REVISTIA

EJME

EUROPEAN JOURNAL OF MARKETING AND ECONOMICS

May - August 2019

Volume 2, Issue 2

ISSN 2601-8659 (Print)

ISSN 2601-8667 (Online)

REVISTIA

PUBLISHING AND RESEARCH

EUROPEAN JOURNAL OF

MARKETING AND ECONOMICS

May - August 2019

Volume 2, Issue 2

Typeset by Revistia

Address: 11, Portland Road, London, SE25 4UF, United Kingdom

Tel: +44 2080680407

Web: https://ejme.revistia.org

Email: office@revistia.org

ISSN 2601-8659 (Print)

ISSN 2601-8667 (Online)

Indexed in Elsevier's Mendeley, WorldCat, RePEc & Ideas, Google Scholar Crossref

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The Euro in Historical Comparison to the Ruble and the Influence of Overconfidence.

Sebastian Hoffmann

Ph.D. Student of SMBS - University of Salzburg Business School,

Austria in association with USC, University of the Sunshine Coast, Australia

Abstract

This paper deals with the structured comparison of the former ruble monetary union with the euro currency area. As a basis, developments in the ruble currency area and in the Eurozone are traced. In a comparison of the central components of the currency areas, similarities, such as the heterogeneity of the states, and differences, for example the role of the central bank and the legal foundations of the currency area, are outlined. Subsequently, the significant historical exit causes of the states from the Soviet Union out of the ruble currency zone are presented. In addition to obvious structural factors, such as the unequal power structure, also practical reasons, such as the insufficient provision of cash for some areas, are considered. Regarding overconfidence, the sub-categories overestimation and overplacement can be detected mainly regarding the behavior of the administration of the former USSR. The third sub-category, overprecision, can primarily be found in the behavior the European Central Bank and their efforts to stabilize the Euro. Based on the findings, the conclusion can be drawn, that there are certain parallels between the two currency areas. However, the available options for action and mechanisms at the political and economic level in the Eurozone today are more wide-ranging than at the beginning of the 1990s in the ruble currency area.

Keywords - Euro, Ruble, Financial Crisis, Overconfidence, Behavioral Economics

1. Introduction

With his words "Whatever it takes", the President of the European Central Bank, Mario Draghi, allegedly kept the euro currency area from breaking apart on July 26, 2012. His famous sentence was preceded by a multi-year process, which initially started with the US subprime crisis. While public reporting often put Greece first and foremost, it were also the so-called peripheral states that faltered. As a result, the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM) were implemented as instruments to support stumbling states, ultimately saving the Euro as their uniting currency. However, the effect of the words Draghi, which led to a noticeable turnaround, should not be underestimated. For example, regarding the readmission of yields for ten-year government bonds in the Eurozone (European Central Bank, 2015). Behind this development stands the promise of the central bank to supply the market with virtually unlimited liquidity. Critics see in this approach and in the special position of the European Central Bank (ECB) clear parallels to the disintegration process of the ruble currency zone in the early nineties. Critics argue, that both monetary areas lack (lacked) a common economic policy to survive in the long term (Mayer, 2015). In the following, it will be examined which parallels between the ruble currency zone and the euro currency area actually exist and which conclusions can be drawn for the future of the Euro.

In order to enable a structured approach to the two complex currency areas, a brief introduction on the history of the ruble currency zone as well as recent developments in the Eurozone are provided first. Building on this, the comparative study of central features of the two currency areas follows. Here, the complex interdependencies and interactions within the currency areas become clear. The subsequent analysis of the historical reasons for withdrawal from the ruble currency area reveals how complex and sometimes unusual these were. At the same time, fundamental political change in the former Soviet Union always played an important role. In this context, also the potential influence of overconfidence is discussed. The latter especially relates to the historical reasons for the disintegration of the ruble currency area but also applies to certain aspects of the comparison between the two currency zones. The concluding chapter summarizes and qualitatively evaluates the findings and finally concludes whether the decline in the ruble currency zone can be used to draw conclusions for the Eurozone.

Overconfidence is a concept of behavioral economics which consists of the three subcategories overestimation, overprecision and overplacement (Moore and Healy, 2008). Overestimation describes the common observation, that people tend to overestimate their capability and cleverness when comparing themselves to others. Additionally, overplacement refers to the human tendency to generally rank own achievements higher than the successes of others. Moreover, overprecision describes the observation, that people are overly certain regarding own estimations and judgements (Bazerman and Moore, 2012). Overconfidence is considered one of the fundamental concepts in behavioral economics due to its widespread impact on decision making outcomes. Among a variety of effects, overconfidence is held responsible for marked bubbles, entrepreneurial failure, mismanagement and even man-made catastrophes such as war (Bazerman & Moore, 2012). Moreover, overconfidence serves as a catalyst when it comes to other biases and heuristics people regularly rely on (Plous, 1993).

II. The History of the Ruble

As a result of the Soviet Union's collapse in December 1991, the twelve former republics of the USSR (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Belarus), as well as the three Baltic states (Estonia, Latvia, Lithuania), which had previously regained their independence, formed the ruble currency zone. As a result, the disintegration process of the currency area, which began as a by-product of the political disintegration, continued in an economic dimension. It should be remembered in the following considerations that there were not just modular changes within a system, but rather a complete system transformation in the whole area (Jacobsen & Sokov, 2004). In a first step, Estonia, Latvia, Lithuania and the Ukraine left the ruble currency zone in 1992, whereupon the pressure on the remaining states steadily increased. The introduction of parallel currencies had become inevitable, partly due to the cash shortage which will be examined in this paper in greater detail (Berthold, Braun & Coban, 2014).

In addition, there was a sharp increase in consumer goods prices and a rapid reduction in real gross domestic product (GDP). In Georgia for example, the real GDP fell by 20.6 percent in 1991 and 44.8 percent in 1992. Another example is Kyrgyzstan, where the real GDP fell by 5.0 percent in 1991 and 19.0 percent in 1992 (European Bank for Reconstruction and Development, 1999). In the following year 1993, the inflation rate in Georgia was 7,487.9 percent and 1,363.0 percent in Kyrgyzstan as also presented in figure 1 (European Bank for Reconstruction and Development, 1999). Russia, Kazakhstan, Uzbekistan, Armenia, Belarus and Tajikistan made attempts to negotiate an orderly transition to a new-type ruble currency zone. However, this ultimately failed due to the almost unfulfillable demands from Moscow. Only Belarus undertook serious steps towards the preservation of the Russian ruble in its own territory from mid-1993 (Berthold, Braun & Coban, 2014). These efforts led to the signing of an intention agreement in April 1994, which was apparently caused by a particular interested from Belarus in securing favorable Russian energy supplies (Institut für Weltwirtschaft Kiel, 1994). However, negotiations on a common currency area with Russia continue to this day. Kyrgyzstan, Georgia, Turkmenistan, Moldova and Azerbaijan did not participate in such negotiations and subsequently withdrew from the currency area (Berthold, Braun & Coban, 2014).

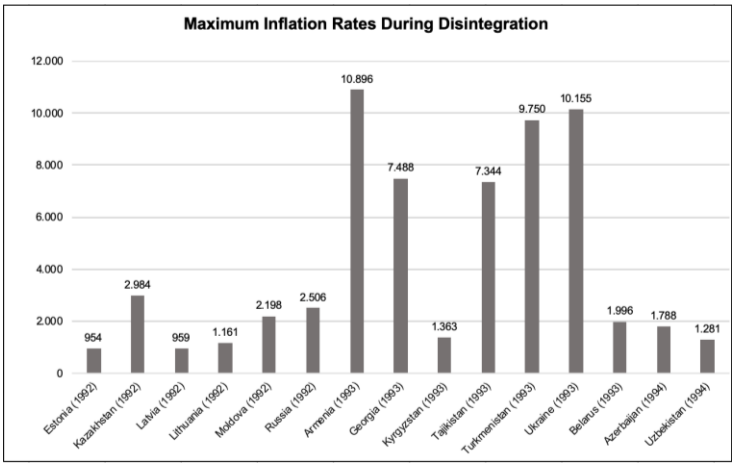

Figure 1 Maximum Inflation Rates. Figure by author, data from European Bank for Reconstruction and Development (1999).

In addition to the failure of negotiations at bilateral levels, agreements on future cooperation at the level of the Commonwealth of Independent States (CIS) could not be reached either. For example, the founding treaties of the CIS contained only non-specific statements on the coordination of economic and monetary policy. Moreover, the agreement of the central bank directors of the CIS on the implementation of an interbank council in May 1992, which was intended to provide solutions to the urgent monetary policy problems, could not prevent further decay of the ruble currency zone (Sieburger, 1993).

III. Recent Developments in the Euro Area

The crisis in the euro area can be described as the interplay of a banking and a public sector as well as a growth and competitiveness crisis (Shambaugh, 2012). Particularly problematic is the crisis of confidence, created by the combination of different factors, which ultimately raises doubts on the stability of the euro area as a whole (Bofinger et al., 2012). This became particularly clear on the example of Greece. In October 2009, it was announced that the new debt of Greece with 12.5 percent of the GDP actually was significantly higher as it was stated by the previous government (sovereign debt crisis). Yields on Greek government bonds afterwards rose sharply. Critics argue that the euro was initially so popular at the political level, because the financing of government deficits was potentially cheap and almost of unlimited availability. However, as a result of the crisis, the euro lost its previously assigned function of a currency which allowed reliable cheaper borrowing for all member states (Mayer, 2014). From 2009 onwards, a declining real gross domestic product was observable in Greece. Compared to the previous year, the GDP fell by 4.3 percent in 2009, by 5.5 percent in 2010 and by as much as 9.1 percent in 2011 (growth and competitiveness crisis) (Eurostat, 2015). Consequently, tax revenue also declined, and the already overburdened state budget could only be supported by further loans. The resulting increase in public debt necessitated austerity programs, which additionally weakened the already burdened domestic economy. Unemployment continued to rise, peaking in late summer 2013 at 27.9 percent (Eurostat, 2015a). Within these developments, banks came under increasing pressure due to accumulative risks from their loan portfolios and had partially to be rescued as well (banking crisis).

To counteract the developments in Greece and other countries, far-reaching measures were taken to stabilize the Eurozone. After the first aid program for Greece did not have the desired stabilizing effect on the euro, the euro rescue fund consisting of the European Financial Stability Facility (EFSF), the European Financial Stabilization Mechanism (EFSM) and contributions from the International Monetary Fund, was introduced in 2010 as a supposedly temporary solution (Bundesministerium der Finanzen, 2016). From this program, Greece, Portugal and Ireland were given credit commitments totaling almost EUR 200 billion. The European Stability Mechanism (ESM), with a lending volume of € 500 billion as of autumn 2012, replaced the EFSF and the EFSM as a permanent solution to stabilize the Eurozone. In total, nearly EUR 140 billion of financial aid for Greece, Cyprus and Spain have been provided from this institution by the end of November 2015 (Bundesministerium der Finanzen, 2015). In addition to measures taken by the Eurozone countries, the ECB intervened by continuously reducing the interest rate on main refinancing operations and by buying government bonds. Conclusively, the efforts made an impact, for example on the stabilizing yield of ten-year government bonds and also on the slow decline of record-high unemployment rates in the crisis countries (Handelsblatt GmbH, 2015).

IV. Similarities and Differences

The degree of parallels between the ruble currency zone and the Eurozone varies depending on the aspect considered. The ruble currency zone emerged as a by product to the political disintegration of the USSR. In contrast, the Eurozone is the result of decades of planning and negotiation (European Commission, 2007). Also, due to the determinant characteristics of different political and economic systems, a direct comparison is not always possible. For example, the central bank of the ruble currency zone had clearly different tasks due to its communist character than the ECB today. Also determined by the political system, there was a significant imbalance in the relation of power within the monetary union (Reiter, 2009).

In order to facilitate an orderly comparison of the two currency areas, the first step will be to examine the legal foundations of the Eurozone and the ruble currency zone. Subsequently, the central bank, as the decisive institution of the two currency areas, is compared with their respective systems and their tasks and objectives. Subsequently, the heterogeneity of the states within the currency zones is considered on economic as well as on political level. Finally, each currency area is always exposed to external influences. Depending on the intentions of the respective actor, for example the International Monetary Fund (IMF), the continued existence of a currency area is either supported or questioned.

A. Legal Basis of the Currency Area

In 1970, a commission of experts led by then Luxembourg Prime Minister, Pierre Werner, presented the so-called Werner Plan for the gradual introduction of fixed exchange rates within the member states. A scheme in the sense of this plan was introduced in March 1973 with the so-called snake in the tunnel. A range of exchange rates was introduced between the currencies of the states of Belgium, Italy, Germany, France, Luxembourg and the Netherlands, which fluctuated with a maximum deviation of 2.25 percent (Kleinheyer, 1987). Afterwards, in 1989, the Delors Report, named after the then President of the Commission, proposed a three-staged introduction of an Economic and Monetary Union. In the first stage, starting in the summer of 1990, the free movement of capital between the member states and increased cooperation between the individual central banks were implemented. Likewise, a liberalized use of the European Currency Unit (ECU) was introduced in 1979. In the second stage, from 1994 on, the establishment of the European Monetary Institute (EMI), the prototype of today's ECB with the aim to coordinate the monetary policy of the member states, was implemented. As of January 1st 1999, the euro was finally introduced as book money in what were then eleven countries. In order to make this possible, exchange rates were irrevocably fixed, and the competence of a single monetary policy was transferred to the European System of Central Banks (ESCB) consisting of the ECB and the central banks of the member states (European Central Bank, 2011).

In addition to the Delors Report, the European Treaty of Maastricht forms the foundation for the current construction of the Eurozone. The treaty signed by the European Council on February 7th 1992 contains far-reaching provisions for the European Economic and Monetary Union. In addition to a timetable, providing the deadline for introducing a single currency by the beginning of 1999, the so-called convergence criteria were established. These cover the four levels: price stability, government finances, participation in the exchange rate mechanism of the European Monetary System and convergence of interest rates (Generalsekretariat des Rates der Europäischen Union, 2015).

Compared to the Eurozone, which formed by decades of negotiations and officially concluded multilateral agreements, contracts and competence provisions, the ruble currency zone was merely a by-product of the political transformation in the former Soviet Union (Sieburger, 1993). In this context, it seems crucial for the existence of a common currency whether the participating states are generally in a process of integration or disintegration. In the light of recent developments in the euro area, increasing integration may not reflect the reality of daily politics. However, in the medium and long term, the general orientation in Europe focuses on integration. Accordingly, the Treaty of Lisbon plans a progressive integration of the people of Europe and thus also of the Eurozone. This initial situation contrasts with the ruble currency zone, where the Gosbank as an instrument of the Soviet administration dominated the whole economic activity. Regarding overconfidence, this setting can be described as a form of overplacement. After years of dependency on Moscow, there was a tendency towards disintegration in the pursuit of independence by the successor states of the Soviet Union. The design of the legal basis should thus be judged as strongly divergent in the comparison of the two currency areas.

B. Role of the Central Bank

In general, the sole objective of the ECB is to ensure price stability. In addition, the economic policy of the monetary union should be supported. This includes, for example, adequate economic growth, full employment and a competitive social market economy. The additional tasks of the ECB are the determination of an adequate monetary policy for the Eurozone, the management of foreign exchange reserves, the conduct of foreign exchange operations and the promotion of payment systems. Another area of responsibilities includes the supervision of credit institutions in the member states (Article 127 (1) TFEU and Regulation (EU) 1024/2013 of the Council of the European Union).

The European Central Bank's policy of maintaining price stability culminates in what is now known as quantitative easing. A process in which the ECB buys government bonds in large volumes to provide liquidity for the financial market in order to eventually avoid deflation (Welfens, 2015). This happens in the form of so-called outright transactions. In addition to the purchase of covered bonds (Third Covered Bond Purchase Programme - CBPP3) and the purchase of asset-backed securities (Asset-Backed Securities Purchase Programme - ABSPP), the ECB acquires government bonds and bonds issued by European institutions in the Extended Asset Purchase Program (EAPP) and the Public Sector Purchase Program (PSPP). In addition, the Outright Monetary Transactions (OMT) are another ECB instrument not yet used (Deutsche Bundesbank, 2016). Critics see the role of the ECB as Lender of Last Resort (LoLR) confirmed (Winkler, 2014). It also makes clear what far-reaching methods are used in order to ensure the stability of the euro at almost all costs. Nevertheless, the achieving of objectives on behalf the ECB is not a trivial task. Despite all the extensive actions taken in the last month and years, the intended inflation rate of under, but nearby 2 percent could not be reached precisely and permanent by the ECB. This indicates a form of overconfidence, namely the overprecision on the attainment of the desired inflation rate. The latter appears

to be a more intricate task than assumed, which also indicates a form of overestimation regarding the ECB's trust in its own ability to handle the situation. This reasoning is supported by claims of the ECB, that despite the use of advanced monetary policy instruments, the goals are still not completely reached yet. (European Central Bank, 2019).

Compared to the tasks of the ECB, the state bank (Gosbank) clearly had different tasks and goals in the communist system of the Soviet Union. In addition to the cash commission, Gosbank acted as a controlling power for the planning authority. The predominantly state-owned companies were obliged to handle their payment transactions exclusively via Gosbank, which opened up the possibility of full monitoring. In this context, Gosbank as an institution was also entrusted with the calculation and collection of company taxes (Sieburger, 1993). In the meantime, the powers of the Russian state bank apparently also included the sanctioning of non-compliant fulfillment by blocking payments or withdrawing credit lines (Müller & Löffenholz, 1953). Only through moderate reform efforts in 1987 did the Soviet government begin to implement a two-tier banking system (Muth, 1997). However, even after the founding of special purpose banks for individual economic sectors during the banking reform, Gosbank remained authorized to give instructions to these institutions. An efficient credit allocation therefore was unable to happen (Parzer-Epp, 2002). Because of this structure, it is not surprising that at the time of the break-up of the ruble currency zone, the central bank of the Russian Federation (Bank Rossii), which emerged from Gosbank, was still the main financial institution in the banking sector. A short-term and stringent system change could not be carried out within the central bank organization (Messengießer, 1991). Rather, the central banks of each of the successor states, due to their limited powers, were merely branches of the central bank in Moscow, with all the limitations in power that came with it (Berthold, Braun & Coban, 2014). The situation in the ruble currency zone outlined above was undoubtedly gridlocked and dominated by the past. The latter included the application of old systems as well as the application of old courses of action. In contrast, to the far-reaching instruments and powers of the ECB made an impact while responding to the recent world financial crisis. In addition, there is a detailed legal framework in which the ECB operates, and which deliberately regulates competences, for example in monetary policy, which was absent in the ruble currency zone (Gaitanides, 2005). Regarding overconfidence, a number of possible applications appear to explain certain behavior during the disintegration process. On the part of the Bank Rossii, the willingness to stay in the ruble currency zone for the former Soviet states apparently was overestimated. So was

C. Heterogeneity of the Currency Area States

The diversity of individual states within a currency area can come with a considerable potential for conflict. Depending on the legal terms of the cooperation, there is a varying degree of incentive for governments to act opportunistically. The latter was particularly true for the ruble currency zone, as its construction at the political level missed critical regulations (Parzer-Epp, 2002). How different the countries of the ruble currency zone were, in terms of their economic performance, can be measured by comparing the so-called net material product in a material product system (MPS). For example, Tajikistan had an MPS of only 1,046.07 rubles per capita in 1990, while in the same period the value in Estonia was 3,454.90 rubles (Muth, 1997). Comparing the GDP in the Eurozone, Luxembourg for example reached USD 119,488.00 in 2014, compared to only USD 21,648.00 in Greece (Statistisches Bundesamt, 2015). Another indication for the heterogeneity of the states of the euro area, albeit varying in intensity, can be deducted from the standard deviation of inflation rates. At a high point in early 2010 for example, inflation rates were nearly three times as far apart as shortly after the introduction of the euro (Berthold, Braun & Coban, 2014).

In addition to the economic factors, the question of heterogeneity also arises at the political level. With regard to the ruble currency zone, the disintegration from the political system of communism has to be considered. Not only sections of economic life, but the entire economic system changed after the political collapse of the Soviet Union. For example, the share of GDP produced by private companies in the Russian Federation in 1991 was only 5.0 percent, compared to 50.0 percent in 1994 (European Bank for Reconstruction and Development, 1999). Similar developments, from planned state-owned enterprises to market participants in a liberalized environment, also arose in other countries of the ruble currency zone (Herr, 1999). However, the previously highly interdependent trade between the former Soviet republics was increasingly hindered by inconsistent political decisions. Foreign trade and in particular customs regulations changed permanently, which made the medium- or long-term planning of a stabilizing economic policy almost impossible. In addition, an increasing number of privately-owned companies met a financial system which was still determined by the planned economy within the framework of the described system change. Thus, after the abolition of state pricing and quantity planning, credit institutions continue to satisfy the funding needs of companies largely blind (Stadelbauer, 1994). In conclusion, both currency zones consist of

different countries with varying economic power. However, efforts at the political level, both national and supranational, are different.

D. External Influence

The International Monetary Fund (IMF) had an external influence on the disintegration process of the ruble currency zone. However, apparently the attitude of the IMF changed during the course of the existence of the ruble currency zone. While still skeptical on the introduction of independent currencies in the former Soviet republics in April 1992, the ruble currency zone of individual states with individual currencies was openly supported later in the same year. The support was fueled by the promise of the IMF to provide loans. Critics complained that the IMF's initial refusal implicitly promoted the economic problems of the individual states which consequently led the uncoordinated disintegration of the ruble currency zone (Muth, 1997). The latter was most likely not intended by the IMF but appeared anyway. However, this behavior potentially was caused by initial overconfidence, in the form of overplacement, which made the IMF propose that individual currencies for the successor states of the USSR were unfavorable.

In addition to the IMF, the increasing influence of external creditors in the former Soviet Union, who had an interest in stable economic and political conditions for reasons of risk, should be noted. After the period from 1940 until 1987, where an official budget deficit was only reported in three years from the Soviet Union, the demand for loans from western banks emerged rapidly in the late eighties (Birman, 1981; Shelton, 1989). From 1987 on, the total external liabilities of the Soviet Union and the successor states increased by almost 120 percent within six years (Elborgh-Woytek, 1998). Apparently, a significant portion of the Soviet Union's budget was paid for by creation of credit. For example, the review of statistical data from 1987 revealed a non-matching revenue position of 146.4 million rubles (Shelton, 1989). The government was well aware that such behavior could not be sustained in the long term and therefore resorted to borrowing abroad. Thus, it is an indirect external influence of the creditors, which became possible only in the course of the political disintegration process and the associated step-by-step opening up of the Soviet Union. A parallel to the Eurozone regarding external influence does not arise in the extend of the ruble currency zone.

V. Historical Reasons for Leaving the Ruble Currency Zone

The historic causes of the ruble currency zone can only be reconstructed by considering the specific historical, political, economic and geographical developments of the former Soviet Union (Berthold, Braun & Coban, 2014). There was a clear desire from the successor states to seize the historic opportunity and to get rid of the economic instructions as well as the political ruling from Moscow. It is almost self-evident that under these conditions a continuing ruble currency zone or at least an orderly leaving process was extremely unlikely. Obviously, this was also recognized by the Russian Federation as the strongest remaining member, which apparently changed its strategy over time. In 1992 and 1993, loans amounting to some 2,200 billion rubles were made available to the former Soviet states in order to maintain trade within the Russia Federation (Korowin, 1994). As early as in the summer of 1993 however, after the introduction of the new Russian Ruble, the central bank of Russia forced a harsher policy and thus urgently exempted the remaining states from the ruble (Korowin, 1994a). The imbalance of power on the political and economic level did not allow them to stay in the ruble currency zone without accepting all the conditions set up by Moscow (International Monetary Fund, 1992). Apparently, this was a key exclusion criterion for the majority of states. In addition, persisting problems, such as the lack of cash supply or the consequences of a monetary policy that did not fit the individual economic needs, became more acute. These factors further accelerated the disintegration of the ruble currency zone.

A. Inconsistent Power Relations

In the power structure of the ruble currency zone, it seems obvious that the Russian Federation, because of its relatively strong economic power, has made central decisions largely autonomous (Kaiser & Maull, 1995). In the consideration of the huge area and the associated economic possibilities of Russia compared to the other states, it soon becomes clear that this was an unequal balance of power. The latter leads to the conjecture, that overplacement was exhibited here. The economic dependency of nearly all states of the ruble currency zone on Russia faded slowly during the disintegration process. However, doubts about the ability of Russia to manage the situation became ever louder (Wagner & van Selm, 1995). There was also a general climate of political suspicion on the side of the successor states towards Moscow. For the national governments in order to preserve their political credibility, leaving the ruble currency zone was basically the only viable option.

In addition to growing interstate friction, there were also divergent ideas in the Russian Federation regarding the new design of an economic policy. This for example became obvious in the constitution that came into force at the end of 1993. The latter contained unmistakable unitary state elements and prohibited the formation of individual (that is to say Moscow-deviating) economic policies (Schneider, 2001; Korowin 1994). From the last two aspects it can be concluded that strong internal as well as external political pressure drove the tendency towards disintegration. In retrospective, a lasting continuation of the ruble currency zone was no longer feasible after 1991, since when the remaining states conducted negotiations only at a bilateral level. In this respect, it was almost impossible to reach a consensus on the continuation of the common currency at the multilateral level (Korowin, 1994). Nevertheless, considering the post-USSR power relations, it appears that Moscow overestimated its bargaining power, which eventually accelerated the whole process of disintegration.

B. Lack of Cash Supply

Within the ruble currency zone, only the central bank of the Russian Federation had the right to issue banknotes. Consequently, the supply of republics with cash from Moscow seemed coupled with the status of political relationship. For example, Turkmenistan, received nearly three times the cash flow which would have been distributed evenly, calibrated by means of the net material product. In contrast, Latvia was almost completely cut off from cash supply (Muth, 1997). However, the individual central banks of the Soviet Union's successor states, as branches of the central bank in Moscow, were allowed to provide daily due deposits as loans without any restrictions on volumes. In order to finance the considerable deficits, the possibility was actively used. This resulted in increasing inflation rates within the ruble currency zone, for example, in the territory of the Russian Federation of more than 2,500 percent in 1992 (Poser, 1999). The impact on the economic performance of the countries involved was consequently serious. In the years from 1992 to 1994, real GDP fell by an average 11.97 percent per year as also presented more detailed in table 2 (Herr, 2002).

Grow Rates of the Real GDP							
	1989	1990	1991	1992	1993	1994	1995
Armenia	14,2	-7,4	-17,1	-52,6	-14,8	5,4	6,9
Azerbaijan	-4,4	-11,7	-0,7	-22,6	-23,1	-19,7	-11,8
Estonia	-1,1	-8,1	-13,6	-14,2	-9,0	-2,0	4,3
Georgia	-4,8	-12,4	-20,6	-44,8	-25,4	-11,4	2,4
Kazakhstan	-0,4	-0,4	-13,0	-2,9	-9,2	-12,6	-8,2
Kyrgyzstan	4,0	3,0	-5,0	-19,0	-16,0	-20,0	-5,4
Latvia	6,8	2,9	-10,4	-34,9	-14,9	0,6	-0,8
Lithuania	1,5	-5,0	-6,2	-21,3	-16,0	-9,5	3,5
Moldova	8,5	-2,4	-17,5	-29,1	-1,2	-31,2	-3,0
Russia	-	-4,0	-5,0	-14,5	-8,7	-12,7	-4,1
Tajikistan	-2,9	-1,6	-7,1	-29,0	-11,0	-18,9	-12,5
Turkmenistan	-6,9	2,0	-4,7	-5,3	-10,0	-18,8	-8,2
Ukraine	4,0	-3,4	-11,6	-13,7	-14,2	-23,0	-12,2
Uzbekistan	3,7	1,6	-0,5	-11,1	-2,3	-4,2	-0,9
Belarus	8,0	-3,0	-1,2	-9,6	-7,6	-12,6	-10,4

Table 1 Grow Rates of the Real GDP. Figure by author, data from European Bank for Reconstruction and Development (1999).

The reason for the rising inflation rates, caused by the bank money creation in the ruble currency zone, can theoretically be described using the so-called tragedy of the commons (Muth, 1997). Due to the unregulated creation of book money, each state could increase its own seigniorage by using this instrument as intensively as possible. However, the costs were ultimately paid by the entire currency area (Wolf, 2013). The basically uncooperative action, which was only intended for a short-term own advantage, seemed inevitable due to the already mentioned lack of trust between the successor states (Wagner & van Selm, 1995). Regarding overconfidence, this behavior seems to be rooted in overplacement of almost all successor states above each other. However, the situation appeared to be too complex and multivariant to just be caused by overplacement. In order to implement a countermeasure in response to skyrocketing inflation rates, conversion factors were introduced with significant discounts on book money from the different states in relation to the ruble value proposed by

the Russian Federation. As a result, the problem of undersupply of cash ruble increased even more. The latter was consistently accepted with a parity of 1: 1, which meant that the cash ruble became all the more in demand, as the book money ruble lost in value (Thanner, 1993).

C. Diverging Monetary Policy Goals

Formally, the Russian Federation alone took decisions on the monetary policy of the ruble currency zone (Heydemann & Vodicka, 2014). However, these decisions were constantly counteracted by the already outlined creation of book money in the individual successor states. The Soviet-established approach of the Gosbank to ensure the redemption of approved loans from its branches initially continued in the ruble zone. As a result, the ruble currency zone's central banks were able to extend the central bank's balance sheet in Moscow continuously. Consequently, it was virtually impossible to fix the monetary policy centrally in Moscow, even if it was done formally (Muth, 1997). Sanctions to combat opportunistic behavior were completely absent in the ruble currency zone (Parzer-Epp, 2002). Concerning overconfidence, Moscow apparently overestimated the obedience of the successor states and did not expect such behavior.

Additionally, the absence of long-term forecasts made it impossible to manage money supply on the basis of inflation rates or money volume in the market. Moreover, the lack of monetary autonomy and the lack of monetary policy instruments as well as the missing corresponding implementation channels on the part of the central bank troubled the effective achievement of monetary policy objectives (Elborgh-Woytek, 1989). Therefore, the implementation of the latter took some time, even after the collapse of the ruble currency zone. Apparently, this delay was also caused by insufficiently qualified staff in the central banks (Prindl, 1992). This circumstance also limited the individual states in developing individual economic strategies after the collapse of the Soviet Union. The latter would have required significantly different monetary policy interventions in the different countries. It was only through the introduction of parallel currencies in the form of coupons that the ruble-exiting states were able to gain access to cash. The implementation of full-fledged national currencies and autonomy over their monetary policy followed subsequently. For example, in Uzbekistan and Kazakhstan a restrictive monetary policy was successively implemented. By contrast, the government of Turkmenistan continued to use monetary policy specifically to finance state-owned enterprises and, in this context, obliged banks to lend it with negative real interest rates (Elborgh-Woytek, 1989).

D. Momentum During Disintegration

As already described, the costs of the opportunistic behavior of individual states were paid by those remaining in the ruble currency zone. In addition to the problem of book money creation, two other system-related triggers were apparently responsible for rising inflation rates. Firstly, the liberalization of the markets and the related liberalization of prices from 1992 onwards revealed that inflation was previously hidden by state pricing of consumer goods (Antczak, 2001). On the other hand, as a result of the currency changeover from ruble into the respective new national currency, unfavorable exchange rate conditions or exchange rates made it attractive to either buy goods in cash in the countries still remaining in the ruble currency zone or to exchange remaining cash ruble in western currencies. The effects of both actions were almost identical. The amount of ruble in the remaining ruble currency zone continued to rise, thus worsening the inflationary effects of a disproportionate expansion of the money supply (Muth, 1997). It is plausible that states were therefore eager to leave the ruble currency zone as soon as possible.

As the Russian Federation apparently became aware of the impossibility to handle these developments at the end of the ruble currency zone and subsequently undertook various efforts to counteract the continued existence of the currency area. For example, Russia demanded a final conversion of old ruble loans into hard currencies from the last remaining states. The latter would then either have been repaid with interest or redeemed by the transfer of state assets. As a result of these demands, countries such as Kazakhstan, which were oriented towards Russia before in order to not lose access to ruble loans, turned against the ruble currency zone and left (Thanner, 1993). This final act indicates, that the Russian Federation eventually implicitly or explicitly became aware of overconfidence in their former actions and adjusted their strategy accordingly.

VI. Conclusion and Outlook

The causes of disintegration of the ruble currency zone were complex and ranged from structural problems, such as the power structure, to practical problems, such as the poor cash supply. Moreover, different monetary policy objectives were caused by the heterogeneity of the countries in the currency area. Once disintegration has begun, it was difficult to be stopped

because of the mutually reinforcing circumstances. With regard to the euro area, a differentiated analysis is needed to be able to answer whether certain exit causes from the ruble currency zone are likely to repeat themselves today. It seems, that the legal structure of the currency area and in particular the role of the central bank is decisive.

A certain imbalance in terms of power relations can also be determined for the Eurozone. For example, Germany has repeatedly dominated important decisions due to its size and economic power. However, there are mechanisms in the euro area that take the principle of "one vote per member country" into account, especially in the case of central monetary policy decisions in the council of the ECB. In addition, the rotational regulation, practiced since the beginning of 2015, ensures the ability to act continuously as the number of member states increases (European Central Bank, 2009). However, this regulation comes with the risk that individual member states feel left out, which in turn could lead to withdrawal considerations (Berthold, Braun & Coban, 2014).

In the context of cash supply in the Eurozone, there was and is a constant discussion on the significantly different TARGET2 balances of individual member states. Through this payment system and policy instrument, an indirect quantitative increase in money stock took place, mainly in the so-called peripheral countries (Sinn & Wollmershäuser, 2011). However, the rather narrow legal context should be noted here. In the ruble currency zone, the uncoordinated book money creation was left as a remnant from Soviet times, whereas TARGET2 is used in the Eurozone due to differentiated agreements.

The independence of the ECB and its competence in determining the monetary policy, goes hand in hand with the restricted room for maneuvers of individual states, for example regarding the management of inflation rates. The governments therefore run the risk of being put under pressure between national requirements and European agreements, as the need for adjustment increases (Berthold, Braun & Coban, 2014). In a pointed scenario, the exchange of governments and possible efforts to leave the currency area are conceivable. An exit dynamic in the way of the ruble currency zone only seems possible if the first examples of the Eurozone's struggling countries show a much more positive development after leaving the Eurozone than before. However, this scenario is considered unlikely, above all due to high conversion costs and the expected above-average capital flight (Blankert & Breitschneider, 2012). Nevertheless, the recent efforts of Great Britain leaving the European Union demonstrate that the costs of leaving are taken into account out of mainly political motives (The Guardian, 2019).

The ruble currency zone opens up questions that are also relevant for the Eurozone. However, the specific historical context must be taken into account. In the disintegration process of the Soviet Union, the continuance of the common currency was excluded almost early on. For the Eurozone, the question arises as to whether the integration path that has been started can be continued or whether the events of recent years have already overburdened confidence in a European future. The configuration of a further integration could possibly range from the introduction of a European fiscal authority up to a full political union (Gabrisch, 2013). However, it remains questionable whether further levels of integration are enforceable in the current political environment. Concerning overconfidence, the ruble currency zone as well as the Eurozone exhibit particular traits. Nevertheless, the measures to react are more advanced in today's Eurozone than they were in the successor states of the USSR.

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Financial Determinants of Public Investment Strategic Management

Benedykt Opałka

PhD, Warsaw School of Economics, Department of Regional and Spatial Development, Unit of Management in Public Sector, 41 Wisniowa St.,02-520 Warsaw, Poland

Krzysztof Jarosiński

Associate Professor, PhD, Warsaw School of Economics, Department of Regional and Spatial Development, Unit of Management in Public Sector, Head of Unit, 41 Wisniowa St.,02-520 Warsaw, Poland, kjarosi@sgh.waw.pl

Abstract

Strategic management of investment projects in the public sector seems to be one of the more complex phenomena observed in the sphere of implementation of public investment tasks. The complexity of investment processes is influenced by a number of factors with varying impact. First of all, attention should be paid to the high capital intensity of public investment and the associated significant extension of the investment cycle. As a result of the impact of these factors, public investments in most cases require large capital expenditures, and their implementation takes much longer than, for example, in industry. Secondly, public entities responsible for the implementation of investments are in a quite specific situation, which means the continuous development of various components of technical and social infrastructure. Therefore, it is necessary to indicate the strategic dimension of these investments and, consequently, the necessity to use appropriate methods of financing and managing these investments. In principle, the main source of financing public investment is, and probably will remain, the state budget, and in relation to local self-government - the budgets of these units, and therefore public resources. The purpose of the paper is therefore to present the complexity of the issue of financing public investments in relation to the identified conditions for the development of socio-economic infrastructure, financed from public funds. The study has undertaken theoretical research on public investment and research on the possibility of implementing effective management methods in strategic perspective.

Keywords: management in public, public finance, strategic management, investments.

Introduction

Socio-economic transformation in the countries of Central and Eastern Europe and changes in the system of transnational economic connections triggered new development impulses and pointed to the new position of public sector entities and units. In democratic systemic conditions, the scope of tasks and competences of the state as well as the tasks and competences of the reactivated territorial self-government were re-defined. The public sector has become a full-fledged institution of public life organization at the local and regional level, with far-reaching competences in the area of creating directions of development.

The budgets of public sector entities have become an important instrument for the implementation of the socio-economic development policy at the regional and local territorial level. In particular, regional and local government units obtained within their budgets the right to collect income and finance current tasks and development investments. What's more, the tendencies of contemporary changes in the area of financing development processes are related to the increase of autonomy of public sector units at the regional and local level and with the promotion of managerial competences, directed at greater activity and responsibility for undertaken tasks, with successive implementation of new, more effective strategic planning and forecasting solutions effects of activities for future periods.

The submitted study is aimed to determine the financial factors defining the activity of public sector entities in the scope of shaping the level of socio-economic development in the strategic perspective through planning, financing and implementation of public investments, including the division into different levels of competence. In the budget economy of

public sector entities, the most important financial category that is related to the financing of investments are resources that can be used within the balanced budget for financing investments. In such circumstances, therefore, attention should be paid to the autonomous nature of the budget and restrictions resulting from the financial policy taken to conduct specific investment projects. Despite the existing possibilities of using funds for investments from other sources, in the form of subsidies or credits and loans, the basic condition for the correct financial management of public entities is to maintain the principle of balance between budget expenditures and incomes. Regardless of the choice of the investment financing path, the condition of budget balance must be maintained in the long term.

Paying attention to the financial determinants of strategic management of investments in the public sector, one should first examine the own investment financing options based on the own resources. This approach seems justified even when the financing of investments is based on external sources of financing, as the situation may be short- or medium-term, while the condition of budget balance must be maintained in the long term. Bearing in mind the various complex methods of financing investments using funds from diversified sources, it seems that the main position here is the possibility to use the own funds and only then the funds coming from outside the resources of a given public entity, and even outside the public finance sector. An important role here is played by long-term management of public resources and the search for optimal structures from the point of view of financing socio-economic development.

Strategic management of the investments in public sector

In the research on shaping future social and economic phenomena, the particular attention should be paid to strategic management instruments, long-term investment programs, or long-term asset management being the subject of public sector entities' activity. Strategic management in the above approach is connected with practically continuous implementation of the decision-making process, the effects of which are directly related to achieving the quality of life of the inhabitants of a territorial unit (Jarosiński, Grzymała, Opałka, Maśloch, 2015, pp. 33-39). The scope of competences and responsibilities of public sector entities may be reflected in many areas of administrative activity, but also in investment activities, which largely determine the effects of shaping development conditions in the short term and in a long-term perspective (McCartney, 2015, pp. 23-42).

Long-term socio-economic development is a complex process, which consists of factors of varying strength and range of impact. Thus, we are dealing here with short-term impact factors, which come from sphere of operational management, referring to the existing resources and we are dealing with a group of factors that affect the development processes in a multi-year perspective. It cannot be unambiguously determined which group of factors is more important from the point of view of improving living conditions and objectives of socio-economic development. On the one hand, the level and quality of current consumption, which constitutes the assessment of living conditions, will have a greater subjective significance for recipients. On the other hand, strategic development factors are essential to meet society's needs in future years.

In practice, the strategic dimension of development must refer directly to investments that will be carried out in the future or investments that will have a reconstruction character in relation to economic entities operating currently, and maintaining their technical efficiency will require this type of investment. For these reasons, it seems that the strategic dimension of development is much more complex than running the current operating activity of public sector organizational units. This complexity results from the need to determine the scope of future tasks, which could successively be defined and implemented as investment projects, and this complexity is connected with the necessity to establish a long-term path of financing future investment projects. It is the time dimension that makes forecasting of future phenomena a methodological problem and may become a development barrier in the financial dimension.

The long-term nature of the activities of public sector entities, practically unlimited in time, means that the correct implementation of tasks and achieving goals involves taking into account a large number of variables that appear both during ongoing operations as well as when defining future goals and methods achieving these goals in the strategic planning process. The key problem is therefore the approach to the development processes of public sector entities, where it would be possible to combine and correlate individual residents' goals, economic goals of enterprises operating in market economy conditions, social goals of the state and local government units. An additional difficulty associated with the long-term recognition of development processes is the uncertainty strongly associated with forecasting future phenomena, which are considered to be elements of risk affecting the achievement of the assumed goals.

The strategic dimension of development can be the platform for making long-term decisions of a comprehensive nature at a defined level of generality, which is why it is considered to occupy the top-level hierarchy of the management process. Hence, decisions regarding future and remote matters fall into the category of strategic management. An interesting, though complex definition of strategic management was proposed by D. Schendel and Ch. Hofer. They focused on four key stages of strategic management. The first stage is to set the goals of the organization being studied, the second stage is to formulate strategies based on defined goals. The third stage is the implementation of tasks included in the strategic plan, which means implementing the strategy as a necessary transition from the analysis stage to the administration stage, that is to the activities that should lead to the achievement of the set objectives. At this stage, the main stimulators are internal processes in the organization and individual reactions that can force a change in the adopted strategy. The fourth stage, which is strategic control, provides the management of the organization with feedback on the progress achieved in the implementation of the strategic plan (Schendel, Hofer, 1978, pp. 12-64).

In the case of Central and Eastern European countries, which faced the necessity to implement the strategic management methodology in the newly shaped public sector, external role models using the experience of highly developed countries played an important role. An example of the practical approach to the methodology, which can be considered as still valid are the elements of strategic management formulated by N. Berman in relation to local government units at the local level. The author proposed the separation of eight stages in the process of preparing a municipal development strategy (Berman, 2000, pp. 16-20).

Particular importance in his methodology N. Berman applied to ensure the proper composition of the team undertaking work on the strategy document. He drew attention to the great importance of cooperation between representatives of public sector entities and private sector entities. This solution was supposed to increase the chances of a social consensus towards goals and future projects. The appointment of team members should lead to full use of the intellectual potential of the local community. He paid attention to conducting a diagnosis of the existing state and gathering as wide a range of information as possible about factors both internal and external, which may affect the development opportunities of the community. An important part of strategic management would be to identify the most important socio-economic issues that will form the core of the strategic plan. For this purpose, it would be necessary to conduct a SWOT analysis and identify the most important opportunities and threats (external conditions) and strengths and weaknesses (internal conditions) of the community. Only on this basis would it be possible to define objectives, programs and tasks. This work should be done by task subgroups created as a part of the main team appointed to prepare the strategy. After such activities, it would be possible to compile partial results and integrate the prepared action plans in one document to achieve individual strategic goals. At the same time, a social agreement should be reached regarding the final provisions of the strategy, the financial resources needed for their implementation, as well as the determination of competences and responsibilities for the implementation of particular parts of the strategy.

The next stage would be to implement a strategic plan with the cooperation of public authorities, institutions and organizations, private enterprises, involving their resources for development. An essential element of the strategic management process should be monitoring and, as if necessary, updating of the plan. The monitoring process should include an assessment of the state of implementation of strategic projects, along with an assessment of the real impact of the strategy on socio-economic factors. The basic aspects to be monitored are: compliance of project implementation with the planned schedule, funds spent compared to the planned ones, changes among process partners and the external environment that may trigger the need to change the plan and significant changes in the core indicators of economic development. An important scope of activities should be periodic adjustments in the strategy, taking into account the society's needs, in which significant changes may occur in time points of plan verification.

Financial issues determining investments processes in the public sector

There is no doubt that investments carried out in the public sector are considered one of the most important factors affecting growth and socio-economic development. This is because public investment can significantly stimulate the processes of socio-economic development, especially by stimulating private investment. Taking into account the fact that public investments usually refer to infrastructure in the social and economic dimension, it can be assumed that development is determined to a large extent by factors of an infrastructural nature. In addition to other factors, whose list is long and the range of their impact varies - from the local scale to the global dimensions, it is the infrastructural condition of development that seems to play the most important role. The low level of infrastructure development is a serious limitation of the potential conditions for socio-economic development and is usually of interest to economists who are looking for methods and ways

to quickly remove the infrastructure barrier. However, this problem involves significant financial outlays that must be allocated to financing infrastructure investments.

It can therefore be assumed that in most cases the determinants of socio-economic development are related to the possibilities of financing investments in the public sector. This paper is not about considering the scope and impact of different development factors determining long-term socio-economic processes, but rather focusing on paying attention to several of them, i.e. the availability of own budgetary resources for investments, the availability of private enterprises' funds targeted at public investment, the possibility of subsidizing public investment, the possibility of implementing investments under the public-private partnership formula and some other indirect factors.

It should be remembered that investment processes in the public sector for many reasons are characterized by high complexity and always require research in a broader context of conditions. As it results from the observation of the current course of the implementation process of strategic development plans, the implementation of investments in the technical and social infrastructure, encounters significant difficulties, not only in terms of acquiring investment capital. The actual scale of the problem covers a broader subject range, however, the financial barrier limiting the acquisition of key resources enabling correct implementation of all stages of strategic management is not without significance.

Taking into account the presented specifics of investing in public sector conditions, the main groups of factors of a financial nature can be distinguished, which determine the effectiveness and efficiency of shaping socio-economic development in strategic terms through the implementation of investment projects.

The first group should be the issues of the possibility of raising funds for investments. As indicated earlier in this study, the starting point should be the assessment of financial factors underlying the basic activity of public sector entities in the context of own investments. The basic source of financing the investments of public sector entities are usually own funds collected and expended within the budget of the relevant units. The analysis of budgets of public sector entities is an important direction in the study of factors shaping investment opportunities due to the direct dependence of sources of budget revenues on the condition of the economy and previously shaped development processes. For these reasons, investment policy at various territorial levels of the public sector requires the collection and updating of information from research on the systematic development of sources of budget revenues of state government and local government sector entities and the identification of real flows of financial resources within budgets of these units .

Previous research carried out within the European Union shows that in some Member States there is a persistent shortage of budgetary resources that could be allocated in local government units for financing development tasks. The list of disclosed investment needs and budgetary resources of these units, which may be allocated for investments, leads to unequivocal assessments of the current situation in the public sector characterized by the occurrence of serious difficulties in the implementation of statutory own tasks. This results in dilemmas in how to finance infrastructure projects, which in particular in rural areas or in the vicinity of metropolitan areas are considered as a necessary factor in improving the quality of public services, conditioning the achievement of a sufficiently high dynamics of economic development processes (Kessides, 1993, pp. 3-39).

The main source of support in financing public investments in the situation of the deficit of own funds of public sector entities in the European Union countries is still the EU cohesion policy and, consequently, support in the form of subsidies from the EU budget under structural funds, as well as other forms of financing. Due to well-recognized and characterized in the literature the conditions and principles of shaping the assumptions and actions of cohesion policy, it was recognized that in this paper there is no need for their detailed presentation. It is worth noting, however, that the implementation instruments of cohesion policy have resulted in significant changes in the approach to the creation of own investment policy at the level of both Member States as well as regions and local territorial self-government structures. These changes from the perspective of states benefiting from subsidies from the EU budget included, on the one hand, the possibility of increasing the volume of investment expenditures, and thus increasing the material scope of new investments, on the other hand, cohesion policy affected through pre-defined development priorities preferences and decisions regarding directions and scope of investments in the public sector. It can be concluded that the use of subsidies from the EU budget has significantly changed the rigors of public investment financing by including in the investment part of the budgets an additional volume of financial resources, which in practice are equivalent to own funds. However, it should also be borne in mind that this is a temporary situation and, in a certain perspective, it will be necessary to return to financing the development based on own funds or turn to a wider use of funds for investments coming from the financial market.

In the above situation, in terms of the significant determinant of long-term investment opportunities, external return sources of financing should be analysed, mainly in the form of commercial loans or bond issues. It is worth emphasizing that the specifics of investments in the public sector and their socio-economic conditions do not have to cause little interest in such investments from capital markets and resign from the possibility of financing investments by raising funds through credit or bond issuance. However, the problem is the limited ability of public sector entities to increase the level of public debt, assessed primarily in the context of the ability to provide ongoing debt service. The criteria for assessing this ability arise from the law, while the results of its assessment shape the creditworthiness of public sector entities, and consequently affect the attractiveness of the conditions for raising investment capital from the financial market.

In the above conditions, and at the same time in view of the significant pressure on the state budget and budgets of local government units, towards the implementation of new investment projects, there was interest in joint investment projects in the public-private partnership in the scope of public sector tasks. The mismatch of own revenues of public sector entities to the changing scope of their own tasks, which is observed mainly in countries with significant investment needs in the field of infrastructure, should be considered as the basic premise for seeking new forms of co-financing investment projects. On the other hand, the issues of benefits from the involvement of private capital in investment projects, which at the same time allow social functions and provide a source of income for private enterprises acting as an investor or operator of infrastructure facilities, are no less important. In strategic terms, an important feature of public-private partnership is the establishment of long-term cooperation between a public entity and a private entity in order to implement projects in the field of services of general interest, it is important to preserve the principle of separateness of participating entities and to guarantee conditions for achieving separate goals of these entities with simultaneous division of responsibility for managing project risk factors between partners.

The shaping of new forms of cooperation between the public and private sectors is connected with the necessity of transferring instruments and forms of management of relevant private sector entities to the functioning of the public sector. In recent years, this was due to the impact of market factors, but also as a result of active processes supporting the development of public-private partnership by the European Union. The formula of hybrid projects developed and settled by EU regulations was used to take advantage of the combined subsidy possibilities from the EU budget and the public-private partnership formula. Following the definition of this form of investment financing, meeting the compliance criteria in the EU cohesion policy directions and allowing the use of investment capital and know-how of private partners, detailed organizational solutions and management methods in the current and long-term are developed.

At the end of this part of the research, it is worth paying attention to some factors having an indirect impact on the possibilities of making and successfully implementing investments in the long-term perspective. It should be mentioned here the financial outlays necessary to acquire qualified human capital resources for public sector entities, which would allow to gain or strengthen the ability to financially compete in the labour market for the acquisition of specialists with high competences in the field of strategic management and implementation of investment projects. Taking into account the conditions of investment processes characterized earlier, it can be expected that the involvement of specialists with qualifications that ensure abilities to multilevel and complex analysing of investment projects in the public sector is a prerequisite for obtaining satisfactory results from the implemented strategic development plans (Randolph, Hefley, Bogetic, 1996, pp. 37-47). In this group, one can also indicate the need to bear the financial outlays necessary to acquire knowledge and methodology in support of planning processes and implementation of public investments. Such expenditures may refer to providing access to current methods of strategic management and evaluation instruments of investment projects, metohods of social cost and benefits assessment, as well as to purchase of computer software supporting project management processes and also providing employees in public sector units with opportunities to improve their skills and competences on the strategic management issues.

The above-described indirect factors determining the financial aspects of management of public investments result from the contemporary conditions of the market economy, forcing to a greater extent the pursuit of achieving a certain level of economic efficiency necessary for operations, in particular investments undertaken by public authorities (Laursen, Myers, 2009, pp. 7-17). The increasing pace of civilization progress is shaping the rise in social expectations, including both the need to implement new technologies and stricter environmental requirements, which usually requires more funds for the construction, maintenance and modernization of infrastructure elements (Messere, de Kam, Heady, 2003, pp. 45-46). Striving to achieve an increase in the level of meeting social needs in market economy conditions in the case of public sector activities requires adapting contemporary management concepts, including searching for solutions that enable

strategic management of financial resources used for programs and projects serving social and economic development goals. This corresponds to the directions of an ever-current debate on the role that the public sector should play in the economy and on the methods used in the processes of managing public service units adopted from management practice of profit-focused enterprises (Newman, 2000, pp. 49-52). The practical dimension of the responsibility of entities and public sector organizational units for financing and implementation of their own tasks therefore takes various forms in the organizational, technical, legal and financial dimensions and shapes the ability to adapt to changing internal conditions and the external environment.

Financing of the long-term public investments

Financing investments of public sector entities should be considered a much more complex issue in relation to the situation occurring in enterprises in the private sector, where investments are aimed at achieving quite narrowly defined development goals. In the public sector, we are dealing with a process approach to development problems, consisting in the implementation of a long-term investment policy, developed as a result of a social consensus in the form of a democratically set hierarchy of goals, tasks and securing financial resources for their implementation. This process is strongly conditioned by endogenous factors, and therefore factors characterizing the general potential of a given unit. These factors play a fundamental role in the long-term development process, although to some extent they are in a permanent or only transient manner, modified by groups of exogenous factors (Diamond, 2006, pp. 24-25). In fact, public sector entities must focus their attention on a properly conducted long-term budgetary economy and implementation of identified hierarchical development goals. It is also important to identify potential sources of investment financing under external measures, in particular non-repayable funds, but also to use commercial credit facilities. An essential stage in planning and design activities should be the development of the financing path, including the identification of sources of financing, as well as establishing the rules for servicing possible debt. In practical terms, it allows to provide sources of financing for development policy and adopted strategic goals.

The subject of the conducted empirical research, the results of which were included in this study, were investment expenditures in relation to GDP, made in EU Member States in the enterprise sector and in the public sector in 2006-2017 and also gross fixed capital formation in the general government and at the local government level in 2009-2018. In the period covered by the study, business investment expenditures in relation to GDP in EU Member States were at a clearly varied levels, however in 2016 they did not exceed 20.0% , except for Ireland, where they amounted to 31.9% in 2016. The relatively high level of the indicator in the discussed period was recorded in rich EU countries. Selected data in this respect are presented in Table 1 and illustrated graphically in Figure 1 and Figure 2.

Table 1: Investment by institutional sectors as % of GDP in selected EU countries in selected years (2010-2017).

Specification	2010			2014			2017		
	Total investment	Business investment	Government investment	Total investment	Business investment	Government investment	Total investment	Business investment	Government investment
Greece	17.6	6.6	3.7	11.5	5.3	3.7	12.9	6.0	4.5
Portugal	20.5	10.7	5.3	15.0	9.8	2.0	16.6	11.3	1.8
Italy	19.9	9.9	2.9	16.7	8.9	2.3	17.6	10.1	2.0
Poland *	20.3	9.7	5.6	19.7	10.4	4.5	18.07	10.35	3.28
Germany	19.4	11.4	2.3	20.0	11.7	2.1	20.3	11.9	2.2
Spain	23.0	12.5	4.7	19.3	14.2	2.2	20.5	15.2	2.0
Netherlands	19.7	10.2	4.2	17.6	9.7	3.5	20.5	11.3	3.4
EU 28 countries	20.5	11.5	3.5	19.9	12.1	2.9	20.8	12.9	2.8
Latvia	19.4	12.2	4.7	22.6	15.0	4.5	20.9	13.5	4.4
Denmark	18.1	10.4	3.3	19.2	11.6	3.9	21.2	13.3	3.4
Slovakia	22.1	13.6	3.6	20.7	12.4	4.0	21.4	13.6	3.2
Finland	21.9	11.8	3.7	20.6	10.5	4.2	22.2	11.5	4.1
Hungary	20.2	12.6	3.7	22.2	13.8	5.3	22.2	13.9	4.5
Romania	26.1	14.7	5.7	24.3	14.6	4.3	22.4	13.9	2.6
France	22.1	11.8	4.2	21.8	12.4	3.7	22.5	13.2	3.4
Ireland	17.5	10.7	3.4	20.7	16.5	2.2	23.5	19.7	1.8
Belgium	21.8	13.4	2.3	23.0	14.8	2.3	23.5	15.5	2.2
Austria	21.6	13.1	3.3	22.7	14.6	3.0	23.6	15.4	3.1

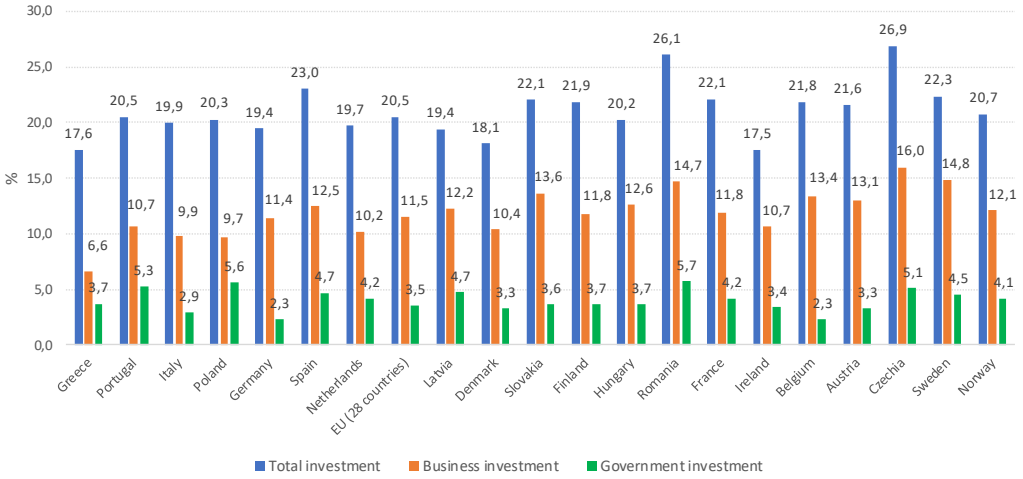
Czechia	26.9	16.0	5.1	25.1	16.5	4.1	24.8	16.7	3.4
Sweden	22.3	14.8	4.5	23.1	16.3	4.4	25.0	17.0	4.6
Norway	20.7	12.1	4.1	23.8	13.6	4.6	25.0	13.1	5.3

* data for Poland in 2017 were estimated on the basis of Eurostat information for 2016.

Source: own study based on data from Eurostat https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tec00132&plugin=1, connection of 11.04.2019.

In the initial period of the analysis, i.e. in 2006, a relatively high share of business investment expenditure in GDP was recorded in Bulgaria 20.9% , in Romania 19.8% , in Lithuania 18.0% , in Slovakia 17.9% and in Slovenia 17.2% , as well as in the Czech Republic 17.1% . The general regularity in 2006, which was noted during the research, was the relatively higher value of the indicator in poorer EU countries, which joined the EU in 2004 and at the same time relatively lower value of the index in rich states: in Germany 11.9% , in France 11.8% , the Netherlands 9.7% and in Denmark 12.6% . It should be assumed that this relatively higher value of the indicator was associated in some of the countries mentioned above (except for Bulgaria and Romania), including them in the system of financing programs within the EU cohesion policy. In the following years, the investment situation in the enterprise sector was similar, although the values of the indicator in some Member States fluctuated slightly. And so, in 2017 the highest value of the index was recorded in Ireland 19.7% , in Sweden 17.0% and in the Czech Republic 16.7% and in Austria 15.4% . The lowest value of the indicator was recorded in 2017 in Greece at 6.0% . It is worth noting that the level of the indicator in Greece significantly differed from the situation in other Member States and fluctuated around 7.8% -4.5% throughout the discussed period. It should be noted that in 2017, as in previous years, there were marked differences in the values of this indicator.

Figure 1: Investment by institutional sectors as % of GDP in the year 2010.

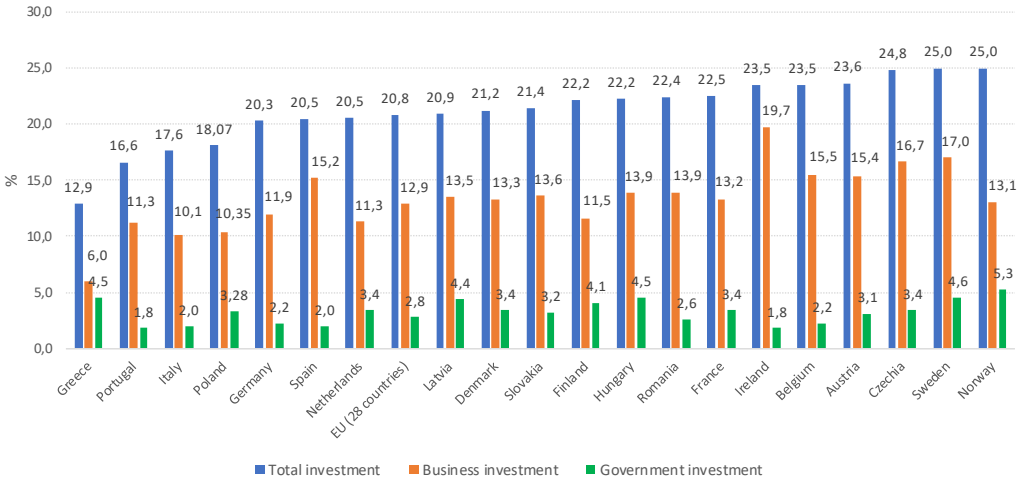


Source: own based on data in Table 1.

The value of the indicator covering government sector investments was significantly lower and varied in individual Member States throughout the period considered. In 2006, the highest value of the indicator was recorded in Greece, 5.7% , and then in Estonia 5.4% , in Hungary 5.1% and also in Romania 5.3% . At the same time, the lowest values of the indicator were recorded in relatively richer countries, i.e. in Belgium 1.9% , in Germany 2.0% and in the United Kingdom 2.5% . Such a distribution of the value of the ratio seems to be justified because public expenditure on investments in a wider scope was implemented in countries with a low level of infrastructure development, while they were lower in rich states with good infrastructure equipment. Noteworthy is the relatively high value of the indicator in Estonia. In 2017, it reached the highest value among the Member States and amounted to 5.4% . The asymmetry of the indicator value in 2017 was maintained in accordance with the previously noted regularity, that in less wealthy countries the value of the indicator was higher than in

the relatively richer countries. The distribution of the indicator in 2017 suggests that the process of equalizing the disproportions in infrastructure equipment has not yet finished, hence the greater share of investment expenditure in GDP was observed in some countries.

Figure 2: Investment by institutional sectors as % of GDP in the year 2017.



Source: own based on data in Table 1.

The conducted analyses may indicate, therefore, that the investment policy pursued by the public sector entities still concentrates on identifying and implementing infrastructural tasks, which in detail includes investments to maintain and restore existing fixed assets, as well as the implementation of new material investments, in accordance with the needs of society and local communities. The ability to effectively implement the above investment policy objectives results from both the legal and organizational conditions of the functioning of public sector entities as well as the degree of their financial independence. These conditions are reflected in the structure of strategic goals of socio-economic development, defined in the planning documents of the state and public sector units at various territorial levels (Szostak, 2009, pp. 66-67).

In the strategic plans of local government units, it is evident that these units are focusing on the pursuit of the highest possible share of investment expenditure in the total budget expenditure. However, such assumptions of the local investment policy are connected with numerous conditions, especially on the side of current expenditures, including those related to servicing previously contracted obligations. Therefore, the funds to be targeted in the future to support development are inherently a result of two basic cash flows, i.e. budget revenues and current expenditure. This means that investment projects cannot always be transformed into real investment projects, which can be financed and implemented, precisely because of the shortage of own budgetary resources for investments. The more valuable are the possibilities of obtaining non-returnable external aid for development purposes, resulting, for example, from subsidizing ventures from the European Union budget as part of cohesion policy and specific instruments for its implementation.

Current trends of changes in the global economy and a significant scope of public support directed to the objectives of social economic development through plans and programs created and coordinated not only at the central administration level indicate the need for in-depth analysis of development problems from a regional and local perspective (Parr, 2001, pp. 10-12). The essence of the regional approach to economic and social processes refers to the identification of development potential of the region itself, external conditions constituting the region's position in relation to the business environment, as well as defining competences and interdependencies between entities having access to various economic resources of the region and creating opportunities and forms of exploitation these resources. Against this background, it is worth pointing out the special role of public sector entities at the regional and local level in shaping development phenomena (Nafziger, 2006, pp. 362-391).

As for the value of gross fixed capital formation in the public sector, there were very significant differences between the EU Member States. As a general rule, in terms of the value was higher gross fixed capital formation in large countries with a relatively large population, while at the same time small outlays in small countries. For example, in 2018 in France, the value of gross fixed capital formation at the level of general government reached almost EUR 80 billion, while at the same time in Lithuania amounted to just over EUR 1.5 billion. Selected data in this respect are presented in Table 2 and illustrated graphically in Figure 3.

Table 2: Gross fixed capital formation in General government and in Local government in selected EU countries in selected years (2010-2018) in bln euro.

Specification	2010		2014		2016		2018	
	General government	Local government	General government	Local government	General government	Local government	General government	Local government
EU 28 countries	451.0	196.9	409.7	180.7	405.2	169.5	454.1	198.3
Belgium	8.4	2.8	9.4	2.9	9.3	2.6	10.8	3.6
Czechia	8.0	3.8	6.5	3.5	5.7	2.3	8.5	4.4
Denmark	8.0	3.7	10.3	4.5	10.7	4.5	10.2	4.7
Germany	59.5	22.6	60.6	21.6	68.2	23.2	78.9	27.5
Ireland	5.7	3.2	4.3	0.7	5.3	1.2	6.5	1.4
Greece	8.3	2.1	6.6	1.2	6.1	1.2	5.6	1.2
Spain	50.7	15.5	22.3	5.4	21.7	5.1	25.4	6.6
France	82.9	44.2	79.6	46.1	75.1	40.3	79.7	46.2
Italy	46.8	25.4	37.0	20.2	35.8	19.2	37.1	18.1
Latvia	0.8	0.5	1.1	0.5	0.9	0.3	1.6	0.7
Hungary	3.6	2.2	5.6	2.0	3.5	0.9	7.7	1.8
Netherlands	26.7	14.6	23.5	12.8	24.7	12.9	26.3	13.8
Austria	9.6	2.5	9.9	2.9	10.6	3.0	11.5	3.4
Poland	20.2	10.6	19.1	10.3	14.0	5.6	23.2	12.2
Portugal	9.5	3.0	3.4	1.5	2.9	1.4	4.0	1.9
Romania	7.2	2.7	6.4	3.3	6.2	3.1	5.4	3.2
Slovakia	2.4	1.1	3.0	0.7	2.6	0.6	3.2	1.1
Finland	6.9	3.6	8.6	4.6	8.9	4.8	9.7	5.5
Sweden	16.7	7.1	19.0	9.5	20.4	10.7	22.4	12.7
Norway	13.4	6.2	17.3	7.1	17.8	7.6	20.1	8.2

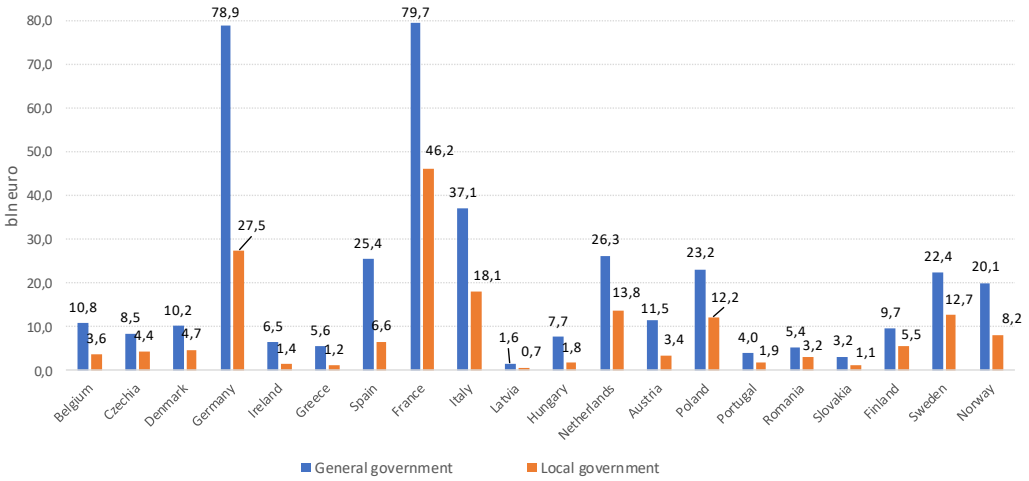
Source: own study based on data from Eurostat https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tec00132&plugin=1, connection of 11.04.2019,

The general value of public sector investment expenditures consists of government sector expenditure and expenditures of the local government sector. The combination of these two groups of entities clearly shows that in the discussed period, the government sector's gross fixed capital formation prevailed, although in some countries its value in the self-government sector was significant. Discrepancies in this respect were also very large and were conditioned by the size of the state, population, economic and development potential. These differences were not without impact on the financing possibilities of infrastructure investments, the more so as the investment costs are similar in all EU countries, and therefore, in those with smaller resources, the factual investment volume may be limited.

The structure of public gross fixed capital formation broken down by the state government and the local government was diversified. In 2009, a relatively higher share of gross fixed capital formation in the local government sector was recorded in Ireland, 62.4% , in France 57.2% , in the Netherlands 57.2% and in Latvia 55.6% . In the majority of EU Member States, this share was at a level of 30 to 45% . The relatively lowest share of local government gross fixed capital formation was recorded in Cyprus and Malta. It should be assumed that the structure of public gross fixed capital formation in general was conditioned by organizational solutions referring to the relationship between the government and the local self-government. Thus, a greater range of competences and greater financial independence could result in relatively higher expenditures compared to EU Member States. Diversification in this respect persisted throughout the period considered. It should be emphasized, however, that in 2018 the share of gross fixed capital formation of the local government sector in general government's gross fixed capital formation in the majority of the countries surveyed was slightly lower than in the base

period of the analysis. In some of them, the structure has changed in favour of the local sector, such as in Bulgaria, the Czech Republic, France, Italy and Romania. It should be recognized that the existing structure of general government's gross fixed capital formation in general, broken down by the state government sector and the local government sector, is relatively stable and stable, which confirms the proper relations between public administration at the state level and public administration at the local government level.

Figure 3: Gross fixed capital formation in General government and in Local government in selected EU countries in the year 2018 in bln euro.



Source: own based on data in Table 2.

In the examined countries of the European Union, there was undoubtedly a change in ways of approach to the problem of management in public sector organizational units, including local government units, which aimed at improving the efficiency and efficient conduct of public investment, as well as the current functioning of public service providers. Therefore, it can be expected that also the role of local government units at the regional and local level in the implementation of the total volume of investments in the public sector will increase in the coming years.

Conclusions

Strategic management in the public sector is an important factor influencing the effective and efficient use of endogenous financial and organizational resources to meet the collective needs of the local community. Contemporary challenges and development trends increasingly require the use of strategic management instruments in an integrated approach, which strengthens the possibilities of identifying future needs, on the basis of which specific investment projects can be formulated, and leads to better organization and sequential financing of investments in the longer term.

Strategic management and long-term financing are at the same time an important factor in improving the internal situation of public sector entities. Recognition of the current situation and reliable development of the diagnosis of the existing state is a good starting point for the preparation of strategic development plans, defining the path of financing future investment projects and facilitating operational management and strategic management of public sector entities.

Strategic planning in the public sector is a good starting point for a broader approach to the processes of socio-economic development. This applies to issues related to the planning of technical and social infrastructure, which is the basis for both business activity and for improving the quality of life of residents. The strategic approach to development problems provides a basis for prospective analysis in the area of public finances and enables proper selection of sources of financing investment projects in the longer term, including own resources, as well as funds from subsidies and repayable funds.

In the period 2006-2018 it became clearly visible that the level of financing investments included in public sector investments in European Union countries is strongly diversified, which indicates the need to continue the comprehensive approach so that public resources could be used more efficiently across the EU. It is important to study the factors determining the public sector investment policy in the conditions of a market economy. Active participation of public sector entities in economic and social development is noticeably manifested by a change in the approach to public resources and the search for new management methods aimed at increasing the efficiency of the use of funds, in particular in the long-term perspective.

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Literature Review of Renewable Energy Policies and Impacts

Tarek Safwat Kabel

PhD student in Economics, Department of Economics and International Studies, University of Buckingham, MK18 1EG, UK

Mohga Bassim

Lecturer in Economics, Department of Economics and International Studies, University of Buckingham, MK18 1EG, UK

Abstract

By 2017, 128 countries have adopted renewable energy support policies, compared to just 48 countries in 2005. These policies played a crucial role in helping countries to shift from conventional energy to renewable energy by overcoming the barriers facing the development of renewable energy. This paper reviews the studies, which outlined the policies used by different governments to support the development of renewable energy, which includes: Tax incentives, Loans, Feed-in tariff, and Renewable portfolio standard. The literature review covers different studies that examined the impacts of renewable energy on economic growth, job creation, welfare, CO_2 emissions, electricity prices, and fuel imports. Researches have used different methodological approaches, different periods, and different countries to examine the impacts of renewable energy. The studies found that the policies used were essential to shift to renewable energy substantially reduced carbon emission, and the majority concluded that renewable energy has a positive correlation with economic growth, job creation and welfare

Keywords: renewable policy, Feed-in Tariff (FiT), impacts, economic growth, CO_2 emissions. **JEL Classification Codes:** Q42, Q43, Q48

1. Introduction

In the past decade, many countries have planned to shift from traditional energy to renewable energy, but this has faced different barriers. Several studies highlighted the importance of relying on supportive polices for renewable energy. For example, Ciarreta, Espinosa, & Pizarro-irizar (2017) argue that currently, without supportive policies, renewable technologies cannot compete against conventional energy technologies. According to a recent report by REN21 (2018), 128 countries have implemented renewable energy regulatory policies by 2017.There are many support policies such as feed-in tariffs, renewable portfolio standards, quota systems, tax credits, and competitive tenders (UNEP, 2012).

According to various studies, feed-in tariff is the most common renewable energy policy that is used by different countries to support the deployment of renewables (Grover & Daniels, 2017; Jenner, Groba, & Indvik, 2013; Wang & Cheng, 2012). IRENA (2018) shows that feed-in tariffs (FITs) and feed-in premiums (FIPs) played a significant role in supporting renewable energy projects around the world by offering a stable income to generators and improve the returns of renewable energy projects. According to REN21 (2018), The number of countries using feed-in tariff and premiums was 113 in 2017, up from only three in 1990.

The studies used different periods, different models and different countries to examine the impacts of renewable energy consumption on economic growth, job creation, CO_2 emissions, welfare, electricity prices, and fuel imports (Garrett-peltier, 2016; Kahia, Kadria, & Aissa, 2016; Mathews & Xin, 2018; Rahman, Khan, Mustafa, & Ullah, 2017). According to a study by IRENA (2016) when doubling the renewable energy share in the final global energy mix, the global GDP is projected to grow in 2030 between 0.6% and 1.1% , if the reduction of CO_2 emissions is one of the essencial impacts of increasing renewable energy.

Renewable energy created 9.8 million jobs in 2016 around the world, with an increase of 1.1 percent from 2015. Countries leading in renewable energy jobs were China, Brazil, the United States, India, Japan, and Germany. Out of the 4.5 million jobs in renewable energy that exist in Asia, 3.6 million work in the sector in China. In Brazil the number of jobs in renewable energy reached 876,000, in Europe 1.2 million, and 61,000 in Africa (Gioutsos & Ochs, 2017). EEA (2017) shows that the EU ranked fifth in terms of the share of renewable energy jobs per capita in the labour force.

2. Renewable energy policies

In order to support renewable energy, many countries are pursuing policies which played a critical role in encouraging investment in renewable energy (Rennkamp, Haunss, Wongsa, Ortega, & Casamadrid, 2017). Rennkamp et al. (2017) Pointed out that China's renewables growth is due to implementing a number of government policies. According to Donastorg, Renukappa, & Suresh, (2017), at least164 countries have renewable energy policy targets, and to achieve these targets it must depend on dedicated policies. Different studies have confirmed the importance of dedicated policies in supporting renewable energy development. For example, Donastorg et al. (2017) showed that these policies play a crucial role in promoting innovation in renewable energy technologies, which reduces costs and thus increases their competitiveness against traditional energy. The major renewable energy policies include tax incentives, loans, feed- in tariffs, and renewable portfolio standards.

2.1 Financial incentives

Ciarreta et al. (2017) define financial incentives for renewable energy as incentives offered to make renewable energy systems or equipment more accessible by decreasing the financial burden for purchasing. Also, Cox (2016) reveals the importance of financial incentives to overcome the barriers facing the growth of renewable energy. In addition, financial incentives reduce the risk associated with investment in renewable energy projects (Hogg & Regan, 2010).

Governments worldwide have used financial incentives to encourage renewable energy use. According to Cox (2016), at least 48 countries have developed financial incentives to support the development of renewable energy in 2015. Several EU governments provide financial incentives for renewable energy. Financial incentives include tax incentives, loans, or feed-in tariff (UN Environment, 2017).

2.1.1 Tax incentives

To encourage the growth of renewable energy worldwide, governments have used a range of tax incentives (Clement, Lehman, Hamrin, & Wiser, 2005). IISD (2014) points out that governments prefer tax incentives over subsidies to encourage investment in renewable energy because these incentives increase the profitability of renewable energy projects by decreasing the tax liabilities of project development. Furthermore, Lantz & Doris (2009) Conclude that the tax incentives that support renewable energy development played an important role in supporting energy goals, economic growth, and energy security. In the same regard, Abolhosseini & Heshmati (2014a) referred to the role that tax incentives play in reducing conventional energy consumption. The major forms of tax incentives are tax deductions, tax exemption, and tax credit (Fowler & Breen, 2014). For example, China used tax incentives to promote electricity generation from renewable energy; these incentives such as tax refunds, rebates on taxes, and the tax exemptions (Ben Hagan, 2015).

According to Ogunlana & Goryunova (2016), the United States became the first country to provide tax incentives for renewable energy. During the period from 1978 to 2012, the United States issued several laws containing various types of incentives, aimed at encouraging energy producers to shift from traditional energy production to renewable energy production (Harrison, 2015). Tax credit is one of the tax incentives that the United States provide to households or corporate taxpayer to support the deployment of renewable energy (Anwar & Mulyadi, 2011). These incentives encourage people to consume renewable energy in return for granting them a tax credit. Tax credits can reduce the difference between the purchase price and the cost of generation (Loiter & Norberg-bohm, 1999). (Abolhosseini & Heshmati, 2014b) considers that tax credit can help to support renewable energy, especially in countries that suffer from the absence of competitiveness in traditional sources of energy.

Dippenaar (2018) investigated the impact of tax incentives on the business decision in South Africa regarding investment in renewable energy and energy efficiency projects. The study found that there are factors other than tax incentives that affect the decision to invest in renewable energy projects and that companies view tax incentives as an ineffective way of

changing their environmental behaviour. Consumers benefit from tax incentives by reducing the upfront costs of renewable energy projects.

2.1.2 Loans

Different governments encourage local banks to finance renewable energy by using different forms of financing (IRENA, 2013). By the end of 2016, around 100 countries compared to 17 countries in 2005 used Public investments, loans, and grants as an incentive to shift from conventional energy to renewable energy (IRENA & CPI, 2018).

For example, in Thailand, they established a revolving loan funds (RLFs) to encourage financial institutions to finance renewable energy projects. This scheme allows banks to borrow money at zero percent interest rate. The banks offer these funds to renewable energy projects; the maximum interest rate on loan is likely to be 4% for a maximum loan period of seven years. (Beerepoot, Laosiripojana, Sujjakulnukij, Tippichai, & Kamsamrong, 2013). The United States government offers different types of loan programs designed to overcome the barriers facing renewable energy financings such as higher interest rates, and higher capital cost. These loans programs such as low-interest rates, longer amortisation, low hassle and administrative fees, unsecured loans aimed to increase investment in renewable energy (Fowler & Breen, 2014).

Singh (2015) shows that loans programs can play an essential role in financing an investment gap for renewable energy in India. According to Shrimali et al., (2014) government of India offer a lower interest rate loans for renewable energy projects compared to commercial debt. Currently, Indian Banks can lend up to a limit of INR 150 million ($2.15 million) to renewable energy projects (Fowler & Breen, 2014).

In order to support the development of renewable energy industries, local governments in China provided low-interest loans (Wallace, n.d.). Ernst & Young (2014) highlights that corporate collateralised loans are a wiedspread financing vehicle in China for wind and solar projects. Hussain(2013b) argues that dependence on loans reduces market participants and does not necessarily encourage financing high-quality projects.

2.1.3 Feed-in tariff (FIT)

Many studies have demonstrated that feed-in tariff (FIT) is the most common renewable energy policy that is used by different countries to support the development of renewable energy. Haselip (2011) points out that feed-in tariff has played a crucial role in encouraging investment in electricity generation through renewable energy in developed countries, because (FIT) reduce the financial risk associated with individual projects. Nicolini & Tavoni (2017) Show that an increase in feed-in tariff by 1 percent contributes to a growth in incentivised renewable production of 0.4 percent -1percent.

Christoph, Rivers, Rutherford, & Wigle (2012) investigate the employment impacts of renewable energy policies in the Canadian province of Ontario using a computable general equilibrium model. The results suggest that feed-in tariff (FIT) will create a direct job related to manufacturing and operation. Hejazi, Shakouri G, Sedaghat, & Mashayekhi (2016) used a System Dynamics model to estimate the impact of a feed- in tariff scheme on the development of renewable energy in Iran. The study indicates that during the short term there will be a temporary growth period becasue of the amount of initial funding, which was allocated when implementing feed-in tariff.

Dijkgraaf, Dorp, & Maasland (2014) assessed the impact of (FIT) policies on the development of photovoltaic solar cells (PV) in 30 OECD member countries using Panel data estimations for the period from 1990 to 2011. The results suggested that feed-in tariff (FIT) policies have a positive impact on the evolution of a country's share of PV in the electricity mix.

The Indonesian government has adopted feed-in tariffs in 2012 (Damuri & Atje, 2013). These schemes differ by technology and installed capacity (Beerepoot et al., 2013). Yuliani (2016) assess the feed-in tariff policy in Indonesia. The study reveals that different barriers are facing the development of renewable energy, which makes it challenging to transfer from conventional to renewable energy in developing countries such as Indonesia.

According to IEA (2013), the German feed-in-Tariff is a successful one, and other countries should benefit from this experience in introducing a FIT supporting mechanism to support the development of renewable energy. Germany defined feed-in tariff scheme in 1990 when the tariff law was introduced, which obliged electricity distributors to purchase electricity produced by renewable energy sources at high prices compared to traditional energy sources (Shokri & Heo, 2012). In the same regard, Hitaj, Schymura, & Löschel (2014) investigate the effects of FIT policy in Germany for renewable power on

wind power investment by using the counterfactual analysis between 1996 and 2010. Their results show that feed-in tariff played a notable role in supporting wind power development.

2.2 Renewable Portfolio Standard (RPS)

Renewable Portfolio Standard (RPS) is another incentive that different governments are using to support the development of renewable energy. It is a scheme that requires energy suppliers to provide a specified amount of their electricity portfolio from renewable sources (LCA, 2006). This requirement can be imposed on consumers, retail sellers or producers (de Jager et al., 2011). Renewable Portfolio Standard Play a role in encouraging renewable energy generators to enter the market by increasing the price that the generator will receive when generating electricity from renewable sources (Johnson, 2014).

According to Shrimali, Jenner, Groba, Chan, & Indvik (2012), Renewable Portfolio Standard policies are one of the significant political forms for support of renewable power generation in the United States. Thirty states have Renewable Portfolio Standards (RPSs) to support renewable energy generation (Upton Jr. & Snyder, 2017). Several studies have tested the impacts of state Renewable Portfolio Standard policies on CO_2 emissions. For example, M.Bento, Garg, & Kaffine (2018) analysed the impacts of Renewable Portfolio Standards in the United States, and the results show that increase in the RPS has positive effects on considerable resources booms or emissions savings but not both, because the RPS can be met by increasing renewable production or decreasing fossil production. Wiser et al. (2016) show that Renewable Portfolio Standard policies in the United States reduced Greenhouse Gas Emissions (GHGEs) and air pollution, water pollution, creating additional green jobs. The result of the study testified that in 2013 environmental benefits saved $7.4 billion in the United States. Young & Bistline (2018) argue that future natural gas prices impact powerfully on the effectiveness of Renewable Portfolio Standards due to its reduced CO_2 emissions.

According to Xin-gang, Yu-zhuo, Ling-zhi, Yi, & Zhi-gong (2017), the most common renewable energy policies to encourage the deployment of renewable energy sources are Feed-In Tariff (FIT) and Renewable Portfolio Standard (RPS). Different studies have compared Feed-In Tariff (FIT) and Renewable Portfolio Standard (RPS) policies. For example, García-Álvarez, Cabeza-García, & Soaresc (2017) investigated the impact of the feed-in tariff and Renewable Portfolio Standard policies on onshore wind power for 28 European countries for the period 2000-2014, using an empirical evaluation. The results indicated that FIT policies only have significant effects on onshore wind installed capacity. A similar analysis by Sun & Nie (2015) shows that feed-in tariff is more efficient than Renewable Portfolio Standard at increasing renewable generating capacity, and Renewable Portfolio Standard policy is substantially more efficient at reducing CO_2 emissions and enhancing the consumer surplus.

3. Impacts of renewable energy

3.1 Impact on economic growth

For the OECD regions, Inglesi-lotz (2015) used a Pedroni cointegration test to investigate the effect of renewable energy consumption on the economic conditions over the period 1990-2010. The analysis shows that a 1 % increase of renewable energy consumption will increase GDP by 0.105% and GDP per capita by 0.100% , while a 1 % increase of the share of renewable energy to the energy mix of the countries will increase GDP by 0.089% and GDP per capita by 0.090% . (Shafiei, Salim, & Cabalu, 2013) Examined the effects of renewable and non-renewable energy consumption on economic growth for selected OECD countries. The study was conducted over a period between 1980 and 2011. The study shows that there is bidirectional causality between economic growth and both renewable and non-renewable energy consumption in the short- and long run. They concluded that non-renewables are still the major source of energy in the process of economic growth.

Several studies have used the Auto-Regressive Distributed Lag (ARDL) approach to examine the relationship between renewable energy consumption and economic growth. For example, Maji (2015) examined the long run relationship between clean energy indicators and economic growth in Nigeria by employing the ARDL approach. The study indicates that alternative and nuclear energy are significant and negatively related to economic growth. The study suggests that Nigeria should develop renewable energy sources, and highlights the absence of an independent legal and institutional framework responsible for renewable energy. Taghvaee et al., (2017) investigated the relationship between economic growth and energy consumption in Iran for the period from 1981–2012 using the Auto-Regressive Distributed Lag (ARDL) model. The study concluded that renewable energy is ineffective in the economic growth of Iran. They suggested that the

Iranian government should formulate policies to increase the consumption of renewable energy, especially as low fossil fuel prices discourage the development of renewable energy.

Khobai & Roux (2017) investigated the causal relationship between renewable energy consumption and economic growth in South Africa. The study incorporates carbon dioxide emissions, capital formation and trade openness as additional variables to form a multivariate framework. It covered the period from 1990 to 2014 using quarterly data. The researchers used an Autoregressive distributed lag (ARDL) approach to explore the long run relationship among the variables and the Vector Error Correction model (VECM) to determine the direction of causality between the variables. The findings of the study suggested that a growth hypothesis in the long run and conservation in the short run.

S. Silva, Soares, & Pinho (2012) investigated the impact of the increasing share of renewable energy sources for generating electricity on Gross Domestic Product (GDP) and carbon dioxide (CO_2) emissions. By using a three variable SVAR model for a sample of four countries (Holland, Portugal, Span, and the USA) in efforts to invest in renewable energy in the previous years, although they represent relatively different levels of economic growth, social and economic structures. Over the period 1997–2006, it finds that for Holland, Portugal and Spain, rising renewable energy sources on electricity generation had economic costs in terms of GDP per capita and decline in CO_2 emissions per capita. While in the USA, the RES support can be least costly. The study recommended the Danish, Portuguese and Spanish governments to use other policies that could play a role in achieving environmental goals at the least cost, such as demand-side management and energy conservation. On the other hand, Dees & Auktor (2017) showed that renewable electricity generation has a significant and positive effect on economic growth in the MENA region, using a neoclassical growth function that contains capital, labour, and energy use as additional input factors. The study suggested that MENA countries intensify the current policy towards renewable energy because investment in renewable energy sources is beneficial to the region.

Bhattacharya et al. (2016) analysed the impact of renewable energy consumption on the economic growth in 38 top renewable energy consuming countries in the 1991 to 2012 period using panel estimation techniques. The long-run output elasticities suggested that renewable energy consumption has a significant positive relationship on the economic output for 57 percent of the chosen countries.

Ohlan (2016) reveals that while the non-renewable energy consumption has a long run significant positive impact on India's economic growth, the long-run elasticity indicate that there is a statistically insignificant relation between renewable energy consumption and economic growth in the 1971-2012 period.

3.2 Impact on job creation

Different studies compared the job creation impacts of investing in renewable energy to investing in fossil fuels. Haerer & Pratson (2015) estimate that the natural gas, solar, and wind industries, in the United States added about 220,000 new jobs, while the coal industry lost more than 49,000 jobs during 2008 - 2012 by using input-output model. Within the same context, Garrett-Peltier (2017) shows that energy efficiency and renewable energy industries create almost three times as many jobs as fossil fuels industries, at the same level of spending. The study finds that every $1 million spent on fossil fuels created an average of 2.65 full-time-equivalent jobs, while that same amount of spending on renewable energy would create 7.49 or 7.72 full-time-equivalent jobs. DOE (2017) concluded that the solar industry in the United States employs more people than coal in the Electric Power Generation sector. In 2016, solar energy employed about 374000 people that made up 43% of the Electric Power Generation workforce, while the traditional fossil fuels employed 187,117, making up only 22 % of the workforce.

Bulavskaya & Reynès (2017) argue that creating power using renewable energy sources is more valuable to the national economy than producing it with fossil fuels, because wind and solar power generation is more intensive in capital and labour than fossil power plants but less intensive in energy. The study finds that the transition to renewable energy in the Netherlands will create approximately 50,000 new jobs by 2030 and add about 1 percent of GDP. This positive effect is due to higher labour and capital intensity of the wind and solar technologies, compared to gas and coal plants. Due to low oil prices and oversupply, jobs in the fossil fuel industry have continued to be shed, more than 440,000 jobs have gone during 2015 and 2016 (IRENA, 2017b).

Several studies use various methodologies to estimate employment generated by renewable energy. GIZ (2012) estimated that 2,500 direct jobs generated within the framework of national sustainable energy programmes, for Tunisia using an adjusted Input-Output-Analysis from 2005-2010. P. P. Silva (2013) used input-output to estimate the impact of renewable

energy development on employment in Portugal. The results indicate that the deployment of renewable energy sources technologies has significant employment benefits. Markandya et al. (2016) estimated that 530,000 new jobs created between 1995 and 2009 because of shifting away from the more carbon-intensive sources, to gas and renewables, by using a multi-regional input-output model and the world input-output database. In this regard, A recent study by Mu, Cai, Evans, Wang, & Roland-holst (2018) shows that per 1 TW h expansion of solar PV and wind power would create up to 45.1 thousand and 15.8 thousand, respectively, direct and indirect jobs in China, by using Computable General Equilibrium (CGE) model.

Pestel (2014) argues that green energy policy can have positive and negative employment impacts, creating additional green jobs, but it would crowd out investment-induced employment in other sectors. This negative impact comes when subsidies to electricity generation from renewable energy sources are financed by labour taxes (Böhringer, Keller, & Werf, 2013). To estimate the employment effect of renewable energy, we must take into account both gross employment and net employment. Gross employment refers to the sum of positive employment impacts resulting from investments in renewable energy and does not account for any loss in employment in other sectors.Net employment accounts for both positive and negative impacts (IRENA, 2011).

IRENA (2011) suggests that the government should formulate policies to encourage employment creation associated with renewable energy that aimed at developing and deploying renewable energy, taking into account the associated opportunity costs and balance them against the expected benefits. Blazejczak *et al.* (2014) also highlight the importance of labour market policies to support the development of renewable energy sources. Net employment impacts of renewable energy development strongly rely on labour market conditions.

According to IRENA (2017a), the number of renewable energy jobs globally could increase to 24 million by 2030. By 2050, the renewable energy sector could create about 25 million jobs globally. New job creation in renewables and energy efficiency would be more than the job losses in the traditional energy sector (IRENA, 2017b).

3.3 Impact on CO_2 emissions

According to a study by EEA (2017), the share of renewable energy in total energy consumption in the EU rose to 16.7 percent in 2015, from 15 percent in 2013. This allowed a gross reduction of 436 Mt CO_2 emissions, accounting for 10 percent of the total GHGs emitted by the EU in 2015. In the EEA (2018), further improvements are seen in 2016 and 2017 and the share climbed up to 17 and expected 17.4 respectively leading to reductions of 460 Mt and 499 Mt of CO2. EU-wide renewable energy target of a minimum of 20% at 2020 and 32 % of gross final consumption by 2030.

IEA (2017) shows that the amount of global carbon dioxide (CO_2) emitted from the energy sector have not changed since 2014 reaching 32.1 gigawatts in 2016, despite the global economy grew by 3.1 percent. This was the effect of rising renewable power generation, shifts from coal to natural gas, and improvements in energy efficiency. The U.S., carbon dioxide emissions, declined by 160 million metric tons, although the economy grew by 1.6 percent. IEA (2018) however, shows that carbon dioxide (CO_2) related to global energy emissions rose by 1.6% in 2017 and is expected to continued growth in 2018. This is not in line with the climate goal to reduce air pollution, which is causing premature deaths for millions of people each year.

Shafiei & Salim (2014) investigate the determinants of CO_2 emissions using Stochastic Impacts by Regression on Population, Affluence, and Technology (STIRPAT) model on OECD countries over 1980-2011 periods. They find that nonrenewable energy consumption raises CO_2 emissions, while renewable energy consumption reduces CO_2 emissions. Bilgili, Koçak, & Bulut (2016) also show a negative impact of renewable energy consumption on CO2 emissions. The study indicates the importance of implementing short term-midterm policies and long-term policies to increase the production and consumption of renewable energy sources. Similarly, Ito (2016) find for 31 developed countries that consumption of renewable energy decreased CO_2 emissions, using panel data for the period from 1996 to 2011.

Khanalizadeh, Khoshnevis, & Mastorakis (2014) use the ARDL approach to examine the relationship between CO_2 emissions, economic growth and renewable energy consumption, non-renewable energy consumption and population in Iran for the period from 1975-2011. The results show that the variables are cointegrated. Moreover, there is a long-run relationship between CO_2 emissions and GDP. BUȘU & BUȘU (2017) investigate the impact of renewable energy consumption, total population, and urbanisation on CO_2 emission using a time series cross-sectional multiple linear regression analysis with panel data for the EU countries for ten years. The study states that the population growth and

levels of urbanisation have a positive impact on CO_2 emissions, while renewable energy has a negative impact on the level of CO_2 emissions. EU countries should increase the share of renewable energy by using public policy, while population growth and level of urbanisation should come with more restriction regarding CO_2 emissions.

Few studies were investigating the impact of renewable energy on CO_2 emissions in the MENA region. For example, Arouri et al. (2012) examine the relationship between energy consumption, real GDP, and CO_2 emissions using data of twelve MENA countries, between 1981 and 2005. They conclude that in the long-run energy consumption has a significant positive impact on CO_2 emissions. Kahia, Kadria, & Aissa (2016) assess the impact of renewable energy consumption on CO_2 emissions and the economic and financial development. They use a PVAR approach covering 24 Middle East and North African Countries (MENA) for the period from 1980 until 2012. Increasing consumption of renewable energy sources plays a critical role in reducing CO_2 emissions. The study suggests that the examined countries should implement effective support policies to increase investment in renewable energy technologies to reduce CO_2 emissions and to achieve economic growth.

Twumasi (2017) argues that it is not a necessity that increased production of renewable energy leads to a reduction in CO_2 emissions. The study shows that despite the increase in renewable energy production in the U.S. in 2009, CO_2 emissions have not decreased. The study concludes that there was a positive and significant relationship between population and CO_2 emissions and between GDP and CO_2 emissions, while there was no particular pattern between renewable energy and CO_2 emissions. Bulut (2017) shows a positive relationship for electricity production from nonrenewable energy as well as renewable energy on CO_2 emissions, using fixed parameter and time-varying parameter estimation methods in Turkey during the period from 1970 to 2013. The study suggests that the Turkish authority should implement long-term energy policies to reduce CO_2 emissions. Despite increasing renewable energy to about 30% of Germany's energy mix in 2016, CO_2 emissions did not decrease much. Germany's carbon emissions per person rose slightly in 2013 and 2015. This is because the diversity of renewable energy sources requires Germany to continue to use coal in operating its plants (Conca,2017).

According to OECD /IEA, & IRENA (2017), Renewable energy and energy efficiency will play a critical role in reducing emissions by 90 percent by 2050, while fossil fuels will reduce emissions by 10 percent. The study recommends that renewable energy sources should represent 65 percent of the total primary energy supply in 2050, compared to 15 percent in 2015.

3.4 Impact on welfare

Lotz (2013) investigates the impact of renewable energy consumption on economic welfare in all the OECD countries using panel data techniques. The study finds that renewable energy consumption has a significant positive impact on economic growth. Terrapon-pfaff, Dienst, König, & Ortiz (2014) analyzed 23 small-scale local renewable energy projects within developing countries. The result of the analysis testified that most projects have a positive impact on factors such as energy access, employment, communication and/or access to information, energy costs, and health.World Wide Fund for Nature(WWF, 2016) also provided evidence that renewable energy is an effective way to better livelihoods and health, improved education and gender balance and better learning conditions, which in turn can facilitate environmental protection.

Renewable energy can play a crucial role in reducing poverty around the world. For example, in Bangladesh, more than 3.5 million households have electricity from the solar home system since 2002. The solar home system can help poor households save kerosene costs of over $600 million and reduce CO_2 emissions by 1.7 million tons during the 20-years of solar home system life cycle (Marro & Bertsch, 2015). Kyte (2015) shows that small-scale solar power plays a significant role in changing the lives of the poor in both Bangladesh and Macedonia. Jairaj, Deka, Martin, & Kumar (2017) highlight the importance of renewable energy for India in reducing poverty by generating jobs for poor people.

Liu (2016) examines the impact of renewable energy use on GDP growth and local rural income in a panel data framework for 31 provinces of China for the period from 2000 to 2010. The study indicates that energy consumption has a significant positive impact on income increase of rural households. In this regard, Nepal (2012) highlights the importance of renewable energy in improving access-to electricity in rural areas and reducing the dependence on conventional fossil fuels. Rahman, Khan, Mustafa, & Ullah (2017) investigated the socioeconomic and environmental impacts to the households of a far-flung village of Bajaur agency in Pakistan using house holds survey, after the installation of the solar home system. The study concluded that the solar system has positive impacts on human and physical capital of these households.

Böhringer et al. (2013) argue that subsidised electricity production from renewable energy sources (RES-E) in Germany have a little impact on employment and welfare. The study used a Computable General Equilibrium (CGE) model, and they found a negative impact on welfare and employment that will appear if labour taxes finance RES-E subsidies. Cebotari, Cristea, Moldovan, & Zubascu (2017) compare villages with deployed renewable energy projects and villages without such project to investigate the impact of renewable energy projects on four variables evolution of employment, revenues, demographics and processed agriculture. This comparison reveals that a renewable energy project has no positive impact on any of the four variables. Private investors deploy the vast majority of renewable energy projects in urban centres.

IRENA (2016) estimates that the impact of renewable energy expansion on welfare by using Energy-Environment-Economy Global Macro-Economic (E3ME) model will be three to four times more than its impact on GDP, with global welfare set to grow by around 3.7 percent.

3.5 Impact on electricity prices

Martinez-anido, Brinkman, & Hodge (2016) analyse the influence of wind power on electricity prices using the production cost model of the ISO-NE power system. The study shows that increasing wind penetration leads to lower electricity prices and increase electricity price volatility. In the short term, the effect of wind power on volatility is more significant. Ketterer (2012) found a similar result for Germany but highlighted the risk of building new plants because of the profitability of traditional or renewable power plants is uncertain, which greatly affects the energy market and the security of supply. In Germany and Denmark, solar and wind power production have an economically significant impact (Rintamaki, Siddiqui, & Salo, 2017).

Pham & Lemoine (2015) Used GARCH model under a panel data framework to estimate the impact of the subsidised renewable electricity on spot prices in Germany. The study found that, over the period from October 2009 to December 2012, wind and solar power generation decreased the electricity spot prices and increased their volatility. The total merit order effect of renewable energy ranges from 3.86 to 8.34 €/MWh. Meneguzzo, Ciriminna, Albanese, & Pagliaro (2016) revealed the positive impact of solar PV and wind energy in Sicily on electricity price. In 2015, high penetration of renewable energy sources led the zonal electricity price in Sicily to be below the national wholesale price in Italy. Trujillo-baute, Río, & Mir-artigues (2018) tested the impact of support schemes for electricity from renewable energy sources (RES-E) on the retail electricity prices for households and industrial consumers at the EU members over the period 2007-2013, using panel data. They indicated that renewable energy promotion costs have a positive effect and statistically significant on retail electricity prices, but this impact is relatively small compared to other variables. A 1% increase in renewable energy promotion costs non-renewable energy consumption increases the industrial, retail prices by 0.023% and an increase of 0.008% in the residential, as well as retail prices.

Paraschiv, Erni, & Pietsch (2014) find that electricity day-ahead prices in Germany dropped due to the promotion of wind and PV. Clò, Cataldi, & Zoppoli (2015) show that the rise in the hourly average of daily production from solar and wind sources by 1 GWh, resulted in a decrease of 2.3€/MWh and 4.2€/MWh respectively decrease in the wholesale electricity prices in Italy. Gullì & Balbo (2015) investigate the influence of photovoltaic energy (PV) generation on the wholesale electricity prices in Italy, using a hybrid analysis. The results indicate that photovoltaic energy growth can reduce electricity prices if combined with other influences.

Pereira, Pesquita, & Rodrigues (2017) use an ARX-GARCHX model to examine the influence of wind generation and hydro availability on the electricity price in Spain. The study applied over the period from 2007 to 2014 and finds that hydro energy availability reduces the volatility of electricity prices, while wind availability raises the volatility.

Jonathan (2015) compared the effects of four different types of renewable energy and energy efficiency DSM base, DSM peak, Solar PV, and Wind on public health and climate in six different locations within the Mid-Atlantic and Lower Great Lakes in the United States by using Environmental Policy Simulation Tool for Electrical grid Interventions (EPSTEIN) model . The study estimated that the annual benefits ranged from the US $5.7 million to $210 million. Abrar-ul-haq (2017) shows that solar energy in developing countries played a key role in improving the health of the population, increasing their income, improving the level of education, and improving their social life, which has improved people's ability to adapt to climate change. Gibon, Hertwich, Arvesen, Bhawna, & Verones (2017) concluded that most renewable energy projects have a positive impact on the environment and human health compared to fossil fuels, especially coal.

3.6 Impacts on fuel imports

According to Hager (2013), The growing share of wind power in the energy mix in America has reduced dependence on imported fossil fuels. Arapogianni & Moccia (2014) indicated that it is possible to reduce dependence on domestic and imported fuels by replacing energy generation from fossil fuels with wind energy, thereby reducing the cost of fuel imports and greenhouse gas emissions. Investigated the relationship between renewable energy generation and imports dynamics by using import demand equations. The study highlighted the importance of generating renewable energy for the economy in reducing its external dependence and debt by reducing import growth.

Ebinger, Banks, & Potvin (2014) estimated that Germany's shift to renewable energy in the electricity sector had saved the country €11 billion in fossil fuel imports during the period from 2009 to 2012. Valodka & Valodkienė (2015) predicted that the expansion of renewable energy in Lithuania would save 278 million euros in fuel imports per year. In 2016, Ireland managed to save about € 70 million in foreign energy imports as a result of the expansion of wind energy (IWEA, 2016).

A recent study by Mathews & Xin (2018) argues that China's shifting from conventional energy to renewable energy has not only reduced its dependence on fossil fuel imports but also expanded to increase energy security. In the same context, Richardson believes that improving trade balance and GDP can be by reducing imports of fossil fuels.

4. Conclusion

Numerous authors believed that renewable energy policies could be used to overcome the barriers facing the growth of renewable energy, which increases it's competitiveness against traditional energy. The major renewable energy policies include tax incentives, loans, feed- in tariffs, and renewable portfolio standards. Tax incentives played a critical role in encouraging renewable energy investors, companies, and households to transfer from conventional energy to renewable energy. Also, loans are another supporting scheme that is used by about 100 countries to support the development of a renewable energy.

Scholars have recognised that Feed-in tariff (FIT) and renewable portfolio standard (RPS) are the most popular renewable energy policies to support the development of renewable energy. The German feed-in-Tariff has been wildly successful in promoting electricity from renewable energy sources. Different studies have tested the impacts of Feed-in tariff (FIT) policy on the deployment of renewable energy by using different models and different countries. These studies found positive impacts on the deployment of renewable energy.

By reviewing the existing research literature, there are many impacts due to the development of renewable energy, including the impacts on economic growth, job creation, CO_2 emissions, welfare, electricity prices, and fuel imports. Renewable consumpton has a positive impact on economic growth in different countries. However, renewable energy can have negative impacts in some countries like Nigeria and Iran, because the absence of institutional framework and policies used to support renewable energy.

Many studies documented that the deployment of renewable energy sources generates significant direct employment in different countries. However, some studies find that there are negative employment impacts because renewable energy employment could crowd out other sectors employment. Although most studies have confirmed that renewable energy consumption leads to declines in emissions, some studies have confirmed that it is not necessarily an increase in renewable energy that leads to lower emissions. Different studies show that renewable energy plays a significant role in improving public health and the life of the poor.

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The Risk of Long-Term Financing of Public Investments

Krzysztof Jarosiński

Associate Professor, PhD, Warsaw School of Economics, Department of Regional and Spatial Development, Unit of Management in Public Sector, Head of Unit, 41 Wisniowa St.,02-520 Warsaw, Poland

Benedykt Opałka

PhD, Warsaw School of Economics, Department of Regional and Spatial Development, Unit of Management in Public Sector, 41 Wisniowa St.,02-520 Warsaw, Poland

Abstract

The risk of financing of public investments is a phenomenon that accompanies development processes in a permanent manner. Investments in the public sector are generally characterized by relatively long implementation cycles and involve significant capital expenditure and the necessity of often parallel running a large number of investment projects. In the processes of this type of investment a specific risk category of financing of this type of investment is quite often taken into account, given that such projects are financed mainly from budgetary resources: the state budget and self-government budgets. Economic practice indicates an importance of the proper selection of the method of the financing of new investments and taking into account new funds from various sources. This situation is often the result of a shortage of budgetary resources from which public investments could be financed. There may be difficulties in financing investments resulting from the emergence of a risk of budgetary deficit and the public debt. This risk may have a negative impact on investment decisions and may adversely affect the future course of ongoing investment projects. The purpose of the paper is to undertake studies on the conditions of financing investments from the point of view of the possibility of budget deficit and public debt and the impact of changes in the financial situation on the overall level of risk of public investment. The text is an invitation to undertake a broader discussion on financing public investments in conditions of limited public financial resources.

Keywords: investment risk, budgetary economy, public finance, decision making.

Introduction

One of the most important directions of action of public authorities is to ensure conditions for long-term sustainable socio-economic development and, as a consequence, to improve the quality of life of inhabitants. This process should involve the preparation of efficient organizational structures in the public sector and the implementation of the established investment policy, aimed at creating the basic conditions for development. The investment policy should focus on identifying and implementing mainly infrastructural tasks, which in practice should include investments consisting in maintaining and reconstructing existing fixed assets, and should be directed towards the implementation of new investments in line with the needs of the economy and society in the future. Such necessity arises from the broadly understood needs of the developing market economy, which in turn leads to strong pressure to create good infrastructure development needs for the whole society.

The implementation of diversified investment projects related to the provision of broadly understood public services is an important direction for public sector entities and units. Such undertakings are therefore carried out at different levels of competence both at the level of local territorial self-government units, at the regional level and at the governmental level. These investments are therefore one of the most important factors of socio-economic development and significantly contribute to the direct improvement of the quality and scope of public services provided directly to citizens, as well as contribute to supporting economic processes occurring in the sphere of manufacturing enterprises. Investments in the public sector play a significant role within the public sector itself as well as within the private sector. Most often, such investments involve the implementation of new technical or social infrastructure components, and they also involve the modernization of already existing infrastructure components.

First of all, investments are connected with the necessity of maintaining the already achieved standard of living of the inhabitants, which in practice means maintaining at least not compromised technical level of social and economic infrastructure devices. This means the need to carry out replacement investments, including existing components of fixed assets of technical equipment. Public entities are therefore subject to a clear investment pressure of an endogenous character from already functioning systems and organizational structures conducting operational activities in the field of public services. Secondly, these entities are subject to pressure from initiating and the need to implement development-related investments.

Observation of the activities of entities and public sector organizational units in the area of infrastructural investments implementation in many cases indicates poor adjustment of procedures related to the preparation and implementation of investment projects, and indicates the failure to use all the possibilities faced by public authorities in the past. Empirical studies indicate that the applied methodology of implementation of investment projects in the area of local infrastructure has not always been effective, which often led to the deepening of the disproportion in the level of settlement units equipment into technical infrastructure facilities. In many cases, hazards occurring in the implementation of investment projects have not been correctly identified, which means that they have not been properly identified and the specific risk in public sector investment projects has not been taken into account (Biondi, Marzo, 2011, pp. 421-441).

From the research so far, it is clear that there is a persistent shortage of budgetary resources that can be allocated to investments in the public sector. The list of disclosed investment needs and own budgetary resources of entities responsible for investment implementation leads to the conclusion that there are often objective deficits of own budget funds for planned investments, which led to serious difficulties in the implementation of investment projects, as well as many dilemmas regarding the choice of method investment financing (Jarosiński, Grzymała, Opałka, Maśloch, 2015, pp. 60-69).

As a result, we have a situation where on the one hand we have clearly defined needs in terms of new infrastructure components at the state level and local government units of different levels, on the other hand we have to deal with the need to provide financing sources for defined investment projects. The realities of the public sector budget economy prove that in many cases investment funds are not sufficient, hence attempts to look for other additional sources of financing in the form of bonds, loans, grants and subsidies, as well as interaction with private capital in the form of public-private partnership. The actual scale of the problem covers a broader subject range. In particular, these are the procedures for long-term investment planning and the use of analytical tools that allow a comprehensive analysis of such investments in the dimension of social costs and benefits. It is also important to assess the impact of investments on the budgetary position of public sector entities in future periods, especially in the situation of financing not only individual investment projects, but also investment programs consisting of a larger number of individual projects.

Quite often, public entities already have identified infrastructure needs, which are classified in various forms, often taking the form of documents that form the basis for the formulation of specific investment projects. Such documents fit into the formula of strategic plans and are characterized by a high degree of generality. The strategic planning process here plays a leading role and allows the development of real, internally consistent investment programs along with forecasts of budget revenues and the possibility of using funds from other sources, where the use of external sources of financing both of a recurring nature and of non-returnable, funds made available for such investments on different terms. Creating a new financing structure for planned investments, including the aforementioned sources, should also include the impact of the planned investments on the future financial standing of public sector entities both during their implementation as well as the impact after construction and transition to the operational phase. In particular, it is about the impact in the further future in the financial dimension, in particular debt, as a consequence of previously signed loan agreements, or other forms of financial support. It should be remembered that it is infrastructure investments taking into account long-term investment cycles that involve risks, the effects of which may appear in the long run. For these reasons, there is a risk of no liability for potential mistakes and decisions made in respect of multi-annual investment loans.

An important element of the investment preparation process is the need to develop a long-term analysis of investment financing in the form of a scenario analysis taking into account different risk categories and the potential impact of the identified risk factors. This will allow to develop a priori an image of the future condition of public finances, taking into account the impact of new investments. An important role here lies in the long-term financial planning in the scope of income and expenditure of the commune budget and in the scope of the impact of existing debt on the possibilities of making new investments as well as achieving the objectives of current consumption. The implementation of multi-annual investment programs is a complex process, especially in the face of the need to build diversified structures for financing

investment projects. This leads to the need to assess the impact of a number of factors having a diversified nature of impact and points to the need to pay more attention to the development of multi-annual investment programs and their relationship with the results of long-term financial planning.

Crisis phenomena in Europe and in the world affect the stability of investment projects carried out in market economy conditions, it also applies to investment projects carried out in the broad sense in the public sector . Changes in external conditions may lead to an unfavourable stability of investment projects that have been begun in the past. First of all, there are changes in interest rates, risk and hence a change in the value of real discount rates, which may lead to the necessity to make adjustments to the planned efficiency of investment projects, and in particular to verify the updated net value of the venture. Changes resulting from the crisis may lead to an increase in the overall risk of investment projects, and this in turn may lead to an increase in expectations as to the risk premium for loan capital and, as a result, to the deterioration of the efficiency of many of them (Bock, Trück, 2011, pp. 105-123).

For long-term investment projects, it is important to precisely plan the financial standing of future periods. Prospective analysis is here the basic tool for assessing the feasibility of undertaken investment projects, or more broadly, investment programs covering a larger number of investment projects and may be a tool to reduce the risk related to financing such projects. The advantage of financial planning lies in the ability to trace *a priori* the course of financial phenomena associated with the planned investment project. This allows you to assess the effects of investment decisions that may occur over a longer period of time. It is particularly important to determine the strength and directions of the investments undertaken on the budgets of future periods, which will have a significant impact on the possibilities of current expenditure and investment expenditures. As a result of many years of financial planning, further analytical work in the field of financial management of investment projects may be carried out. This applies to the management of existing debt and forecast debt, as long as the possibility of financing or co-financing of investments financed under a bank loan is taken into account (Chong, Brown, 2001, pp. 34-88).

There is also the possibility of conducting an indicator analysis at any stage of investment planning. This in turn gives the opportunity to reduce the risk of project failure that may occur as a result of specific circumstances at any point in the implementation of the project. Financial planning for assessing the feasibility of investments in the public sector should be a routine action of public authorities, regardless of other procedures adopted to ensure the effectiveness of the use of investment funds, such as public procurement procedures. Due to the importance of these problems and the high risk of losing the budget liquidity, there is a need for a thorough and multifaceted assessment of the project's impact along with its internal dependencies on the finances of a given organizational unit if the investment project is poorly developed.

It should be noted that making investment decisions is always made under conditions of uncertainty. The probability of success depends, however, on the reliability of assumptions adopted in the analysis, stability of the economic situation and a number of other factors affecting the risk of project implementation. Multi-criteria of investment decisions is widely known, which is why the detail and insight of pre-investment analyses should be a generally accepted principle. It should not, however, be a tool to justify decisions already taken in administrative mode. Such possibilities also exist because of the hypothetical nature of the ex ante analysis. It should be recognized that multi-annual financial planning is an important instrument supporting the process of planning and implementing investments in the area of the public sector. There are here the possibilities of simultaneously analyzing a number of investments creating a multi-annual investment program. The implementation of such programs requires conducting analyses preceding the decision-making process. This is necessary due to the large number of variables and the increase in investment risk.

Multi-annual planning and financial analysis is an important link in the process of preparing, evaluating and selecting investment projects in the area of public sector investment. Due to the high capital intensity of investment projects and the public nature of funds targeted at investments, the long-term financial analysis of investment projects allows to limit the investment risk. This is particularly important when financing investment projects from external returnable sources of financing in the form of bank loans and credits, as well as investments implemented in the public-private partnership formula. The effects of the lack of a reliable investment risk assessment, an error in the strategic planning of development, bad financial planning may be revealed later, after transferring the investment to the operational phase and causing further negative effects, the scope of which may be difficult to predict. The situation of new public investments is often complicated by the fact that the specificity of investment projects in the public sector results in the inability to make profits or allows to collect profits at a low level, which results in limited financing possibilities of investments within own funds.

Risks of the investment projects in the public sector

The new project investments in the public sector are associated with many risk categories of such investments. The main category of risk may be understood here as the probability of underachievement of the planed results and losses of incurred financial outlays and losses of own resources. This problem concerns the expenditure of public funds accumulated in the state budget, budgets of local government units at the regional and local level, and public funds of other entities entitled to conduct their own investment policy and implement their own investments. The implementation of investments in the public sector requires the attention to various risk categories. Therefore, a broader risk factors in this case of public investments should be taken into account than those taken into account for typical and repetitive investments of enterprises that focus on achieving a financial surplus.

The risk can be understood here as the probability of occurrence of various unfavorable phenomena. This risk can also be presented as the probability of failure to achieve the intended goals, material results and results of a financial nature, as well as the loss of incurred financial expenses. This problem is particularly complex due to the possibility of losing public funds, collected in the form of taxes and various public levies, which are in the resources of the state budget, budgets of local government units at the regional and local level, as well as budgets of other public entities. Thus, investments in the public sector due to the public nature of resources are associated with slightly different risk categories than investments in the enterprise sector, which focus on achieving a financial surplus. Here we can indicate the main risk categories common to all investments.

Recognition of risk occurring in relation to public investment projects is associated with the identification of factors that may hinder or prevent the implementation of the project or may negatively affect its operational phase. This, in turn, may cause negative results in the sphere of quality and quantity of public services provided. From a theoretical point of view, many of the risk factors that may have an impact on the definition and implementation of investments projects in the public sector may have a similar impact on projects implemented in the private sector. This is connected with the genesis of such a risk (e.g. risk categories of a macroeconomic nature) and a similar approach to differentiated projects. However, some risk categories, however, have their only recourse to projects carried out in the public sector. It results from the specificity of such projects and other purpose of the entities implementing the investment and conducting the operational phase. An important matter is the different function of the public entity's objective in relation to the private entity conducting production or service activity. In the public sector, for many reasons, we are dealing with price regulation, and in this situation we have an indirect impact on the company's financial result. Regulators can influence the operational activity of the company, not always giving the opportunity to make a profit. Some categories of public services do not entail direct collection of service fees, such as urban road engineering or some social services (urban areas, parks, city lighting), we are guided by the principle of social benefits and related costs. This can generate completely new risk categories.

At present, it is possible to point out the classification of specific risk occurring in relation to projects carried out in the public sector. Unambiguous delimitation of risk factors specific to investments carried out in the public sector and investments carried out in the private sector is not feasible. In the sectors mentioned, there are both common risk categories and specific categories. With regard to the risk occurring in the public sector, one can indicate for: administration, project acceptance procedures, commercial or non-commercial projects, communication, environmental protection, investment policy, resources, strategic goals, subcontractors, technical solutions, financing, knowledge and information, legal and organizational framework (Martyniuk, 2012, pp. 83-93). It is worth noting that some categories of risk are common and of a general nature, e.g. liquidity risk in the implementation of current tasks, risk of investment financing stability or international or global risk categories. The most frequently identified risk categories in relation to the implemented investments are: operational risk, legal risk and liquidity risk in the implementation of investment projects. These risk categories occur quite frequently, such as the failure to meet the conditions for financing investments included in the cost estimate and exceeding the assumed level of investment expenditures (Vose, 2008, pp. 29-31).

From the point of view of the objective of the study, it is important to pay attention to those risk factors that may be relevant to projects implemented over a longer period, including the attention to financial risks. An important task here is the recognition and quantification of those risk categories that may have a long-term nature of referring to the course of ongoing investment projects. In particular, it is about the importance of risk analysis of future investments in conditions of uncertainty, unforeseen crises, deepening budget deficit and excessive public debt at the state level, as well as in local self-government at the regional and local level (Sawyer, 2011, pp. 7-22).

The identification of long-term risk factors related to public investments should be carried out taking into account the specificity of long-term forecasting of future phenomena and in this context, with reference to general identified conditions and, to a lesser extent, the conditions and financial consequences of such investment projects. It should be emphasized that the long-term nature of future events is usually associated with greater risk than in the case of short- and medium-term planning. This results from theoretical conditions that form the basis for unstable socio-economic forecasts. According to the theoretical approach, as the forecast period expands, the value of the forecast error increases. From the point of view of the long-term impact of risk on the investment projects being undertaken, the scale of error regarding the actual level of risk, in the future with respect to events and factors recognized in the base period of the project also increases. Due to this regularity, it is necessary to start the project management process in the long run, including strategic management of various risk categories (Termini, 1999, pp. 9-11).

In relation to public investments, we can talk about the risk recognized for a given project and public sector entity implementing the project or about the risk of a group of projects and projects implementing. Therefore, it is advisable to determine the appropriate risk analysis sections. The cross-sections should include different risk categories, as well as lack of risk awareness, indifference to risk, and thus no pre-emptive actions in this area or risks related to the possibility of violating financial discipline. We can also identify the risk occurring at the level of several public entities, in particular cooperating local government units, which focus on the implementation of joint investment projects.

Financing large and complex investment projects in the changing conditions of the business environment is becoming more and more difficult. Due to the growing uncertainty of future socio-economic phenomena, there may be an increase in investment risk, which may lead to an increase in the costs of future investments. This applies to both investments in the real sphere, but also investment projects in the public sector, which until now were characterized by lower investment risk due to the good market situation of enterprises. In the analysis of infrastructure investment projects, the risk element plays an important role, which results from the specificity of the investment. The implementation of investments, especially in the field of technical infrastructure is a long-term process both for technical and economic reasons. Investments have a generally higher than the industry capital intensity, which significantly affects the level of demand for funds targeted to their implementation (Jarosiński, 2015, pp. 23-39).

In line with the above regularities, changes in general management conditions resulting even from the emergence of financial crisis phenomena may lead to the necessity to verify the original assumptions of investment projects that have been started in the past and have not been closed yet, as well as those investment projects in relation to which decisions about the desirability of their implementation have not yet been made. As a result, we are dealing with a situation that forces the correction of undertakings started in the past under conditions of another economic reality and new investments for which scenarios should be developed, assuming a more difficult situation in terms of the possibility of raising capital and generating a financial surplus.

The risk of public investment implementation, due to the complex nature of such investments, is always multidimensional. As already mentioned, the implementation of investments in the public sector is related to the entire economy, including the management conditions in the private sector. For this reason, the classification and typology of risk occurring in the implementation of public investments should take into account narrowly understood conditions typical for public sector management conditions, as well as contain risk categories characteristic of investment projects undertaken in the private sector. The risk typology may be of a general nature, and thus include an extensive list of effects on the project differentiated from the immediate environment of the project or having exogenous character and covering other macro-economic or macroeconomic conditions. It should be noted that from the point of view of individual projects, it should be borne in mind that the risk will always be individualized. This means that in relation to individual projects, some risk categories may have a particularly strong impact, while others may not occur at all.

The risk typology in investment projects in the public sector is related to the specificity of projects that can be relatively easily classified in the public sector. This is related to the partial replication of projects with respect to their overall concept and technologies, because the scope of investments in the public sector is usually limited by the scope of tasks resulting from legal and organizational regulations. It means that despite the existence of certain differences between projects, resulting from the specificity of the place where projects are implemented, due to a similar form of functioning of public sector enterprises, oriented to provide various types of public services, we can recognise similar risk categories. From the point of view of projects implemented in the public sector, the risk may be divided into 5 main categories: organizational and legal risk, technical risk, financial risk, risk of failure to achieve social effect and other risk categories that may appear

similarly to projects in the private sector (Hardcastle, Boothroyd, 2003, pp. 38-40, Grimsey, Lewis, 2002, pp. 109-111, Arrow, Lind, 2003, pp. 160-178).

The risk categories proposed are fully adequate to situations that may arise during work on investment projects implemented in the public-private partnership formula. This solution seems to correspond to real phenomena that may occur in the planning and implementation of projects in the PPP formula, because there we deal with the occurrence of partners representing the public sector who is interested in achieving quantitative and qualitative effects in the sphere of public services and business partners from the sector private, whose expectations are focused on achieving a specific rate of return on invested capital. The proposed risk categories therefore take into account the interests of both parties who, working in the framework of cooperation between PPPs, strive to achieve consensus and maintain the developed formula of action in the longer term. However, not all public investments are implemented as part of cooperation between public and private entities (Allocating…, 2016, pp. 15-204).

However, when we look at investments implemented entirely as part of initiatives undertaken by public sector entities, the distribution of individual risk categories may look slightly different. With this in mind, it is possible to propose a slightly different division of risk that may occur during the planning and implementation of public investments. In this context, specific risk categories that may arise during the planning and implementation of investments within public entities should be indicated: legislative regulation risks (e.g. future planning regulations), design, construction and technology risk, and economic risk (including fall in revenue) financing, operating phase, revenue tariffs, etc.), Feasibility studies (failure to identify key downsides with the intended project), organizational risk, corruption risk, project management ability risk (may be inadequate for the present task).

The above risk categories do not refer to complex and diverse occurrences that may pose a risk to investment projects, but include the most important ones. The main issue here is the problem related to long-term financing of investment projects and threats, the deterioration or loss of the possibility to finance investment projects in the long-term, and therefore the risk of project financing comes to the fore. The long-term risk of investment financing is associated with many separate risk categories that exist objectively during the preparation and implementation of investment projects, and may be related to the uncertainty of future events, distant in time for which the forecasting can only be carried out approximately.This is the case with regard to budget revenues of diversified public entities, including in particular the state and local government of various levels (Drennan, McConnell, Stark, 2015, pp. 2-10).

Bearing in mind the goal of the study, it is necessary to pay attention to risk factors that have a financial dimension in the long-term approach to public sector investment. In particular, it is important to determine the impact of the future investment risk on the changes of the budget deficit and on the general government debt (Spikin, 2013, pp. 89-126). The conducted research shows that the most commonly identified risk categories in relation to public investments may be: operational risk, legal risk and liquidity risk during project implementation, political risk and corruption risk. These categories of risk in the conditions of the market economy play a very important role in the financial risk assessment. The risk of excessive budget deficit and the risk of excessive government debt may in the long term significantly reduce the possibilities of public investment financing under own budgetary resources and may lead to a further increase in indebtedness with negative consequences for the economy and society that may be revealed in the future.

Risk of public debt in empirical studies

Bearing in mind the theoretical considerations concerning various risk categories that may arise during the implementation of public investments, in particular their high complexity, during empirical research it was recognized that the risk associated with financing investment projects, especially the risks associated with excessive public debt, which can significantly limit the investment potential of public entities undertaking specific projects. From the point of view of the objective of the study, it was approached to study changes and the level of public debt in individual countries as well as the public debt ratio in relation to the value of GDP. According to the full source data collected during the study, it should be stated that the current financial situation of public sector entities in many European Union countries, as well as in the world, may negatively affect their investment potential. For the purposes of the text, table 1 summarizes the figures for GDP in selected countries of 2004-2018. Table 2 shows similar data for selected countries of the world.

With respect to selected European Union countries in the years 2000-2018, the situation in the field of public debt changed in many directions. In some countries, the public debt-to-GDP ratio has been significantly increased. In this group, 18

countries reported a deterioration in the public debt situation. In 2000, the average ratio for 28 countries, current EU members was 60.1% , while in 2018 it was already 80.0% . it should be noted that 2018 was another year of the indicator's decline. The highest level reached this average in 2014, i.e. 86.6% . Public debt ratio in relation to GDP in 20 Member States was below the average, while in 8 countries it exceeded this value. In 2018 the lowest level of the index was recorded in Estonia - 8.4% . In this country in the whole period the indicator fluctuated within a few percent, only in 2013 and in 2014 it exceeded 10.0% , respectively 10.2% and 10.5% . The relatively low level of the indicator was recorded, among others, in Bulgaria, in Luxembourg, as well as in Denmark and Lithuania.

Table 1: General government gross debt as a percentage of gross domestic product (GDP) in selected countries of European Union in the years between 2004 and 2018

Specification	2004	2006	2008	2010	2012	2014	2015	2017	2018
Estonia	5.1	4.4	4.5	6.6	9.7	10.5	9.9	9.2	8.4
Luxembourg	7.3	7.8	14.9	19.8	22.0	22.7	22.2	23.0	21.4
Bulgaria	36.0	21.0	13.0	15.3	16.7	27.1	26.2	25.6	22.6
Czechia	28.5	27.7	28.3	37.4	44.5	42.2	40.0	34.7	32.7
Denmark	44.2	31.5	33.3	42.6	44.9	44.3	39.8	35.5	34.1
Lithuania	18.7	17.2	14.6	36.2	39.8	40.5	42.6	39.4	34.2
Romania	18.9	12.4	12.4	29.8	37.0	39.2	37.8	35.2	35.0
Poland	45.0	46.9	46.3	53.1	53.7	50.4	51.3	50.6	48.9
EU (28 countries)	60.9	60.1	60.7	79.0	84.0	86.6	84.6	81.7	80.0
United Kingdom	38.6	40.7	49.7	75.2	84.1	87.0	87.9	87.1	86.8
Spain	45.3	38.9	39.5	60.1	85.7	100.4	99.3	98.1	97.1
France	65.9	64.6	68.8	85.3	90.6	94.9	95.6	98.4	98.4
Belgium	96.5	91.0	92.5	99.7	104.3	107.5	106.4	103.4	102.0
Cyprus	64.8	59.3	45.6	56.8	80.1	108.0	108.0	95.8	102.5
Portugal	62.0	69.2	71.7	96.2	126.2	130.6	128.8	124.8	121.5
Italy	100.1	102.6	102.4	115.4	123.4	131.8	131.6	131.4	132.2
Greece	102.9	103.6	109.4	146.2	159.6	178.9	175.9	176.2	181.1

Sources: Own study based on data from Eurostat https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_17_40&lang=en, connection of 11.04.2019, IMF https://www.imf.org/external/datamapper/, connection of 11.04.2019, OECD https://data.oecd.org/gga/general-government-debt.htm, connection of 11.04.2019, Central Statistical Office in Poland, Ministry of Finance 2018, http://www.finanse.mf.gov.pl/web/wp/, connection of 11.04.2019.

The most difficult situation regarding the value of the indicator occurred in 2018 in Greece, where the public debt in relation to GDP reached the value of 181.1% , it is worth noting that it was the highest rate in that country in the analyzed period of 2000-2018. Also, the difficult situation in terms of public debt was recorded in Italy, where in 2018 this indicator was 132.3% , also in this country in 2018 the value of the indicator was the highest in the examined period of 2000-2018 and, what is characteristic, it remained at a relatively high level in throughout the period under discussion. It is also worth paying attention to the public debt in Portugal, where in 2018 the level of the index reached 124.8% , however, since the year 2014 a slow decline in value has been observed. Indicator analysis of public debt in the EU indicates large differences between individual Member States in this respect.

According to the source data, in the analyzed period it was generally difficult in the EU Member States to significantly reduce public debt. In some countries only, the negative trend in the deepening of public debt has been reversed. At this point one should pay attention to the situation in Ireland, where in the years 2012-2018 the value of this indicator was reduced by almost a half from 119.9% to 64.8% . It is also worth paying attention to the situation in Germany, where in 2012-2018 the index value was reduced by 18.8 percentage points. Due to the extensive empirical material acquired during the research, due to formal reasons, it was not possible to present complete data, so it was limited to presentation in Table 1 and Table 2 of results for selected years from the period covered by the study and the results presented are graphically illustrated in Figure 1.

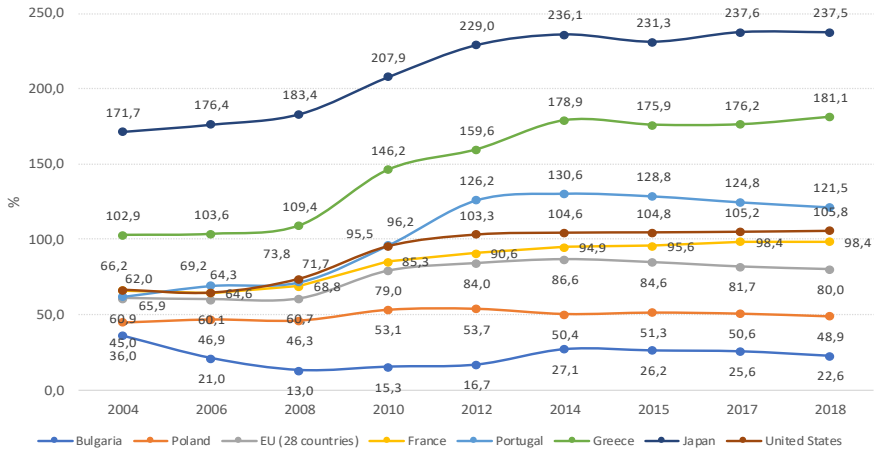
Table 2: General government gross debt as a percentage of gross domestic product (GDP) in selected countries in selected years between 2004 and 2018

Specification	2004	2006	2008	2010	2012	2014	2015	2017	2018
Australia	12.0	10.0	11.8	20.5	27.8	34.1	37.8	40.8	41.9
Brazil	68.1	64.7	61.5	62.5	61.6	61.6	71.7	83.1	87.9
Canada	72.1	70.1	67.8	81.1	84.8	85.0	90.5	89.7	90.6
China, People's Republic of	26.2	25.4	27.0	33.7	34.3	39.9	41.1	47.0	47.6
Japan	171.7	176.4	183.4	207.9	229.0	236.1	231.3	237.6	237.5
United States	66.2	64.3	73.8	95.5	103.3	104.6	104.8	105.2	105.8
Turkey	57.7	44.7	38.1	40.1	32.7	28.8	27.6	28.3	56.7
Ukraine	23.9	14.3	19.7	40.6	37.5	70.3	79.3	71.0	87.7

Sources: Own study based on data from Eurostat https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_17_40&lang=en, connection of 11.04.2019, IMF https://www.imf.org/external/datamapper/, connection of 11.04.2019, OECD https://data.oecd.org/gga/general-government-debt.htm, connection of 11.04.2019, Central Statistical Office in Poland, Ministry of Finance 2018, http://www.finanse.mf.gov.pl/web/wp/, connection of 11.04.2019.

The diversified situation regarding public debt in the EU Member States shows that there is a significant diversification of investment potential in the public sector. It is obvious that higher public debt can be more easily tolerated in large, wealthy countries with a developed economy than in smaller states that have the status of developing countries. The economic potential of individual countries creates a diverse situation when it comes to the possibility of financing investments from public funds. Therefore, one can notice a relatively high volume of public investment in rich countries with a relatively high debt ratio than in poor countries, where the debt ratio is relatively lower. There is no doubt, however, that the situation regarding public debt is a negative phenomenon and carries the risk of successfully financing public investments in the long run.

Figure 1: General government gross debt as a percentage of gross domestic product (GDP) in selected countries in selected years between 2004 and 2018



Source: own based on data in Table 1 and Table 2.

Current research shows that the phenomenon of public debt is quite common, it affects not only European Union Member States, but also is observed all over the world and occurs in poor countries, economically underdeveloped countries, as well as in countries with a relatively high level of GDP. It is worth paying attention to the situation that took place in Japan, where in 2018 the discussed indicator reached the level of 237.5% and was the highest indicator in the group of countries surveyed. It is also worth paying attention to the situation regarding public debt in the USA, where in 2018 the discussed

index reached the value of 105.8% , which in comparison to 2000 meant almost double the value of the indicator. The increase in the value of the index was also recorded in Australia, Brazil, Canada and Ukraine, while in Turkey and the Russian Federation there was a decrease in the value of the indicator in the group of the countries surveyed. The research results prove that economic development is taking place in conditions of surplus expenditure of public finance sector entities. Bearing in mind the internal structure of budget expenditures, currently there is an increase in current expenditure related to the financing of diversified public services: health protection, social security, pension system. As a result, the investment potential is diminishing, which leads to the use of funds from outside the budget and thus the increase of the budget deficit, and in the long run to excessive budget deficit.

Conclusions

The conducted research shows that the most commonly identified risk categories in relation to public investments may be: financial risk, operational risk, legal risk and liquidity risk during project implementation, political risk and also corruption risk. From a financial point of view, it was considered that two categories of risk in the conditions of the state budget economy and local government units play the most important role in the financial dimension of risk assessment. They are the risk of an excessive budget deficit and the risk of excessive government debt, which in the long term may significantly limit the possibilities of financing public investment within their own budget and may lead to increased debt and adverse effects on the economy and society. Excessive budget deficit and excessive public debt have an impact on the course of investment processes financed from other sources, in particular from funds received in the form of the bank loans.

Difficulties with the budget balance of public finance sector entities, visible in the form of budget deficits, must lead to a much more complex difficulties in the form of excessive public debt in the long run. As a result, the general financial situation of public sector entities deteriorates. High expenses related to servicing excessive debt may be particularly dangerous. The increase in debt servicing costs directly affects the deterioration of the possibility of financing investments from own resources. In the longer term, there is a real risk of a slowdown in the growth of budget revenues, which as a derivative of the economic situation may fluctuate along with changes in the business cycle. The reduction in budget revenues was clearly visible as a result of the global financial crisis in 2008-2010. In the longer term, one should always take into account the increase in public spending and the increase in the costs of their implementation. This may aggravate the negative effects of debt and lead to a further reduction in the volume of undertaken public investments.

The risk of excessive indebtedness of public sector entities must lead in the long-term to seeking new management methods in the sphere of investment. In conditions of increasing the risk of new investments, strategic management should become the basic instrument for optimizing the public economy. In the group of the European Union Member States, the quality of operational management has been significantly improved as well as the effectiveness of risk management has been improved. In many Member States, cohesion policy and related subsidies for co-financing public investment have significantly contributed to raising investment rates in the economy and investment rates in the public sector. The applied solutions allowed to mitigate the effects of excessive public debt and to maintain the upward trend in public spending even in the situation of a drop in the volume of GDP, which allowed to reduce the investment risk. It seems that in the future, a higher level of development will create the basis for increasing budget revenues and limiting the long-term risk of financing public investment.

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Government Expenditures and Economic Growth: A Nonlinear Causality Investigation for the UK

Stella Karagianni

Prof. Dr. at, Department of Economic Sciences, University of Macedonia, Greece

Maria Pempetzoglou

PhD, Department of Social Administration and Political Science, Democritus University of Thrace 1, Greece

Anastasios Saraidaris

PhD, Independent Authority for Public Revenue, Greece (IAPR)

Abstract

This study aims to explore the causal relationship between government expenditures and economic growth in the UK. The analysis emphasizes on the nonlinearity facet of the explored causality. In this aspect, existing conditional heteroscedasticity as a potential source of bias, is filtered out with the use of the nonparametric Diks and Panchenko causality test. The UK government expenditures are disaggregated into total managed expenditure (TGE), current expenditure (CGE) and net investment (IGE), in order to account for a possible heterogeneity in a causality disclosure linked to the nature of expenditures. The findings support that UK government spending Granger causes nonlinearly UK economic growth. Overall, government spending at all three levels of disaggregation is documented to influence the economic growth in the UK. In this aspect, the results move along with the endogenous growth literature. However, in a policy making framework, the disclosed nonlinearity patterns stress the high risk involved whenever economic growth is pursued restrictively via public spending policies overlooking other important elements of the economic life (e.g. market structure, macroeconomic environment, etc.). Additionally, the exhibited nonlinearity in the examined causality could be regarded as a likely cause of the widespread diversification of the findings in the field empirical literature.

Keywords: Nonlinear causality, Economic growth, Government expenditures, UK

1. Introduction

Government expenditures can contribute to a country's economic output both positively and negatively. Apparently, as the advocates of the Leviathan public choice school support, a large public sector by providing a reasonable amount of public goods and services (e.g. infrastructure projects, health, education, social security, welfare, defence services, etc.) a government can boost economic growth and influence positively the productivity in the private sector. However, a large public sector financed by taxes or external borrowing can result in a disproportionate size of governmental interventions in the economic life via overpriced public goods and services, often coupled with 'unproductive' or even rent-seeking, activities that finally undermine the envisaged economic growth prospects.

Undoubtedly, during the last decades, the appropriate size of public sector which would optimally stimulate a country's economic growth has become the research subject for numerous studies. The relationship between government spending and economic growth constituted a favourite topic of discussion in both neoclassical and endogenous growth theories. In the empirical literature, discussing the government spending-economic growth relationship, Grossman (1988) is the first who introduces the feature of nonlinearity. In endogenous growth theory, a distinguished model discussing the nonlinearity aspect of the above relationship is that of Barro (1990). The model presents a theoretical concave, static relationship between the economic growth rate and the size of a government. The later with the form of the ratio of productive government expenditures to GNP has been modified in an economic growth optimization process. In the same line, the so-

called Rahn Curve[1] quantifies the optimal level in government spending but avoids disaggregating it according to the type of public activities. Also, Scully (1998, 2003) extends the theoretical Barro model (1990) revealing a trade-off between economic growth and income inequality.

In this study, the H_0 hypothesis is whether public spending - in the form of total managed government expenditure, current public expenditure and public net investment - Granger causes UK economic growth in a nonlinear way during the period 1955-2009. The study offers empirical findings that underscore the feature of nonlinearity that was initially introduced in the long-run relationships of the Grossman (1988) and Barro (1990) studies. An innovative feature lies in use of the Diks and Panchenko (2006) test-instead of the frequently used Hiemstra-Jones (1993, 1994) test[2]- in order to account for the false nonlinearity due to the existing heteroskedasticity.

The paper is organised as follows: Section 2, sets the theoretical framework for the nonlinear relationship. Section 3, presents the nonparametric Diks and Panchenko causality test. Section 4, describes the data and the empirical results, and section 5 concludes.

2. Theoretical framework

According to the neoclassical theory of economic growth, taxes only temporally influence the growth rate of income in the transition to successive equilibrium growth paths, whereas, technological progress and population dynamics are exogenous forces that can lead to a steady-state equilibrium growth. On the contrary, the endogenous growth theory accepts that a steady-state growth is determined by the agents of the economy. Consequently, taxes are assumed to influence permanently the steady-state growth, by affecting parameters such as the value of investments in R&D and the rate of return on capital accumulation.

In very broad lines, the studies around the government expenditure-economic growth nexus could be grouped into the following categories according to their findings: a) in studies concluding on mixed or arriving to inconclusive results on the sign and size of this relationship (e.g. Nelson and Singh 1994; Agell *et al*. 1997; Ansari *et al*. 1997; Al-Faris 2002; Kollias and Paleologou 2010[3]; Germmell and Au 2013; Afonso and Jalles 2014, etc.), b) in studies that conclude on a negative relationship (e.g. Barro 1991; Engen and Skinner 1992; Guseh 1997; Burton 1999; Fölster and Henrekson 2001; Lee and Gordon 2005; Yavas 1998, Bergh and Henrekson 2011, etc.), c) in studies that conclude on a positive relationship (Aschauer 1990; Kelly 1997; Blanchard and Perotti 2002; Colombier 2009, Pereira and Roca-Sagale's 2011, etc.) and, d) in studies concluding in a inverted U shaped relationship (e.g. Barro 1990; Armey and Armey 1995; Rahn and Fox 1996; Scully 2003, Carboni and Medda 2011, etc.).

In this paper, additionally to other discussed causes[4], we illustrate also the predominant facet of nonlinearity as a plausible cause of the findings' diversification and controversy among the field studies. Specifically, we investigate the nonlinear relationship between public spending and economic growth using a new nonlinear Granger causality model in order to account for the likely mixed positive and negative growth effects in the UK economy. Nonlinear causality refers to the disproportional effect between government spending and economic growth. This disproportionality is related to the stand of fiscal policy (e.g. expansionary or restrictive fiscal policy) and the asymmetric shifts in economic policy regimes over time. Additionally, the need to uncover nonlinear dependencies is highlighted by the fact that even in cases when a linear Granger causality is witnessed, nonlinear dynamic dependences can not be necessarily excluded (see Kyrtsou and Labys 2006).

The study's empirical findings suggest that public spending affects economic growth in a nonlinear way. Thus, the causality effect, though strong and clear, is non-proportional and uncontrollable as to the sign and the magnitude. Possible reasons might be looked for in the nature of expenditures, the current level of GDP, political reasons (e.g. elections, shifts in

[1] See Brimelow (1993).
[2] The Hiemstra-Jones (1993, 1994) test is a modified version of the Baek and Brock (1992) test.
[3] Kollias and Paleologou (2010) investigate the relationship between growth, investment and military expenditure.
[4] In the field empirical literature there exists a large spectrum of arbitrage and controvercy in the decisions touching upon the selection of: the appropriate level of public data series (dis)aggregation and heterogeneity (e.g. according to the category of expenses, the level of economic development of the examined economies, etc.), the time spam considered (e.g. short run shocks vs. long run effects, etc.), the selection of the appropriate exogenous variables for the modelling process (e.g. expenditures vs. taxes,etc), the selection of appropriate modelling process (e.g. Time series vs. panel models, etc.), etc.

economic policy) etc. Recalling Agell et al. (1997): '*what we somewhat carelessly refer to as the public sector is in fact a microcosm, which includes everything from the choice of tax bases and setting of tax rates to decisions concerning public consumption programs and social insurance compensation levels'.* In the same strand, Myles (2000) concludes that, government spending may just be a proxy for the entire set of government non-price interventions, including, for instance, employment, legislation, health and safety rules and product standards and it may be these, instead of the expenditure, that actually reduce growth.

In general terms, our findings move along with the claims of the endogenous growth theorists in that public expenditure affects economic growth in a nonlinear and permanent way. Whereas no assumptions can be made on the sign of the effects, the study findings could be seem as highlighting the risk involved in the policy practices targeting economic growth via expansionary public spending and a Leviathan public sector. Similarly however, there is a high risk for disproportional economic growth effects when a restrictive public policy is enforced under the light of budgetary constraints. Subsequently, it expands the relevant empirical literature by uncovering the complex, dynamic nature of the public spending-economic growth relationship. From a policy making perspective, the presence of a nonlinear Granger causal flow renders policy makers unable to forecast the exact size and the direction in an economic growth change caused by public spending changes or reallocation. Summing up, public spending, despite its definite growth determinant role, could be modified (increased, decreased or reallocated into the various public activities) with caution and only after controlling for a wider set of policy measures (e.g. tax law enforcement power, corruption, minimization of rent seeking activities, penetration of Information Technology, incentivisation of the private-sector investments, etc).

3. The nonparametric Diks and Panchenko causality test

In 1969, Granger proposed a causality test to describe the dependence relations between economic time series. According to this, if two variables - gross domestic product $\{GDP_t\}$ and government expenditures $\{GE_t\}$, where $t \geq 1$ - are strictly stationary, $\{GE_t\}$ Granger causes $\{GDP_t\}$ if past and/or current values of *GDP* contain additional information on future values of *GE*. Suppose $F_{GDP,t}$ and $F_{GE,t}$ denote the information sets consisting of past observations of GDP_t and GE_t for time *t*. $\{GE_t\}$ Granger causes $\{GDP_t\}$, if:

$$(GE_{t+1},\ldots,GE_{t+k})\,|\,(F_{GDP,t}, F_{GE,t}) \quad \sim \quad (GE_{t+1},\ldots,GE_{t+k})\,|\,F_{GE,t} \qquad (1)$$

where '~' denotes equivalence in distribution and $k \geq 1$. However, in practice $k = 1$ is more oftenly used. In this case, Granger non-causality can be tested by comparing the one-step-ahead conditional distribution of $\{GE_t\}$ with and without past and current observed values of $\{GDP_t\}$. In order to test for Granger causality, we consider a bivariate stationary time series model with a mean $E(GE_{t+1}|(F_{GDP,t}, F_{GE,t}))$. We compare the residuals of a fitted autoregressive model of GE_t with those obtained by the regression of GE_t on past values of $\{GDP_t\}$ and $\{GE_t\}$ (Granger 1969). The test statistic is:

$$T_n(\varepsilon_n) = \frac{n-1}{n(n-2)} \cdot \sum_i \left(\hat{f}_{GDP,Z,GE}(GDP_i, Z_i, GE_i)\,\hat{f}_{GE}(GE_i) - \hat{f}_{GDP,GE}(GDP_i, GE_i)\,\hat{f}_{GE,Z}(GE_i, Z_i) \right)$$

(2)

where $Z_i = GE_{i+1}$, $f_{GDP,Z,GE}(gdp,z,ge)$ the joint probability density function, ε_n the bandwidth and *n* the sample size[1].

For $l_X = l_Y = 1$ and if $\varepsilon_n = Cn^{-\beta} (C > 0, \frac{1}{4} < \beta < \frac{1}{3})$, Diks and Panchenko (2006) prove that the test statistic in equation (2) satisfies the following:

$$\sqrt{n}\,\frac{(T_n(\varepsilon_n) - q)}{S_n} \xrightarrow{D} N(0,1) \qquad (3)$$

[1] The bandwidth ε_n values are set according to table 1, p. 1658, from the Diks and Panchenko (2006) paper. For $100<n<500 \Rightarrow \varepsilon_n=1.5$

where $\xrightarrow{D}$ denotes convergence in distribution and S_n is an estimator of the asymptotic variance of $T_n(\cdot)$ (Diks and Panchenko 2006 and Bekiros and Diks 2008). In this study, following the Diks and Panchenko's suggestion, we implement a one-tailed version of the test.

4. Data and Empirical results

4.1 Data and Preliminary Analysis

The study is carried out using quarterly data covering the time period 1955:1 to 2009:1 for the UK. GDP stands for the gross domestic product, TGE for the total managed expenditure of government, CGE for the public sector current expenditure and IGE for the public sector net investment. The disaggregation of total government expenditures is crucial for the appropriate isolation of the source of a likely nonlinear causal relationship. The distinction of government expenditures into public sector current expenditure and public sector net investment, serves to decomposing the likely uneven nonlinear growth causality effects. Similarly other studies in this field, e.g. Angelopoulos *et al.* (2007) which built upon Barro (1990) and Baier and Glomm (2001) have accounted for the uneven growth effects of public expenditure by distinguishing them to "*productive*" and "*non-productive*", following the Kneller *et al.* (1999) classification. Additionally, Angelopoulos *et al.* (2007) suggested that OECD countries could improve their growth performance by reallocating public spending towards productive activities.

Presumably, each category of government expenditures displays unequal increases than others and contributes in a different way to economic growth. Hence a potential nonlinear flow that may be detected between government spending and economic growth could result from a specific category of government expenditures. For this reason, the analysis includes government spending both at the aggregate and the disaggregate level. All data are obtained from the Office for National Statistics Database in the UK and they are expressed in current prices[1] and logarithms.

The use of the Diks-Panchenko nonlinear causality test is justified by the presence of high kurtosis value[2], suggesting heteroskedasticity structures in data sets (Diks and Panchenko 2006). In the first place, the unit roots have been removed to obtain stationary series (Dickey and Fuller 1979). Furthermore, any linear dependence should also be removed. For this purpose, we apply a Vector Autoregression (VAR) model and use the estimated residuals to test for nonlinear causality. If GE_t is the vector of government expenditures and p the number of lags, the VAR model is the following:

$$GE_t = \sum_{s=1}^{p} A_s GE_{t-s} + \varepsilon_t \qquad (4)$$

where $GE_t = [GE_{1t}, \ldots, GE_{kt}]$ is the px1 vector of endogenous variables (t=1,2,…, T), A_s is the pxp parameter matrix and ε_t a white-noise error vector. Five lags have been used in all three cases. The results from the estimation of the VAR model reveal the significance of the VAR model coefficients[3].

4.2 Empirical results

The nonlinear Granger causality test (Diks and Panchenko 2006) is applied on the estimated residual series of the VAR model. The test has been applied in both directions for L_x=L_y=1, …, 5[4] and for bandwidth ε=1.5, which has been set according to the time series length n. Table 1 shows the resulting T-statistics and p-values of the Diks-Panchenko testing.

The results obtained from the test provide clear evidence that UK government expenditure Granger causes nonlinearly UK economic growth. More specifically, the nonlinear Granger causality running from current government spending to GDP is

[1] The use of current prices is incumbent in the case nonlinear causality tests are applied. This is because the transformation in constant prices could act as a filter producing distortions, especially when the underlying mechanism generating data is nonlinear.
[2] Because of space considerations, detailed tables are available from the authors upon request.
[3] ibid.
[4] L_x=L_y denotes the number of lags on the residuals series used in the test.

evident with 1-2 lags, while total government spending and public investment significantly Granger causes GDP with lag orders of 1-5.

Table 1. Results for the NonLinear Causality Test

$L_x=L_y$	TGE → GDP		CGE → GDP		IGE → GDP	
	T- statistics	*p*-value	*T*- statistics	*p*-value	*T* -statistics	*p*-value
1	2.204	0.01375**	1.535	0.0624*	-3.927	0.00004***
2	2.355	0.00926***	2.641	0.00413***	-5.13	0.00000***
3	2.242	0.01248**	1.025	0.15272	-4.326	0.00001***
4	1.546	0.06105*	0.947	0.17171	-3.535	0.00020***
5	1.666	0.04783**	1.152	0.12467	-2.662	0.00388***

Notes: GDP stands for the Gross Domestic Product, TGE for the total managed expenditure of government, CGE for the public sector current expenditure and IGE for the public sector net investment.
The null hypothesis suggests that TGE/ CGE /IGE, respectively, does not cause GDP.
*** denotes *p*-value statistical significance at 1% level, ** denotes *p*-value statistical significance at 5% level, * denotes *p*-value statistical significance at 10% level.

The existence of nonlinearity might be caused by several economic and political factors. UK's economic policy has been asymmetric during the period under examination, inducing changes in fiscal policy parameters, particularly government spending and taxation. The shifts in fiscal policy – for example, towards a more restrictive regime in the early '80s - appear as a response to the unfavourable at that time macro and micro economic environment (i.e. unemployment, potential impact of oil crisis etc.).

From the economic theory perspective, the findings are in line with the endogenous growth theory. Although they disclose the endogenous effect of fiscal tools (such as the change in government expenditures in this study) on GDP growth, they underscore, in a non-quantitatively way, the feature of fragility in the government expenditure-GDP growth causality effect. The later proves that public expenditure changes turn to be an incomplete fiscal policy tool on economic growth grounds.

Additionally, the findings uncover the short-run dimension in this relationship that departs from the static nonlinear government expenses–GDP growth models' framework (e.g. described first in Barro 1990). They highlight the risk when a government struggles to boost a country's economic growth, for example by restricting public expenses and public investments (i.e. the shift into a restrictive fiscal environment in the UK in early '80s).

As it has been pointed out in Grossman (1988), increases in government are asymmetrically related with changes in total economic output, allowing shocks in one variable to impact either positively or negatively the other. Thereby, this asymmetric relationship has been taken into account in a parametric model which by construction captures the nonlinear nature of the dependence. In economic terms, the presence of nonlinearity in the aforementioned setting is justified by the magnitude and, most importantly, the causes of the resulting negative effects due to the increased involvement in the private sector. The situation can worsen due to behavioural bias of taxpayers that undergo the effects of an increasing burden.

According to Olson (1982), the complex characteristics of the process of distributional coalitions determine the efficiency of regulation and the role of government. It is argued that rent-seeking activities are capable to act as an expanding mechanism of inefficiencies. This inherent heterogeneity, due to the presence of that various "unproductive" social groups, is accused to fuel the nonlinear effect of government spending and, thus, final inefficiency in achieving optimal output level. The observed heterogeneity also forces rises in spending, leading government to actively intervene. Grossman (1988) underlines that the dispersion of this spending into heterogeneous recipients puts in peril the efficiency of the intervention.

5. Conclusion

The present study aims to shed light on the government spending – economic growth causality. The distinctive feature of this study is that it employs the nonparametric Diks and Panchenko causality test to explore the nonlinearity facet of the relationship between the examined variables.

The empirical results uncover a nonlinear causal relationship between the government spending and the economic growth in the UK. The feature of nonlinearity in the causal effect, could be attributed either to economic and political factors (such

as the stand and shifts in fiscal policy and specificities of the internal market structure) or to pathogenic features in public sector functioning (i.e. corruption, bureaucracy, rent seeking, low enforcement power, etc.) that could hamper the efficiency of implemented fiscal policies.

Apparently, in policy terms, the presence of a nonlinear Granger causality renders policy makers unable to forecast the exact size or even direction of the economic growth changes triggered by monotonic public spending policies.

Additionally, in empirical methodology terms, the predominant non linearity facet of the examined relationship constitutes a possible source of misspecification issues in the modelling process and a possible cause of the ample disparity of the findings in the field empirical literature.

In total, public spending definitely constitutes an exceptionally influential economic growth driver however, its reliability as a policy instrument should be regarded with duly scepticism due to the co-existence of economic growth hampering agents (e.g. low law enforcement power, corruption, bureaucracy, rent seeking activities, disinsentivising of private investments, inefficient market structure, unfavourable macroeconomic environment, etc.), challenging its applicability and occasionally its appropriateness.

Disclaimer: The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the official position of the affiliated institutions

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Financial Institutions Involved in the Bankruptcy and Liquidation Process in Kosovo

Naim Spahiu[1]

PhDc. Law Faculty, University of Prishtina Hasan Prishtina, Kosovo

Abstract

In modern states, economic system of state it function through financing institutions. So, financing system plays an important role in business and economic activities. Bankrupty and liquidation process in finance sector in Kosovo has intended avoiding the failure of the economic enterprise and its one of the important cases in finance direction. Therefore, studies of this form shows a big interes from scientific researcher in our state and wider. This paper is focused in bankrupty and liquidation process of finance institutions, studing the most important elements of bankrupty and liquidation process in out place and region. Research model gives a visual describe of research and this topic elaborates very well. Financing institution are registered and licensed from CBK and it consisting of: Banks, Pension Funds, Ensurance Companies, microfinancial institutions and other nonbank financial institutions. Central Bank of Kosovo (CBK) has executive responsibilities for licensing/ registering and monitoring financial institutions such as: banks, ensurance company, pension funds, microfinancial institutions, nonbank financing institutions and other legal subjects that exercising financial activity with Kosovo legislation.As th bankrupty process starts ealry, by taking signals from financial indicators, research preliminarly do actual evaluation of finance statements of financial institutions. The purpose of this paper is to give general frame of bankrupty and liquidation of financial institutions in Kosovo. Financial performance measurement which is thought to be a model of performance is limited with CAMEL model for banks and Dupont model for other financial institutions. Excepted of those, research is a subject of only financial institutions in Kosovo, so it could not be generalized.

Keywords: bankrupty, liquidation, financial institutions, process.

1. Introduction

The bank is enterprise with business specific, which are regulate with action, the practice and specific provision. Bank is special system financial monetary-creditor institution, with it takes and giving credit in professional way, and with the intermediation in the flow of competent payments[2]. Dr. Felkx SOMARY (Swiss), on his write "ploticital bank" which is published on Thubingen in 1934 cites: Bank is an **apoent** institution, the main work is taking credits in money form. Somary accesses bank function not from the aspect of giving loan but from the aspect of loading with bank debt that it means from the way of funds mobilization[3].

Today, banks leads "market money" but at the same time they are producing industry.

Every loan repaid reduce quantity of money on the market but at the same time it increase wealth of banks. Banks has an important role because they orient money on their direction they need to have and to not forgetting and their contribution on the state economy[4].

Kosovo Banks serves citizens and businesses of Kosovo offering a wide range of financial services.

[1] PhDc. Naim SPAHIU, Law Faculty, University of Prizren, Prizren, Kosovo,
[2] Prof Dr. Gazmend LUBOTENI, Banks and Banking Business, page 6, Prishtinë 2013.
[3] Sabahudin KOMONI: Financat, Text entity and learning tools of KSA of Kosovo, Prishtinë 1985, pg. 124
[4] https://sq.wikipedia.org/wiki/Banka

Kosovo's banks make it possible for businesses to start and expand their activities, to increase their employment and to offer better services to their clients.

Also, banks help familiar economy to realise their goals making possible to finance their living, to finance their education or to afford other needed costs[1]. Kosovo's Banks also empower society through their charity activities and financial support for important project of society. Banks sector also have take good initiative last years to support increase of children capacity and youth though financial education. Today, in Kosovo operate 10 (ten) commercial bans and they have 67.5% of total assests of financial sector. Products and their services include bank account, local and international payment, bank cards, bank guarantess, credit letter, e-banking. Access to this bank services enable actually though 233 branches and nines, 500 ATM and 12.303 POS and 228.745 e-banking account[2].

The bank is created on the base of system that it has for the goal to obtain with monetary provisions, saving of costumer savings and lending for financial goals. Her services offer through an agency network. Over time and fast development of technology it is showing more new opportunity of action[3]. The bank it takes savings, credit giving, payment intermediation in society and economy. **The Word of the Bank**, supposed from Italian word "**banco**" where in translating it will shows a set up stall, and on his history it started as it below: where this job done "**thesauri**". Nowdays it is using expression "**thesauri**" where it has notion of some fast instrument collection jobs or bank production. **First function was exchange**, or the replacement of various to then metal coins with different weights and quality.

Center Bank of Kosovo (CBK) is responsible for bank licencing. CBK regulate publish the list of banks where operate in Kosovo[4].

2. Branches of foreing banks on Kosovo

Commercial banks in Kosovo have various stock structure. Eight of them are banks with foreing capital and two of them with local capital[5].On the base of law for banks: Banks we call the person who is organised, it has own seat and it has licence to engage in bank activities in any other juridiction except of Kosovo[6]. While based on the regulation of CBK for licencing of Banks and foreing Bank branches in Kosovo, **Article 2point** b, its said: *Branches of foreing banks* - is a person who is organised and licenced from CBK, to perform bank activities in Republic of Kosovo, but the mother bank that it has their main headquarter and it hold licence to perform banks activities in other juridiction out of Republic of Kosovo[7].,which is the responsibilities of CBK to give licencing, CBK has exclusie responsibilities to give licence for every bank and enrollment of all Microfinance Institution and non-bank Microfinance Institution for issuing permits of the foreing banks regarding the establishment of representative offices. A central register is kept by the CBK for inspection from the public which it register every Financial Institution, the name, address of central directorate and banches and actual copies of the founding act or similar documentation of foundation and bylaws act[8].

All of foreing banks that develop business in Kosovo where they work in base of Regulation forlicencing of banks and branches of foreing bank in Kosovo designed by the board of CBK on December 2012.

1. The abovementioned regulation lays down the conditions, requirments, the procedures and deadlines to be followed for applying and granting a license to a bank and/ or a branch of a foreign bank;

2. This regulation will apply to all applicants for a license from the CBK to engage in banking activity in the Republic of Kosovo.

Article 7 of regulation said:[9] 1. When a foreing bank apply for establishment of a branch in Kosovo, the conditions will be the same for local banks. CBK will appreciate the resilience of shareholders and the group as a whole, especially when the

[1]https://www.bankassoc-kos.com/Al/sektori-bankar/(Last updates: June 2018)
[2]https://www.bankassoc-kos.com/Al/sektori-bankar/(Last updates: June 2018)
[3]https://sq.wikipedia.org/wiki/Banka
[4]https://bqk-kos.org/?id=20
[5]https://www.bankassoc-kos.com/Al/sektori-bankar/(Last updates: June 2018)
[6]Law No. 04/L-093 for Microfinance Institutions Banks and Non-banks finance institutions pg. 3.
[7]CBK regulation for licencing of Banks and foreing Bank branch in Kosovo 2012,
[8]Law No. 04/L-093 Microfinance Institutions Bank and Non-Bank institution financepg. 4.
[9]CBK- Regulation for bank and foreing bank licencing in Kosovo, pg. 3,4. December2012 (based on article 3 of Law no. 04/L - 093 for

mother banks it isn't main bank on the group. But except of this, as it looked with Article 7 of Law for banks, CBK will looking for evidence to prove that supervisor of mother bank it hasn't any opposition for this proposal.

Also CBK must be convinced that the banking group, part of the new bank will be is subject to effective consolidated supervision.

3. On the case when the foreing bank apply for licensing establishing of her branch in Kosovo, CBK requires from the supervisory authority of the jurisdiction of the mother bank:

A proof that the applicant is a well-organized institution and possesses a valid license of the institution for receiving deposits;

Additional information about the final bank's examination within a hundred and eighty (180) last days, indicating that the level of capital, asset quality and liquidity ratios are assessed by that authority at least with a satisfactory level rating;

That the applicant is not subject to remedial measures or under an early warning program set by the supervisory authority;

That the branch establishment and its activities in Kosovo are allowed without any predetermined condition;

4. In the case of applications for a license for branches of foreign banks, a security letter addressed to the CBK by a foreign mother bank will be required, by which it is recognized the legal obligation of the foreign bank to pay all its liabilities foreign bank branch in Kosovo.

5. Article 17 of the Law on Banks requires any foreign bank operating with one or more branches in Kosovo to uphold the demands of Kosovo residents higher than its obligations to residents of Kosovo. CBK determines the level of claims requirements on residents of Kosovo depending on the branch's assessment on an individual basis.

6. CBK has the right to request a foreign bank operating through its branch in Kosovo to return its branch to a subordinate subject in accordance with Article 12 of the Law on Banks.

7. If, according to the CBK's assessment, the foreign bank's branch is acting contrary to the interests of its depositors, CBK has the right to withdraw a foreign bank license to act as a branch and block the equivalent capital deposit.

8. In cases where a foreign bank establishes two or more branches in Kosovo, one of the branches should be designated as the main administrative center of the bank. Regulatory Reports will be sent to the Consolidated CBK, including all details of the branches of a foreign bank in Kosovo[1].

3. Microfinance Institution in Kosovo

Financial Institutions All Banks, Non-Bank Financial Institutions and Microfinance Institutions that are Regulated by Law[2].In Kosovo there are 14 microfinance institutions, with over 110 branches. Their activity is the provision of loans and the provision of a limited number of financial services for micro and small legal entities. Mainly, they are focused on granting loans to agriculture[3].

For economic affairs experts, these institutions are safe, as they do not accept deposits, but only have their bids. In general microfinance institutions are organizations that provide small loans to low-income individuals or household businesses. The majority of microfinance institutions operating in Kosovo are members of the Association of Microfinance Institutions of Kosovo (AMIK), which was established in 2012. The AIMK supports the development of micro-entrepreneurial programs to assist small entrepreneurs in starting, stabilizing and expanding business.

AIMK coordinates activities such as joint training, mutual visits between other MFIs established in the region, and other activities as required by member institutions.

banks, microfinance institutions and non-bank finance institutions (On below: Law for banks),

[1]CBK- Regulation for licencing of banks and foreing branch bank in Kosovo, pg. 1. December 2012(Article 3 of Law no.04/L-093 for banks, Microfinance institutions and non-bank finance institutions(onbelow: Law for banks),

[2]Law for microfinance institutions bank and non-bank finance institutions, No. 04/ L-093 12 April 2012, Prishtinë.

[3]https://www.evropaelire.org/a/24930983.html

The aim of the AIMK is to become the leading association of microfinance institutions in the region. Below is a brief description of the microfinance institutions currently operating in Kosovo, most of which are AMIK members.

Microfinance Institution in in Kosovo are listed below as well based on the activities:

Timi Invest- and offers individual loans for home businesses and small businesses. START which offers loans for agriculture, handicrafts and trade;

Perspective 4 offer loans for, agriculture, handicrafts and trade;

Meshtekn provides lending to the village, lends to individual businesses, manufacturing, trade, agriculture;

Kosovo's Rural Credit provides lending to the village, lend to small businesses, agriculture and individuals;

Kosova Aid and Development offers small loan for businesses, loans for trade, produce and agriculture;

Kosinvest World Visionoffersgroup loan solidarity, individual businessloans, agricultural loans;

GMAMF offers loans for agriculture, livestock and trade;

KEP TRUST-i offers solidarity loans, individual loans and village bank;

FINCAoffers group loans, individual and business loans, home improvement loans and rural loans[1].

3.1. Non-bank financial institutions

Non-Bank Financial Institutions (NBFI) provide specialized financial services to clients, such as loans, leasing and mortgages.Below is a brief explanation of the products and contact details for non-bank financial institutions in Kosovo[2].

Non-Bank Financial Institutions (NBFI)- is a legal entity that is neither a bank nor a microfinance institution licensed by the CBK under this law to engage in one or more of the following activities: granting loans, borrowing and leasing contracts - leasing signing, trading, mediating or distributing securities, acting as an investment company or investment advisor or providing other financial services such as foreign exchange; credit cards; factoring, guarantees, or other financial, training, training, advisory and operational services as well as other activities as determined by the CBK[3];

3.1.1. Insurance companies and insurance intermediaries

Insurance companies in Kosovo are organized in a united association called the Kosovo Insurance Association (KPS). KPS is established in 2002 after the agreement of representatives of licensed insurance companies in Kosovo[4].

The aim of the association is to improve the insurance industry in Kosovo, assist in stabilizing the insurance market and provide training to member company staff[5].

More information can be found on the website KPS.

The insurance companies in Kosovo are listed as follows on the basis of the following activities:

Security was established in June 2000. Security provides third-party liability insurance, casco insurance, personal, property, home security, and building risk. Sigkos was established in 2006 as a private insurance company by two local businessmen. SIGKOS provides insurance for vehicles, casco, personal, health, property, liability, all contractual risks, all construction hazards, cash in cash and cash in transit.

Sigma Vienna Insurance Group - was established by the Insurance Supervisory Commission decision in February 1999 as the first insurance company in Albania.

[1]http://www.itg-rks.com/sq/Institucionet-mikrofinanciare, 16.07.2018
[2]http://www.itg-rks.com/sq/Institucionet-financiare-jobankare 16.07.2018
[3]Law No. 04/ L-093 for microfinance institutions bank and non-bank finance institutions, 12.04.2012, Prishtinë.
[4]http://www.itg-rks.com/sq/Kompanite-e-Sigurimit
[5]http://www.itg-rks.com/sq/Kompanite-e-Sigurimit

Sigma was licensed to work in Kosovo in November 2004. In September 2007, Sigma became part of Vienna Insurance Group. Sigma provides property, vehicle and health insurance coverage. Sigal Uniqa Group Austria Kosovo: SIGAL operates in Kosovo since October 2003. SIGAL provides health insurance, life insurance, vehicles, property, financial guarantees, engineering, liability, agriculture, marine, aviation and transport of products. Kosova e Re is the successor of the company "Kosova". Founded in 1974, it is the oldest insurance company in Kosovo.

In 2002, New Kosovo received a permanent license from the Central Bank of Kosovo.

New Kosovo offers personal insurance, guarantees, property and vehicle insurance. INSIG Kosovo established in 1991 by the Government of Albania. In March 2000 INSIG-Kosovo was licensed to work in the Kosovo market as a subsidiary of INSIG-Albania. Insig- provides health, property, and liability insurance. Illyria was licensed and started working in February 2002. The company is part of the Sava Re Group. ILLYRIA offers health insurance for vehicles and property.

GRAWE ELSIG is part of the Austrian financial group GRAWE.

The company was established in 2008.The company offers insurance of vehicles, from accidents, property, health, guarantees and liability insurance. Dardania entered the insurance industry in 2002 through a temporary license issued by the United Nations Mission in Kosovo (UNMIK). Later in 2002, Dardania received a permanent license from the Central Bank of Kosovo. Dardania offers insurance for accidents, health, home, vehicles and property. Croatia Sigurimi sh.a is a branch of Croatia Osiguranje headquartered in Croatia.

Croatia Insurance was established in 2005. CROATIA Insurance provides Casco insurance, transport of healthcare products and vehicles[1].

3.1.2. Pension funds

A pension fund is defined as a pool of assets purchased through participatory contributions created to generate sustainable growth over long-term periods, with the sole purpose of financing the contributors' pensions when they reach retirement age[2].

Pension funds emerged and developed later than the insurance companies, with a strong development they had in the post-World War II period. While in insurance companies insurance policies are contracted on an individual basis, pension funds have to do with the pension insurance of employees in large companies, on a collective basis[3]

Pension funds are financial institutions that develop their business activity on the basis of contractual insurance, and can count on the support in the assigned revenues in their logs on a monthly basis. These monthly income in their accounts based on pension insurance contracts constitute appropriate circumstances for the program of financial potential of funds and their adequate investment in understanding the formation of the optimal structure of the securities portfolio[4]. Pension funds, through investments made, are shareholders of a large number of large companies and can be very important investors of capital markets.

Therefore, based on the overall value of the investments that these funds make, they are rated as the largest institutional investors in the globe, and that based on the activities carried out, they are going through hedge funds, pension companies and foreign exchange reserves.

The Kosovo Savings Pension Fund (KPST) is an independent and non-profit public institution, established by the Assembly of the Republic of Kosovo. KPST is eligible according to the defined contribution pension model, which means that each contributor saves the pension in a pension log. KPST is an institution established in December 2001 and started its activity in August 2002 to administer and manage the obligatory pension (and voluntary) contributions of Kosovo employees.The KPCC General Activity is regulated by the Assembly of Kosovo (MA). KPST is committed to maintaining and investing pension contributions saved by Kosovo citizens during the employment relationship, pension funds were characterized by a positive performance in 2017. The total value of the pension sector's assets reached 1.65 billion euros, a significant

[1]http://www.itg-rks.com/sq/Kompanite-e-Sigurimit
[2] Investopedia – www.investopedia.com
[3] Fadil GOVORI: Finance, 2010, Fq. 125
[4]There.

increase in assets of 16.0% in 2017, mainly as a result of the increase realized by new contributions and the increase in return on investment.

The pension sector almost doubled the return on investment reaching 103.1 million euros in 2017, unlike the return of 65.3 million euros in 2016[1].

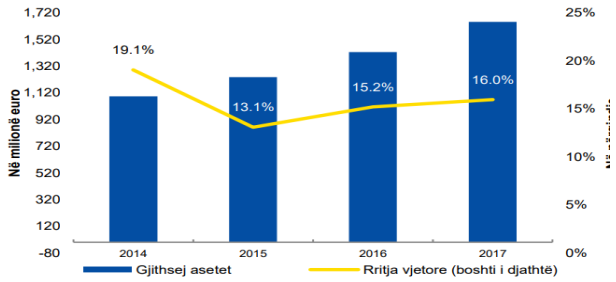
3.1.2.1. Pension sector in Republic of Kosovo

Pension sector on 2017 year characterized with asset increase from 16.0% .

General value of assets of pension sector reached to 1.65 million euro, where this it done as a second biggest sector on finance sector with 27.9% of assets (figure 1.).

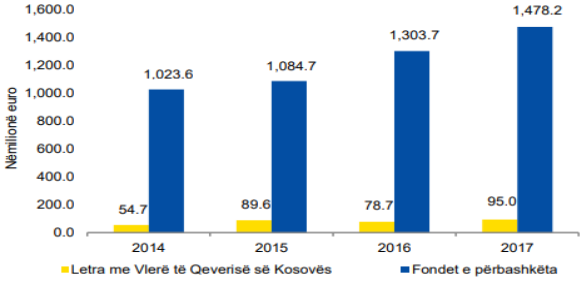
On this contribute increases gives increase in contributions received from both funds and return on investments from the Kosovo Pension Savings Trust (KPST)[2].

Figure 1. Pension assets sector, in million euro



Source: (Annual Report of CBK 2017 Prishtinë, June 2018)

Figure 2. FKPK investment



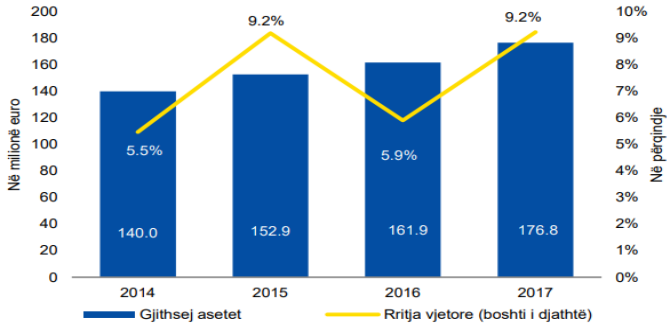
Source: (Annual reportof CBK 2017 Prishtinë, June 2018)

The value of contributions received from the pension sector amounted to 160.3 million euros (152.0 million euros in 2016), representing an annual growth of 5.4% . The Savings Value of the Kosovo Pension Savings Trust (KPST) amounted to 159.8 million euros. The pension sector almost doubled the return on investment reaching 103.1 million euros, unlike the return of 65.3 million euros in the previous year. KPST realized a positive return on investment of 102.6 million euros, which consists of 99.5% of the assets of the pension sector, marked an increase of investments in Kosovo Government securities at the level of 20.8% , while investment in mutual investment funds , which are abroad, recorded an increase of 13.4% (figure 2).

[1] Annual report of CBK pg. 15, 2017 P R I S H T I N Ë , June 2 0 1 8
[2] Annual reportof CBK PG. 40, 2017 P R I S H T I N Ë , June 2 0 1 8

The pension insurance sector - The insurance sector today represents about 3.0% of total financial system assets, in December 2017 recorded an annual growth of assets of 9.2% and amounted to 176.8 million euro (figure 3). One of the main contributors to asset growth was the increase in liquid assets, ie cash held in commercial banks, which has the highest share in the assets structure of insurance companies.

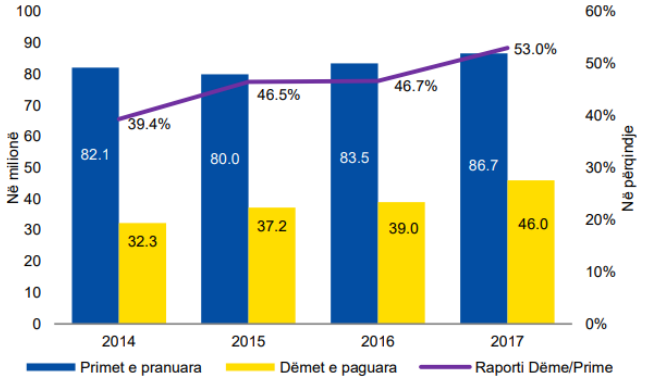
Figure 3. Insurance assets sector



Source: (Annual report of CBK, 2017 Prishtinë, June 2018)

Non-life insurance, which at the same time has the highest share of total sector assets (87.8%), recorded an annual growth of 6.7% in 2017. Meanwhile, "life" insurance, which is the remainder of the assets, recorded an annual growth of 31.5%[1]. During 2017, the value of premiums written by insurance companies amounted to 86.7 million euros, an annual growth of 3.9% . The written premiums structure is headed by non-life insurance premiums, which represent 97.1% of total written premiums. Their value during this period of 84.2 million euros is 4.1% higher than in 2016. While the premiums written by insurance were 2.5 million euros representing a lower value by 3.4% .

Figure 4. Written premiums and paid damages



Source: (Annual report of CBK, 2017 Prishtinë, June 2018)

Damages paid by the insurance sector, including damages to insurance companies and the Kosovo Security Bureau (KSB), marked a significant annual increase of 17.8% in 2017 (an increase of 4.9% in 2016). The higher growth of claims paid during this period, in addition to the smaller increase in written premiums, resulted in an increase in the ratio of total damages paid to written premiums (figure 4)[2].

[1]There

[2] Annual report of CBK, page. 42, 2017 P R I S H T I N Ë, June 2 0 1 8

Insurance sector performance: The insurance sector closed this year with a positive financial result, unlike the previous year. Net income from insurance premiums in 2017 recorded an annual growth of 4.7% , while in the same period expenditures were characterized by an annual decline of 7.1% , and the incurred damages recorded a significant annual decline of 47.1% . As a result of revenue growth versus the sharp decline in expenditures and damages, the insurance sector recorded a profit of 6.4 million euros. Measures taken by the CBK through the entry into force of the Regulation on the sale of compulsory motor liability insurance and the management of insurers' expenses at the beginning of 2017 have resulted to be effective in reducing and limiting expenditures by taking into account the decline significant expenditures of the entire insurance sector during this year. Also, the positive financial result realized during 2017 was also affected by the increase in the payment of damages by some non-life insurance companies and the change of secondary legislation of the CBK in accordance with legal requirements regarding the Regulation of the Compensation Fund. These steps have contributed to the reduction of technical reserves, resulting in lower costs and consequently in profitability.

The annual growth of cash and cash equivalents of 8.3% , coupled with the 5.7% drop in technical reserves of the insurance sector contributed to the improvement of the liquidity level. The ratio between cash and cash equivalents to reserves increased to 104.3% in 2017 from 90.7% in 2016, and the ratio between cash and cash equivalents to total liabilities increased to 91.3% (83.1% year 2016)[1].

Conclusion

The purpose of this paper is to do evaluation of financial performance of financial institutions in Kosovo, to see if those institutions risking to go bankrupt. To do this research with financial institutions are selected *bank sector*, pension funds and ensurance companies. The reason of choosing these is that banks represent 66% of financial activities according report of CBK for 2017 year and 27,7% pension funds.

So, banks and pension funds, together, represent over 90% of financial sector in Kosovo.

Therefore, we can say that financial sector in Kosovo represents from banks to a great extent and pension funds. Then, these are selected ensurance companies for research, as institutions that immediately after the banks and pension funds.

From banks, are selected Economik Bank of Kosovo, National Commercial Bank, Bank for Business, NLB Bank, Raiffeisen Bank and TEB Banka, and from funds are selected two funds which operated in Kosovo, **Kosovo Pension Saving Trust** and Pension funds Sllovenian-Kosovar, and from fifteen ensurance companies are selected companies as Elsig, Eurosig, Illyria, Illyria life, Dukagjini, Prisig, Sigal Uniqa Group and Sigkos.

Selected process is based on availability annual financial reports online. After of selected of these institutions, financial reports are reviewed for last of three years, 2017, 2016 and 2015. From these financial reports, are taken financial indicators by using CAMEL model for banks and eleven financial indicators and using DuPONT system for pension funds and ensurance companies with five financial indicators.

CAMLEL model is a very good model for evaluating performance of banks and it used in a lot of cases like ours. Financial indicators of CAMEL model show for a a good average performance of all banks in Kosovo. Banks in Kosovo are managed very well and they have fulfilled all their obligations. Non of banks are not evaluated to have low performance or doubtful and this means that banks are performing very well and they are far away of bankrupty.

Recommendation

Based on the results obtained, below recommendation will be take considering:

Despite that financial indicators shows good financial performance of the banks and it shows studied are far away of bancrupty and liquidation, however, there were significant statistical difference between banks. These banks should becarefully that their report should not fall below the recommendation values according the best bank practice.

Generally, banks such as BEK, BKT, BPB and NLB have poorer capital adequacy ratios and should be careful not to diminish this ratio.

[1] There

An important case we can see about banks performance is asset quality report.

Despite that the banks year by year they work in minimizing of coefficients of quality assets, they are again found on the accepted criterion according best bank practice, that for non-performing loans to total loans and to total capital is suggested to be below 1% , while the loan loss provisioning coefficient is suggested to be below 3% .

All banks, should work in this direction, that these three indicators to approximate to these values, by keeping lower rates of non-performing loans and provision for losses.

Regarding the financial funds, there is a different performance compared to the banks.

First of all, it can be noticed that the Slovenian-Kosovar Pension Fund has a higher profit margin compared to the Kosovo Pension Savings Trust, however other reports present a more positive performance for the Kosovo Pension Savings Trust.

Pension funds should be care to save actual financial position. KPSF should have attention to the profit margin, as year-to-year fluctuations point to a destabilization of profit.

As well, and back norm of assets (ROA) and back norm of capital (ROE) should be managed nearly, as high movements presents for a stability of these reports, while KPSF despite the lower values of these reports, there was a more stable stability.

So, KPSF should control base and customer portfolio and carefully manage thier accounts.

In the end, studied ensurance companies in this paper, shows non stable statement of financial sector.

Ensurance companies should see their financial stable nearly and considering showed informations in financial statements, which often tell us for negative value reports.

It can be noticed that most insurance companies have operated at a loss and have overcome negatively negative values from year to year.

So, we are talking about instability, different from banks and pension funds.

Excepted this, all other reports shows extreme crossing year by year, or continuation negative statement. Therefore, ensurance companies should be managed nearly and with carefully, offering their customers safety services, beneficiary and reliable, to increase customer portofolio, that ensure them a statement profit, reasonable back of assets and capital and and a continuity in the future.

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ISSN 2601-8659 (Print)
ISSN 2601-8667 (Online)

European Journal of
Marketing and Economics

May - August 2019
Volume 2, Issue 2

The Concept of Trust in Socio-Economic Life

Ercan Özen

University of Usak, Turkey

Abstract

The concept of trust is considered as a psychological and sociological phenomenon. Numerous theories have been developed to achieve economic development and to increase the level of welfare. The theories have not always revealed the expected results due to ignoring human behavior. Behavioral models addressing human behavior have gained importance in recent years. Thus, it was seen that emotions and thoughts were effective in creating different economic decisions. One of the factors affecting decisions is also trust. The aim of the study is to clarify the effects of the concept of trust on socio-economic life with different perspectives. When the literature is examined; There are concepts such as (i) social trust and (ii) economic trust. These concepts are related closely with some topics such as marketing and business, finance and economics. Some positive results are expected from the climate of trust. (i) With the establishment of appropriate communication between individuals, some social problems and their costs are reduced. (ii) The development of business-customer relations is beneficial for both sides. (iii) With the positive relations between fund providers and fund seekers in financial markets, financial institutions work more effectively and the markets grow. (iv) Financial growth also triggers economic growth and development. (v) Economic trust, as a measure of future assessments, increases economic activities. The study collectively evaluates the effect of the concept of trust in different areas. The findings show what kind of legal arrangements should be made by policy makers in different areas in order to increase the trust of people. [1]

Keywords: Trust, Confidence, Socio-Economic Life

1. Introduction

People make many different decisions in their daily lives. Although these decisions are considered as the decisions special to the individuals and concerning them, total behaviours of the whole individuals may become the common behaviour of the society. One of the most important factors affecting the human behaviours is trust. Trust is related with the second step of Maslow's (1943) theory of hierarchy of need following the basic needs.

Trust has got many different dimensions. People's trust in the others that they know is different from the trust in the others around that they do not know. Citizens' trust in the state, patients' trust in doctors, customers' trust in company, a trainer's trust in a sportsman or sportswoman for the sportive success, investors' trust in finance performance of the company that they invest in, a customer's trust about the fact that money in the account is safe are the examples about trust relations. There are many factors that cultural differences are included and affect the trust in different countries (Çetin and Demiral, 2018). Power distance, collectivism, avoidance the ambiguity, generosity, protecting others rights, sincerity and self-sacrificing behaviours (Çetin and Demiral, 2018), development levels of countries, macroeconomic stability and especially the legal rules are effective in creating interpersonal trust (Calderón et al, 2002).

The purpose of this study is to assess the usage of the trust in different meanings especially in the fields of company administration, finance and economics and clarify the features of different usages. Another purpose is to discuss to what extent trust is effective in different fields in accordance with the literature. The study continues with the definition of the dimensions of trust, explanation of the effect of trust in different fields and conclusion following introduction chapter.

[1] This paper was presented in ICSS XVIII, 18th International Conference on Social Sciences to be held in the premises of Faculdade de Letras, Universidade de Lisboa on 17-18 May 2019

2. Trust and Its Dimensions

There is no common definition about trust. Trust is a concept which is valid in all of the fields that people are in such as company, economy, politics, public administration, sociology, psychology and medicine. Therefore, different definitions with different perspectives can be made. Trust relations are observed at intra-organizational, inter-organizational, intercultural, interpersonal and inter-organizational, citizen-state and company-state levels.

Butler (1991) defines trust as the desire to be unprotected due to the fact that an individual believes that another one is competent, clear, concerned and trustworthy. According to Hosmer (1995), trust is that individuals manage to have optimistic expectations during their decisions in case of exposure to danger or obeidence. For Newton (2001) trust as the worst is that individuals act in accordance with their benefits or thinking that individuals will not harm consciously or unconsciously. In this case common point of the definitions is that the individual think that the behaviours from others will not be harmful, but useful.

Trust has different components. Sekhon et al. (2014) discussed the components expressing the trust to an organization in five dimensions. Accordingly, in order to ensure organizational trust, expertise and competence, integrity and consistency, communication, shared values and concern and benevolence dimensions are effective.

i. Expertise and Competence: It refers to the necessary information level that individuals, companies or corporations have in order to do a certain work and necessary skills to fulfill it. Competence can be defined as observable behaviours including the attitudes besides information and skills (Biçer and Düztepe, 2003). The experience that the employees have in a certain issue also contributes to expertise and competence (Doney and Cannon, 1997).

ii. Integrity and consistency: Integrity and consistency means keeping the promises (Mayer et al., 1995). This is highly related with trustworthiness. In addition, an individual wants to be sure that another individual is honest and will fulfill its responsibilities. The fact that standard works are always performed as the same without any distinction of person and personal qualification indicates the consistency. Consistency means that a behaviour in the future can be predicted before (Sekhon et al., 2014). Sustainability of this consistency affects the trustworthiness of the perfomer of the work positively.

iii. Communication: A healthy communication affects the trustworthiness positively. Sensitive behaviours by the counterparty in communication, sharing a new information about the work on time and being always ready for communication create trust on individuals. An effective communication should not be one sided, but should have a structure in which parties are open to each other (Solomon and Flores, 2001).

iv. Shared values: The fact that a company has the same values and concerns with customers and company behaviours are in harmony with objective thoughts of customers increase the trust to the company. The harmony of values between two sides will lead to more trustworthiness (Sekhon et al., 2014).

v. Concern and Benevolence: Concern is the effort of a company to provide customer satisfaction. Benevolence consists of three dimensions. According to Sekhon et al. (2014), these are the effort by the company to protect both its own interest and customers' interest, company care and sensitivity about customer relations and voluntariness and willingness about solving problems.

In order to ensure a complete trust, trust dimensions should be in harmony with each other. For instance, there may not always be harmony between competence and honesty which are the trust dimensions. In other words, a company's management may be competent to perform a work, but may not be honest. In this case, a single mistake will result in loss of trust by eliminating other truths.

Another concept of trust in daily life is economic trust which expresses the expectations of individuals about the future of economic atmosphere in the country. In communication about economic trust there is no one directly opposite the individuals.

Trustwortiness occurs in two ways. These are cognitive trust and affective trust. Cognitive trust occurs based on beliefs and information about other people. This type of trust reflects the informed choices of individuals such as believing that other individuals are talented and safe (McAllister, 1995). Affective trust depends on connections in relationships and it is thought to be structured with components such as care and concern to others according to McAllister'a (1995).

2.1. Individual and Social Trust

According to another view, trust is divided into two parts as (i) personalized trust and (ii) social trust. i-Personalized trust is the feeling of trust that a person percepts for the people he or she knows such as family members, friends and boss (Gür, 2017: 30). ii-Social trust is also called as generalized trust and it means the people's trust in unknown individuals.

Individuals' trust to corporations can also be discussed in another title. Corporate trust refers to an individual's trust in a company, organization or governmental organization. Initially the individual is the trustor and the corporation is the trustee in individual-corporation relationship. Corporate trust is a feeling that an individual feels for the corporation. Yet, corporate trustworthiness is a characteristics of a trusted corporation.

Corporate trust can be discussed with two perspectives as external and internal. External dimension refers to the trust level of custumers and public about the corporation. At that point, corporate trust can be measured with a scale used by Sekhon, et al (2014).

Internal trust relationships are called as "organizational trust". Mutual trust relationship between seniors and juniors and juniors and seniors in a corporation may also affect the organizational performance. However, these trust relationship are extracted from the scope of this study.

2.2. Economic Trust

The objective of economic trust is not other people and corporations, as in others. Economic trust handles a concrete factor such as all individuals, corporations, laws and business atmosphere in economic life.

Economic trust is defined as a measure of the expectations, evaluations and tendencies of the actors in the production and consumption parts of the economy about the general economic situation (Turkstat, 2019). This measure is a compound index indicating the expectations of individuals or producer companies about the future. The components of the index are customer trust index and real sector (manufacturing industry), service, retail trade and construction sectors trust indices and sub-indices belonging to them. Economic trust index is prepared by weighting these trust indices. Totally 20 sub-indices belonging to customer, real sector, service, retail trade and construction sectors are used in calculating the economic trust. Economic trust index more than 100 indicates the optimism about general economic situation; however, economic trust index less than 100 indicates the pessimism about general economic situation.

The components of consumer trust can be expressed as (i) the income expectation, (ii) the general economic situation expectation, (iii) the unemployed expectation and (iv) the saving probability of households within the next 1 year. Real (manufacturing) trust index consists of existing (i) order and (ii) reserve amount, (iii) production volume, (iv) employment and(v) export order amount within the next 3 months, (vi) last 3 months order amount and (vii) fixed capital expenditure and (viii) market expenditures of the last 3 months. Service sector trust index is calculated through (i) employment status and (ii) the demand for services in the last three months period and (iii) the demand expectations in the next 3 months. Components of Retail trade sector trust index are as the following: (i) sales in the last 3 months, (ii) the level of current goods reserve, (iii) sale expectation for the next 3 months. Within the construction sector trust index there are the expectations of (i) the number of received order and (ii) the number of employees in the next 3 months.

All of the obtained indices here are prepared with the help of a survey study conducted by the related parties. While some of the components forming the indices reflect the existing employment volume, indices reflect especially the expectations of households or the business world representatives for the future.

3. The Role of Trust in Socio-Economic Life

Trust affects human behaviors in many fields with its different dimensions. As a result, the implementation of the legal regulations prepared by the public authorities for economic and social life is affected. For instance, the government recommended citizens to sell their foreign exchanges due to the excessive foreign exchange rate volatility happened in Turkey in the second half of 2018. In early days of the campaign a large number of people sold their foreign exchanges. However, there was an increase in foreign exchange deposits in banks in the following weeks. Citizens purchased foreign exchanges instead of selling in the following weeks. This campaign was unsuccessful because economic trust of individuals decreased.

Multinational high trust leads to the redistribution of income from rich countries to poor countries. Countries with high trust have higher social assistance-transfer-payments, more expenditure on education and generally a larger public sector size. These countries also have open market economies and especially better management. For that reason, there are less corruption, lower bureaucracy and more efficient legal system in these countries (Uslaner, 2008).

3.1- Finance ve Financial Markets

Protecting the right of investors and financial institutions mutually in financial markets, guaranteeing the contracts, and less fraudulent transactions increase the trust among investors, companies and financial intermediaries in a country and facilitate the transactions. This decreases the transaction costs in financial system and increases the fund flow rate and the fund amount in markets. As a result, financial markets develop (Fukuyama, 1995). Development in financial markets increase the production and domestic income because it leads to an increase in capital as a production factor. An economic management that desires to increase savings and security investments in financial markets should provide an environment where investors can invest in trust. Components of financial markets are legislative regulations, regulatory and supervisory agencies, stockbrokers and banks, companies and investors. Developing the trust relationships among these units provides a common interest for all of them.

3.2- Economic Life

As it is known, the increase in production and economic growth is ensured with labor, natural resources and the use of capital components. These components are not competent to explain the economic growth due to crisis and similar reasons in some periods. In this cases social trust representing the social capital gets involved as an explanatory factor (Özcan and Zeren, 2013). Whiteley (2000) attributes the effect of trust on economic performance to the decrease in agency problem and negative externalities besides the decrease in transaction costs. The conducted academic studies (Özcan and Zeren, 2013; Whiteley, 2000) indicate that social trust level of countries has a positive effect on economic development.

It is also observed that economic trust indices have an effect on economic developments (Korkmaz and Çevik, 2009; Arısoy, 2012). Arısoy (2012) determined that consumer trust index affected consumption expenditures and real (manufacturing) sector trust index affected industrial production and stock market index in Turkey between 2005 and 2012. In addition, Korkmaz and Çevik (2009) found a bi-directional causality between economic trust index and ISE100 index in Turkey. However, Vurur and Diler (2018) found unidirectional causality between real (manufacturing) sector trust index and BIST-100 index for 2012-2017 term and the BIST-100 yield index affects the real (manufacturing) sector trust index.

The people with positive expectations for the future tend to increase their expenditures. However, the increase in stock prices may increase costumer trust. Jansen and Nahuis (2003) explain the reason as follows: Increasing stock prices will lead to a wealth effect and this increase the optimism in the market. The increase in stock prices will create the expectation for a better economy in the future. Therefore, asset prices will increase and behaviors of all consumers will be affected.

3.3- Marketing World

The value of a marketing activity for a purchaser is the difference between the benefits that the purchaser will have by consuming the product and the troubles (Kotler, 2000). Consumers always evaluate this difference and this evaluation also expresses the satisfaction level of the purchaser. One of the parameters included in benefit definition of the purchaser is trust (Aksoy, 2012). Customers' trust is a crutial factor for companies. The trust by customers in companies increases the market prestige of the company and this enables the company to become strong in the market (Lorena, 2018).

Mexhuani and Ribaj (2018) state that individuals' trust in financial system is low in Albania and this is a great obstacle for a sustainable economic development. According to Mexhuani and Ribaj (2018)'s study, individuals believe that sales representatives are not honest especially in insurance sector.

The classic marketing understanding has been replaced by mobile systems in time. Mobile systems have stood out especially in companies providing service. Especially in banking sector internet and mobile payment systems have accelarated and facilitated the commercial life. Besides these positive effects, internet-based transactions have brought an important problem. It is the security problems concerning bank accounts and payments. In response to such security problems, financial and commercial institutions have reduced the potential losses of the customers to a minimum level in time through the technological measures they have developed.

McCole (2002) listed the trust factors for electronic commercial companies as ten titles. These are availability, competence, coherence, fairness, integrity, loyalty, clarity, commitment and redemption. It is foreseen that customers' trust will be established and customers' interest to the company will increase when the company ensures these factors. Boz and Özen (2019), Usta (2005), Sathye (1999), Suh and Han (2002), Smith (2006) and Chung and Kwon (2009)'s studies indicate that higher trust has a positive effect on customers' preferences.

4.Conclusion

The purpose of this study is to assess the usage of the trust in different meanings especially in the fields of company administration, finance and economics and clarify the features of different usages. Another purpose is to discuss to what extent trust is effective in different fields in accordance with the literature. The obtained literature findings indicate that trust affects human behaviours in all of the fields. Strano and Kabli (2018) explain that European Union legislative regulations (such as Directive 2014/95/EU 2014) are effective in establishing trust by financial institutions. Financial reporting is a significant tool for companies to establish trust. In addition, the financial reports prepared as quality also have an important role in establishing socio-economic relationships between companies and their surroundings (Deegan and Unerman, 2011).

Trust should be taken into consideration by the state, all other economic units and households. Economic units should make theirs policies by considering the problems in all fields created by potential distrust. In order to create the trust atmosphere, we need legal infrastructure and judicial system to solve the disputes between individual-individual, individual-company, individual-state and comapny-state rapidly. Countries should check all the existing laws and meet the legislative regulation requirements in order to create a healthy socio-economic atmosphere. Hereafter, whether these laws are competent enough to meet the trust requirement of all the citizens or not should be monitored.

This study have some implications for academicians, individuals, private and public institutions, decisions and policies to be taken by central and local governmental units.

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