-2009 (%)

Country/year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Austria	15.80	16.36	14.24	13.63	17.12	24.28	34.78	49.46	56.05	63.53	73.01
Belgium	85.23	79.72	75.95	58.69	48.86	62.47	76.32	87.73	87.96	88.18	88.39
Cyprus	48.76	61.27	54.91	53.32	37.04	30.87	33.95	no data	106.88	no data	no data
Finland	192.25	265.90	195.62	122.50	94.45	94.35	101.43	113.89	129.61	148.77	172.51
France	84.66	110.74	98.86	74.01	64.91	71.24	78.29	94.03	102.16	112.32	124.38
Germany	58.99	71.63	62.58	44.08	36.48	41.81	43.73	49.83	57.09	64.98	74.69
Greece	91.77	110.48	66.36	45.92	39.78	44.26	48.01	57.81	66.10	75.48	85.99
Ireland	70.30	78.58	75.99	55.89	46.65	54.69	57.46	63.62	60.84	58.23	55.79
Italy	54.12	68.60	58.64	41.63	36.57	40.94	45.27	49.79	50.19	50.59	51.01
Luxembourg	168.84	173.74	144.68	107.68	107.98	131.32	139.94	159.09	256.49	426.08	738.79
Malta	36.95	51.18	44.93	32.73	32.32	42.05	59.07	68.20	no data	no data	no data
Netherlands	158.10	174.65	138.64	98.87	83.22	85.12	90.73	104.65	115.80	129.86	145.32
Portugal	53.34	56.85	46.75	35.22	32.53	36.15	37.40	44.35	53.99	65.27	79.99
Spain	67.65	80.99	80.63	68.42	67.81	80.43	85.16	94.11	109.82	128.52	151.49
Slovakia	4.93	5.62	6.63	7.09	7.14	8.60	9.37	9.02	8.42	7.79	7.14
Slovenia	10.64	12.12	13.50	16.46	20.64	25.45	25.30	30.44	48.66	78.94	129.05
Eurozone - average	75.15	88.65	73.68	54.76	48.34	54.63	60.39	67.25	81.88	93.66	123.60

*the coefficient calculated according to the formula: $\{0.5[STOCK_t/P\_e_t + STOCK_{t-1}/P\_e_{t-1}]\}/PKB_t/P\_a_t$, P_e_t – end-of-year inflation rate (*CPI*) , *STOCK* – equity market capitalization, P_e_{t-1} beginning-of-year inflation rate (*CPI*) , P_a_t – average annual inflation rate (*CPI*), *GDPt – GDP* over year *t*, *t* – year.

(Source: author's own compilation on the basis of: T. Beck, E. Al-Hussainy, *Financial Structure Dataset*, Revised March 2010, World Bank, Washington D.C. 2010.)

Equity market and economic growth in Slovakia

Data and a model

In our research into relationships between the equity market development and economic growth we used annual statistical data from the database: T. Beck, E. Al-Hussainy, Financial Structure Dataset, Revised March 2010, World Bank, Washington D.C. 2010 and AMECO.

It was assumed that the correlation between the equity market development and economic growth is two-directional. On the basis of this assumption a model was developed consisting of two interdependent equations which were estimated by means of a double least squares (DLS) method. The model looks as follows:

$$\ln GDPc_t = \alpha_{10} + \beta_{12} \cdot \ln STOCK_{t-1} + \alpha_{11} \cdot \ln GDPc_{t-1} + \alpha_{12} \cdot \ln NCF_t + \\ + \alpha_{13} \cdot \ln NCF_{t-1} + \alpha_{14t} + \varepsilon_{1t}$$

$$\ln STOCK_t = \alpha_{20} + \beta_{21} \cdot \ln GDPc_t + \alpha_{21} \cdot \ln STOCK_{t-1} + \alpha_{22} \cdot \ln NCF_t + \\ + \alpha_{23} \cdot \ln NCF_{t-1} + \alpha_{24t} + \varepsilon_{2t}$$

The following notations were adopted for the sake of the model:
GDPc – GDP per capita in constant prices for the year 2005,
STOCK – stock exchange capitalization to GDP ratio (see explanations below Table 2),
NCF – net investment per capita in constant prices for the year,
t – time variable,
ε – random factor.

Results

Tables 3 and 4 present model estimation results. All independent variables are statistically significant for both equations of the model.

The tests conducted prove correctness of the model equation specification (Hausman test), legitimacy of the use of instruments (Sargan test) and lack of autocorrelation (LM test). The co-integration test indicates the absence of a unit root and co-integration of time series for both equations.

Estimation results for equation 1 reveal a statistically significant correlation between the ratio of stock exchange capitalization from the previous period (t-1) to GDP growth per capita over time t. The change in the stock exchange to GDP ratio growth rate of 1 percentage point causes a change in GDP growth per capita by 0.24 percentage points. However, the correlation between the two variables is two-directional. As Table 4 shows, a change in GDP per capita growth rate by 1 percentage point entails a 3.2 percentage point change in the stock exchange capitalization to GDP ratio. Thus the interdependence between economic growth and equity market development is two-directional.

Table. 3. Equation 1: Double LS estimation, observations used 1996-2009 (N = 14)

Dependent variable: l_GDPc

Modified by instruments: l_STOCK_1

Instruments: const l_NCFc l_NCFc_1 time l_GDPc_1

	Coefficient	*Standard error*	*z*	*p value*	
Const	10.2397	0.489101	20.9357	<0.00001	***
l_NCFc_1	-0.0747842	0.0294408	-2.5402	0.01108	**
l_STOCK_1	0.244795	0.0750262	3.2628	0.00110	***
Time	0.0478135	0.0036757	13.0080	<0.00001	***

Arithmetic mean of dependent	9.032725		Standard deviation for dependent variable	0.193415
Sum of squared residuals	0.011318		Residual standard error	0.033642
Coefficient of determination of R2	0.976802		Corrected R squared	0.969842
F(3, 10)	139.5516		p value for the F-test	1.85e-08
Residual autocorrelation – rho1	-0.111488		Durbin-Watson statistic	1.766867

*** statistically significant at 10% significance level, ** statistically significant at 5% significance level, * statistically significant at 1% significance level.

Hausman Test
Null hypothesis: The least squares method estimator is consistent
Asymptotic test statistic: Chi-squared(1) = 1.50821
at the p value = 0.219413

Sargan test for overidentifying restrictions –
Null hypothesis: all instrumental variables are valid - justified
Test statistic: LM = 0.0636603
at the p value = P(Chi-squared(1) > 0.0636603) = 0.800801

Augmented Dickey-Fuller test for the uhat process
For 1st order lag of the (1-L)uhat process
sample size 13
Null hypothesis: there is a unit root a = 1; process I(1)
*model: (1-L)y = b0 + b1*t + b2*t^2 + (a-1)*y(-1) + ... + e*
1st order residual autocorrelation: -0.016
estimated value (a-1) equals: -1.79065
Test statistic: tau_ctt(3) = -5.27416,
Asymptotic p-value = 0.003681
Dickey-Fuller critical value = -3.60 at an insignificant level =0.05.
A unit root is not present. The test result indicates integration of time series.

Table. 4. Equation 2: Double LS Estimation, observations used 1996-2009 (N = 14)

Dependent variable: l_STOCK

Modified by instruments: l_GDPc

Instruments: const l_NCFc l_NCFc_1 time l_STOCK_1

	Coefficient	*Standard error*	*z*	*p value*	
Const	-35.2033	14.0998	-2.4967	0.01254	**
l_GDPc	3.25051	1.50514	2.1596	0.03080	**
l_NCFc	0.351541	0.130465	2.6945	0.00705	***
Time	-0.159048	0.0755741	-2.1045	0.03533	**

Arithmetic mean of dependent variable	-2.600974	Standard deviation for dependent variable	0.192209
Sum of squared residuals	0.219713	Residual standard error	0.148227
Coefficient of determination of R2	0.549966	Corrected R squared	0.414956
F(3, 10)	3.409619	p value for the F-test	0.061182
Residual autocorrelation – rho1	0.032398	Durbin-Watson statistic	1.750646

*** statistically significant at 10% significance level, ** sstatistically significant at 5% significance level, * statistically significant at 1% significance level.

Hausman Test
Null hypothesis: the least squares method estimator is consistent
Asymptotic test statistic: Chi-squared(1) = 0.374662
at the p value = 0.540474

Sargan test for identifying restrictions -
Null hypothesis: all instrumental variables are valid - justified
Test statistic: LM = 5.34254e-007
at the p value = P(Chi-squared(1) > 5.34254e-007) = 0.999417

Lagrange multiplier (LM) test for 1st order autocorrelation -
Null hypothesis: lack of the random component autocorrelation
Test statistic: LMF = 0.0157188
at the p value = P(F(1,9) > 0.0157188) = 0.90332

Augmented Dickey-Fuller test for the uhat process
for 1st order lag of the (1-L)uhat process
sample size 13
Null hypothesis: there is a unit root a = 1; process I(1)
*model: (1-L)y = b0 + b1*t + b2*t^2 + (a-1)*y(-1) + ... + e*
1st order residual autocorrelation: 0.007
estimated value (a-1) equals: 1.63243
Test statistic: tau_ctt(3) = -7.27509
Asymptotic p value = 2.178e-007
Dickey-Fuller critical value = -3.60 at an insignificant level =0.05.
A unit root is not present. The test result indicates a co-integration of time series

Integration degree of the Slovak equity market with the eurozone equity market

Measures of international integration of equity markets

One of the measures of the financial market integration, including equity market integration is the one based on news.

The news-based measures grasp the impact effect of the news concerning predicted shocks in financial markets and investment risk related to them. In fully integrated markets, investment portfolios should be well diversified. Information coming from local markets should not have a major effect on the prices of assets, unlike global information regarding the entire integrated market which affects price changes quite significantly. The systematic risk degree is the same in various countries whose markets have been integrated. Measurements from this group show to what extent information specific for a local financial market is significant for the remaining markets in comparison to the effect of information of global character (see: Baele et.al, 2008, p. 20; Kowalak 2006, p. 38 and onwards). In the case of equity market, a model of the "increased impact of the common news component on equity market yields" is such a measure. The "common news component" is the news concerning changes in the US equity market index yields (global news). In the euro area the common news component is the news concerning changes in yields on the broad DJ EUROSTOXX index corrected by the influence of the global "news" impact, i.e. from the US equity market. The higher the degree of particular countries' equity market integration with the global market is, the lower the impact of local (domestic) turbulences on shaping the yields on assets in particular countries but the higher the impact of global factors (information, signals) coming from the United States.

In the case of the euro area countries, the larger the impact of common factors (the common "news" component) for the euro area than the local (specific for the particular countries of the eurozone) ones on shaping the yields in domestic equity markets is, the higher the integration degree for these countries is. Similarly, if the examined countries are from outside the euro area, then the larger the impact of the common component for the euro area on shaping the equity market yields in these countries is, the higher the integration degree between their markets and the eurozone market is. On the other hand, the impact of the "news" from the US market will define the integration degree between a given market and the global market (see: Bukowski, 2011, p. 46-47).

Data and a model

Our examinations covered the monthly data from the period 1999:01-2011:12 concerning yields on SAX, DJ EUROSTOXX and DOW JONES COMPOSITE AVERAGE indices. We divided the whole period into two sub-periods of 1999:01 – 2004:12 and 2005:01-2011:12 in order to include also the effect of the EU membership. Changes in yields on the DOW JONES COMPOSITE INDEX were treated as the global news (signal, shock), like in the case of investigations and statistics of the European Central Bank concerning equity market integration (see: Financial Integration in Europe, April, Statistical Annex. ECB 2011). The data sources were the ECB database (Statistical Data Warehouse) and data from Warsaw Stock Exchange and Bratislava Stock Exchange.

To measure the stock exchange integration degree we applied the measures based on the model of the "increased impact of the common news component on equity market yields" i.e. the above mentioned measures of the global shock spillover and yield variance proportion. The model was estimated in three stages by means of the GARCH(1,1) process[5]. Firstly, the equation for the US market yields was estimated[6]:

$$R_{US,t} = \mu_{US,t} + \varepsilon_{US,t}$$

where:
$R_{US,t}$ – equity market yield (on the stock exchange index) in country *i* over time *t*, the expected yield component, $\mu_{i,t} = \alpha_{i,t} + \gamma_i \cdot R_{US,t-1}$
$\varepsilon_{i,t}$ – the unexpected yield component.
Secondly the conditional variance for the US market was estimated:

$$E(\varepsilon^2_{US,t}) \equiv \sigma^2_{US,t}$$

where E(.)is the expected value operator.
The subsequent stage consisted in an estimation of the euro area market yield equation:

$$R_{EU,t} = \mu_{EU,t} + \varepsilon_{EU,t}$$

where: $\mu_{EU,t} = \alpha_{EU,t} + \gamma_{EU} \cdot R_{EU,t-1}$

and $\varepsilon_{EU,t} = \beta^{US}_{EU} \cdot \varepsilon_{US,t} + e_{EU,t}$, $e_{EU,t}$ – pure local shock.

The conditional variance takes the form of: $E(e^2_{EU,t}) \equiv \sigma^2_{EU,t}$

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[5] On the subject of the GARCH (1,1) model application for examining the relationships between the yields on equity market indices see more in: (Brzeszczyński, Kelm, 2002, pp. 95-119; Jajuga, 2008; Mills, Markellos, 2008, pp. 182, 323 and onwards).

[6] On the model of the "increased *impact of the common news component on the equity market yields*" see more: (Baele et.al., 2004, pp. 20-21; Baltzer et. al., 2008, pp. 8-10, Bukowski, 2011, pp. 46-47).

In the last stage the yields for the Slovak equity market were estimated:

$$R_{SK,t} = \mu_{SK,t} + \varepsilon_{SK,t}$$

where:

$\varepsilon_{SK,t} = \beta_{SK}^{US}\varepsilon_{US,t} + \beta_{SK}^{EU}e_{EU,t} + e_{SK,t}$, $\mu_{SK,t} = \alpha_{SK,t} + \gamma_{SK}R_{SK,t-1}$, $e_{SK,t}$ – pure local shock

and the conditional variance $E(e_{SK,t}^2) \equiv \sigma_{SK,t}^2$

$\beta_{SK,t}^{eu}$ and $\beta_{SK,t}^{us}$ indicate a dependent on the Slovak market over time t sensitivity to information concerning yields in the eurozone and the United States, respectively. The magnitude of both coefficients is a measure of intensity with which the shock originating in the euro area and the United States (global shocks), respectively, spill over the Slovak equity market.

Then the variance ratio was computed:

$$VR_{SK,t}^{EU} = \frac{(\beta_{SK,t}^{EU})^2\sigma_{EU,t}^2}{\sigma_{SK,t}^2} = \rho_{SK,EU,t}^2, \quad VR_{SK,t}^{US} = \frac{(\beta_{SK,t}^{US})^2\sigma_{US,t}^2}{\sigma_{SK,t}^2} = \rho_{Sk,US,t}^2$$

Conditional variances for the eurozone, the United States and the local equity market are obtained from the standard GARCH(1,1) model.

The higher the value of the yield variance ratio (the higher the ratio of the euro area or US shock to the local shock impact) is, the higher the Slovak equity market integration degree with the one or the other equity market is.

Results

In the 1999-2004 period the SAX index yield was affected by shocks from the US equity market, however, the correlation between shocks from the eurozone and the SAX index yields was negative. In the period 2005-2009 the intensity with which the shocks originating in the USA spilt over was lower, whereas the intensity with which the shocks originating in the euro area spilt over in the Slovak market was higher (see: Fig. 3).

In the period 1999-2004 the changes in the SAX index yields were explained mainly by the shocks spreading from the USA.

In the years 2005- 2011 everything changed radically and shocks from the euro area accounted for changes in the SAX index yields, while the role of shocks originating in the USA declined in comparison to the period 1999-2004 (see: Fig. 4). As Figure 4 reveals, in the period 2005-2011 shocks from the USA accounted for 6% of changes in the SAX index yields, whereas those from the euro area – for 10%.

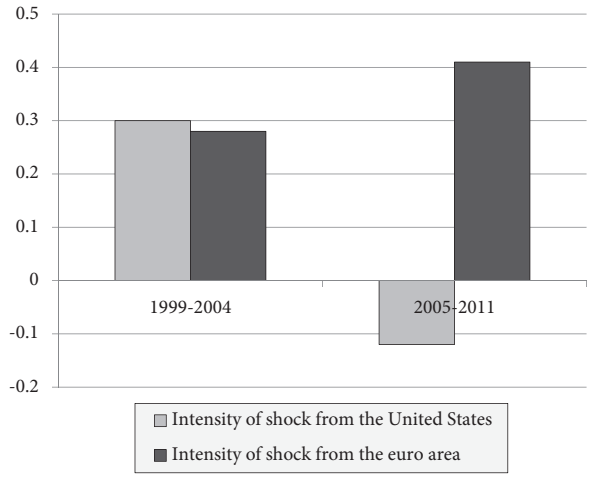

Figure 3. Intensity of global shock spillover (from the United States) and the euro area in the Slovak equity market in the periods 1999-2004 and 2005-2011 measured by $\beta^{us}_{SK,t}$, $\beta^{eu}_{SK,t}$ coefficients

Source: author's own compilation on the basis of the estimation of the model of the "increased impact of the common news component on the equity market yield" with the use of the GRETL program.

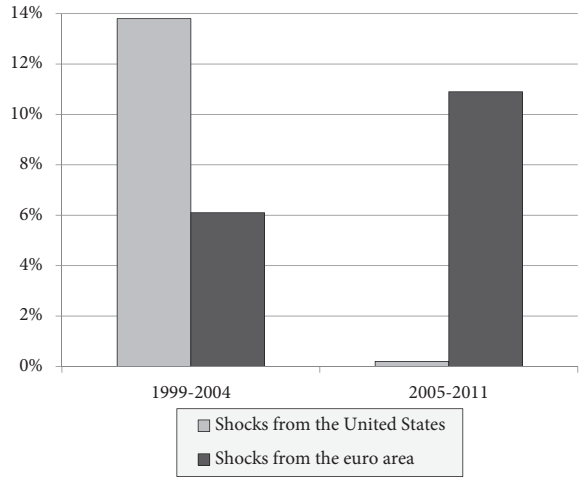

Figure 4. Slovak equity market – variance ratio for the SAX index yield explained by shocks from the euro area ($VR^{EU}_{SK,t}$) and the United States (($VR^{US}_{SK,t}$)) in the periods 1999-2004 and 2005-2011

Source: author's own compilation on the basis of the estimation of the model of the "increased impact of the common news component on the equity market yield" with the use of the GRETL program.

Joining the euro area by Slovakia and consequently disappearance of the exchange rate risk may have been crucial factors of the increased degree of integration of the Slovak market with the eurozone market. However, the degree of integration of the Slovak equity market with the eurozone equity market is relatively low. The SAX index yield rates are still affected strongly by idiosyncratic local shocks.

Conclusions

An analysis carried out in our paper allows us to formulate the following conclusions:

- the significance of the equity market and its development in Slovak economy is considerably lower than in other euro area and EU countries,
- there is a statistically significant two-directional correlation between the equity market development and economic growth in Slovak economy, the economic growth impact being stronger on the equity market capitalization than that of the equity market capitalization on the economic growth rate,
- in the years 1999-2004 the Slovak equity market was more integrated with the global market, whereas in the years 2005-2011 its integration with the eurozone market was stronger than with the global market,
- a higher degree of integration between the Slovak and the eurozone equity markets resulted from the fact that Slovakia joined the euro area on 1 January 2009.

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CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 21-46

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WHAT CAN TURKEY LEARN FROM ARGENTINA?

Abstract

This paper compares the experiences of Turkey and Argentina in the face of the recent global economic meltdown. The historical and economic peculiarities of these two countries render them as perfect comparative case study. They both historically had acute macroeconomic instabilities with high inflation rates and internal and external disequilibrium. In both countries volatility in economic growth rates (stop-and-go cycles) have been associated with current account and fiscal deficits. They both adopted a number of stabilization policies guided by the IMF which were all unsuccessful. They both got into the new millennium with almost simultaneous (February 2001 in Turkey and December 2001 in Argentina) and the most severe economic crises in their histories. They both have experienced very rapid growth rates since their economic crises. Economic recovery in Argentina has been in a better shape and more sustainable than Turkey. Although both countries will inevitably face the negative impacts of the global crisis, the impact is likely to be more severe for Turkey.

JEL Classification Code: **E22, F3, G10, O16.**

Keywords: Argentina, Turkey, financial crisis, heterodox policies.

Introduction

This paper compares the experiences of Turkey and Argentina in the face of the recent global economic meltdown. The historical and economic peculiarities of these two countries render them as perfect comparative case study. They both historically had acute macroeconomic instabilities with high inflation rates and internal and external disequilibrium. In both countries volatility in economic growth rates (stop-and-go cycles) have been associated with current account and fiscal deficits. They both adopted a number of stabilization policies guided by the IMF which were

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all unsuccessful. They both got into the new millennium with almost simultaneous (February 2001 in Turkey and December 2001 in Argentina) and the most severe economic crises in their histories. They both have experienced very rapid growth rates since their economic crises.

After the crises, Argentina has implemented heterodox economic policies while Turkey under the auspices of the IMF has adhered to the orthodox approach. This paper argues that, in comparison to the Turkish case, Argentinean economic policy since 2003 is more successful in achieving economic recovery and stimulating sustainable development, and Argentina was better prepared for the world economic crisis of 2008-2009.

Until the world economic crisis of 2008-2009, Turkey faced the largest trade and current account deficits in its history whereas Argentina had trade and current account surpluses. Turkey had increasing rate of unemployment and external debt while Argentina managed to reduce them both visibly. Turkey had low and declining saving rates whereas Argentina substantially increased them. Turkey had one of the highest real interest rates in the world whereas in Argentina they were very low. Overall, the results are more encouraging for Argentina. This paper suggests that these simple facts imply a more sustainable recovery for Argentina. Turkish recovery however is a lot more vulnerable in the face of global economic crisis.

Argentina and Turkey before their Financial Crises

After decades of economic decline and instability with hyper inflation, Argentina adopted a very radical stabilization program in 1990. The convertibility plan was an extreme case of exchange rate based anti-inflation strategy which was designed with and supported by the IMF. To eliminate hyper-inflation, the plan fixed the Argentinean peso to the US dollar on a one to one basis. Inflation was reduced from over 3000 percent in 1989 and over 2000 percent in 1990 to 4 percent in 1994. Far-reaching trade and capital account liberalizations, macroeconomic stability, high real interest rates and a very ambitious privatization program generated large capital inflows which contributed to rapid economic growth rates. Per capita GDP (PPP constant 2005 international dollar) increased by 47 percent between 1990 and 1998. These achievements were presented to other developing countries as a successful model of IMF-induced reforms.

Onis (2004: 2), however, suggests that the "IMF prescription have contributed both to the early success and the subsequent collapse of the Argentine model". Over-dependence of the economic performance to capital inflows and the accumulation of huge external debt highlighted the inbuilt vulnerability of the model. Controlling inflation and maintaining the fixed exchange rate required strict monetary and fiscal discipline which removed flexibility in their use and limited the ability of the government to respond to the economic recession in the late 1990s. Moreover the

rigidity of the plan increased the vulnerability of the economy to external shocks. The Argentinean currency became overvalued for at least three reasons: First, although inflation was brought under control successfully, it remained relatively high in 1991 (178 percent) and 1992 (25 percent) which caused significant overvaluation of the real exchange rate. Second, the US dollar appreciated against the other currencies. Finally, Argentina's main trade partner Brazil experienced a financial crisis in 1999 and devalued its currency. The real exchange rate overvaluation undermined Argentinean exports and led to an unsustainable and increasing current account deficit which was financed by increasing barrowing. Privatization was a source of foreign direct investment. The privatization revenues were used to finance fiscal and current account deficits and maintain the fixed exchange rate. Excessive reliance on such limited resources caused problems when the government had no more publicly owned firms to sell. The lack of privatization revenues caused not only a direct shortage in foreign currency and made it more difficult to finance fiscal and current account deficits but also increased the reliance on portfolio investment which created further vulnerability.

Although the economic growth rates remained over 5 percent between 1991 and 1997 (with an exception of 1995 where GDP fell due to the "tequila crisis"), they started to decline thereafter. After three years of negative growth rates between 1999 and 2001, the economy collapsed in 2002 which marked the end of Argentinean miracle with severe economic and social consequences. Per capita GDP (PPP constant 2005 international dollar) declined by 22 percent between 1998 and 2002. Unemployment increased from 6 percent in 1991 to 16.6 percent in 1996 and to 18.1 percent in 2001.

Turkey started its liberalization/stabilization policy under the military rule in 1980 in response to the debt and balance of payments crisis of the 1970s. The foreign exchange regime was liberalized in 1984 and public were allowed to hold foreign currency deposits and to engage in foreign exchange transactions. Initially the program looked successful with a reduction in inflation, current account deficit and public sector deficit; and increase in exports and respectable economic growth rates. However the public sector deficit and inflation increased significantly towards the end of the 1980s.

According to Akyuz and Boratav (2003) two factors played a significant role. First, the increase in exports and decline in inflation were achieved through significant reductions in real wages and support for agricultural sector. Return to democracy after 1987 led to an increased pressure on governments to compensate the losers. Second, the liberalization of the financial markets and the deregulation of interest rates before the introduction of fiscal discipline and effective control of inflation let to a significant increase in the cost of financing public sector deficits. A very rapid increase in the real interest rate resulted in a rapid accumulation of public debt and interest payments. The government responded to these problems by liberalizing the

capital account further in 1989 which removed all restrictions on capital flows. Full convertibility meant full exposure of the Turkish economy to the forces of financial globalization and economic performance became dependent on highly unpredictable short-term capital flows. The capital account liberalization aimed at financing the public sector deficit without crowding-out private investment but the fiscal problem was aggravated due to very high real interest rates which were mainly caused by inflation rate instability. The rapid increase in the public debt led the government to engage in Ponzi financing where mounting interest payments could only be paid by new barrowing. Interest payments to tax revenue ratio increased from 20 per cent in the 1980s to over 75 per cent in the 1990s (Akyuz and Boratav 2003). During the 1990s it became obvious that the full liberalization of the capital account was premature as the economy was unstable with large fiscal deficits and high inflation, and the financial markets were under regulated (Rodrik 1990, Onis and Bakir 2007).

Interest payments replaced the primary deficit as the most important component of the public sector deficit. Increased financial instability associated with large interest rate and exchange rate fluctuations, and capital in/out flows caused instability in investment and economic growth rates. The Mexican crisis in 1994, the Asian crisis in 1997, the Russian crisis in 1998 and a massive earthquake in 1999 pushed the Turkish economy into recession. Towards the end of the millennium, high inflation, unsustainable public debt and increasing financial fragility meant that Turkey desperately needed a stabilization program which was launched in December 1999 with a strong support from the IMF.

This was a typical exchange rate based stabilization program that was designed to cover a three-year period. Inflation would be reduced to 20 percent in year one, about to 10 percent in year two and to a single-digit level in the final year. A nominal fixed exchange rate against a Dollar-Euro basket was used to establish price stability. Turkish Lira would be devalued 20 percent in year one to keep the real exchange rate competitive. In year two Lira would be allowed to fluctuate within a band that would gradually be widened in year three. The proclaimed exit from the fixed exchange rate was considered a major strength but it was also a precarious strategy as a failure to meet inflation targets could risk a speculative attack on the currency at the time of the pre-announced exit date.

The program also encompassed fiscal policies and structural reforms. The fiscal policies aimed at achieving a public sector primary surplus through increase in income tax, VAT in alcohol and tobacco, education fees and a reduction in social security transfers as well as limited public sector salary increases. Structural reforms included the privatization of public firms, reforming the banking sector, eliminating subsidies to farmers and a pension reform.

The IMF (1999) considered the program "strong and well balanced" and supported it with financial assistance. In the first nine months some good results were achieved: the interest rates declined faster than inflation which brought relief to the

budget. A primarily surplus was achieved which was higher than planned. Positive net capital flows amounted to 12.5 billion dollars during the first 10 months of 2000 (Akyuz and Boratav 2003). Despite the full implementation and achievement of its monetary and fiscal policy targets, the program failed to achieve its inflation target by 35 percent in the first year (Onaran 2007). High inflation rate and the appreciation of dollar against euro (75 percent weight was given to dollar in the dollar-euro basket) resulted in real exchange rate overvaluation and caused major concerns regarding the sustainability of the fixed exchange rate and increased speculative expectations (Onaran 2007).

According to Akyuz and Boratav (2003) a number of factors contributed to the rigidity of inflation: First, fiscal adjustment required state owned enterprises to increase their prices to reduce their losses. Second, public sector salary increases exceeded the inflation target. Finally, some components of the consumer price index such as rents increased much faster than the inflation target.

The overvaluation of the real exchange rate combined with the worsening of the internal and external environment (oil price increase, delays in privatization, worsening relations with the EU, the economic situation in Argentina and a criminal investigation into several banks) brought the first shock in November 2000 with about 6 billion dollars capital outflows. The IMF support of 7.5 billion dollars kept the program on course for a short time but the second shock came in February 2001 with a larger capital outflows, towering interest rates and deteriorating reserves. The fixed exchange rate was abandoned and Lira was left to float. The real exchange rate (measured by the PPP conversion factor to market exchange rate ratio) depreciated by 23.1 percent in one year. According to Telli, Voyvoda and Yeldan (2008), the major flaw of the program was its excessive dependence on speculative short-term capital flows. Design problems as well as worsening external environment ended the stabilization policy with an unprecedented crisis. The political factors played a catalyst role in a frail economy where the investors have been waiting for a signal to move out (Onaran 2007). Per capita GDP (PPP constant 2005 international dollar) declined by 9.22 percent in 2001, total debt to GDP ratio increased from 61 percent in 1999 to 93.5 percent in 2001 and external debt to GDP ratio from 41 percent to 57.7 percent. The capital outflow in 2001 amounted to 11.3 percent of GNP (Onaran 2007).

Turkey and Argentina after their Financial Crises

Both countries have experienced neo-liberal reforms and ended up with their most severe financial crises. The Turkish neo-liberal reforms started earlier and had a gradualist character with slower pace. Argentinean reform process covered a shorter period but had much greater intensity. It certainly was one of the most radical experiments in neo-liberalism during the last three decades. In Argentina neo-liberalism caused a structural break with an economic boom that lasted for eight years which was fal-

lowed by a bust that started in 1999 and led to a massive financial crisis in 2002. Turkish neo-liberal experience did not cause a major change in the pattern of economic growth but the boom and bust cycles became augmented. Two decades of neo-liberal reforms which led to many small and large crises continued after the 2001 crisis.

Overall, between 1980 and 2008, Turkey looks relatively more successful. Turkish economy grew between 1980 and 1990 whereas Argentinean economy experienced a decline. During the 1990s the Argentinean economy grew a lot faster than the Turkish economy but the decline in the GDP during the financial crises of 2001 was more severe in Argentina. After the crises Argentinean economic recovery has been more pronounced with faster and sustained economic growth rates.

The crisis in Argentina and IMF's failure to support Argentina at the onset and during the crisis were taken as a complete failure of neo-liberalism to deliver stable economic growth. The pursuit of recovery, growth and social stability involved a more dynamic role for the state. The interim government of president Duhalde clearly had an anti-IMF rhetoric which marked a critical break from neo-liberalism and embedded heterodox policies based on a proactive state. In May 2003, Kirchner took over the presidency and continued with the policies where the state took on a central role in stimulating economic growth.

The abandonment of convertibility, the devaluation of currency and the following competitive exchange rate policy (managed or dirty float) significantly improved exports and helped to substitute importables. To keep the exchange rate competitive, the Central Bank buys and sells foreign currency by printing money which is then sterilized through issuing bond to keep money supply under control. The government converted most domestic debt contracted in dollar to pesos which neutralized the effect of exchange rate fluctuations on the debtor companies (Frenkela and Rapettib 2008). The export performance was aided by the improving terms of trade. International prices especially for agro-industrial goods (such as soybeans, wheat and oil), petroleum, gas and petrochemical products remained high.

Argentina's export structure is diversified away from primary commodities such as grains and beef to agro-industrial products, automobiles, steel, petrochemicals, tourism and engineering services (Lowenthal 2006). Taxes on traditional exports significantly increased primary fiscal budget surplus which in turn helped to make very substantial scheduled debt payments. Fiscal surplus was considerable due not only trade taxes but also increased economic activity and government's determinism to reduce tax evasion. Export taxes were instrumental to keep their domestic prices low which not only helped to control inflation but also helped their domestic consumers (many of the exportables such as beef and grains are heavily consumed in Argentina). This policy resolved the long lasting tension between the needs of exporters and the consumers.

The selected taxation of exports implies the introduction of multiple exchange rates in practice which does not offend the WTO rules. The WTO does not approve

selective protection of import substitutes or promotion of exportables but there is nothing in WTO rules that precludes a competitive exchange rate policy and taxing certain traditional exports which would indirectly promote non-traditional exports as well as create resources to promote selected non-tradables.

A 70 per cent reduction in the debt to private creditors and postponing the external debt payments until 2005 increased reserves and established confidence in the economy. After 2005, however, most new financial resources were spent in paying the external debt (Grugel and Riggirozzi 2007). An agreement with the IMF in 2003 secured a 3 billion dollars loan and debt repayments to the World Bank allowed new loans which were instrumental in the application of the social inclusion policies that guaranteed a minimum income to all citizens to tackle massive poverty and unemployment (Grugel and Riggirozzi 2007). The government finally cleared the account with the IMF by settling the 9.8 billion dollars debt in December 2005 which not only created more room for maneuver for policy making but also established confidence in the sovereignty of the state. Inflation was kept under control by 'voluntary' price controls through government-led negotiations with supermarkets and producers. A record level of current account surplus resulting from competitive exchange rate and the decision that export revenues exceeding one million dollar had to be sold to the central bank were instrumental in accumulating reserves to counter any financial problems without needing the IMF (Frenkela and Rapettib 2008).

The Argentinean economy grew vary rapidly after the crisis based on solid macroeconomic fundamentals (Frenkela and Rapettib 2008). The Argentinean experience challenges the myth that state-led development is tantamount with autarky and leads to inefficient results. Grugel and Riggirozzi (2007) suggest that the success has been primarily the result of a combination of prudent policy-making, favorable external environment and the fear of returning to the instability.

After the financial crises in November 2000 and in February 2001, Turkey adopted another orthodox stabilization policy under the supervision of the IMF which was based on high interest rates, substantial capital inflows, overvalued exchange rates, soaring imports, increased external debt, tight fiscal policies and jobless-growth. Therefore the Turkish post-crisis period has been "speculative-led" in nature which resembles the Argentinean growth experience between 1990 and 1998 except that Turkey has a flexible exchange rate policy.

The current program is based on the achievement of a significant fiscal primary surplus, tight monetary policies by the independent central bank to achieve price stability (inflation targeting) and the usual structural reforms such as privatization and the abolition of subsidies (Voyvoda and Yeldan 2005). The government aims to maintain two targets: inflation and primary surplus. The purpose of these targets is to reduce the country risk perception and reduce interest rates which is hoped to stimulate private investment and economic growth (Telli, Voyvoda and Yeldan 2008).

While primary surplus has been high (4.7 percent of the GDP) and inflation has been brought under control (about 18 percent) between 2002 and 2007, the real inter-

est rates remained relatively high. Therefore very rapid economic growth (on average 6.7 percent between 2002 and 2007) has been largely driven by massive capital inflows which has been motivated by high interest rates rather then increased investment.

Because growth, over the post-crisis period, has depended mainly on flows of "hot money", it has been speculative-led and volatile. Voyvoda and Yeldan (2005) calculated the net rate of return on financial arbitrage for Turkey and suggest that Turkey offeres arbitrage gains over 30 percent during the post-crisis period (up to 80 percent during the crisis of 2001) which is significantly higher than the OECD countries. Such high returns explain why Turkey receives very large sums of speculative money and investment in industrial activity remains low.

As opposed to the traditional stabilization policies, high interest rates aimed at attracting foreign capital rather than constraining the domestic demand. Capital inflows increased the availability of foreign exchange and caused overvaluation of the Turkish currency which, in turn, not only led to an import boom but also led exports to depend on cheaper capital goods imports. Increase in exports became depended largely on imports which are mostly assembled-part industries such as automotive parts and consumer durables (Voyvoda and Yeldan 2005). These are relatively low value added activities and create very few employment opportunities. Therefore, although exports increased very rapidly, the increase in imports surpassed exports and led to unprecedented levels of current account deficit and external indebtedness. The current account deficit was a massive 37.7 billion dollars in 2007 and 41.4 billion dollars in 2008. The average current account deficit between 2003 and 2008 (25.8 billion dollars) is about 20 times higher than the average current account deficit between 1980 and 2002 (1.33 billion dollars) which has caused serious concerns about its sustainability. External debt increased from 130.1 billion dollars at the end of 2002 to 247.5 billion dollars in 2008. The private sector took the lead in barrowing during this period while the contractionary policies led to very high primary fiscal surplus. The rapid growth of GDP failed to create jobs and unemployment remained high at about 10 percent. Therefore Turkish experience has been characterized as speculative and jobless growth (Voyvoda and Yeldan 2005).

The deregulation of the financial markets coupled with liberalization of international trade and prioritizing the control of inflation above any other macroeconomic consideration imply that interest rate and exchange rate become almost an exogenous variable determined by external factors which set them at undesirable levels, i.e. high interest rates and overvalued exchange rates.

Comparing Turkey and Argentina

As discussed earlier the economic revivals of both countries after their financial crises have been remarkable. However a simple examination of the macroeconomic variables suggests that Argentinean recovery appears more sustainable in the face of

global economic meltdown. After the crisis, Argentina detached itself from the IMF whereas Turkey established another stabilization program with the IMF. Argentina adopted heterodox policies whereas Turkey continued to follow orthodox policies with the support of IMF. This section compares Argentina and Turkey by focusing on a number of macroeconomic indicators to establish its claim that the post-crisis policies in Argentina have been more triumphant.

The GDP growth rates (figure 1) were lower and relatively more unstable for Argentine than Turkey between 1980 and 2008. Turkey grew 4.26 percent and Argentina grew 2.52 percent annually. The coefficient of variation is 99 percent for Turkey and 258 percent for Argentina for this period. The declines in GDP very often exceeded 5 per cent in Argentina. After the crises however Argentina appears more successful. Between 2002 and 2008, Turkey grew on average 5.95 percent with a coefficient of variation of 45.9 percent and Argentina grew 8.53 per cent with a coefficient of variation of 9.27 percent. During this period Argentina experienced positive growth in a row for six years for the first time since 1980.

Per capita GDP in current US dollar (figure 2) in Argentina shows a remarkable increase between 1990 and 1998 but an equally radical decline between 1998 and 2002. Per capita GDP in 2002 was lower than 1980. Per capita GDP in Argentina increased 145 percent between 2002 and 2007 but still remains 20 percent lower than its 1998 value. Per capita GDP in Turkey fluctuated between 1980 and 2001 but less radically compared to Argentina and increased rapidly after 2001. Per capita GDP in Turkey increased 95 percent in 22 years between 1980 and 2001, and it increased 210 percent in 7 years between 2001 and 2007.

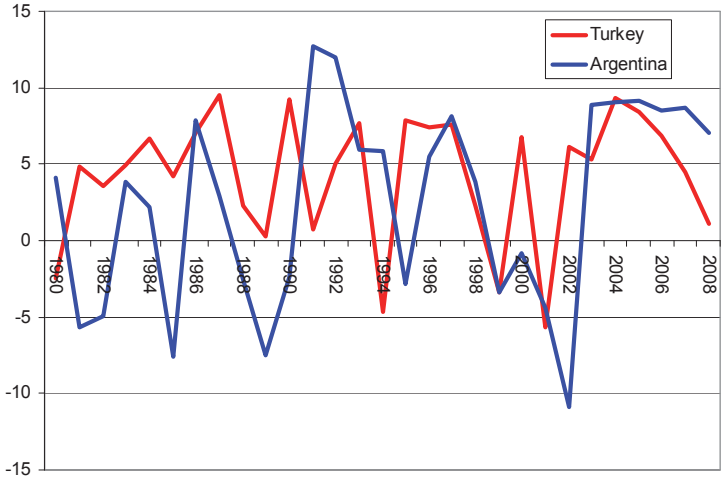

Figure 1. GDP growth (constant 2 000 US$)
Source: World Bank World Development Indicators

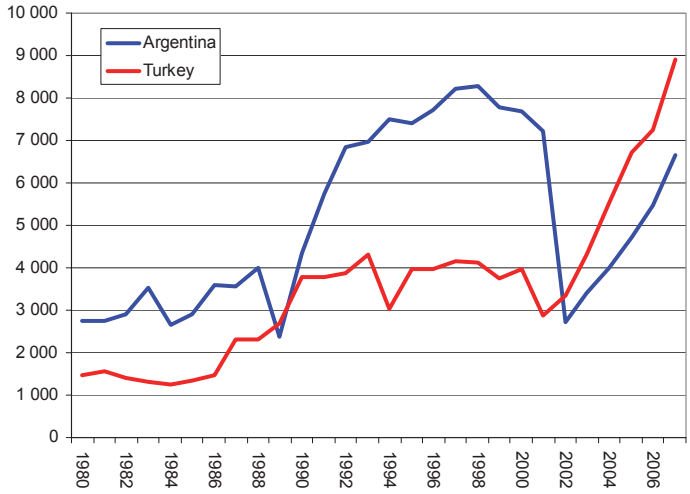

Figure 2. GDP Per Capita (current US$)
Source: World Bank World Development Indicators.

However, the above figures are misleading as they do not take domestic prices and rapid exchange rate changes into account. Increase and decline in GDP per capita is inflated by radical changes in the exchange rates. For Argentina, for example, the increase between 1990 and 1998 as well as the decline between 1998 and 2002 are both magnified by the radical changes in exchange rates. Equally important, the average prices in these two countries may substantially be different due to the 'Balassa and Samuelson effect'. This implies that even when the two countries have the same level of per capita income, purchasing power will be higher in the low price country.

Per capita GDP in PPP (constant 2005 international dollar) addresses these problems and produces a more realistic picture. Once the impact of exchange rate changes is taken into account, a less radical increase and decrease in per capita GDP trends are observed (figure 3). Turkish per capita GDP (PPP) was 56 per cent of the Argentinean per capita GDP (PPP) in 1980. By 1990 they were almost equalized as per capita GDP declined in Argentina and increased in Turkey. Between 1990 and 1998 Argentina experienced a very rapid increase in per capita GDP (PPP) whereas Turkey experienced a modest increase. During the financial crises of 2001, the fall in GDP was a lot more radical in Argentina than Turkey and per capita GDP (PPP) in Turkey and Argentina were equalized again. Between 2002 and 2007 Argentina grew faster and took the lead yet again. In 2007 Turkish per capita GDP was about 90 per cent of the Argentinean per capita GDP. Therefore although Turkish per capita GDP (PPP) increased a lot faster than Argentina between 1980 and 2007, between 2002 and 2007 Argentina grew faster.

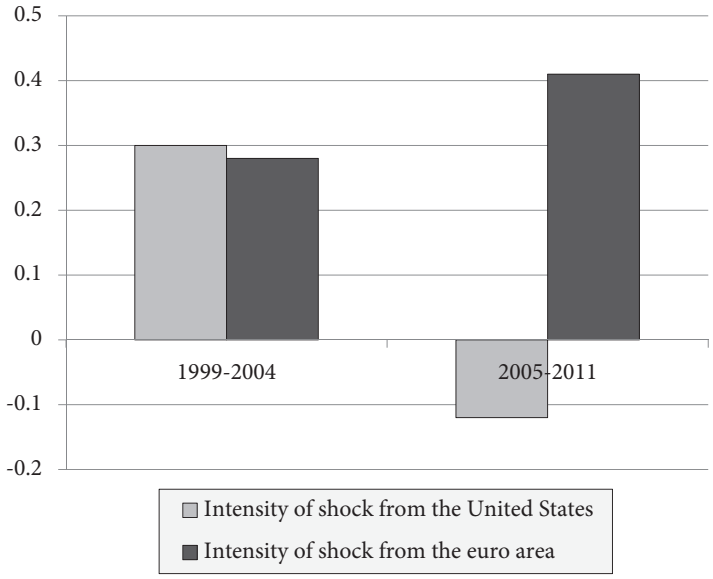

Figure 3. GDP Per Capita, PPP (constant 2005 international $)
Source: World Bank World Development Indicators.

The exchange rate policies played a pivotal role in the development pattern of both countries. We measure real exchange rate by the PPP conversion factor (GDP) to market exchange rate ratio which is taken from the World Development Indicators database. In Argentina (figure 4) the appreciation of the real exchange rate with the convertibility plan and depreciation in 2002 is very obvious. Although historically current account deficits are not unusual for Argentina, it became very high and persistent between 1990 and 2002. Current account deficits in Argentina were often caused by the income component of the current account and trade balance was almost always in surplus until 1990 (figure 5). Starting from 1990 the trade balance also experienced some large deficits. The recovery of the current account since 2002 has been largely due to a very high trade surplus. The adaptation of competitive exchange rate policy encouraged exports and import substitution. This exchange rate policy played not only a crucial role in stimulating rapid economic growth but also has been the main factor behind a healthy macroeconomic environment by contributing to external and fiscal account sustainability. Favorable external conditions (figure 6) vis-à-vis high international commodity prices, strong export demand (particularly from China and India) and low international interest rates contributed to the export boom. Therefore strong export and economic performance owe not only to economic policy making but also to circumstances and good luck (Grugel and Riggirozzi 2007).

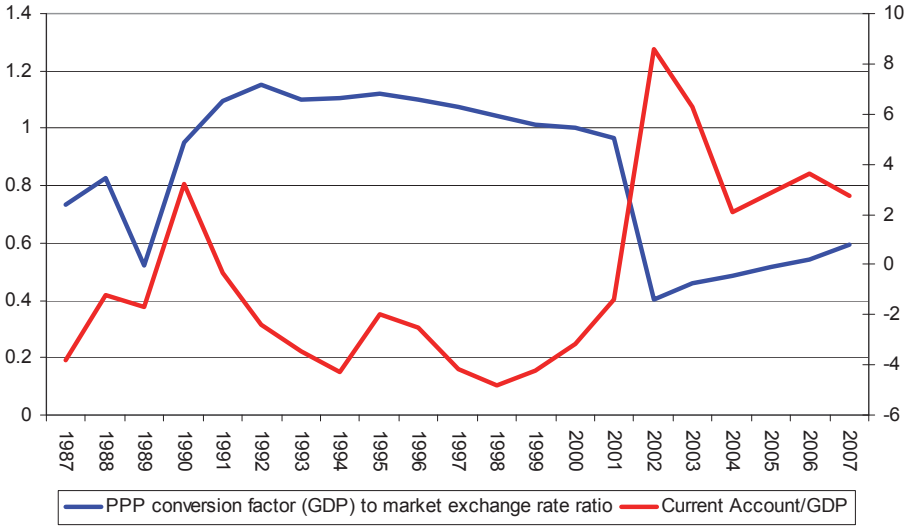

Figure 4. Argentina - Real Exchange Rate and Current Account to GDP Ratio
Source: World Bank World Development Indicators

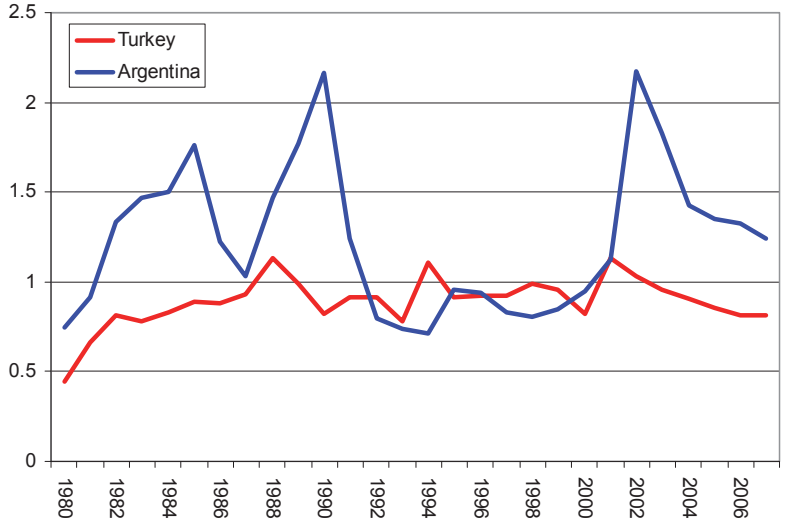

Figure 5. Exports to Imports Ratio
Source: World Bank World Development Indicators

For Turkey the real exchange rate appreciation and the significant deterioration in the current account since 2001 is very obvious (figure 7). The current account deficit reaches a new record level every year since 2004. As argued earlier, the aver-

age current account deficit between 2003 and 2008 is about 20 times higher than the average current account deficit between 1980 and 2002. Such a rapid growth in current account deficit weakens investor confidence, causes vulnerability to radical capital outflows and causes serious concerns regarding its sustainability. The terms of trade (figure 6) for Turkey have not been favorable due particularly to the strong challenge from China to Turkish exports.

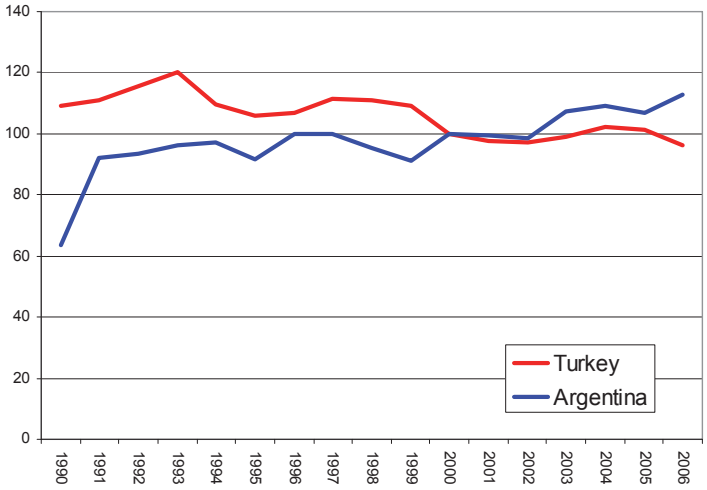

Figure 6. Net barter terms of trade (2000 = 100)
Source: World Bank World Development Indicators

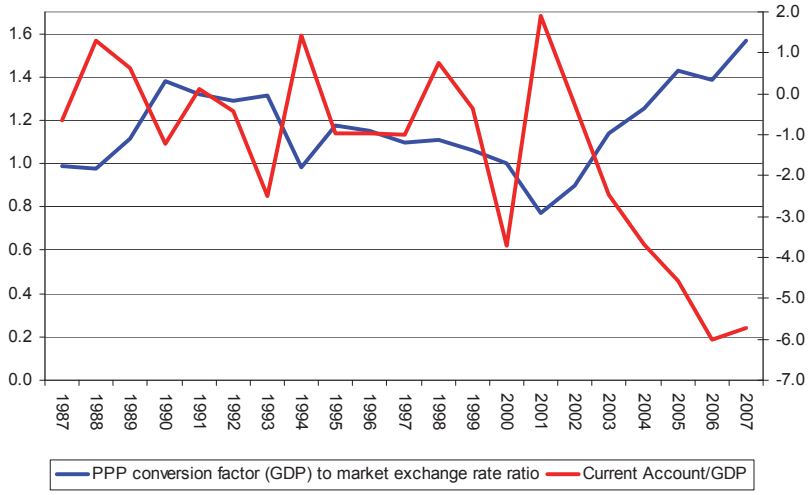

Figure 7. Turkey - Real Exchange Rate and Current Account to GDP Ratio
Source: World Bank World Development Indicators

How current account is financed is as important as its size (figures 8 and 9). Current account can be financed by foreign direct investment (FDI), portfolio investment and external barrowing. FDI is thought to be relatively less problematical way of financing current account deficit as portfolio investment and short-term barrowing can be very volatile. In Argentina portfolio investment increased very rapidly between 1991 and 1998 (figure 8) and it became negative between 1999 and 2005. Although in 2005 Argentina introduced controls on short-term and speculative types of capital flows through a 30 percent unpaid reserve requirement for at least a year, in practice this policy was ineffective as it allowed ways to avoid the reserve requirements (Frenkela and Rapettib 2008). After 2005 portfolio investment has an increasing trend. According to Frenkela and Rapettib (2008) controls were introduced more as an indication of the commitment to maintain the competitive exchange rate policy rather than as an effective control mechanism. FDI played an important role in the financing of current account primarily via privatization revenues during the 1990s.

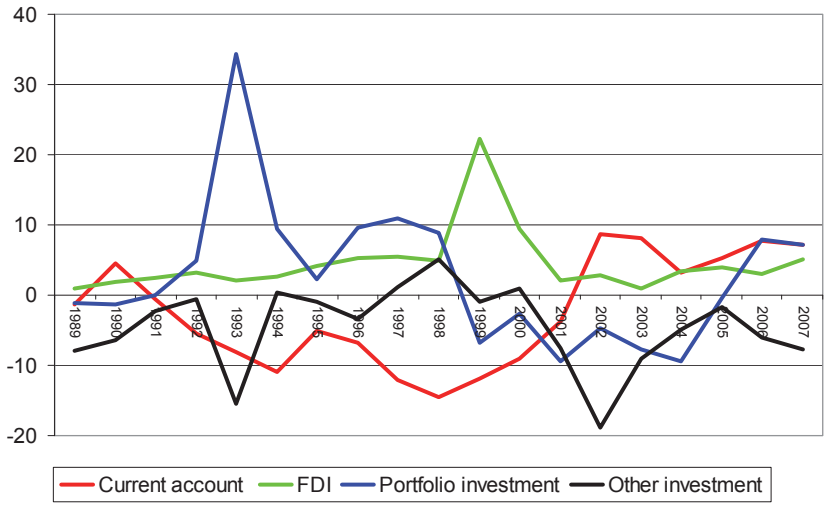

Figure 8. Argentina (Billions of US$)
Source: IMF Balance of Payments Statistics

In Turkey the rapid increase in FDI since 2005 led some economists to believe that the rapid increase in current account was no longer a serious problem (figure 9). This optimism however is unjustified as increase in FDI is largely led by privatization policies as well as mergers and accusations (rather than greenfield investment) particularly in the financial sector. As argued earlier and supported by Argentina's experience, relying on such limited revenues can be problematical in the long term. In Turkey foreign debt plays the most important role in financing current account deficit. Portfolio investment declined in 2007 but still remains an important source of finance.

The debt-led development attempt in Argentina increased the debt and debt to GDP ratio particularly after 1993 (figure 10 and 11). Debt to GDP ratio in 2004 was above 200 percent. The debt restructuring in 2005 reduced the total nominal debt by 67 billion dollar, an almost 40 percent in total. The decision to delay external debt payments until 2005 allowed the accumulation of reserves which increased confidence in the economy (figure 12).

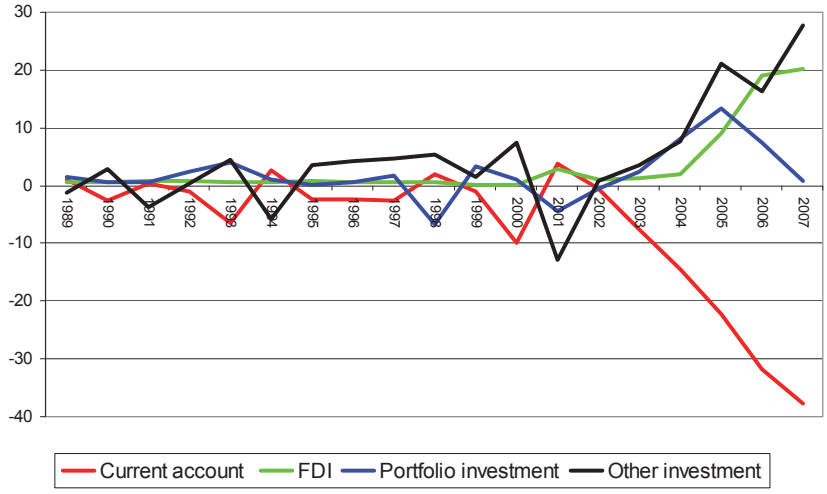

Figure 9. Turkey (Billions of US$)
Source: IMF Balance of Payments Statistics

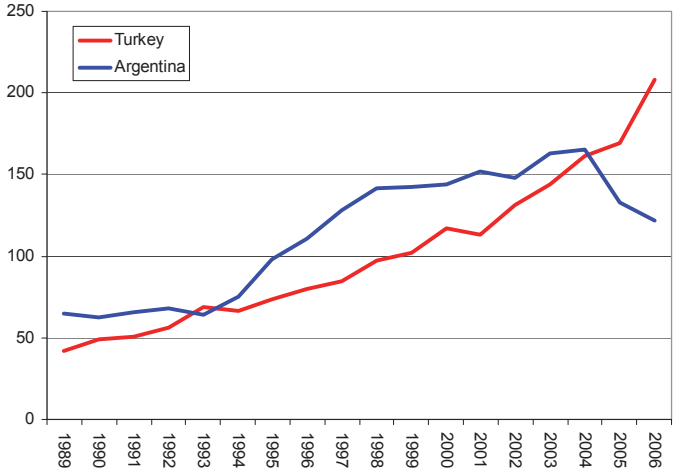

Figure 10. External debt (current billion of US$)
Source: World Bank World Development Indicators

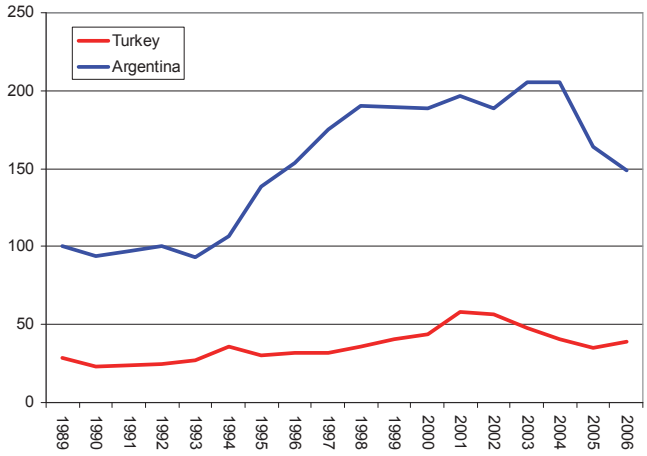

Figure 11. External debt to GDP Ratio (current US$)
Source: World Bank World Development Indicators

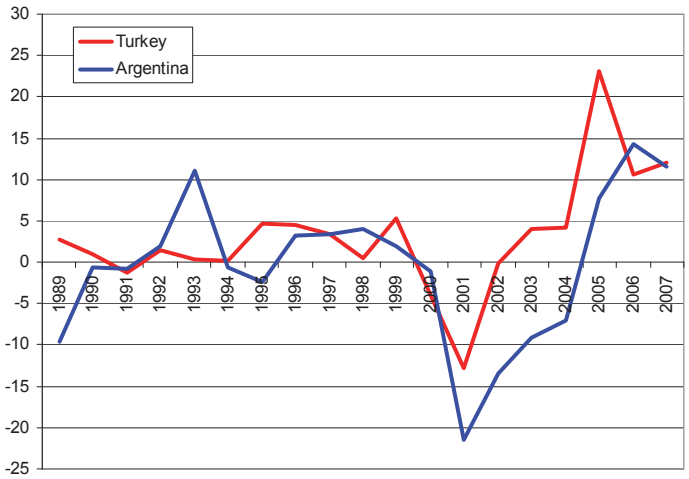

Figure 12. International reserves (Billions of US$)
Source: World Bank World Development Indicators

The total debt in Turkey has been growing since 2001 very rapidly (figure 10). However because the increase in GDP exceeded the increase in debt, the debt to GDP ratio has been declining which has produced a positive atmosphere in Turkey (figure 11). Such optimism however can be misleading as the increase in GDP has been magnified by the overvalued exchange rates. As argued earlier, GDP calculations are influenced by changes in exchange rates and overvalued exchange rates in-

flate the GDP. Therefore rather than using GDP in current US dollars, it makes more sense to use GDP in PPP (figure 13). Once the influence of exchange rates on GDP is taken into account the increase in debt to GDP ratio in Turkey and the decline in Argentina become more pronounced.

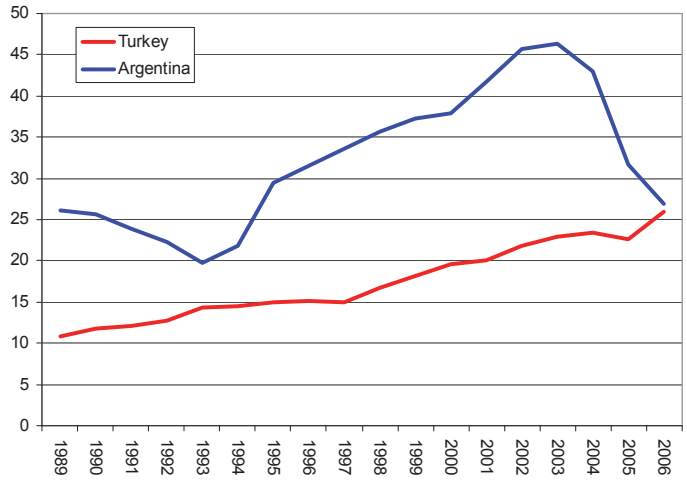

Figure 13. External debt to GDP Ratio (PPP constant 2005 international $)
Source: World Bank World Development Indicators

An important part of Argentina's macroeconomic policy since 2003 has been the historically very high primary budget surplus which allowed the country to have a budget surplus (figure 14). While primary surplus is not unusual for Argentina the budget balance remained negative during most of the 1990s due to high interest payments. Since 2003 the primary surplus has become significantly larger due to taxes on exports, high economic growth rates which increased taxable income and government's determinism to reduce tax evasion (Cibils 2008). According to Frenkela and Rapettib (2008), in 2006 taxes on export accounted for 63 percent of the primary surplus and 122 percent of the total surplus. Large primary surplus allowed substantial debt payments. Fiscal surplus has become larger due to increase in primary surplus and a decline in interest payments.

In Turkey, apart from 1997, the primary balance has been in surplus but due to very large interest payments the budget remained in deficit (figure 15). The budget deficit reached to more than 12 percent of the GDP in 2001 and due to contractionary fiscal policies it steadily declined to less than 1 percent in 2006. An increase in primary surplus as well as a decline in interest payments contributed to declining budget deficit. Turkey has also been able to reduce the public debt substantially. Figures 16 and 17 show that the public sector revenues and primary expenditure as percentage of GDP increased much faster in Argentina than Turkey since their crises.

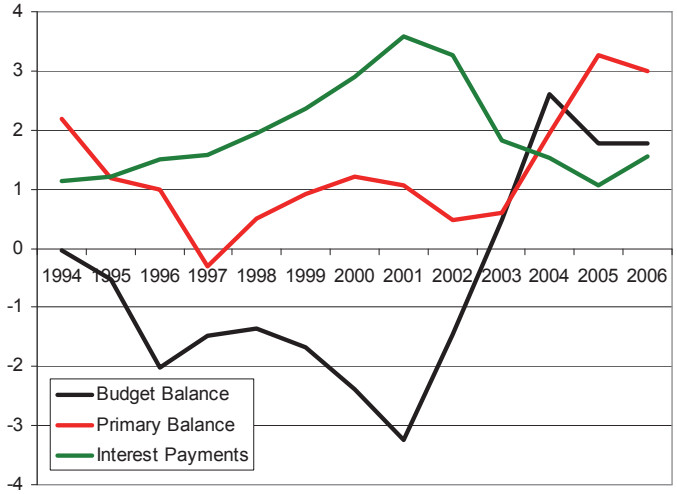

Figure 14. Budget Balance – Argentina
Source: The Ministry of Economy of Argentina

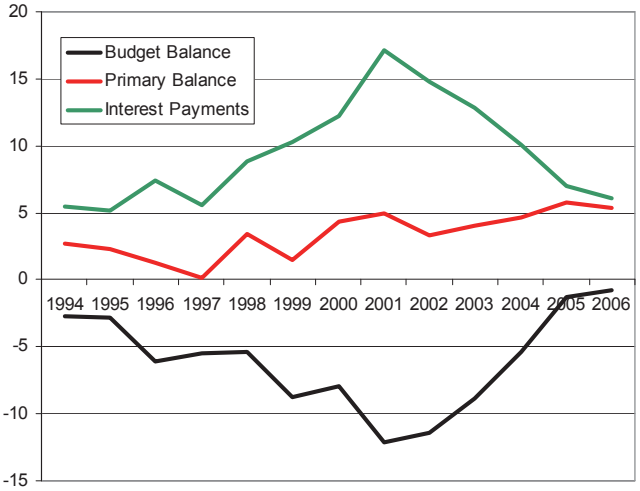

Figure 15. Budget Balance – Turkey
Source: Turkish Statistical Institute

Due to the alternative development strategies adopted by these two countries, the real deposit interest rates in Argentina declined very radically and became negative since 2003 whereas in Turkey they increased and remained above 10 percent (figure 18). The Turkish strategy requires high real interest rates to attract more foreign capital. Argentinean strategy however requires low interest rates to stimulate

domestic investment by using domestic savings. In Argentina the gross fixed capital formation increased from 12 percent in 2002 to 24.2 percent in 2007 (figure 19). Gross domestic savings increased from 15.5 percent in 2001 to 26.9 percent in 2002 and 29 percent in 2007 (figure 20). In Turkey the gross fixed capital formation increased from 15.9 percent in 2001 to 21.5 percent in 2007 but saving rates declined 23.3 percent in 1998 to 17.1 percent in 2007. The investment rate in Turkey in 2007 was lower than what it was in 1998.

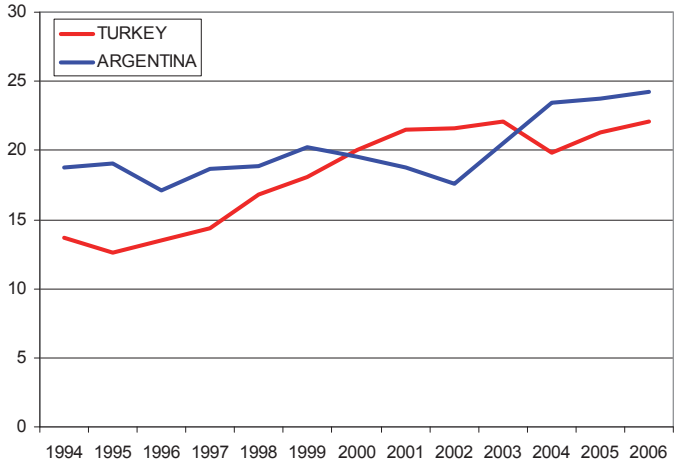

Figure 16. Public Sector Revenues (% of GDP)

Source: Turkish Statistical Institute and The Ministry of Economy of Argentina

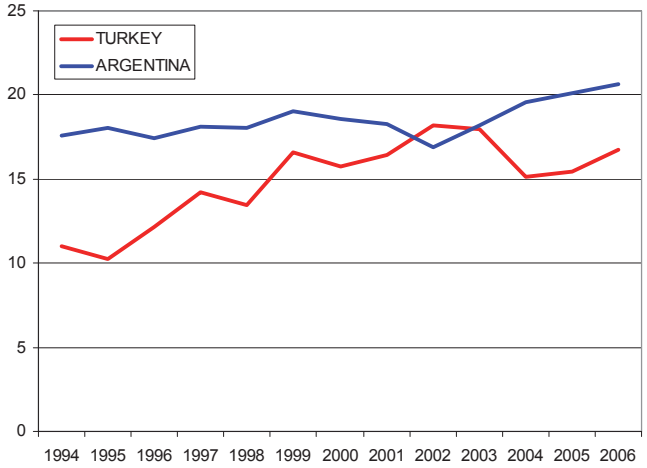

Figure 17. Public Sector Primary Expenditure (% of GDP)

Source: Turkish Statistical Institute and The Ministry of Economy of Argentina

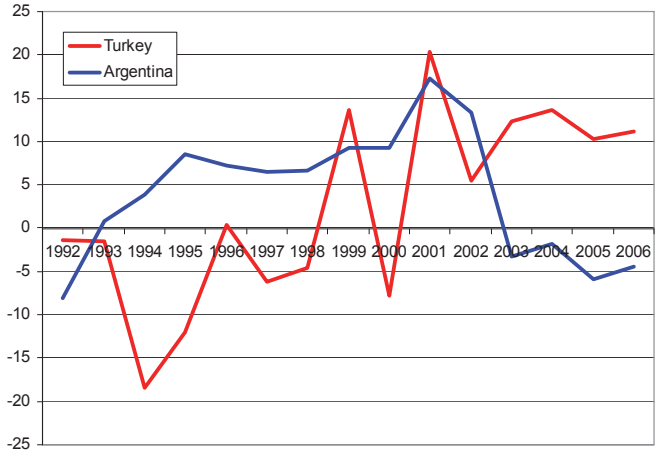

Figure 18. Real Deposit Interest Rate (%)
Source: World Bank World Development Indicators

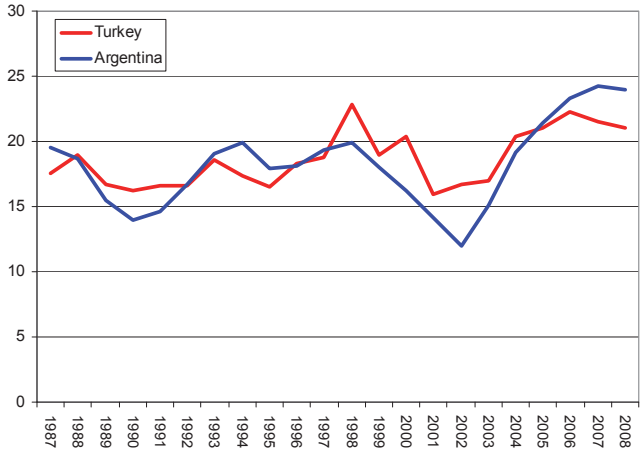

Figure 19. Gross Fixed Capital Formation (% of GDP)
Source: World Bank World Development Indicators

Unemployment in Argentina increased very rapidly from 6 percent in 1991 to 18.1 percent in 2001 but it declined to 8.5 percent in 2007 (figure 21). In Turkey unemployment increased from 6.6 percent in 2000 to 10.5 in 2003 and slightly declined to 9.8 percent in 2007. Therefore rapid economic growth in Turkey after 2001 has failed to create jobs and therefore considered as "jobless growth". The failure to recover from high unemployment after the financial crisis was unusual for the Turkish economy which puts the burden of the crisis unevenly on unskilled workers or wage earners (Onis and Bakir 2007). In 1996 unemployment rate was almost 11 percent

higher in Argentina than Turkey. In 2007, however, unemployment is 1.4 percent higher in Turkey than Argentina.

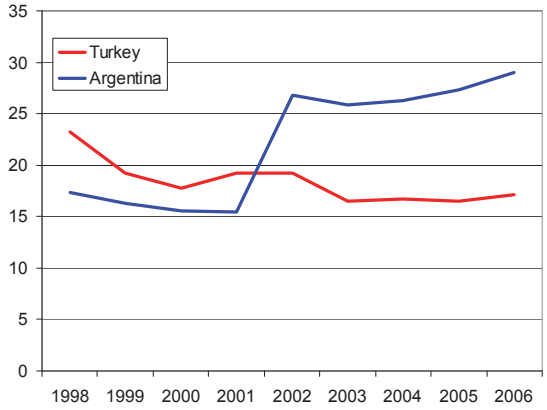

Figure 20. Gross domestic savings (% of GDP)
Source: World Bank World Development Indicators

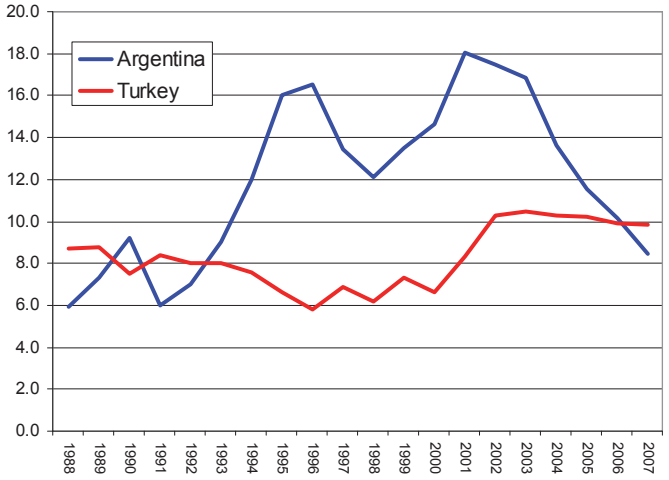

Figure 21. Unemployment rate (%)
Source: World Bank World Development Indicators

Although inflation in Argentina is moderate, it is considerably higher than those of the 1990s (figure 22). Inflation increased from 4 percent in 2004 to 11 percent in 2006 and was 9 percent in 2007. There is a debate between orthodox and heterodox economists over whether current level of inflation constitutes a problem. The orthodox approach promotes a monetary policy known as "inflation targeting" and keen to keep inflation as low as possible regardless of what happens to production and

employment. The heterodox approach suggest that a moderate level of inflation is in fact preferable because it allows relative prices to adjust more easily when prices are sluggish downward. So far inflation has been kept under control by ad hoc policies such as price controls of basic goods, export taxes (to reduce the domestic price of exportables) and arbitration in wage negotiations. Wage demands and profits are contained due to fear of unemployment and return to instability. However managing industrial relations between business and labor is not an easy task in the long run (Grugel and Riggirozzi 2007). Keeping inflation under control may not be so easy without a long-term strategy. Perhaps a more worrying aspect of inflation debate in Argentina is the alleged manipulation of the inflation figures by altering the statistical methodology in January 2007 to mask relatively high inflation figures. Cibils (2008) suggests that while the official inflation rate for 2007 is 8.5 percent alternative estimations suggest that it could be between 12 to 24 percent. The manipulation of inflation also makes it difficult to know the current levels of poverty as poverty calculations are sensitive to the level of inflation. If inflation is higher that the government figure, it is reasonable to assume that poverty must also be higher. The underestimation of inflation also has relevance to public debt as "41 percent of public debt has interest payments indexed to the official CPI" (Weisbrot 2008).

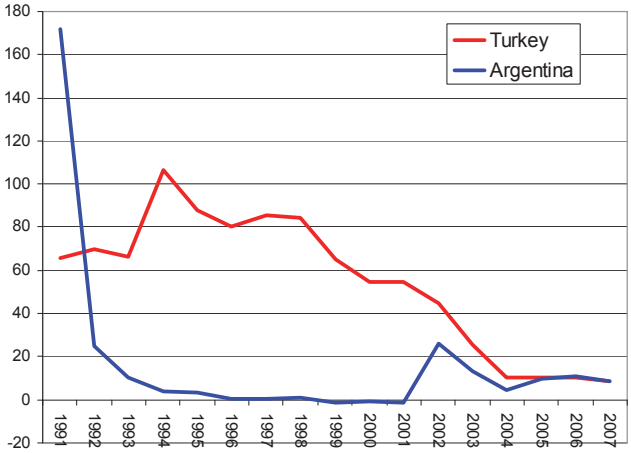

Figure 22. Inflation, consumer prices (annual %)
Source: World Bank World Development Indicators

Inflation in Turkey has been successfully brought under control due to tight monetary policies adopted by the independent central bank and inflation targeting policies. Inflation went down from 54.4 percent in 2001 to 8.8 percent in 2007. Although controlling inflation has clearly been the most successful aspect of the post-2001 crisis adjustment period, the cost of this achievement and whether inflation will remain low in the long run is still subject to a debate.

Conclusion

It is clear from the above evidence that economic recovery in Argentina has been in a better shape and more sustainable than Turkey. Although both countries will inevitably face the negative impacts of the global crisis, the impact is likely to be more severe for Turkey. The early signs support this prediction. During the May-June 2006 turbulences Turkey was amongst the hardest hit middle income countries (Onaran 2007). The IMF estimates that Turkish economy will shrink by 5.1 percent in 2009 and this fallows the dismal 1.1 percent growth rate in 2008. The decline in the Argentinean economy will be limited to 1.5 percent in 2009 and this follows from a much superior growth rate of 7 percent in 2008. In terms of growth rates in 2008 the CIA World Fact Book ranks Turkey as the 175th out of 217 countries and ranks Argentina as the 30th.

The current economic policies in Turkey resemble Argentina's policies during the 1990s. Although Turkey has adopted flexible exchange rate policies and reformed its financial sector during the post-2001 crisis period, high interest rates, large capital inflows, overvalued exchange rates, soaring imports, increased external debt, tight fiscal policies, privatization policies and jobless-growth are familiar characteristics of the Turkish economy to pre-2001 crisis characteristics of Argentina. Therefore such flawed policies could not have been sustained in the long run with or without the world economic crisis. Many economists expected Turkey to experience another financial crisis before the world financial crisis.

For sure not everything is seamless in Argentina and flawed in Turkey. Despite all the positive signs, Argentina's heterodox experience has been ad hoc and there is not consensus over what has or should replace neo-liberalism. Although a more proactive role for the state has been envisaged, there is a lack of clarity over the precise role of the state and a lack of development program. There appears no clear long term strategy to deal with issues such as inflation, energy, and income distribution (Cibils 2008). Inflation figures are likely to be manipulated, thus may not show the true poverty levels. Despite Argentina is rich in oil and natural gas, it is facing an acute energy shortage due to the underinvestment in the energy sector resulting from privatization policies during the 1990s (Lowenthal 2006). Argentina also faced a devastating drought in 2008 and 2009 which killed millions of livestock and hit the agricultural sector and exports severely. The favorable terms of trade due to high export prices are unlikely to continue perpetually. Although unemployment fell from 18 percent in 2001 to 8.5 percent in 2007, many new jobs are in non-unionized, low-paid and temporary without standard benefits of full time jobs. Grugel and Riggirozzi (2007) note that almost half of total employees have no social insurance and unemployment amongst young people remains very high.

The banking sector reforms and the creation of the Independent Banking Supervision Institution in Turkey after the 2001 crisis helped the Turkish banks to face the world crisis in favorable conditions. Although the financial sector in Turkey remains

lucrative, the problems in the real sector are likely to influence the financial sector. The impact of the global financial crisis on Turkey economy will likely to come from its impact on the real sector rather than the financial sector. Turkey has been able to attract foreign capital due to high interest rates and policies such as the law on repatriation of capital that relaxed the foreign exchange shortage. However such temporary emergency measures are unlikely to keep the economy above water interminably.

In conclusion there can be very little doubt that Argentina's heterodox policies have been a lot more successful compared to Turkey's orthodox policies. Policies in Argentina have been experimental but very imaginative. It may not be possible or even desirable for Turkey to imitate Argentinean experience single-mindedly but Argentinean experience provides some valuable lessons. Turkey must now look beyond the failed policies of the orthodoxy and adopt more pragmatic policies to address its structural and long lasting problems. Turkey must reject the straitjacket imposed by the IMF and adopt new strategies according to its specific circumstances. The Argentinean experience as well as a large literature on developing countries show that no pre-determined set of policies will serve all countries equally well, be it orthodox or heterodox. The development process is a non-linear and complex process and no simple rules can be advised to developing countries.

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CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 47-60

Katarzyna Kalinowska[1]

A VAR ANALYSIS OF THE EXPENDITURES-SIDE EFFECTS OF PASSIVE FISCAL POLICY IN POLAND IN 2004-2012

Abstract

In this paper the methodology to assess the effectiveness of automatic stabilizers is applied to Polish quarterly data for 2004-2012. The methodology is based on the separation of permanent from cyclical components of public expenditures and estimation the effect of stabilizers in private consumption and output. In European Monetary Union, without the possibility of monetary policy, passive fiscal policy is the only instrument that the authorities are able to use to dampen the effects of business cycle at national level. The paper presents the analysis of the effectiveness of fiscal policy in Poland based on the structural VAR approach. The analysis show a positive response of industrial production and private consumption to expenditure shocks. It is worth underlying that reaction of industrial production to cyclical component of government expenses is more significant that the reaction of private consumption. In both cases both variables response to public spending is immediate and it takes place in first quarter.

JEL Classification Code: **E62, E63, E21, E23, C32.**

Keywords: automatic stabilization, private consumption, industrial production, vector autoregression.

Introduction

The idea that governments can reduce output fluctuation by allowing fiscal stabilizers work is not new. It was broadly studied not only theoretically but also empirically in the 1950s and 1960s. The rational expectations revolution in the 1970s

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(Lucas, 1975, p.35), Ricardian Equivalence theorem and the Lucas critique which implies that it is not possible to determine the effectiveness of passive fiscal policy because we do not know what changes their removal would cause in the dynamic structure of the economy (Lucas, 1975, p.30) - changed the direction of economic research on the automatic stabilizers effectiveness and measures. High levels of budget deficits and public debts as a share of GDP in the USA and European Communities countries in the 1980s and 1990s and implementation the new set of rules and constraints on national fiscal policies described by the provisions of Stability and Growth Pact (GSP) and Maastricht Treaty in European Monetary Union (EMU) countries, brought about the new interest in the subject. Without the possibility of using monetary policy in EMU, fiscal policy was the only tool to smooth the output fluctuations on the national level. Under GSP, EMU members should perform in consolidating their public finance hence automatic stabilizers remain the only stabilization instruments.

Automatic stabilizers can be defined as certain categories of government revenue and expenditure which react automatically to the business cycle without any economic officials` decisions and in doing so they counteract fluctuations in aggregate demand.

The purpose of these thesis is to study the effectiveness of automatic stabilizers on the expenditure side in Poland for period 2004-2012. The paper uses quarterly data on Polish government expenditures, sold production in industry and individual consumption expenditure in the household sector taken from GUS (Polish Central Statistical Office). The VAR study of the effects of automatic stabilizers on the expenditure side showed a positive response of sold production in industry and individual consumption expenditure in the household to expenditure shocks.

The paper is structured as follows: the first section starts with theoretical approach to automatic stabilizers and showing the factors which determine their effectiveness. Section two briefly reviews the literature on the subject. Section three describes the methodology to estimate the effectiveness of fiscal stabilizers on expenditure side in Poland in 2004-2012.

Automatic stabilizers effectiveness determinants

Most economists agree that, notwithstanding the stage of business cycle, tax rates and discretionary spending level in relation to GDP should be stable. If governments followed this rule, automatic stabilizers would be the only tools of countercyclical policy.

Fiscal policy instruments are defined as automatic stabilizers when they meet the following requirements:

– they need to be sensitive to changes in output and unemployment and they must fluctuate in business cycle duration;

– they need to smooth GDP and consumption fluctuations and thus lead to economic stabilization;
– they need to have such construction that discretionary fiscal policy would not be able to restrict their stabilization function;
– they need to influence the government budget balance procyclicality – they tend to increase budget surplus in boom and budget deficit during crisis;
– they need to act automatically - they do not require any action on the part of the government to enact any new laws (Krajewski, 2005, p. 188).

According to OECD methodology, the automatic stabilizers are the following components of fiscal policy:
– income taxes,
– social security contributions,
– corporate taxes,
– direct taxes,
– unemployment benefits (OECD, 1999, p. 137).

The impact of automatic stabilizers may, at varying degrees, be reinforced by other mechanisms to operate to smooth the business cycle. Macroeconomic determinates which affect the direction and impact of automatic stabilizers are presented in table 1.

Table 1. Determinants of the automatic stabilizers effectiveness

Factor influencing automatic stabilizers effectiveness	Acting
1. Government sector size	The biggest share of government expenditures in GDP, the more symmetric and timely automatic stabilizers impact on the economy which result in shallow recession (Hemming, Mahfouz, Schimmelpfennig, 2002, p. 9, van den Nord, 2000, p. 7).
2. Degree of economy openness	The more open economy, the lower effectiveness of automatic stabilizers in reducing GDP fluctuations (Hemming, Mahfouz, Schimmelpfennig, 2002, p. 11, Buti,, Martinez-Mongay, Sekkat, van den Noord, 2003, p. 132).
3. Tax system structure	Progressive taxation structure is more able to act as an automatic stabilizer (van den Nord, 2000, p. 7)
4. The level of economic development	The efficiency of automatic stabilizers is empirically confirmed both in developing and developed countries (Deburn, Kapoor, 2010, p. 5). The more developed economy, the more efficient counter-cyclical fiscal policy (Talvi, Vegh, 2000, p. 22, Alesina, Tabellini, 2005, p. 28).
5. The degree of private consumption and investment sensitivity on disposable income changes	The smaller private consumption sensitivity to disposable income changes, the weaker demand impulse coming from automatic stabilizers. An increase in budget deficit can lead to reduced private sector expenses, because the public will save its excess money in order to pay for future tax increases that will be initiated to pay off the debt. (Barro, 1996, p. 15).
6. Initial level of public debt	Low level of public debt enhances the passive fiscal policy efficiency because consumers do not expect the rise in taxes rates in future. (Hemming, Mahfouz, Schimmelpfennig, 2002, p. 11).

Table 1 continued.

Factor influencing automatic stabilizers effectiveness	Acting
7. Accompanying monetary policy	Automatic stabilizers are more efficient when accpmpanying by accommodative monetary policy (Hemming, Mahfouz, Schimmelpfennig, 2002, p. 11, Perotti, 2002, p. 23).
8. Exchange rate regime	In the case of an open economy automatic stabilizers are thought to be effective with a fixed exchange rate and non-effective with a floating exchange rate (Hemming, Mahfouz, Schimmelpfennig, 2002, p. 11).
9. The nature of shock	Automatic stabilizers are more effective in reducing the impact of demand than supply shocks (Barrell, Pina, 2002, p. 26).
10. The type of macroeconomic category affected by shock	As stabilizers work through disposable income, they are most effective in the face of shocks to aggregate demand, and in particular to private consumption than to investment (Barrell, Pina, 2002, p. 26).

Source: Own study.

Alesina and Tabellini point out beyond economic factors that affect the automatic stabilizers effectiveness. They stress the negative relationship between the high level of corruption and efficiency of passive fiscal policy (Alesina, Tabellini, 2005, p. 18). Research carried out by Woo in the group of 96 developed and developing countries in 1960-2001 confirm that the higher level of income and education inequality the smaller smoothing power of automatic stabilizers (Woo, 2005, p. 27).

Review of theory and evidence

In the light of the new research in economics automatic stabilizers are believed to have significant stabilizing effects on the business cycle. Van den Noord examines that in the OECD countries automatic stabilizers reduce the business cycle magnitude by on average 25 percent (van den Noord, 2000, p. 14). According to Barrell and Pina the effeciveness of automatic stabilizers particularly in respect to disposable incomes is smaller. They prove that automatic stabilizers have effect in dampening output fluctuations in EMU by 11 percent (Barrell, Pina, 2003, p. 26). Latest empirical research trying to determine the effectiveness of automatic stabilizers are presented below.

Dolls, Fuest and Peichl used microsimulation models for the tax and transfer systems of 19 European countries and the USA to investigate the extent to which automatic stabilizers cushion household disposable income and household demand in the event of macroeconomic shocks. The analysis referred to two macro shocks macro shocks to income and employment. The first, symmetric shock, caused proportional decline in household gross income, and the latter one, unemployment shock, which affects households asymmetrically. For the income shock, the cushioning effect of automatic stabilizers is in the range of 4-22% in the EU and between 6-17% in the

US. For the unemployment shock, it ranges from 13-30% in the EU, whereas results for the US are between 7-20% and are similar to the values for the

income shock. These results suggest that social transfers, in particular the rather generous systems of unemployment insurance in Europe, play a key role for demand stabilization and explain an important part of the difference in automatic stabilizers between Europe and the US (Dolls, Fuest, Peichl, 2010, p. 4-29).

Darby and Melitz examined the passive fiscal Policy efficiency on the expenditure side. They found out that the cyclical responsiveness of government expenditure on health, retirement benefits, incapacity benefits and sickness pay as well as unemployment compensation in demand and unemployment stabilization (Darby, Melitz, 2008, p. 717). This conclusions go contrary to A. Auerbacha i D. Feenberg`s research results. They proved that the unemployment benefit is the most effective tool of passive fiscal policy to stabilize the average output (Auerbach, Feenberg, 2000, p. 37-56).

McKay and Rays, analysing the role of automatic stabilizers as a countercyclical tool, proved that proportional taxes, like the sales tax, the property tax, and the corporate income tax have negligible effect on the volatility of economic aggregates. The progressivity of the personal income tax and transfer payments to the unemployed and those on food stamps have been quite effective stabilizers, contributing to a lower variance of output by 15% and 13% respectively. They also fund that progressivity of the income tax also least to significantly lower average output. Transfer payments, in turn, have a negligible effect on average output, but because they lower precautionary savings, they raise the variance of consumption substantially (McKay, Rays, 2013, p. 35).

Estimating automatic stabilization on the expenditure side

Basing on the latest research on the passive fiscal policy effectiveness, the empirical part of the paper focuses on verification the hypothesis that unemployment benefits are effective and timely tools to stabilize the level of output and consumption in Poland and thus lead to smoothing the business cycle. Cyclical component of budget expenditure was selected as unemployment compensation – government expenditures which grow during crisis and go down in time of boom. Government expenditures caused by Keynesian unemployment calculated as follows:

- the level of cyclical unemployment was estimated using Hodrik-Prescott filter,
- then the level of cyclical unemployment for each period of time (the gap between actual value and trend) was multiplied by the number of unemployed eligible to receive the unemployment benefits,
- to estimate the level of cyclical component of budget expenditures, above value was multiplied by the amount of unemployment benefit.

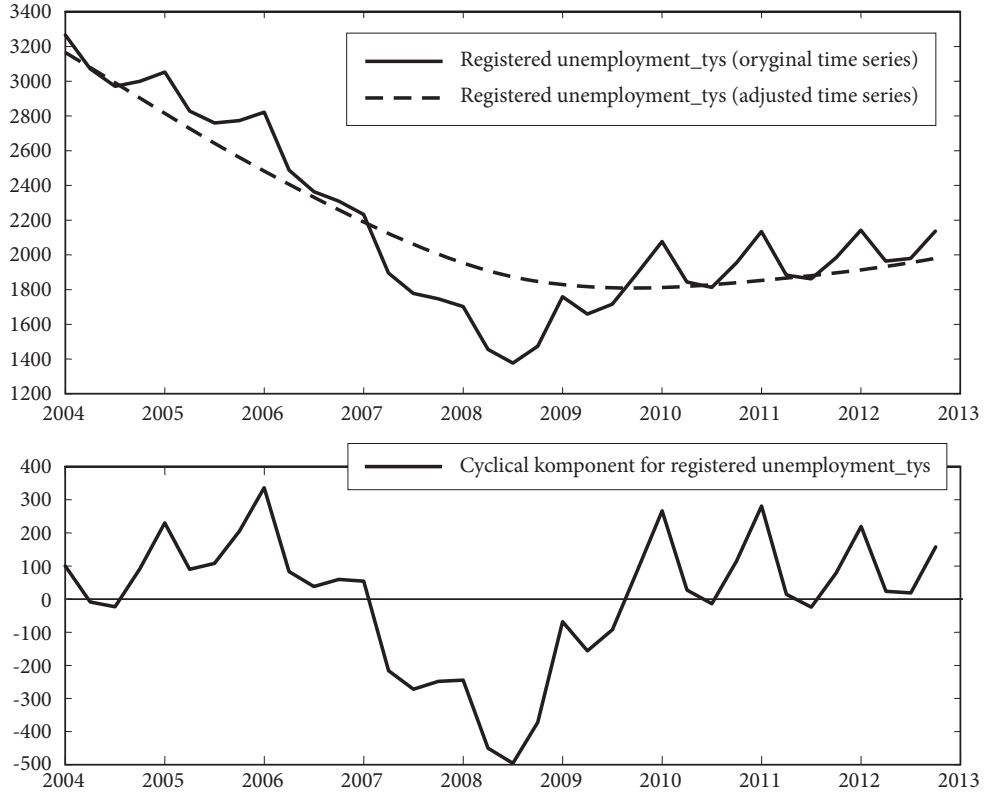

Figure 1. The level of unemployment in Poland in 2004-2012.

Source: Own calculations based on source data from GUS („Annual macroeconomic indicators 2007").

As can be seen, the worst situation on the Polish labor market, reflecting the biggest increase of unemployed over the trend line (335 thousands) was in the first quarter of 2006. It is worth underlying that the level of unemployment hadn`t reached that point even in the time of economic downswing after 2008. Despite the fact that Polish economy performed in crisis, it didn`t affect the labor market conditions significantly. In subsequent quarters the rate of Keynesian unemployment gradually went down and reached its lowest point in the third quarter of 2008 at the level of 500 thousand below the trend line. According to Ministry of Labor and Social Policy registered unemployment monthly report, in 2004-2012 the number of unemployed eligible to receive unemployment benefits was on the level of 15,7% in relation to all unemployed. Relatively small number of unemployed people covered by compensation comes from the fact that time to search for jobs is longer that the period of determination the benefit. From 2004 to 2012 the average level of unemployment

benefit was about 580 Polish zloty (PLN). Relatively small number people eligible to receive unemployment benefits and also small its amount cause that the share of expenses for unemployment compensation in all government expenses is rather low.

Table 2. Cyclical component of government expenditures in Poland in 2004-2012.

	Cyclical component of government expenditures (in thousands)	GDP (in thousands)	Cyclical component of government expenditures in relation to GDP (%)
2004	80937.28	924 538 000	0.009
2005	325173.5	983 302 000	0.033
2006	271267.9	1 060 031 000	0.025
2007	-366831	1 176 737 000	-0.03
2008	-878651	1 275 508 000	-0.07
2009	-133038	1 344 505 000	-0.009
2010	250066.2	1 416 585 000	0.017
2011	232898.9	1 528 127 000	0.152
2012	290238.2	1 595 225 000	0.018

Source: Own calculations based on source data from GUS („Annulal macroeconomic indicators 2007").

Table 2 reports that increased government expenses for unemployment benefits were no higher than 0.15% in relation to GDP in the time of highest growth of unemployment and no lower than 0.03% of GDP when the situation on labor market was the best. It means cyclical nature of unemployment in Poland and its negative effects tend to weaken during expansion.

The model is generally constructed based on simple Keynes model which principles are price rigidity and available productive capacity in the economy. Of particular importance of Keynes model is the assumption that households consumption expenditures depend only on current disposable income available to spend after paying taxes and receiving transfers from government.

Effectiveness of automatic stabilizers on expenditure side studied using structural VAR models. The first VAR model allows to examine how changes in government expenditures affect the individual consumption which refers to all goods and services consumed by households. The first VAR model (VAR I) includes two variables cyclical component of government expenditure G_t and individual consumption D_t:

$$G_t = \mu_1 + \alpha_1 G_{1t-1} + \beta_1 G_{2t-1} + \varepsilon_1$$

$$D_t = \mu_3 + \alpha_3 D_{1t-1} + \beta_3 D_{2t-1} + \varepsilon_3$$

The second VAR (VAR II) model allows to study the relationship between government expenditures and sold production in industry. It has the following form:

$$G_t = \mu_1 + \alpha_1 G_{1t-1} + \beta_1 G_{2t-1} + \varepsilon_1$$

$$O_t = \mu_2 + \alpha_2 O_{1t-1} + \beta_2 O_{2t-1} + \varepsilon_2$$

All time series are taken from GUS database "Annual Macroeconomic Indicators 2007". All variables are at quarterly frequency and time series run from 2004:1 to 2012:4. To convert exponential trends to linear trends logs of all variables are taken.

As a first step of a more detailed examination of the data properties and the final model specification, the stationarity property of the series has been analyzed using the Augmented Dickey-Fuller (ADF), the results are summarised in table 3.

Table 3. ADF test with constant and trend

	ADF test-statistics	lag	p-value
Cyclical component of government expenditures G_t	-2.2152	3	0.4805
Sold production in industry O_t	-2.83254	1	0.1854
Individual consumption D_t	-1.19195	3	0.9112

Source: Calculations performed using GRETL based on source data from GUS: "Annual macroeconomic indicators 2007".

It can be seen from the table 3 that the null hypothesis of nonstationarity can be rejected for these variables at the 5% significance level.

In a second step the pairs of time series (G_t), (D_t) and (G_t), (O_t) are analysed for potential cointegration. This is done by applying Engle-Granger test.

Table 4. Cointegration test for time series (G_t), (D_t) oraz (G_t), (O_t)

	Sample size	ADF test-statistics (without constant and trend)
Time series (G_t) i (D_t)	31	-2.14235*
Time series (G_t) i (O_t)	31	-2.01716*

* rejection the null hypotesis of NOcointegration at the 5% significance level.

Source: Calculations performed using GRETL based on source data from GUS: "Annual macroeconomic indicators 2007".

The Engle-Granger test indicates cointegration relationships for the variables (G_t) and (D_t) and also (G_t) and (O_t) at the 5% significance level. There is a stable, long-term relationship between the two pairs of variables so it is allowed to use VAR model to analyze impulse response function.

First, two VAR models were estimated: VAR I with three lags to simulate the dynamic response of the government expenditures cyclical component changes to individual consumption and VAR II with four lags to simulate the dynamic response of the government expenditures cyclical component changes to the industry production. The choice of lag length was made on the basis of Schwarz Bayesian, Hannan-Quinn and Akaike Information Criterion. Another stage of the analysis was an estimate of structural parameters of the VAR models. Results of the parameter estimate of the VAR models each consisting of 2 equations are in the table 5.

Table 5. Results of the parameter estimate of the VAR models for variables G_t and D_t and also G_t and O_t

	Descriptive parameter	Variables estimation	
Model I		G_t	D_t
	Coefficient of determination R^2	0.984453	0,998344
	Residual autocorrelation	0.218692	0,033245
	Test portmanteau	0.0374	
Model II		G_t	O_t
	Coefficient of determination R^2	0.735659	0,983768
	Residual autocorrelation	-0.084358	0,191540
	Test portmanteau	0.0201	

On the basis of the data from the above Table it can be noted that the residuals of each equation are not correlated. Each equation residual autocorrelation indicator is low and p-values for Portmanteau Tests are bigger that 0,01 which allow to accept the null hypothesis that there is no serial correlation in a time series. Then, the basic condition to estimate time series model was fulfilled. It is worth underlying high R-squared value which is typical for VAR models. All additional statistical tests for the VAR models are presented in Table 6.

According to the reported Ljung-Box (Q) tests, residuals from the VAR models have no autocorrelation. The Doornik-Hansen test for multivariate normality confirms the presence of a normally distributed random variable. Test for Multivariate ARCH Effects confirms homoscedasticity of random variables. Results of tests carried out confirm properly specified structural econometric model describing the impact of government expenditures on real economy. Nevertheless the basic condition of model practical application is the condition for model stability. The necessary and sufficient condition for stability is that all characteristic roots have absolute value less than one and lie inside lie inside the unit circle.

Table 6. Diagnostic checks for models VAR I i VAR II

	Test		Value from the statistical test	Critical value	Test performance
Model I	Checking the residuals for autocorelation– Ljung-Box Q' test	Equation 1	3.03655 p – value = 0.552	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 3.03655) = 0.552 – residuals are not autocorrelated
		Equation 2	1.30489 p – value = 0.861	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 1.30489) = 0.861 – residuals are not autocorrelated
	Tests for heteroskedasticity – testing for ARCH effect	Equation 1	The Lagrange Multiplier test statistic is given by: LM = 5.83849 p value – 0.211539	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 5.83849) = 0.211539 – random variables is homoscedastic
		Equation 2	The Lagrange Multiplier test statistic is given by: LM = 2.49569 p value - 0.645407	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 2.49569) = 0.645407 – random variables is homoscedastic
	Doornick-Hansen test for multivariate normality		Chi-kwadrat(4) = 12.9326	13.2767	Chi-kwadrat(4) = 12.9326 [0.0116] – random variable normally distributed
Model II	Checking the residuals for autocorelation – Ljung-Box Q' test	Equation 1	1.90779 p value – 0.753	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 1.90779) = 0.753 – residuals are not autocorrelated
		Equation 2	6.97749 p value - 0.137	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 6.97749) = 0.137 – residuals are not autocorrelated
	Tests for heteroskedasticity – testing for ARCH effect	Equation 1	The Lagrange Multiplier test statistic is given by: LM = 0.252171 p value - 0.992689	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 0.252171) = 0.992689 - random variables is homoscedastic
		Equation 2	The Lagrange Multiplier test statistic is given by: LM = 0.658818 p value - 0.956309	Chi-kwadrat(4) 9.48773	p = P(Chi-kwadrat(4) > 0.658818) = 0.956309 – random variables is homoscedastic
	Doornick-Hansen test for multivariate normality		Chi-kwadrat(4) 9.48773	8.60965	p = Chi-kwadrat(4) = 8.60965 [0.0716] – random variable normally distributed

Source: Own calculations based on GRETL.

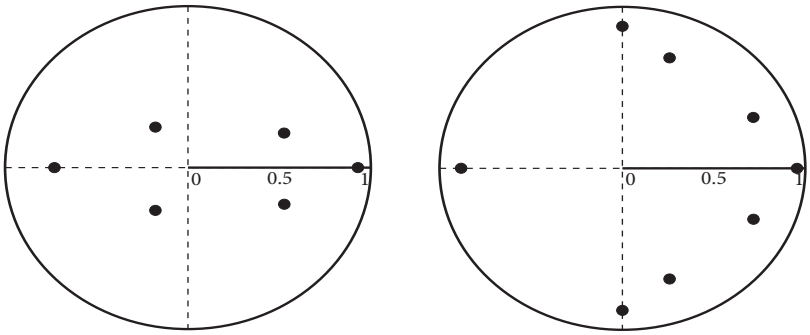

Figure 2. Roots of the characteristic equation for models VAR I i VAR II.
Source: Calculations performed using GRETL based on source data from GUS: "Annual macroeconomic indicators 2007".

In estimated models all roots (6 roots in VAR and 8 in VAR II) are smaller than1 in absolute value. The model is stable so it is allowed to estimate the strength of mutual interaction between government expenditures cyclical component and individual consumption and also government expenditures cyclical component and sold industry production. Below one can see respective graphs of the impulse response functions of individual consumption and sold industry production to a one-time unit change of the government expenditures cyclical component.

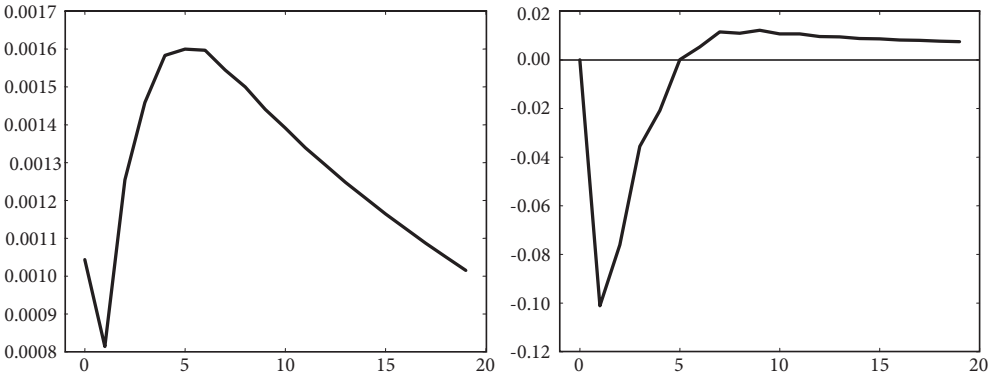

Figure 3. Impulse response function of government expenditures cyclical component and individual consumption in Q1.2004-Q4.2012: a) Impulse response function of individual consumption to government expenditures cyclical component, b) Impulse response function of government expenditures cyclical component to individual consumption

Source: Calculations performed using GRETL based on source data from GUS: "Annual macroeconomic indicators 2007".

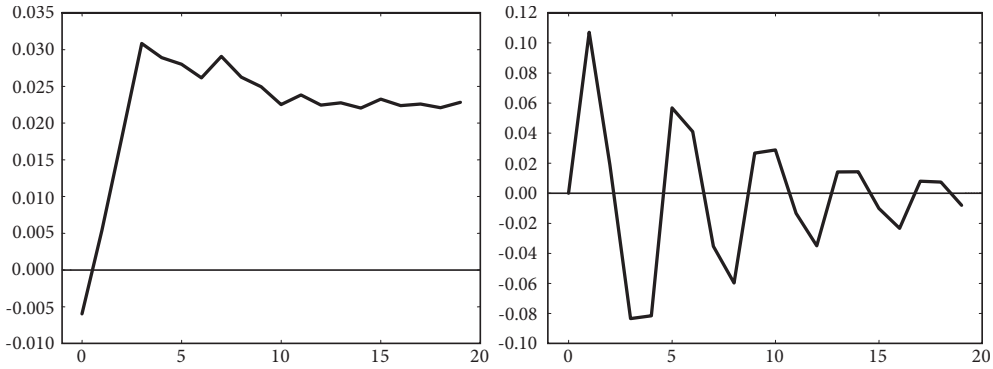

Figure 4. Impulse response function of government expenditures cyclical component and sold production in industry in Q1.2004-Q4.2012: a) Impulse response function of sold production in industry to government expenditures cyclical component, b) Impulse response function of government expenditures cyclical component to sold production in industry

Source: Calculations performed using GRETL based on source data from GUS: "Annual macroeconomic indicators 2007".

Figures 3 and 4 present the response of individual consumption and sold production in industry to a government expenditures cyclical component shock. As can be seen in Figure 3 government expenditures cyclical component shock leads to immediate rise of private consumption in the first quarter. Private consumption maintained its growth trend up to 6th quarter reaching maximum in the 5th quarter after the subsequent quarter stabilization occurs. As in the case of private consumption, a positive government expenditures cyclical increases sold production in industry. Significant increase of production following the government expenditures occurs in the first quarter but the growth trend maintained only up to the 3rd quarter. Then it starts to decrease and stabilizes after 10th quarter elapses.

Generally, the positive response of production and private consumption to an expenditures shock is compatible with Keynesian theory macroeconomic effects of fiscal policy. Nevertheless, it is worth underlying that industry production response to an expenditures shock is much stronger than individual consumption response. The IRF function maximum value in the first quarter is three times bigger in the case of industry production response to an expenditures shock than individual consumption response.

Rotemberg and Woodford demonstrate that in a new Keynesian model with oligopolistic pricing an increase in government expenditures has indeed an effect on firms labor demand as long as it lowers the mark-up of prices over marginal costs. This leads to an increase in real wages, private consumption and output even with a constant labor supply (Rotemberg and Woodford (1988), p. 44).

Conclusions

This paper has presented the evidence on the effects of passive fiscal policy on the economy in Poland based on the structural VAR approach. The result of this analysis is that there is a positive response of consumption and production to expenditure shocks. The results also suggest that effect of public expenditures cyclical component on individual consumption is weaker than effect on industry production. Instead, in both cases this effect is almost immediate and refers to the first quarter.

Despite the reasonable results obtained, the methodology presented in the paper has its drawbacks. The effectiveness of automatic stabilizers on the expenditure side would be probably bigger while taking into account other stabilizing tools (e.g. social security contributions).

These results have to be interpreted in the light of Polish membership in European Monetary Union and limited possibilities to use discretionary fiscal policy in stabilizing the output.

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CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 61-78

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VENTURE CAPITAL AS A POSSIBILITY OF FINANCING INNOVATIONS

Abstract

Innovative business venture by its nature is a risky area to allocate capital in. For many subjects interested in implementing innovations it is hardly possible to be provided with money from typical sources. Receiving capital from the stock exchange is possible only for big companies that are firmly grounded in the market. They are able to overcome the stock exchange entry barriers. Banks are embedded with means of precaution which make it more difficult to receive bank loans for projects of high or inestimable risk.

It is not a rule, however, innovations are a domain of small and medium enterprises. They are not completely hopeless in the financial market. Innovative products directed towards these market participants whose needs are not fulfilled by traditional financial instruments also appear. Forfaiting, factoring, leasing, franchising venture capital are only some of possibilities which are accessible for innovative business ventures in the capital market.

Venture capital funds are close-ended funds, they were developed mainly in the United States as a non-standard source of financing risky business ventures operating most frequently in the area of high technologies. Beneficiaries of such a capital are entrepreneurs who have an innovative product, method of production or a service. Benefiting from venture capital is connected to investments in, above all, new developmental enterprises. When we take under consideration the fact that venture capital is also connected with support in the area of management it also can be called „financial-advisory capital".

There are both advantages and disadvantages of benefiting from venture capital. In the reference books this form of financing is frequently presented as a great secure form of receiving capital. Entrepreneurs are encouraged to take advantage of the offer provided by venture capital funds. Doubtlessly it can be good and sometimes the only solution when we have an idea but no money. However, we should remember that investors who provide us with financial resources in the form of venture capital - these business angels - are also business people aiming to receive profit. Resources received from the funds work mainly for the funds not for the entrepreneur. What is more, it is short-term or middle term capital which is usually withdrawn in the peak of the growth of the company's value.

JEL Classification Code: **E62, E63, E21, E23, C32.**

Keywords: venture capital, innovations, technology, financing, risk, management.

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Introduction

Innovation is every change which improves something, leads to a new quality or just means creation of a new product or a service. According to J. Koch and T. Koch innovation means to introduce new products, new means of production, to open a new market, obtaining a new source of materials or, last but not least, to introduce a new form of organisation of economic processes (J. Koch and T. Koch 2000 p. 9-17). This definition of innovation Schumpeter focuses on new combinations of factors of production.

P.F. Drucker (1992) defines innovation in a slightly different way. „Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or service....Innovation does not have to be technical, does not indeed have to be a „thing" altogether."

Neither patent application nor prototype, particular idea, policies – from economic point of view – cannot be defined as innovation. Using innovation in economic activities allows to verify their usefulness and also it allows to measure their efficiency. Hence innovations should be related with finance on every stage of production. It is necessary to calculate the risk of failure of implementing innovations and also overinvesting risk connected with overinnovation. When not taking into consideration all above, innovation is only the idea not investment.

From the definition of innovation the fact that the whole implementation process is usually complicated and that it requires a lot of specific knowledge, a lot of material and financial resources can be derived. Due to the fact that risk connected with innovative project is hard to be measured, it is difficult to obtain financial resources. Traditional sources of gaining capital, such as banks or stock exchange, frequently turn out to be inaccessible. Banks do not accept high risk or they demand high emoluments in the form of interest on a bank loan. However, these interests are too high for an entrepreneur. For small and medium enterprises an inaccessible place to search for financial resources is the stock exchange. Only big companies grounded firmly in the market are able to overcome the stock exchange entry barriers.

In the most developed countries in the world - the USA, Germany, Japan – the level of expenses on education has been relatively high for years. What is important, social and economic systems in these countries are not the same. There is free market system in the USA and less free market system in Germany and mixed in Japan.

When we have the same level of expenses on R&D, quite important seem to be the structure of these expanses. In the developed countries, most of R&D expenses is financed by business (in OECD 59,1 %, and in EU 52,7 %). When we compare Poland to developed countries, there is quite different structure of these expanses. It means relatively lower share of expanses financed by business(34,8 %) and higher by budget (61,3 % it is average for 1995-2005). In European Union Programme for economic growth and employment research and innovations main priorities.

Some governments create special supportive programmes by which innovative projects are provided with money. Expenditures on research and development (R&D) which are foreseen in their budgets can satisfy the need for financial resources for introducing innovations only of a part of the entrepreneurs. For many investors it can be not sufficient enough. Solutions are alternative sources of capital. One of such financial sources is venture capital.

Financing by venture capital

The first enterprise which was offering financial capital along with support in realisation of a business venture was American Research and Development established in 1946 in the USA. In 1958 The United States Congress approved a legislation act called The Small Business Investment Act. Its goal was to subsidize venture capital with public resources by preferential loans whose size was dependant on the own capital of a business venture. In Europe roots of the venture capital go back to the year 1925. Development of the market falls on 1980s. (Grzywacz and Okońska, 2008, p. 48-50).

Venture capital funds are closed-ended funds. Their activity consists on the fact that a group of investors allocate their money in investments of a particular type – ones that can be uncertain but also can earn high rates of return. This type of financing investments concerns most frequently non-publicly traded companies. The venture capitalist is not allowed to exit such a company overnight, but he needs to wait until the enterprise develops fully. In Poland the domain of venture capital funds are usually enterprises which have a good product or have already been successful in the market what resulted from their rapid growth over the several past years, however, they fall short for capital for faster development and for increasing production capacities as well as for conquering another market niche or for developing their trade network.

According to American models venture capital funds are described in a slightly different way. An investment financed by them is directed towards new venture businesses based on advanced technologies which are characterised with hope of high profit but where significant investment risk is involved. Therefore it is frequently the main source of financing innovation.

The main goal of venture capital funds is to increase the market value of an enterprise. New capital serves financing a specific, precisely prepared investment programme. Frequently it concerns purchasing new technological lines or machines, development of a trade network or purchasing modern tools for production and steering and management. Most often this capital serves financial restructuring of an enterprise of increasing its current assets. Profits earned by the enterprise are usually entirely directed to its further development. Funds of the already presented type are created by public investors that are governmental agencies or local authorities or

by private investors - such as: banks, corporations, insurance associations, pension funds, individual entities or higher education facilities. Funds examine in details chances of investment projects. They verify thoroughly information about a partner and his/her enterprise; they meet recipients of the product in order to get to know if sale would increase. They run a market analysis in case of a start-up businesses (Tamowicz and Rot, 2002, p. 6-7). Nevertheless, the most frequently, they want to meet people who run or will run the enterprise: check whether are they convinced about success, are they competent, what do they know about competition and modern management.

Venture capital funds have developed mainly in the United States as a non-standard source of financing risky business ventures operating most frequently in the area of high technologies. Their blossom to a large degree resulted from stagnation on the credit market and it was an answer to low commercial banks' eagerness to loan funds for such business ventures, since commercial banks watch for sources of long-term profits in financing operations that are innovative projects which are characterised with limited risk level. Therefore they naturally pay their attention to and focus on business organisations which have long tradition of many years and are well grounded in the market. Venture capital funds - which are high risk capital funds, apply a completely different strategy. They search for investments of very high possible profitability accepting increased risk. The essence of venture capital business ventures, especially start-up businesses, consists of following issues:

- The fund allocates financial resources for taking possession of shares or stock shares. In comparison to a bank loan there is neither surety nor guarantee. A venture capital fund becomes a partner to the degree proportional to the capital it has invested, moreover, it takes the risk connected with a given business venture.
- A venture capital fund is usually not involved in current running of the enterprise, however, it tries to influence establishing the company's development strategy and strictly controls its fulfilment. For that purpose the fund includes its representatives either in the enterprise's board of directors or in the supervisory board. The fund transmits to the enterprise's management priceless knowledge and experience through the hired high-performance experts.
- Time of financial involvement of venture capital is limited in advance and it ranges the most frequently several years. The profit is earned not as much on dividend as on the increase of the enterprise's value. Usually profits are earned by introducing shares to a stock exchange, and by selling the shares to other partners and managers or to a foreign investor.

The key to the success of the discussed funds is an ability to find business ventures which are highly attractive from the perspective of initiators of new businesses. The most significant criteria of selection are:

- High rate of return on investment to the amount of 50% a year, which is possible to be obtained in several years.

- Strong management.
- Competitive product, technological superiority.
- Enterprises which operate in dynamic sectors or branches and are characterised by growth dynamics higher than mean dynamics within the branch (Cieślik, 2006, p. 138-139).

Beneficiaries of discussed investments are entrepreneurs who have an innovative product, method of production or service. Due to the fact that the discussed form of financing is connected with investments in, above all, new, developmental enterprises, venture capital may be called „developmental capital". When we take under consideration the fact that venture capital is also connected with support in the area of management it also can be called „financial-advisory capital" (Szelągowska ed., 2007, p. 428).

Venture capital as an element of private equity

Terms „private equity" and „venture capital" are not equivalent, however, in Europe they are treated as synonyms. In Polish terminology there is no proper equivalent for the term „venture capital", therefore English term is commonly utilised. However, in order to describe this form of financing, following terms are also frequently utilised: high risk capital, speculative capital, capital involved in risky transactions, high-risk funds (Bielawska, 2009, p. 188-189).

„Venture capital" means to to provide money for the initial capital of private non-publicly traded enterprises which are at the initial stages of their development. These funds are included in more significant investments, that are private equity investments, and most frequently are highly risky. The highest number of unsuccessful transactions occurs amongst venture capital investments. Minimal expected annual average rate of return is within bounds from 30% till 50%. „Private equity" - means to invest through private equity funds in non-publicly traded companies which are at different stages of their development, whose aim is to increase their value and obtain over-average capital profits. Annual average expected rate of return on total private equity investment is 25-30% minimum; expectations on rates of return depend on the level of risk. Venture capital investors - and wider private equity investors - contribute to a company also managerial capital which is a significant generator of the growth of the company's value. In the category of „private equity" are included:

- Capital provided to an enterprise in order to avoid its going bankrupt (recovery, rescue capital, turnaround), for example when the enterprise's current difficult financial situation results from the board's of directors mistakes or is a consequence of not receiving financial resources from a big client or a key-client.

- Capital granted for financing undertakings which consist of taking over a company from its hitherto owners by its CEOs or external managers (MBO, management buy-outs, MBI, management buy-in).
- Capital devoted to privatization of enterprises owned by the government, e.g. purchasing Stomil Sanok, Polfa Kutno by funds managed by Enterprise Investors.
- Capital directed to withdrawing an enterprise's shares from public circulation (delisting) - transactions of this type become more and more popular, for example in Great Britain.
- Capital assigned to bridge financing - for example financing such companies as Sfinks, Eldorado by funds managed by Enterprise Investors.
- Capital for merges or takeovers (M&A mergers & acquisitions) and branch consolidations (buy & build strategy).
- Mezzanine – financing with hybrid securities - for example Solaria Bus & Coach or Lux-Med financed by Accession Mezzanine Poland (Szablewski, Pniewski and Bartoszewicz, 2008, p. 292-293).

Forms of venture capital investments

Venture capital investments can be made either directly by investors - direct investments means purchasing shares or stock shares of a company by which the investor acquires his right to dividend, right to collect newly issued shares or right to voice at the general meeting of shareholders - or by proxy of special financial agencies created for this purpose and called venture capital funds - indirect investments, when the investor acquires only right to the fund's profit-share benefits. The choice of the form of investment depends on many factors: the stage of an enterprise's development, size of the investment, a capital provider's and a beneficent's preferences of capital engaging, a willingness to take risks or a capital provider's expectancies, fiscal consequences of an investment (Grzywacz and Okońska, 2008, p.52-52).

Direct investments

Direct investments create a so called non-formal market of private capital, which is not accurately regulated. There can be found investments undertaken by individuals or groups of individuals in the form of purchasing shares or stock shares of enterprises with high growth potential that are highly risky at the same time. Usually such investors are relatives and friends of the entrepreneur who searches for capital; these investors have emotional connections with the entrepreneur. Another group of investors are people who have access to big funds and have enormous experience in business. Subjects who supply capitals in the non-formal market are called informal investors or business angels (Pruchnicka-Grabias, 2008, p.63). They are private investors who were usually successful as private entrepreneurs or as managers in corpora-

tions. They would invest their own experience in business and financial resources as a support for new interesting business ventures in hope to achieve reasonable rate on return. They are attractive due to their great flexibility and pragmatic attitude (Cieślik, 2006, p. 142). A business angel can be won at every stage of development of an enterprise, however, they are mainly interested in so called start-ups. Business angels' investments are directed towards seed stage and the first stage, that is start-up. These stages involve the business angel's great engagement because there is a significant risk of losing financial resources. Amongst disadvantages of business angels can be indicated: quite high cost of capital received (a business angel obtains company's shares and takes advantage of profit-share benefits) and intervention into the company's work, what is, especially in Poland, hard to be accepted by stakeholders. Advantages of cooperation with business angels are as follows:

– a chance to receive capital for high-risk business ventures,
– the business angel's experience, high competences and know-how,
– being interested in commencing to collaborate with other formal investors,
– increase of credibility of an enterprise,
– the business angel's contacts and agreements with the enterprise's potential partners and customers (experts, suppliers, financial institutions),
– increase of the enterprise's equities (business angels' investments are not long-term ones) (Bielawska, 2009, p. 194-196).

The institution of a business angel in Poland is only just formulating and evolving. Indigenous business angels are usually active entrepreneurs, not necessarily very rich ones, however, they are interested in developmental branches such as IT, biotechnology, telecommunication or advanced services. In Poland operate following networks of business angels:

- Lewiatan Business Angels (LBA)
- Polska Sieć Aniołów Biznesu PolBAN (PolBAN – Business Angels Club)
- Silesian Business Angels Network (SilBAN)
- Lubelska Fundacja Rozwoju (Lublin Development Fundation) – at the stage of organising (Pruchnicka-Grabias, 2008, p. 64).

Indirect investments

Indirect investments consist in acquisition of participation entitlements of venture capital funds, similarly to traditional investments. An investor is not engaged directly into investment process, for this purpose he takes advantage of an intermediary, that is a special financial institution - the fund. The intermediary allocates collected resources on his behalf but for the benefit of investors. These institutions have high-qualified personnel and they work at: searching for interesting enterprises by analysing their chance of success, supporting the enterprise in management and divesting resources. Investing by proxy of such an institution is less risky than direct

investment, since the funds invest in several projects at the same time. A structure of a venture capital fund is usually based on the scheme which consists of four elements: total capital, investors, a managing subject and an object of investment. Total capital consists of resources allocated by the investors in the fund. Amongst the investors can be indicated: insurance companies, banks, pension funds, big companies, individuals and public institutions. Resources collected from them are managed by a managing subject whose main goal is to accrue the mandated total capital by allocating it in selected enterprises, which are objects of investment, on the condition that the objects of investment fulfil specific investment criteria. According to the way of accumulating capital and the level of variability of the participants the venture capital funds can be divided into close-ended funds and open-ended funds, which are also called trustee funds. In a closed-ended fund capital results from selling shares to the investors. Number of issued shares is at the stable level, which means that there is no permanent resources inflow. On the other hand, open-ended funds gain capital by issue of share units number of which changes together with the change of demand for them and this results in constant variability of the fund's capitals (Pruchnicka-Grabias, 2008, p.68).

Terms and strategies of obtaining a chance capital

Venture capital funds are ready to invest into companies of different branches or regions being at different stages of development, yet, in every case it needs to be an enterprise that has solid perspectives for dynamic growth. That is why venture capital investors search for entrepreneurs that (MGiP, 2005, p. 12),:

- Have a good management,
- Have a better service/product offer than the competition or have the technological advantage,
- They work on a raising market,
- They have a significant share of the market,
- They develop faster than their branch.

Venture capital funds investment process stages are to be listed as follows:

Stage I: Development of the fund's idea

1. Choosing the organisational and legal form.
2. Establishing the investment strategy (business sector profile, geographical range, investments' types).
3. Gaining the main investment partners (managers). Such people usually derive from the investment banking or either enterprises of the domain of production or service.
4. Obtaining capital from the investors (insurance funds, pension funds, enterprises, banks, business angels).

5. Obtaining attractive portfolio companies in a defined business sector range (Szablewski and Pniewski and Bartoszewicz, 2008, p. 298).

The beginning of the process that would end with obtaining venture capital starts with a clear and precise definition of the enterprise's potential, its market terms and needs for capital. Propositions for a venture capital investor should be prepared properly. A basis for negotiations with a possible venture capital investor is a description of a company and of an undertaking. Usually venture capital funds expect a business plan, although some of them are ready to take into consideration a simpler document. On the other hand, others require additional financial projections or a business model, etc. No matter which of these situations it is, the material presented should introduce the company – its history products, owners, competition, position in the market, developmental strategy, but also its business results and prognoses as well as needs for capital and professional experience of the main shareholders and members of the board of directors. Venture capital investors read the business plans very thoroughly. A significant part of the non-realised projects is being thrown away at that very stage. When preparing a business plan one might benefit from a consultant's assistance, however, the members of the board of directors should be involved in preparing the business plan (Szablewski and Pniewski and Bartoszewicz, 2008, p. 298).

Stage II: Selection of business plans/portfolio companies

1. Detailed analysis of the chosen projects (due diligence).
2. Negotiations and projects of investment stages.
3. Capital investment.

If the project passes through the initial stage of the analysis the most frequently the venture capital investor submits further questions and asks for additional information. Subsequently this is a moment for meeting of the board of directors of the company with the representatives of the fund - the project is initially approved and both sides start to make it more precise. The investor runs a deepened analysis of the enterprise including business analysis, financial audit, legal audit, organisational analysis, sometimes also analysis of technology or environmental protection, what requires a lot of detailed information and its confidentiality is guaranteed by the fund. If the fund realised that the enterprise is suitable for investment and an agreement on developmental plans of the enterprise were accepted, then next stage would start, these are: negotiations, i.e. the point when the management of the company and the investor establish conditions of the investment. Particularly the thing is to define for both sides: shares, responsibilities, rights, representatives in the supervisory board or the rules of managerial options etc. and - what seems to be the most difficult part of the negotiations - to establish the price of the investor's acquiring the particular share in the created company. These negotiations are usually conducted parallel to due diligence. In fact, the draft of the most important conditions and ex-

pected price of the transaction are included in the agreement between sides involved at the early stage of due diligence negotiations.

Stage III: Managing the value of the portfolio companies

1. Participation in the supervisory board.
2. Constant verification of the investment's results.
3. Recruiting the key-management.
4. Strategic advisory.
5. Support in searching for additional financial resources.

When the negotiations and due diligence finish successfully then comes the time to approve the agreement. Investment funds usually have a special organ, so called investment committee. It is the committee who makes the final decision on investment. This is the basis for signing the agreement and transferring capital to the enterprise.

Presented process of investment usually lasts several months. After signing the agreement the venture capital fund invests the money, nevertheless, it does not stop providing the enterprise with support. Decision of capital involvement into the company is considered by the fund as the beginning of a long-term cooperation which should be based on mutual trust and respect for the partners' interest. Usually the fund is represented within the company by their representative or by representatives in the supervisory board. The fund observes current work of the company, achieved effects and supports the board of directors in strategic issues by providing them with the fund's knowledge and experience or hiring experts in finance, marketing, strategic management or personnel management.

Stage IV: Exiting the investment

1. Exiting the investment (managerial buyout, first public offer, liquidation, mergence, selling the company).
2. Gaining financial profit.
3. Closing the fund.

After few years, when a company develops according to expectations, a fund approaches the stage of exiting the company, i.e. to the stage of the disinvestment. According to the fund's policy, company's character, business sector and situation in the market – it happens usually after 3-7 years, although there are sometimes cases of longer or shorter investments. The exit strategy is to be agreed during the initial negotiations and might range from stock issue at a public market or obtaining a business sector investor or another financial institution. It might also be realised through repurchasing the stocks by the company's management board, other shareholders etc. Exiting the investment might be realised in subsequent stages or as a one-time event. Venture capital fund leaves the company and realises the profit.

Ending the cooperation with venture capital

There are a few possibilities of ending the cooperation with a venture capital fund:

1. Selling shares to a sector investor

This method of ending the cooperation with a venture capital fund happens through the sales of a defined block of shares or all the company's shares to an investor who is within the business sector. An entrepreneur needs to take into account the investor's motives do buy, i.e.:

- Intending to increase the participation in the market – in such a situation a sector investor the most willingly would take control over a customer of the highest market share who offers a product range the closest to the one he/she is offering.
- Willing to broaden the offer, a business sector investor searches for an enterprise that would have a complimentary offer,
- Diversification of activities by entering a new market; in such a situation a company that is being overtaken should make sure that a new investor knows and understands differences between the markets of the companies. It is necessary if the relation with a potential investor is to be profitable.

This method of exiting the investment is one of the most profitable and one of the most often realised strategies. It usually ensures the highest return on investment, since a business sector investor is more willing to pay a bonus to the public market valuation. The basic advantage of this strategy of investment is a stock liquidity since the business sector investor gives a possibility to sell off the whole block of shares that is owned by the fund and the entrepreneur paying a given, quite often relatively high, price. Business sector investor is usually interested in taking over the whole company or at least the controlling block of shares. Te benefits that the entrepreneurs tend to see in such an exit mechanism are:

- Possibility to realise the profits through the resale of the part or of all of one's shares,
- A chance to gain access to the assets of a business sector investor – research and development of new products,
- Technology, suppliers, distribution channels and the market for the company's products,
- Access to *know-how* (strategic management or marketing strategy).

2. Making a portfolio company open-traded

A fund introduces a portfolio company to the stock-exchange or to a regulated OTC in order to sale its shares. This process includes open-trading the block of shares in public offering and gradual sale of the remaining shares at the stock market. Many entrepreneurs consider this method to be the best since it allows to keep control over the company and gives a possibility to realise personal profit through selling part of the shares. The public market provides a company with prestige and

trustworthiness; it also facilitates access to capital when a company needs assets for further development. A basic flaw of this method of ending the investment is a low stock liquidity. Both the entrepreneurs and the owners of a fund possess significant block of shares; it means that they usually cannot sell everything in a public offering since the main goal of appearing on the public market is acquiring capital for additional shares by the company through issue of new shares. If the shares already existing were a too big part of the offer, the company would not benefit from the stock market investors significant interest. That is because the investor's money would not reach the company and would not work on increasing its value.

3. Resale of shares to a finance investor

Finishing the cooperation through sales to a financial investor makes sense when it comes to companies of a high growth potential who are not yet mature enough to enter the stock market or to sale to a strategic investor. Keeping the stocks too long significantly decreases the investment's return rate. At that point sales to a finance investor (usually a different fund) is profitable. Thanks to such a transaction a fund is able to give the assets back to its investors and the entrepreneur and the board of directors are able to keep building the company's value. In our country such transactions do not happen often, however, in Western Europe, it is a more and more popular way of exiting an investment.

4. Resale of shares to the board of directors or to other owners

There are situations when entrepreneurs who gain financing from a venture capital fund wish to regain total control over the company when the fund exits the investment. Then they would aim at repurchasing the company's shares from the fund. It happens in a similar way when the shares are bought by the team of managers who manage the company, yet, who were not the owners of any of the company's shares before. In both of these cases the source for financing the transactions is another capital fund or a bank who gives loans to such transactions.

5. Redemption of the fund's shares

Redemption makes it possible for the initial founders to regain control of the business. It is not an easy solution. Main difficulty is the necessity to earn by the company reasonable profits (resources) that would finance the redemption. The fund may also be unwilling to end the cooperation this way. In such a situation it is possible to cash, that is bonus for control. Then there is also no tender between buyers. Despite these weaknesses the redemption seems to be a better solution than selling shares to the founders (Tomanowicz, 2004, p. 53).

6. Liquidation

Liquidation is caused by bankruptcy of a portfolio company or by proceedings for an arrangement with creditors. This way of exiting the investment ends the fund's engagement in the enterprise but the most frequently it also does not give any outcomes, since the sum received from the liquidation of assets is usually devoted to paying the financial obligations.

Characteristic features of venture capital funds

Particular utility of venture capital funds for the innovative enterprises results from certain specific features of this particular form of financing. Amongst them can be listed as follows:

- Long-term investment character that results from connecting the investor's profits with a company's long-term value. It gives the relations fund-company a partnership character and limits a risk of capital withdrawal when facing financial problems of difficulties with realisation of innovative projects;
- Equipping a company with its own capital realised by shares. It reconstructs a balance sheet of the enterprise, increases its credibility and decreases financial risk of operations controlled by the company;
- Providing a company with know-how on management and strategic planning as well as with a business contacts network that might allow to obtain efficient managers, brilliant scientists and to build own market relations in a cheaper, faster and more efficient way;
- Catalysing a company's development through facilitating access to market research and increasing budget on company's own scientific and developmental activities that fasten the course of adaptation processes in the company and make it more flexible when it comes to market changes.
- Giving a company an image of an innovative, pioneer subject that would shape a technological and technical progress, picturing it as trustworthy what has a particular significance when it comes to an enterprise that would introduce a new service or a new product in the market (Świderska, 2008, p. 43).

One of the venture capital investment features is a possibility to adjust it completely both when it comes to a kind or value of financial instruments applied and when it is about the period of time during which this investment tool would be applied to the enterprise. Venture capital fund investments are treated as the company's liabilities, as a capital and not as an obligation. It is caused by the funds' risk since no collateral neither in possessions nor a personal one is required, as it happens when gaining capital from a bank. Therefore a division of risk concerning investments between the enterprise and the venture capital is important. Additionally, the fund, in order to decrease the risk, becomes engaged in management in a direct way. In practice it means that a beneficent is obliged to present the investor periodical finan-

cial reports, information on realisation of plans, on sales and on investments. Usually a fund also requires to be informed immediately when important changes of financial or market satiation appear. A characteristic feature of financing undertakings by venture capital funds is the funds' consulting activities. It is supposed to be seen through the increase of company's value. Venture capital funds' consulting might range to different areas of the enterprise that is shared. An investor might help through: personal advising, financial, technical, legal consulting, through intermediating during contacts with foreign customers, through market research. It is to be underlined that funds' consulting activity has also negative consequences. These are the high costs of hiring experts and weakening the enterprises' initiative. The fact of existence and active functioning of the venture capital market has a significant meaning for stimulating the entrepreneurship in the economy (Szelągowska red., 2007, p. 429).

Every entrepreneur who thinks about the possibility of financing his/her business with the assets coming from venture capital funds should also take into account all the arguments in favour or against such a solution. He/she should also consider those demerits and advantages from the point of view of his/her possibilities, expectations and needs. However, usually the benefits from venture capital fund investments are bigger than the limits that result from that fact and they influence in a positive way the competitiveness of the companies enforced by this form of capital (Grzywacz and Okońska, 2008, p.159).

Advantages of venture capital

When discussing the advantages of venture capital funds one needs to point out few categories of the positives (Grzywacz and Okońska, 2008, p. 154).

1. The main advantage of venture capital is the possibility to finance even very risky and innovative projects which could not be realised in any other way (it concerns the early stages of the company's development).
2. Venture capital type funds are active investors, i.e. they take active part in working out and realisation of the strategy and management of the finances. Their existence is connected with monitoring of the enterprise's activity, especially when it comes to the financial results. The investors become the company's associates. The basic formal levels of cooperation between a venture capital fund and a company are the supervisory board and the board of directors. The new shareholders also participate in the investment risks together with the other co-owners of the enterprise. Their goals are identical with the goals of the other co-owners and the company's management: the development of the company and a significant increase of its value. This type of funds is of a patient and experienced investor. He tries to help the company when it gets into trouble. The main areas of cooperation with the company and the help provided by the fund are:

– help with creating the company's strategy, business plans and financial plans;
– counselling in preparing investment plans;

– capital restructuring, support in transformation of organizational structures;
– help with the choice of staff;
– support in contacts with financial institutions;
– help in the expansion abroad (the funds often have experience in the international financial markets);
– sectoral expertise;
– participation in searching for investors and support in negotiations with potential investors, help with gaining additional financing sources (part of the venture capital funds are the companies belonging to the banks);
– creating a marketing strategy;
– counselling when making the company go public;
– help with developing relations and gathering important data concerning the market;
– access to business information possessed by the fund, the profits might also come from a particular shape of the investment portfolio that could include the companies that provide/produce commodities that would be complimentary or might be providers/receivers of other controlled companies;
– enforcing and strengthening the company's market position;
– when a need appears – proposing sector specialists that would cooperate with the enterprise's managerial staff in order to exploit the company's potential;
– serving with a friendly advice and a trusted person.

3. The fund as an investor influences also the amelioration of the enterprise's image; it goes this way because the investments show the external subjects that:
– a significant investor believes in a company and the technologies it applies or concepts it realises;
– managers of an enterprise are properly motivated to manage the company in a good way;
– a significant investor will control, to the proper extent, the activities of the company's managerial staff;

4. Venture capital investment influences the amelioration of the relation of debt to the enterprise's own capital and increases its credit capacity and benefiting from the fund is not charged with paying the interests.

Disadvantages of venture capital

Financing an enterprise through venture capital funds has also certain disadvantages that can be gathered around few negative issues:

1. Venture capital funds are one of the most expensive financing forms available in the market. At the beginning it might seem that it is a cheap source of finances since no interests need to be paid. However, when such an operation becomes successful, often an afterthought appears stating that a fund had bought shares in a great enterprise too cheaply and that if a bank loan would had been taken instead of benefiting

from venture capital, neither the company nor the profits would be shared. Yet, it remains to be through that the capital cost will be high only when successful. An entrepreneur should think it through whether he/she prefers to have a small enterprise only to himself/herself or whether he/she would prefer e.g. 60% of a big company.
2. Necessity to share the worked out profit and power causes the most unwillingness of the owners of the small and medium enterprises who tend to be strongly connected to the company they owe. That is way, not taking into account the judgement on the entrepreneurs' concerns rationality; the presented issues are to be concerned as disadvantages, no matter all the positive operation that can be assigned to cooperation with an investor.

Since the fund does not really have a possibility to withdraw the assets invested in an enterprise during the period of few years, instead, it expects not only information but also the possibility to influence the course of events in the enterprise. The CEO who supports and advises (also at an informal basis) is a partner of the company's management. Additionally the fund frequently stipulates a right to influence the company's important decisions, e.g. those concerning signing contracts of a significant value, judgement of the process of realisation of plans, accepting annual budgets, selling company's assets, choosing the auditor, plans of a merge with other subjects, being overtaken by a different company. The company needs to be ready to accept a presence of the fund's representative and losing some control that results from the amount of shares of the company. Fear is deepened by the fact that inviting the venture capital investor, even when selling just a minority shareholding, frequently ends with a mutual sale of the enterprise both by the entrepreneur and the investor after a period of few years. Venture capital is not the best idea to gain a capital for those companies that are owned by one family for generations.
3. he temporary character of the capital engaged by a venture capital fund is frequently regarded as a flaw. It does not matter much to the entrepreneur if he/she works out the exit terms with a fund in advance. A negative quality, when it comes to the capital's rate of return, is the fact that the assets invested work rather on behalf of the fund and not the entrepreneur.
4. An additional flaw, when a fund exits an investment through the stock market, is the valuation of shares that is lower than the one made during the public offering.

Conclusions

Venture capital is a high risk capital. These funds are defined as one of the institutions of the capital market that finances new business undertakings or provides undertakings of a significant growth potential and low level of economical maturity with financial assets. The core of venture capital funds' functioning is to support management, to create a founding base and the growth phases of new innovative undertakings – all that through providing them with financial resources and possible

management consulting. Economic sense of venture capital is expressed by providing a company, that is in a phase that precedes introducing a product in the market, with capital that would be free of interests and with improving the structure of the company's passives. Indirectly it has a positive influence on a chance of obtaining an additional bank loan. Venture capital company excludes risks by a proper structure of the shares portfolio and by compensating losses in certain undertakings with high profits coming from the other projects. Presence of three factors at the same time is a distinguishing feature of this financing method:

- Venture capital company equips a company in an innovative way with own capital that comes in a shape of shares, it does not require commonly used guarantees or interests,
- Venture capital company is obliged to help with managing the company,
- In a medium and long time horizon the shareholders aim at obtaining high profits by selling the shares when the enterprise becomes successful in the market.

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CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 71-77

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ORGANIZATIONAL AND METHODOLOGICAL ASPECTS OF THE AUDIT OF INNOVATIVE PRODUCTS

Abstract

Nowadays intellectual property or modern innovative product is one of the main wealth of human society. New ideas, approaches, innovative products in the form of modern techniques and technologies are important tools which advance the society. The changes, modernization of society and achievements of science in the production processes give an opportunity to increase the amount of innovative products.

This requires working out and development of methodology of accounting system and audit for the perspective of innovation activity. This study examines the features of accounting and auditing process of innovation activity. The programme of auditing process of innovation activity is performed.

JEL Classification Code: **O3, O31, O32.**

Keywords: intellectual property, innovation activity, innovative product, expenses for innovative products.

Introduction

It is widely recognized that intellectual and innovation property and their sources such as intellectual and innovation activities play significant role in the development of every human society. Types of intellectual and innovation properties are affluence which reflects the potential of the society in science, technics, spirit, education and etc. Their importance in separately taken cells of society such as enterprises, organizations gives incomparable advantage in the development of this entities. Because

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the types of these properties might be one of the main sources of income. All of these aspects indicate the reasonability of characterization of all types of intellectual and innovation properties as important objects of accounting. However, if we summarize mentioned opinions, according to several reasons intellectual and innovation properties as well as their sources such as intellectual and innovation activities are not accounted in the system of accounting and financial statements, and not taken into consideration in audit either theoretically or practically. Hereinafter we approach to find solutions for these problems.

First of all, in our opinion, we should clarify the definition of „intellectual property" and its source as „intellectual activity". Recently it is widely accepted to admit intellectual activity as „innovation activity" and intellectual property as „innovation product", respectively. There are several arguable definitions and approaches in literature.

Objects of intellectual properties are separate objects of civil law. Intellect is a term used in studies of the human mind[4].

Innovation activity occurring in precise time and place includes several processes. This processes are R&D, experimental production, experimental and constructive processes, etc.

As a place of innovation activity where it is created intellectual (innovative) property will be the exact cells of society such as research organizations, enterprises and organizations, families and single individuals. Intellectual (innovative) activities are carried out by labor communities or single person of the cells of society. Intellectual (innovative) property as a result of the intellectual (innovative) activity will be intellectual (innovative) property of labor communities or single person. As a time condition of innovation activity related to create intellectual (innovative) property will be the time, such as year, quarter or month which was spent to create those intellectual (innovative) property. According to recognition, valuation, accounting criteria quantity and quality of intellectual (innovative) property and intellectual (innovative) activity will be reported in statements.

As a rule intellectual property has a intangible form. But its result will materialize. Materialized form of intellectual property which was applied to economical and social life will be reflected in new technics and technologies, in new products. As a immaterialized form of intellectual property it will be new created ideas, new technologies, new services, new software, new projects and etc.

It should be mentioned that immaterialized form of intellectual property might be named as intangible property. Intangible property, created as a result of intellectual activity, is included into personal assets. That is created intangible property moves from one place to another, from one person to another.

[4] Comments to the second part of civil code of Republic of Uzbekistan. Volume III. Tashkent.: „Iqtisodiyot va huquh dunyosi" publication house, 1998. – p. 20.

As a creator, consumer, object of intellectual property will be appeared human being and like other wealth intellectual property may be more or less. Presently, it is not developed the precise measure unit for this wealth. However, according to national potential of state, nation and society, the intellectual property can be valued.

If we summarize all opinions, we consider that intellectual activity and its result such as intellectual property in precise place and time might be recognized as objects of accounting. And this is an objective necessity. Therefore, we think that it is necessary to elaborate the definition of all mentioned terms, and include these definitions to the theory of accounting, to textbooks and tutorials. In our opinion, as objects accounting we offer to give the following definitions to those terms:

- **Intellectual (mental) activity** is a process of creating new idea, conception, the way of creating new product and services.
- **Intellectual property** is a property which resulted from carrying out intellectual activity in a precise place and time.
- **Innovation** is a special activity related to creating, mastering and applying of new ideas and developments for the purpose of updating and development the process of production and services in different cells of society.
- **Innovation activity** is a complex of processes directed to creating of new ideas and developments for updating of material and technical basis of production and services.
- Product innovation is a continuous and cross-functional process involving and integrating a growing number of different competencies inside and outside the organizational boundaries. Simply put, it is the process of transforming business opportunities into tangible products and services[5].
- **Innovative product** is created or improved materialized and immaterialized property as a result of conducting innovation activity. Innovation product in the form of materialized property is new technics, new product, new goods. Innovation product in the form of immaterialized property is a new created idea, new technology, new software, projects and etc.

It is necessary to add that intellectual and innovation property is strongly interdependent with each other.

If we analyze deeper of their evolution, innovation property derived from intellectual labor. Further it is shown the interdependence of processes related to the forming and using of these properties (Figure 1).

[5] Cooper , R.G., Edgett, S.J., Kleinschmidt, E.J., Portfolio Management for New Products Addison – Wesley, Reading, MA. 1998.

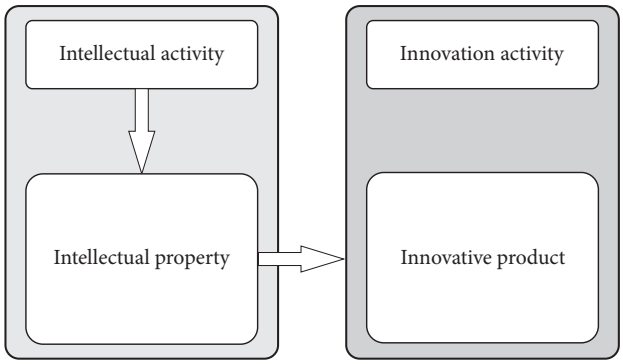

Figure. 1. The evolution of processes related to forming and using of intellectual and innovation properties

The most important means for increasing intellectual wealth are science and education. The participants in this processes are professors, teaching professionals and scientific groups who work in educational and scientific institutions.

Research scientific work is an activity directed to obtain new knowledge. In turn this activity is divided into fundamental research and practical research.

Fundamental research is experimental or theoretical activity directed to study the main rules of structure, existence and development of human being, society and nature.

Practical research is a research directed to the application of new knowledge for achieving practical goals and solving of concrete tasks.

Scientific and technical work is an activity directed for obtaining and applying of new knowledge for solving technological, engineering, economical, social, humanitarian and other problems.

Experimental development and design project work is process of testing of new knowledge obtained by research or practical experiments. This process gives an opportunity for improvement of new knowledge and practical skills in creating new material wealth, processes, installations, services, system or methods.

There are several types of innovation activity. Because enterprises may lead this activity by themselves or by inviting special organizations which is involved in carrying on scientific (research), technical or experimental development and design projects.

Innovation activity involves several levels. Below it is shown interdependence of these levels (Figure 2).

Innovation activity according to its meaning is a structural part of internal investments. In turn, besides investment processes internal investments include processes such as capital construction, buying of new techniques and technologies, modernization, extension, reconstruction of existing production powers. Therefore internal investment activity is a broad conception, and innovation activity is rather narrow

conception. Fund directed to innovation activity are part of total capital investments which is related to adoption and applying of new ideas, new products and services.

it is necessary to underline that in the economic literature, for example in textbooks and methodical grants of a problem the account and audit of innovative products are not displayed in enough. It in practice somewhat gives rise to difficulties to auditors. Therefore, we will more low stop on some organizational and methodical aspects of carrying out of auditor check of innovative products.

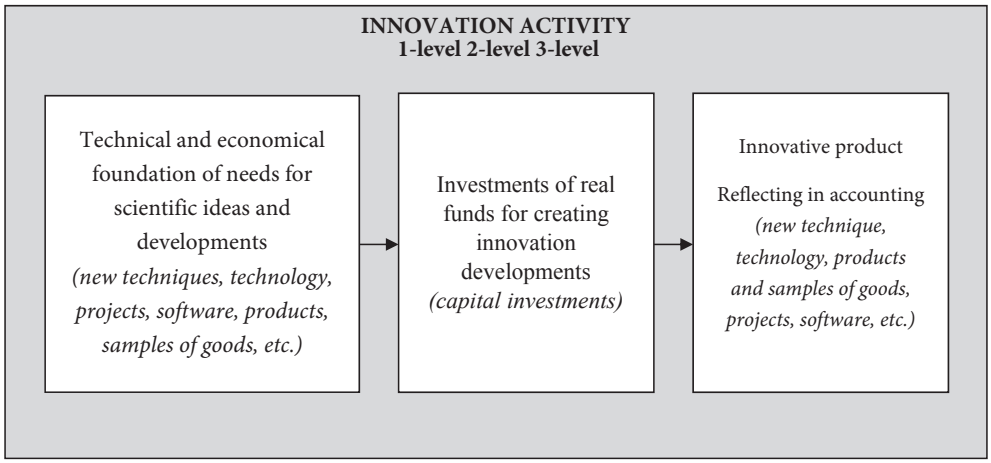

Figure. 2. Processes forming of innovation activity

Innovative product is the final result (result) of innovation. **Innovative product** – the tangible and intangible property resulting from innovation.

New equipment, new product and new goods is an innovative product obtained in the form of tangible property.

Created new idea, a new service, new software, and other projects is an innovative product in the form of intangible property (Figure 3).

Innovative product is one of the peculiar objects of accounting and auditing. These basic properties can include the following issues:

Firstly, the cost of innovative products, which spent entity. Within the meaning and nature of the costs of innovative products are added to the cost of released products (works, services), so these costs are not recorded in the accounts in «Primary production", which reflects the cost of production.

Secondly, the cost of products may give the innovative profit for the next period, instead of on the same or vice versa - and the costs cannot give gains even in the following periods. Therefore, it is advisable to show the costs during the report on innovative products in the account «Costs of the next period" until obtaining economic results.

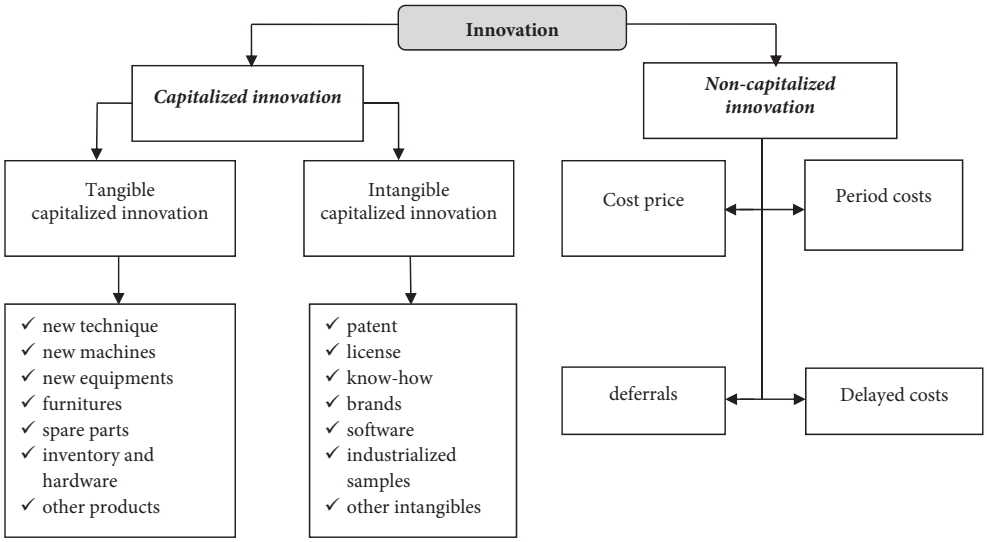

Figure. 3. The general view of final result of innovation activity

In the third, expenses for innovative products by results of following achievements can be recognized in the form of an active or a period expense subjects of leaders household activity. In the first case of an expense collected on account «Expense of a following period» of by the form received result can be translated into the accounting account appointed for display (to display to display) this or that active and should be written out from the account. If expenses for innovative materials are not recognized as an active or not possibility to define, they should be recognized as period expenses. In this case, expenses collected on account «Expenses of the future periods» at first the period will be transferred into account – «period Expenses», by such way will be found (thus) from the account

In the fourth, expenses spent for innovative products make the cost price of innovative products. The cost price of innovative products includes the following articles on expenses:

- A salary to employees calculated for participation in creation of an innovative product and other payments
- Cost raw materials and materials spent on innovative products;
- The sum of ageing of the main means, non-material actives, cheap and quickly growing old things which have been used in creation of an innovative product;
- Other additional expenses connected with an innovative product.

"**Regulations on the part of the cost of production and sale of goods (works, services) and on the formation of financial results**[6]" According to the Charter about structure of expenses, expenses connected with sale of innovative products are not included into the cost price of these products, and pays off from the profitable account of the general economic activities as expenses of the period of managing subjects.

In the fifth, expenses for innovative products and expenses not recognised as an active will be written out from the account at the expense of the gross revenue of managing subjects. Here therefore these expenses be direct should are considered for surtax calculation. According to the code operating since 2008 expenses spent for innovative products will not be subtracted from base of the taxation during the accounting period. But they in regular intervals should be found in the future during profitable service life from base of the taxation to define to defined time. If this term is not defined, is found within 10 years.

The above-stated and other property testifies about great value of conducting the correct account, and also strict control innovative products.

One of important conditions of carrying out of audit of innovative products is a presence of questions for check of this object (**on this object**), their correct drawing up, exact definition of degree of auditor risk and the coordination of the client with the director in the auditor plan and the program of auditor check.

Innovation audits can help managers and decision makers improve their product innovation process[7].

Not conformity of the auditor plan and its program of carrying out to these requirements can lead not enough effective check of process of formation of an innovative product by auditors and their assistants, accordingly, finally can lead to increase in auditor risk.

In literatures and standard documents the program of audit of innovative products is not resulted. For this reason we (**from authors**) develop the author's project of this program. It is shown in table 1. In our opinion, carrying out audit of an innovative product at the heart of the offered program can give chance to the permission of the problems set forth above.

Table 1. The program of auditor check of innovative products

The auditor organization _____
The client enterprise (the enterprise of the client) _____
Term of carrying out of audit _____
Date of carrying out of audit _____

[6] Approved by Decree N-54 of the Cabinet of Ministry of Republic of Uzbekistan on 5.02.1999.

[7] Patterson, M.L., (1998). From experience: linking product innovation to business growth. Journal of Product Innovation Management 15, 390-402.

The responsible auditor _____
Degree of auditor risk _____

	Checked questions	Result of achievement
	Existence of documents on necessity of scientific ideas and operating time (the new technics, technology, projects, programs, a product, samples of a product and others) proved from the technical and economic side.	To recognize existence of documents on necessity of scientific ideas and operating time (the new technics, technology, projects, programs, a product, samples of a product and others) proved with the technical and economic side.
	Existence of documents (the agreement, the contract, offers and others) which can be proved for allocation of a real money resource (the capital investment) for creation of innovative products.	To recognise existence of documents (the agreement, the contract, offers and others) which can be proved for allocation of a real money resource (the capital investment) for creation of innovative products.
	Existence of documents (the agreement, the contract, offers and others) connected with manufacture of an innovative product (the new technics, technology, projects, programs, a product, samples of a product and others).	To recognise existence of documents (the agreement, the contract, offers and others) connected with manufacture of an innovative product (the new technics, technology, projects, programs, a product, samples of a product and others).
	Conformity of an order of display of the account of innovative products on accounts with is standard-legal documents.	To recognise conformity of an order of display of the account of innovative products on accounts with is standard-legal documents.
	Existence of the report of innovative products and their real drawing up	To recognise Existence of the report of innovative products and their real drawing up or to define deviations
	Correct formation of the cost price of innovative products and their correct conducting	To recognise correct formation of the cost price of innovative products and their correct conducting or to define deviations
	Timely conducting the income innovative products and correct registration of the warrant of cash desk of the income	To recognise timely conducting the income innovative products and correct registration of the warrant of cash desk of the income or to define deviations
	Timely conducting the expense innovative products and correct registration of the warrant of cash desk of the expense	To recognise timely conducting the expense innovative products and correct registration of the warrant of cash desk of the expense or to define deviations
	Timely and correct conducting the storehouse report	To recognize timely and correct conducting the report of storehouse or to define deviations
	To write out from the account the expenses, spent for innovative products both not recognized as an active and display to accounts instead of the gross revenue of managing subjects	To recognize written off expenses, spent for innovative products both not recognized as an active and display to accounts instead of the gross revenue of managing subjects or to define deviations

Conclusions

The main properties of audit of innovative products that initial documents, calculations, accounting records should be checked up without exception. Also, before check carrying out self-manual documenting concerning creation of innovative products, their account and display in the account, correct definition of properties of material and non-material (intangible) kinds of innovative products and their correct estimation are an overall objective of auditors. Full performance of these works, here strict observance to standard documents is a guarantee not to increase of auditor risk.

In our opinion, observance of the order set forth above at performance of audit of innovative products is of use only both to auditors and their clients.

We consider that it is necessary to create National Audit Standards in compliance with International Audit Standards and add accounts to card of accounts (the 21st National Standard of Accounting of Republic of Uzbekistan) which take into consideration innovation activity and its result such as innovation products.

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CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 71-77

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ECONOMIC EFFECTIVENESS OF ENTERPRISES PRIVATISED THROUGH 'EMPLOYEE LEASING' IN THE LUBELSKIE VOIVODSHIP

Abstract

Present results of research on the assessment of economic effectiveness of enterprises privatised through 'employee leasing' in the Lubelskie Voivodoship is the main objective of this article. The essence of economic effectiveness and way of measuring economic effectiveness (effectiveness measure) are presented in the article. Also in the article shows the most important research, with particular regard to the level of economic effectiveness of enterprises privatised through 'employee leasing' in the Lubelskie Voivodoship.

JEL Classification Code: **O3, O31, O32.**

Keywords: economic effectiveness, a measure of efficiency, privatization.

Introduction

Any organized activity is associated with continuous, repeating the process that involves conversion of resources purchased in order to obtain certain effects (selling services, products, goods).

The accomplishment of this repeatable process requires accumulating the source of finances best at a point of view of the entrepreneur (capital) which are being converted inside the enterprise through the purchase of supplies into determined results.

Already in 1916 one of precursors of management studies Henry Fayol in one's work under the title 'Industrial and general administration' distinguished activities financial, including 'seeking capital and trades in them' as one of important functions of the enterprise.

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The enterprise should finance its activity with proceeds obtained from the sale of its products, goods and services (the principle of self-financing). Hence, it is essential that the disbursement of funds and conversion of assets should bring the best benefits, which are measured as a relation between obtained results and incurred expenses (effectiveness ratios).

In layman's terms 'effectiveness' is a way of operation that brings the best (or expected) results. In case of companies, effectiveness is more formalized, especially if we use the concept of effectiveness in the economic context, where we have methods and tools necessary to assess economic effectiveness of an enterprise and describe it by means of ratios and indices. Effectiveness is therefore a relation of outcomes to costs, and the ratios answer the question what profit is generated from the outlays made. This relation usually takes a form of a simple formula with a numeric result which describes the effectiveness rate.

Undoubtedly, in addition to a social purpose, privatisation of state-owned companies was meant to increase effectiveness and efficiency of the transformed enterprises, thereby leading to a better use of their resources.

Due effectiveness of an enterprise is the most important factor determining the success of the enterprise on the market, and consequently contributes to the success of the economy of the whole country. Although individual countries set different goals and challenges for their companies, effectiveness of economic activity is undoubtedly a crucial objective, because in the long run it determines the efficiency of the country's economy.

To sum up, one of the key conditions for development of business enterprises is providing them with adequate capital resources and ensuring effective use of the owned assets in the processes realized by the company. Every enterprise should endeavour to:

– increase effectiveness of its operation (effectiveness),
– maintain financial liquidity (solvency).

Management of an enterprise should be conducted in a reasonable and rational way. In other words, it should maximise effectiveness while maintaining a safe level of risk and in turn lead to achieving the fundamental goal of the enterprise – the rise of its market value. Company's effectiveness, particularly in the current economic situation, is the essential mechanism ensuring success of any business activity.

The main objective of the thesis is the assessment of economic effectiveness of enterprises privatised through 'employee leasing' in the Lubelskie Voivodship in the years 1992 – 2009. In cognitive terms, this research will also result in a formulation of a financial model of a privatised enterprise that includes economic effectiveness.

Effectiveness of enterprises - the essence and principles of measurement

The category of the effectiveness is a basic evaluation criterion of every sphere of the human activity. An effectiveness is a result of taken action, described with relation of get effects up to the incurred expenditure. An effectiveness is a quantitative feature of action which is appointed as the relation of functional effects get in the certain time and aiming at satisfying the needs for the recipient and the expenditure (of stores) necessary to achieve this effect carried in the certain time. The measurement of the effectiveness can concern specific proceedings, processes, subjects, persons. The effectiveness in conditions of the changeability of surroundings is a guarantor of lasting and the development of enterprise.

The effectiveness is often defined by different expressions as which we recognize the profitability among others, productivity, productivity, effectiveness, cost-effectiveness, efficiency of action, profit. With reference to the above one should notice that the effectiveness is an ambivalent and differently interpreted notion, because can refer both to persons, subjects, given action, organization, economy, you, investment, motivation. In the event of enterprises practitioners as well as theoreticians of the management think, that the effectiveness is a key to the increase in the competitiveness through the ability to the implementation of strategies and purposes of the company and the tool of the measurement of the effectiveness of the management.

In economics the effectiveness is being get out of the social welfare as 'the most effective application of stores of the society in the process of meeting gaps and the needs of people'. According to P.F. Druckera an effectiveness is a key element of the development of the human and the organization which is used for a self-realization and abilities of the modern society to survive, it is also a degree of mastering the purpose.

The economic effectiveness determines the result of taken action of the business entity (operating and strategic), and is being expressed as the outcome of the report of get effects up to the incurred expenditure. An economic effectiveness is a resultant of three fragmentary effectivenesses - of the production effectiveness, the allocative effectiveness and the distribution effectiveness which refer to individual spheres of the activity of the company. Economic dimension of the effectiveness, according to the approach from Martyniak Z. contains criteria presenting reports between effects and the expenditure, embracing:

- cost-effectiveness – quotient effects to expenditure, for example productivity, profitability,
- beneficial-ness – difference between the effect and the circulation, for example a profit.

In case of enterprises comprehending the economic effectiveness more was formalised, particularly in the area of the manner of the calculation of the effectiveness. The effectiveness is being expressed in measurable individuals what the possibility of determining the level is giving to the given effectiveness of organization. The

methodology of the calculation of the effectiveness of enterprises assumed the name of *account of the economic effectiveness*. A business activity is a sequence repeating itself of the activity consisting in incurring the determined expenditure, their proper conversion in the destination of receiving results (of economic goods or provided services). This sequence is being carried out both in the enterprise as the whole and in allocated functional areas (departments, departments) and individual undertakings (for example investment).

One should pay attention to the fact that the effectiveness analysis of the activity of the company is one of two areas (apart from the property and capital situation analysis enterprises) of financial analysis of an economic entities.

The measurement of the effectiveness consists in comparing achieved results with the expenditure, whereas way for her of carrying (methodology) figure 1 is showing.

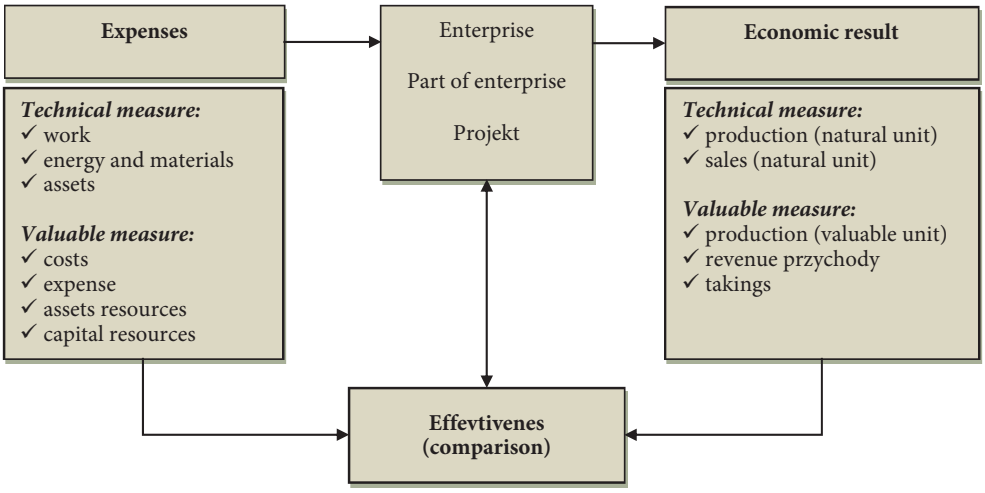

Figure. 1. Measurement of the effectiveness rules

Source: Own study

The cost-effectiveness calculation of the enterprise can be introduced in natural individuals (or conversion) and in reputable individuals. The measurement of the effectiveness in reputable individuals can be made with the help of ruthless and relative formulae of the effectiveness. Typologies of varieties come across in practice of cost-effectiveness calculations depending on accepted measures of the expenditure and results are being presented as follows:

1. Account in natural individuals (or conversion) – productivity
   a) work output,
   b) material consumption rate,

   c) energy consumption,
   d) productivity of the assets.
2. Mixed account up in natural individuals (or conversion) and valuable – cost-consuming-ness
   a) cost-consuming-ness of the production,
   b) cost-consuming-ness of the sale.
3. Mixed account in natural individuals (or conversion) and valuable – profitability
   a) return of work (on one the employed),
   b) return of the production (per unit of production).
4. Account in reputable individuals – profitability
   a) absolute formats – categories of financial results,
   b) relative formulae – return of sales, return on capital.
5. Account in reputable individuals – efficiency of action
   a) rotational-ness of assets,
   b) assets turnover.
6. Account in reputable individuals – financial effectiveness
   a) absolute formats – cash flows, economic value added EVA,
   b) relative formulae – performance indicators financial.

Described changes of cost-effectiveness calculations depict all categories come across in analysis of the enterprise of the effectiveness, that is: the productivity, cost-consuming-ness, profitability, efficiency of action, financial productivity.

The most as a whole and synthetically accounts depict the effectiveness in valuable individuals.

Research conclusions

Selection of a group included in the research is of fundamental importance as it determines the scope of the subject matter of the conducted research.

All the companies included in the research meet the following criteria:

- State-owned companies privatised through the direct privatisation – a fee-based handover of an enterprise for use
- Companies located in the Lubelskie Voivodship.

The target population determined using the aforesaid criteria was chosen on the basis of the following data:

- A list of leasing contracts for a fee-based handover of state-owned companies for use as of 31/12/2009, prepared especially for the needs of this study by the Delegature of the Ministry of State Treasury in Lublin.
- Information available from publications of the Central Statistical Office, Voivodship Statistical Office and the Ministry of State Treasury.

On the basis of an analysis of the aforementioned documents and entries in the documentation of the Commercial Court the research sample consisting of 53 enterprises was established.

The main sources of statistical information included financial statements with a balance sheet and a profit and loss account, which were supplemented with a questionnaire designed especially for the needs of this study. In addition to financial statements and questionnaires, relevant statistical data were obtained from:

- Publications of the Central Statistical Office and of the Ministry of State Treasury regarding ownership transformations in Poland,
- Statistical Yearbooks of the Central Statistical Office,
- Statistical Yearbooks of the Voivodship Statistical Office,
- Publications on the subject of ownership transformation (Economics and Organisation of Enterprises, Marketing),
- Conference materials.

The aforementioned additional statistical information provided a comparative background for the results obtained from the questionnaires and analyses of financial statements.

The analysis of economic effectiveness described in this doctoral thesis resulted in the formulation of the following conclusions regarding the researched target population:

- A continuous decline in economic effectiveness is a characteristic feature of the companies analysed in the study, which is confirmed by profitability ratios. All types of profitability ratios (return on equity, return on sales) showed a decreasing tendency. The worst profitability ratios had transport companies, medium-size enterprises with external or employee ownership, whereas the highest ratios had managerial enterprises.
- A common feature of the target population is a relatively stable efficiency of operation, measured by means of turnover ratios. Turnover ratios, which should achieve the highest possible values, remained virtually unchanged for almost all categories of assets and separated groups of enterprises. The highest turnover ratios were observed in case of employee-owned enterprises. An average operating cycle of the companies analysed in the paper lasted 80 days (employee-owned companies and managerial enterprises had the shortest cycle). Undoubtedly, this situation led to a more widespread use of trade credit by the analysed companies rather than extending credit to their customers. Simultaneously, an increase in the asset productivity indicates a better utilisation of the owned assets and resources.
- Another characteristic of the analysed companies is a radical decrease in the earned financial surplus (particularly during the last 3 years) in constant prices. In current prices, a stabilization of the achieved financial results can be observed. The transport companies were in the worst situation as they showed a net loss throughout the whole analysed period of time. When the size of the companies

was the criterion for comparison, the worst financial results were achieved by small enterprises. The highest average net profit values were obtained by industrial enterprises, big and large companies and enterprises with external ownership (up to 2005). In the years 2006 – 2009 managerial enterprises had the highest average net profits.

- The analysed group of enterprises can be regarded as businesses with a low probability of bankruptcy (according to the analysis based on Altman's formula). At the same time, Altman's formula showed deterioration of financial standing of the analysed enterprises - a downward tendency of the Z-score. According to Altman's criteria, only transport companies were likely to face bankruptcy. This was confirmed by results obtained using the discriminatory model, which showed that the analysed companies fell into the category of relatively well-performing enterprises with a simultaneous decline of the assessment criterion – the W ratio. A multi-criteria analysis indicated a deterioration of the financial situation of the large and employee-owned enterprises. Similar conclusions were drawn from the multi-criteria analysis of a 'quick test' based on Mączyńska's model.

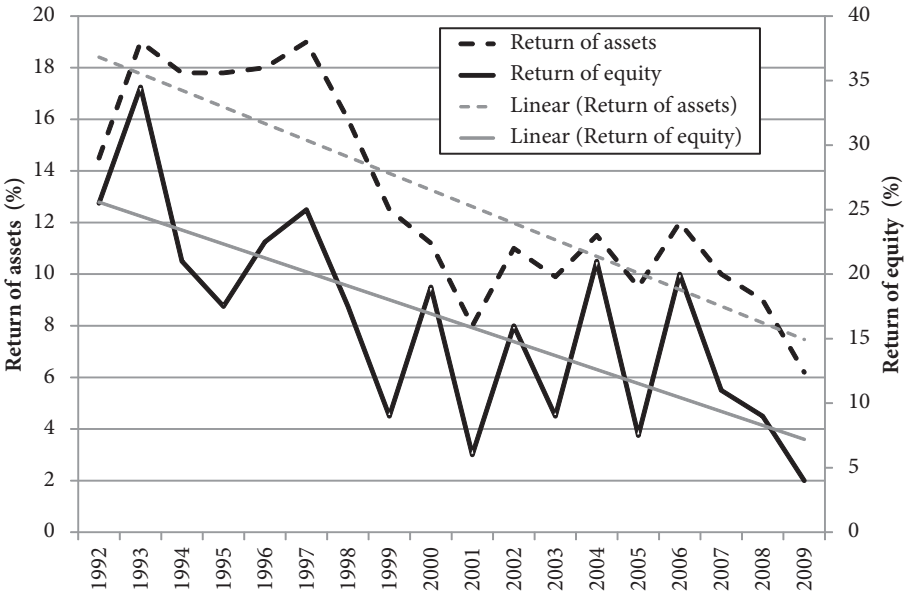

Figure. 2. Return of assets and return of equity of examined enterprises

Source: Own study

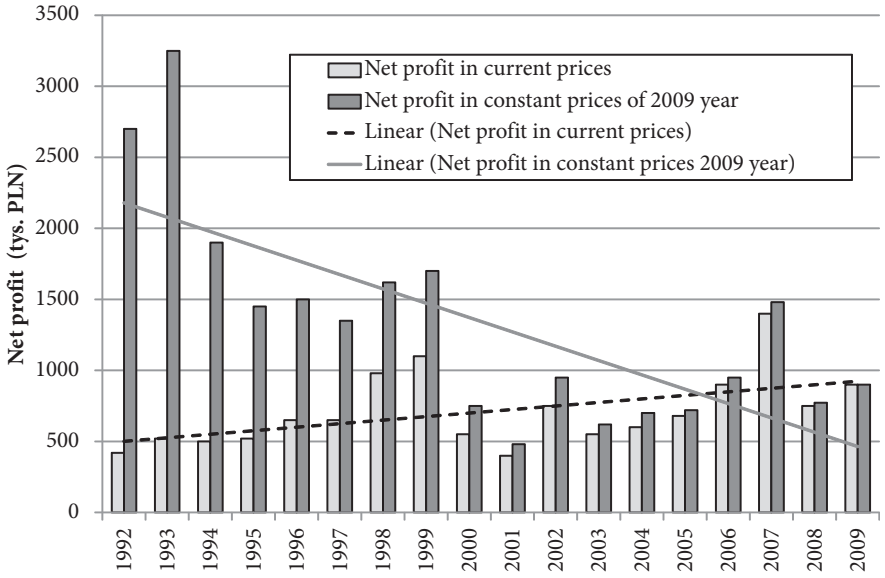

Figure. 3. Net profit on one enterprise of examined enterprises in current and constant prices

Source: Own study

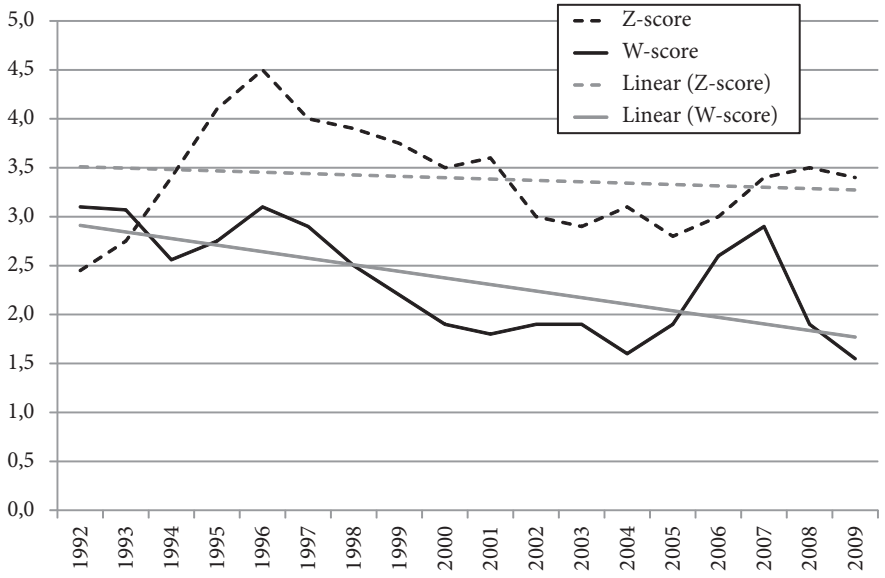

Figure. 4. Z – score and W - score value of examined enterprises

Source: Own study

To sum up, the research thesis formulated in the beginning of this doctoral paper regarding the relations between the achieved economic effectiveness of enterprises privatised through 'employee leasing' in the Lubelskie Voivodship and the form of ownership and the degree of concentration of capital has been explicitly and unequivocally confirmed. Changes in effectiveness applied to different separated groups of enterprises to a varying degree. Ownership transformations were not dynamic and did not result in the increase in the effectiveness of the analysed enterprises, but solely maintained their financial liquidity. In the long term and in view of Poland's membership in the EU, this model of operation can lead to bankruptcy of some of the analysed enterprises. Only managerial enterprises that have a high degree of concentration of capital show improvement of the economic effectiveness.

The conducted research has confirmed the statement concerning increasing the level of utilisation of the owned resources by privatised enterprises. Privatised companies use their resources and assets in a more effective way, which is indicated by a rise in their turnover ratios (efficiency), particularly noticeable in case of managerial and employee-owned enterprises, and by an increase in revenue per employee and return on assets ratios.

Changes introduced in the privatised enterprises did not increase their economic effectiveness, one of the reasons being ineffective use of corporate debt – virtually no separated group of enterprises (except for managerial enterprises) managed to achieve a positive degree of financial leverage. The worst results had the employee-owned enterprises. In general, return on equity of the analysed enterprises, used as the main indicator of economic effectiveness, underwent a significant decline.

The conducted research has agreed with the so-called theory of property rights claiming that the form of ownership is a deciding factor in the functioning of an enterprises.

Property rights should be understood not only as juridical ownership rights, but in compliance with a 'classical' definition by H. Demsetz as shaped by law, custom and morality, the right of an individual to appropriate and use resources. The analysis of the selected enterprises indicated significant differences in their financial results and in the use of external capital. The general financial situation and financial results were the best in case of enterprises whose ownership was in the hands of a small group of people constituting the company's management. In these enterprises emerged an entrepreneur (an individual or a group of people) who took responsibility for current management of the company as well as the risk involved in independent decision-making. This risk is connected with the possibility of losing not only the job but also the considerable financial means invested in the enterprise. These companies are characterised by a high proportion of short-term liabilities (including loans) in financing of their activity, which, as the only analysed group, they could use in an effective way to increase their return on equity. They achieved the highest ratios in multi-criteria enterprise evaluation and were included in the category of

well-performing enterprises. The enterprises with employee ownership had the worst overall financial situation and the lowest results.

In view of the conclusions, it can be stated that in case of the analysed enterprises the best effects were achieved through privatisation in which emerged an internal group with a majority ownership share.

Conclusions

Conducted examinations showed, that economic effectiveness of privatized enterprises with road of the employee leasing depends on the form of the property and the degree of the concentration of capital. Simultaneously property transformations contributed to substantial changes in the way of managing privatized enterprises, of which increasing the rate of utilisation of had stores is resulting.

In case of the form of the property concentration of capital owner's in privatized enterprises with road of the employee leasing contributed to the increase in the economic effectiveness of these subjects.

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CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 99-108

Katarzyna Brożek[1]

CAUSES OF INNOVATIVENESS OF POLISH ENTERPRISES

Abstract

Defining innovation remains problematic as it is associated with such notions as creativity or change. Some economists link innovation with any change, though a majority of analysts and practitioners look for innovation which significantly and substantially affects their activities, for inventions, and the like. They tend to dismiss innovations that arise by accident.

Fundamental reasons for an enterprise to implement innovation include the desire to improve profits (80%) and business development (68.3%) while operating in a sector which, according to respondents, does not need innovation is the main reason for not introducing innovation (41% of all those examined).

JEL Classification Code: **E220.**

Keywords: innovation, small and medium enterprises.

Introduction

Innovation is among key elements forming economic policies. Coupled with competitiveness and entrepreneurship, it builds a set of factors conducive to economic and social development which ultimately condition growth of states and organisations. This approach is reflected, inter alia, in positioning of innovation among key objectives of EU programmes.

Innovation should be treated as a continuous process. Progress is uninterrupted, considering the rate of absorption of new technological ideas (Wolak-Tuzimek, 2012). A single improvement will not generate effects endlessly. More innovations and new changes are required to be up to standards and remain in the market.

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The goal of this paper is to assess and analyse causes of innovativeness of Polish enterprises, in particular, small and medium-sized businesses.

In conditions of globalisation, enterprises have been forced to become familiar with new trends in theory and practice and to introduce changes. Adhering to traditional methods of management in these economic circumstances may jeopardise market standing of an enterprise.

Notions of innovation and innovativeness

Innovation is derived from the Latin *innovatio*, denoting introduction of something new, renovation, novelty, reform. Broadly understood, innovation applies to all spheres of social life as introduction of something qualitatively new to a given area. Innovations can also be considered to encompass any inventions, which show human innovation that drives progressive changes in certain states of affairs (Sieradzka, 2013, p. 2731).

The concept of innovation was adapted for economic purposes by J. Schumpeter. He believed introduction of new products or improvement of existing products or production methods could be seen as innovation. Innovation additionally comprises opening of a new sales market, application of a new method of purchasing or selling, new raw materials, semi-finished products or a new organisation of manufacturing (Dworecka, 2011, p. 10).

P.F. Drucker claims innovation is a unique tool for entrepreneurs to effect changes in all areas of business: products, marketing methods, pricing and services offered to customers, as well as methods of organisation and management (Drucker, 1992, p. 42).

According to A. Sosnowska, for a contemporary business innovation means introducing new products, implementing new technologies, changes to production and distribution infrastructure, actions to take better advantage of employee knowledge and skills, and development of IT networks (Sosnowska, 2005, p. 58).

Introduction of a new or markedly improved solution regarding a process, product (commodity or service) to practice of an enterprise by launching it in the market or application of a new or improved solution to marketing or methods of organisation in an enterprise are innovations as well (Dworecka, 2011, p. 10).

The definitions cited above suggest that innovation can be understood as a tool or process of creating and using new ideas. Beside these two approaches, innovation can be perceived as a certain organisational capacity. Innovativeness or innovative abilities are emphasised in this context. Thus, innovativeness can be defined as ability or tendency of an enterprise to generate and introduce, that is, realise new or improved products, processes, methods of marketing, organisation and management.

This vision of innovativeness implies that undertaking innovative actions is inevitably associated with risk. However, businesses that fail to take innovative actions run the risk of lagging behind their competitors, which may result in loss of their market position.

Innovation can be classified into four main groups: product and process, organisational and marketing.

Product innovation involves introduction of a commodity or service which is new or considerably improved in respect of technical parameters, components, materials and functionality.

Process innovation – introduction of a new or better process improving production or distribution methods. It includes substantial changes to techniques, equipment and software. Process innovation can be taken to mean: installation of a new or improved production technology, computer-aided product development, computerised equipment for production quality control or improved testing of production monitoring equipment, etc.

In turn, **organisational innovation** denotes a new organisation of business practice, workplace organisation or external relations.

Marketing innovation is introduction of a new marketing method including substantial changes to product and packaging, product placement, product promotion and pricing strategy.

Measurement of innovation

Innovation and innovative potential are difficult not only to support but also to measure due to the number of stages and complexity of the process of generating and implementing innovation. Most businesses have not established standard, recurrent schemes of computing innovation expenditure or return on innovation (Mankin, 2007, p. 5).

Innovativeness is commonly measured by numbers of innovations introduced and spending on related actions. It is closely connected to resources as well as the ability of utilising them, or innovative maturity (an appropriate standard of organisational culture pre-requisite to the utilisation). It must be remembered, however, that development and implementation of new ideas can only be objectively measured to a limited extent (Schäffer, Weber, 2005, p.33).

Methods of measuring innovation standards proposed in specialist literature can be divided into three types, formulated from the viewpoint of (Shen, Muller, 2010, pp. 1-2):

- performance – traditional measurements of innovation revenue and profits combined with value of innovation channel and ROI on innovation,
- competences – methods of assessing skills, processes, corporate culture, as well as conditions and tools supporting transformation of innovation resources into business opportunities,
- strategy – to assess innovation standard in the overall enterprise strategy.

Methods of innovation measurements proposed by E. Mankin partly coincide with the types discussed above. In Mankin's opinion, enterprises should use four groups of methods (Mankin, 2007, p. 7):

- number of ideas – new ideas that generate sufficient profits to finance more ideas,

– return on investment (ROI) or net project value (NPV) – methods of measuring return on projects,
– innovators in high positions/ management involvement in innovation – measures of processes and corporate culture of a firm,
– long-term consumer commitment – these measures assess innovation as a result of market success of an enterprise's products and services. innovation means success when customers look forward to new offerings by an enterprise.

The so-called dashboards, or sets of selected measures of enterprise effectiveness indicators, or Balanced Scorecard – strategic performance card – can be employed to correctly measure innovativeness.

Causes of introducing innovation

Introducing innovation is not an easy process. It requires considerable knowledge and, primarily, persistence and patience on the part of entrepreneurs. It positively influences an enterprise as it brings a range of benefits in many areas.

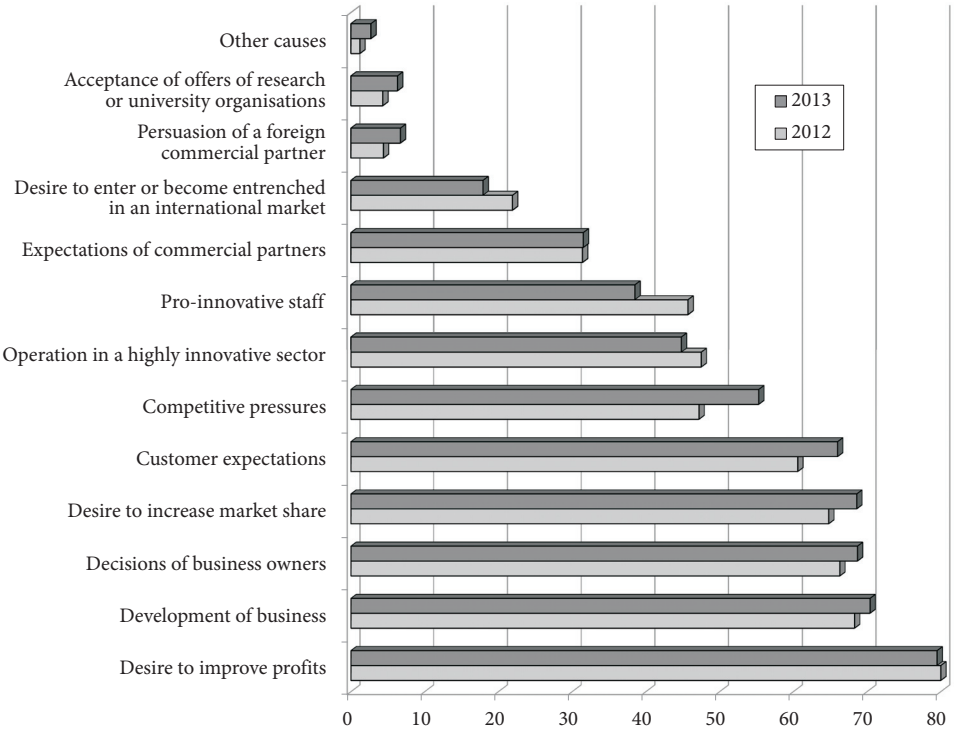

Figure. 1. Causes of implementing SME innovation (%)

Source: the author's own compilation on the basis of the report Monitoring kondycji sektora MSP w latach 2010-2012, PKPP Lewiatan, Warszawa 2013.

Entrepreneurs most commonly point to the desire to improve profits, development of business, and increase of their market share as key reasons for implementing innovation. Such actions also frequently arise from decisions of business owners or in response to expectations of customer or commercial partners.

The desire to enter or become entrenched in an international market is a fact that relatively seldom motivates SMEs to implement innovations (17.9%), on the other hand. Merely every fifteenth entrepreneur (6.7%) decides to introduce innovation to their business when persuaded by a foreign commercial partner. Barely 6.3% SMEa accept offers of innovative projects in cooperation with research or university organisations.

- **Desire to improve profits**

Innovation can be expressed as launching of new or improvement of existing products (product innovation) and modernisation of technological processes (technological innovation). The former provides opportunities for financial profit by raising prices of market novelties. In turn, technological innovation reduces costs of production, which is a major source of profit given unchanged pricing of products. The financial profit from innovation will be generated until other manufacturers have introduced the same solutions, thereby lowering prices and eliminating profits.

- **Desire to increase market share**

Enterprises introducing innovations wish to increase their market shares to gain advantage over increasing ranks of their competitors.

- **Development of business**

Innovativeness helps to take advantage of unused potential hitherto latent in available resources. Owing to innovative organisational or process solutions, a firm can substantially cut its costs, improve its production process or quality of its products or services, that is, to develop and consequently to attain its overarching objective of maximising profit.

- **Customer expectations**

Customers have high expectations due to the range of available options. The market is full of competing companies that offer the same goods or services of similar quality and at comparable prices. Businesses are therefore compelled to introduce innovations to fully meet needs and expectations of customers.

- **Competitive pressures**

Competitive pressures force companies to invest in their own solutions and to seek new paths of development.

Enterprises must offer better products than their competitors do in order to maintain their market standing. This involves both improvement of products themselves and a whole range of actions intended to encourage customers to buy.

- **Operation in a highly innovative sector**

This is a confirmation that one belongs among the most innovative of Polish enterprises. Operation in a highly innovative sector drives development by means of advanced technologies.

- **Pro-innovative staff**

This refers to personnel of an enterprise who support introduction of state-of-the-art, innovative solutions to their organisations. They treat innovative activities as an element of entrepreneurship.

Specialist literature describes some more causes of enterprise innovation, including:

- **Accelerated adjustment of businesses** – innovations accelerate adjustment of businesses to continually changing external conditions by computerisation, marketing research, implementation of new technologies, quicker flow of information necessary to make more accurate and faster decisions,
- **Desire to approximate European standards** – implementing innovation brings closer to European requirements and helps to expand markets and, above all, to survive and gain long-term advantage,
- **Desire to improve and modernise manufacturing processes and improve productivity, efficiency and quality of labour** – innovations may help an enterprise to adapt to the environment and increase quality of its products and competitiveness of their sales, liquidate barriers and mobilise resources by enhancing overall efficiency and effectiveness of actions. streamlining organisation and methods of work, improving safety at work conditions, substitution of human labour owing to better organisation and higher productivity based on more state-of-the-art technical facilities, boosting export capabilities, etc. (Grudzewski, Hejduk, 2001, pp. 451-452).
- **Increasingly shorter life-cycle of product** – introducing innovation by small and medium-sized enterprises may become a means to achieving competitive advantage through aggressive actions and taking the lead in employing of new technologies, though its sole purpose may also be to copy innovations implemented by other enterprises,
- **Environment protection** – a major challenge facing humanity at present. Therefore, businesses implement a range of procedures to protect nature, introduce economical and environment-friendly equipment which is certain to have less adverse impact on the environment,
- **Standard of infrastructure** – existence of state-of-the-art infrastructure is required for proper functioning of the economy and society, thus it becomes necessary to introduce innovation.
- **Availability of financial resources** – at a certain stage of an innovative project, an entrepreneur may attempt to find external financing, chiefly from business angels, venture capital funds and banks, or expand their own operations to generate additional funds.
- **Intensity and efficiency of production** – innovations may enable to apply new technologies to the production process or to improve existing technologies in order to enhance efficiency of production, reduce its costs, use new, more readily available raw materials, improve quality, and boost output.

- **Legal system** – the national innovation system is a set of dedicated institutions that jointly and individually contribute to development and propagation of new technologies and build the framework within which governments formulate and pursue policies to impact innovation processes.

In respect of new products, causes of innovation comprise:

– technologies – businesses may obtain technologies from their own research or from third parties,
– strategies – in such circumstances, a new product is implemented as a new market expectation or a new idea emerge. A new product appears because strategic actions of a firm are projected in a given manner and, regardless of the market or technological situation, the process of product innovation begins,
– market – a factor in introduction of new products. A business must monitor the market to be able to offer a new product. As a rule, such monitoring has the form of market research. In addition, a firm introducing a new product, customers and users can maintain ongoing communication,
– idea – cause of introducing a new product created by personnel. An idea emerges in an appropriate corporate culture which promotes creation of new ideas by workers. A number of radical innovations are effects of research and development efforts or unexpected discoveries from within a company. Introduction of an idea that dramatically changes a product and may ultimately change the market guarantees long-term competitive edge to a business in a majority of cases (Brdulak, 2005, pp. 54-56),
– changes of market needs and preferences, increasing competition – to survive in the market, a business must introduce a variety of innovations to distinguish itself. Needs of both customers and the market itself rise, therefore, absence of innovations may lead to declining interest in a product/ service and, as a consequence, to collapse of a business (Janasz et al, 2000, p.84).

Innovative activities can be occluded by a range of factors. Reasons may exist for both not undertaking any innovative steps and causes which slow such activities or prevent them from bringing expected results.

Fundamental barriers to introducing innovation can be determined on the basis of research prepared by PKPP Lewiatan (Polish Confederation of Private Employers Leviathan) as part of the project 'Monitoring the state of SME sector in 2010-2012', conducted as a CBOS survey between 02 April - 10 July 2012 on a randomly selected group of 1500 SMEs.

Enterprises indicated absence of the need for innovation in a given sector (41% of the total) as the prime reason for lack of interest in innovation. 34.2% respondents believed they were too small a firm to contemplate innovation. Capital deficits constituted the third barrier limiting innovation activities of enterprises, named by 32.1% of those queried. The remaining causes - we are too small, customers do not expect innovations, innovations carry excessive risk – may show that entrepreneurs

do not have sufficient knowledge of the subject. Innovation is a major element of competing, but awareness of small and medium-sized enterprise owners is too low to implement innovation in their operations.

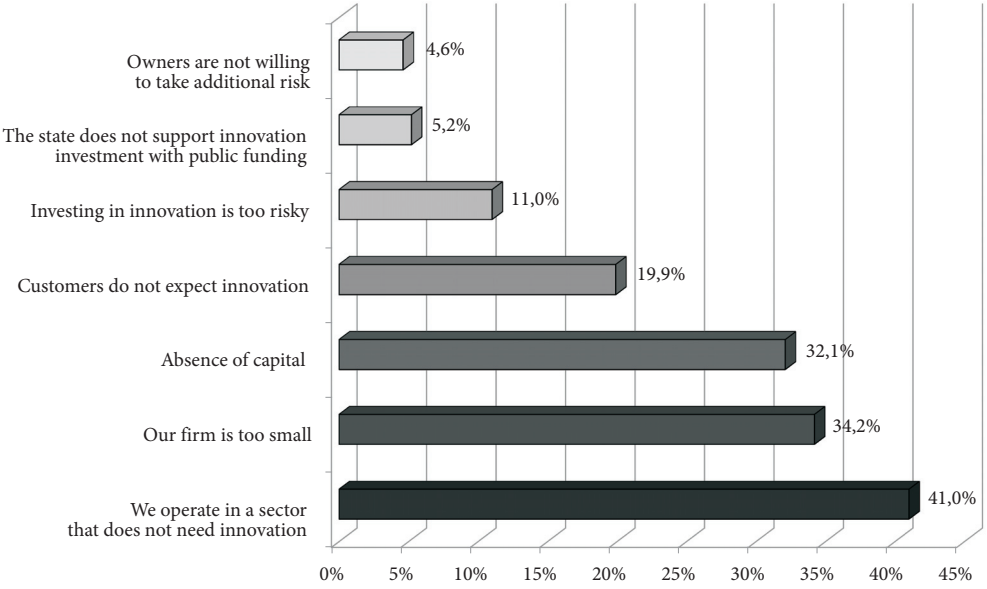

Figure. 2. Reasons for lack of innovation activities of SME enterprises

Source: SME sector: development threats and opportunities http://www.egospodarka.pl/ (25.03.2014).

Conclusion

Innovativeness is a necessary condition of effective global competition. Development of an enterprise is impossible without innovativeness. Creation and launching of new goods and technologies and restructuring of organisational systems are sources for building material wealth out of intangible knowledge. Introducing innovations to enterprises is necessary for a variety of reasons. Those most commonly comprise the desire to maximise future profits, improve quality of products, the need to preserve current market standing and to foster competitiveness.

The following observations can be made concerning the enterprises examined:

- The desire to raise profits (80.0%) and business development (68.3%) were the key reasons for introducing innovation for all the respondents.

- Acceptance of offers of research or university organisations (4.3%) and persuasion by a foreign commercial partner (4.4%) had minimum effect on implementing innovations.
- Operation in a sector not requiring innovation was the basic cause of failing to undertake innovations (41% of respondents).

Enterprises eager to compete in the global markets must realise innovations to be able to follow scientific and technical progress. Contemporary societies can be said to live in an age of innovation, therefore, they are forced to build a tradition of enterprise innovation.

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Book Reviews

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 4, No. 1 (2014) pp. 109-110

Sławomir I. Bukowski

INTEGRACJA RYNKÓW FINANSOWYCH W UNII EUROPEJSKIEJ. CZECHY, POLSKA, SŁOWACJA, SŁOWENIA, WĘGRY – OBSZAR EURO

(Financial Market Integration in the European Union. Czech Republic, Poland, Slovakia, Slovenia, Hungary – Euro Area)

Instytut Naukowo-Wydawniczy Spatium,
Radom 2013, pp. 128,
ISBN 978-83-62805-09-9

Financial markets integration is the process through which financial markets in an economy become more closely integrated with those in other economies or with those in the rest of the world. It means that there are no restrictions on cross-border financial flows and on foreign entry into the domestic financial system. Financial market integration is believed o have at least two positive impacts. It can, on the one hand, improve the allocative efficiency of capital and help diversify risks and on the other enhance economic growth in the long term. The essential factor that restricts financial integration is multicurrency system (except for European Monetary Union). Hence, the best solution would be creation world common currency area (which seems to be impossible today) or creating and enlarging regional currency areas. This book *European Union Financial Market Integration* examines the integration process between the financial markets of Eurozone and some Central and Eastern European countries and also analysis the degree of this integration in relation to joining Poland and other new European Union members to European Monetary Union..

The book by Slawomir Bukowski is a textbook consisting of 6 chapters. The first chapter (*Międzynarodowa integracja rynków finansowych – pojęcie, efekty, bariery, znaczenie w unii monetarnej, miary*) presents financial integration theoretical aspects and explains basic terms, barriers and effects of financial markets integration. The author also outlines theoretical analysis concerning financial markets integration in monetary union against other convergence criterion. The end of this chapter provides evidence on measures of financial market integration.

In the following second chapter (*Stopień integracji rynków finansowych w obszarze euro*), the author presents analysis of the degree of financial markets integration in Eurozone. It is the baseline for a comparative assessment of degree of financial markets integration in EU new member states and in the Eurozone.

The third chapter (*Rynki finansowe w gospodarkach wybranych nowych rajów członkowskich Unii Europejskiej*) presents descriptive and empirical analysis concerning the financial markets importance in European Union new member states

(Czech Republic, Poland, Slovakia, Slovenia and Hungary).

The following fourth chapter (*Rozwój rynków finansowych a wzrost gospdoarczy w gospodarkach wybranych nowych krajów członkowskich Unii Europejskiej*) follows – up to the previous one and presents econometric analysis of panel data to estimate the impact of financial markets development on economic growth in European Union new member states.

The fifth chapter (*Stopień integracji rynków finansowych Cech, Polski, Słowacji, Słowenii I Węgier z rynkiem finansowym w obszarze euro*) provides a comparative assessment of the degree of financial markets integration in Czech Republic, Poland, Slovakia, Slovenia and Hungary and in the Eurozone using some financial market integration measures. Data availability was the important factor in the choice of performance measures. Presented analysis includes the degree of integration in the following financial market segments: money market, debt-credit market, stock market, bond market.

The last chapter (*Integracja ryków finansowych z rynkiem fiansowym w obszarze euro a wzrost gospodarczy w wybranych nowych krajach członkowskich Unii Europejskiej*) deals with the presentation of results of studies regarding the impact of financial integration on economic growth. In order to assess the impact of financial integration on economic growth in Czech Republic, Poland, Slovakia, Slovenia and Hungary the author presents two panel data models. At the end of the chapter the author presents the findings of econometric research.

The book reviewed is the result of two years research findings which are the continuation previous research into the financial markets integration issues.

The book uses extensive bibliography. Discussions and analysis are illustrated by numerous tables and figures.

Overall *European Union Financial Market Integration* is comprehensive assessment of the relationship between financial markets and economic growth. While the author`s empirical studies are complex, he presents his findings in a manner that is accessible to readers of diverse academic and methodological backgrounds. Additionally, his quantitative analyses are accompanied by useful visuals and detailed explanations.

European Union Financial Market Integration is an essential text for all finance–related degree courses at undergraduate, postgraduate, and MBA level. It also provides a useful source of reference for financial institutions and professionals in the financial markets.

Katarzyna Kalinowska