

Statement of Academic Attainments and Achievements

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Introduction

The Statement provides a description of my academic attainments and achievements after having received a Ph.D. in Economics in April 2005. My most significant academic accomplishments include a comprehensive scientific monograph: Rzońca A. [2014], *Central banks crisis. The impact of interest rate close to zero*, C.H. Beck, Warsaw. I would like to put this monograph forward as the monothematic work pursuant to Art.16 Paragraph 2 of the Act on scientific degrees and scientific title from March 14th 2003 ('the Act').

The statement comprises the following parts:

- Part 1 briefly presents my academic and professional career.
- Part 2 describes the accomplishments, which form the basis for my application for the title of 'Doktor Habilitowany' ('Ph.D. with 'habilitation') in Economics.
- Part 3 summarizes my remaining academic achievements.
- Part 4 includes additional information, inter alia, citation analysis, my awards and contribution to dissemination of economic knowledge.

1. Outline of professional and academic career

I have been developing my research interests during my Master's studies at Warsaw School of Economics (WSE) – first in 1998-2000 leading a student-based Assistant Team at the Ministry of Finance, and then in 2000-2001 at the Center for Social and Economic Research (CASE) based in Warsaw. In the latter case, I was a member of an advisory board to the Government of Georgia. In 2001, I also worked as a consultant for PZU NFI Management and Erste Securities. My first three publications were released within the nine months after I have defended my Master's thesis. My research continued after having been employed at the National Bank of Poland (NBP) – from July 2001, and at WSE – from February 2003. In July

2002 I became the Head of the newly created Division of International Comparative Studies. The Division was tasked with producing comparative analyses of macroeconomic issues and structural reforms for the use of the President of the NBP and the Monetary Policy Council (MPC). I also participated in creating educational website for the NBP (www.NBPportal.pl). In 2003, I released my first publication in a journal from the Journal Citation Reports database, (see [Rzońca, Ciżkowicz, 2003]). In 2004, I completed a research internship at Research Division of the European Central Bank (ECB) in Frankfurt am Main. There, I conducted research on the impact of fiscal impulses in New Member States of the EU. In the same year, I was nominated by the President of the NBP to become his Advisor. My responsibilities included producing analytical reports on macroeconomic policy, structural reforms and economic growth. I also reviewed reports created by analytical departments of the NBP, as well as research from other institutions, including international financial institutions. My other duties included participating in discussions on assumptions for inflation projections prepared at the NBP and participating, as an expert, in meetings of the MPC and the Management Board of the NBP. I also became a part of the macroeconomic group tasked with analyzing the most important research conducted at the NBP and discussing forecasting tools used at the NBP, initial results of economic projections and balance of risks for inflation. In 2005, I defended my Ph.D. thesis “Non-Keynesian impact of tightening fiscal policy: theory and research of selected countries in Central Europe”. In December 2005, I became an Adjunct Professor at WSE. Initially, I lectured in fundamentals of micro- and macroeconomics, then in advanced macroeconomics, growth theory, welfare economics, public finance and economic analysis of welfare state. In 2006, I became a Consultant for Poverty Reduction and Economic Management, Europe and Central Asia Vice Presidency at World Bank, Washington D.C.. There, I participated in research on the impact of public finance on long-term economic growth in the countries of Central and Eastern Europe and Central Asia. In the period of 2006 – 2008, I served as a member of the Editorial Board of the “Bank and Credit” journal. In 2007, I completed WEMBA, an Executive MBA program organized jointly by the University of Minnesota and WSE. In the same year, I became a Vice President and the Director of the Analytical Group at the Forum for Civic Development (FOR). My responsibilities included providing directions for research conducted by FOR, supervision over all reports, as well as conducting my own research on macroeconomic policy, structural reforms and economic growth. In December 2008, in my publication in ‘Financial Times’ (see [Balcerowicz, Rzońca, 2008]), as one of the first economists, I sounded a warning against negative impact of fiscal stimuli recommended to developed

countries, including the Eurozone countries, by the International Monetary Fund (IMF). In 2009, I became the Chief Economist for Altus TFI. Between 2008 and 2010 I also served as a member of Board of Directors, first at Totalizator Sportowy (state-owned) as the Chairman of the Board, then at NFI Progress (private). This experience allowed me to confront economic theory with market practice (of various types). From 2008 to 2010 I worked as a lecturer at CEMBA, a joint program of WSE and the University of Quebec at Montreal. In January 2010, I was appointed by the Polish Senate as a member of the MPC.

2. Description of the academic achievement compliant with the Art.16, Paragraph 2 of the Act

The research I conducted after having received the Ph.D. concerned economic growth. I analyzed this topic particularly from the macroeconomic policy angle. This framework includes the monograph Rzońca A. [2014], *Central banks crisis. The impact of interest rate close to zero*, C.H. Beck, Warsaw, which I would like to put forwards as the monothematic work pursuant to Art.16, Paragraph 2 of the Act. This is where I elaborate on my previous research, most of which was conducted together with Piotr Ciżkowicz. The results of the research are described in the following publications: Rzońca [2004], Rzońca, Ciżkowicz [2010], Ciżkowicz, Rzońca [2011a], Rzońca, Ciżkowicz [2011], Ciżkowicz, Rzońca [2013a] and Ciżkowicz, Rzońca [2014]. Below, I present the aim of the monograph, reasons for choosing it, research methodology, structure and main conclusions, as well as the monograph's contribution to the existing literature.

The aim of the monograph is to analyze the effects of unconventional monetary policy actions after the financial crisis¹. These actions include: (i) bringing interest rates to levels close to zero²; (ii) announcement of intentions to maintain interest rates close to zero for an extended period of time (forward guidance); (iii) quantitative easing of monetary policy³. The

¹ Financial crisis is defined as a shock that fractures economic agents balance sheets, in particular bank balance sheets.

² By the term 'interest rates' I understand the main interest rate of the central bank. Interest rates close to zero are defined as interest rates at the level of 2% or less. Obviously, this is an arbitrary bound. This assumption is based on the fact that, until the outburst of the global financial crisis, which particularly affected developed countries in the period of 2007 – 2009, this was the lowest level of interest rates in the UK, for which there exists time series data encompassing several hundred years [Bullard, 2010]. The assumption of 2% as the level that separates interest rates close to zero from interest rates significantly higher than zero is made possible by the fact that nearly all mechanisms of negative impact of interest rates close to zero on post-crisis economic growth, described in the monograph, indeed become effective before interest rates fall to zero. To trigger the mechanisms, it is sufficient that interest rates are reduced to the level considered exceptionally low by economic agents. This may be the case for the level of interest rates different to what they have experienced so far.

³ Through quantitative easing I understand any forms of providing liquidity to the financial sector by the central bank for reasons other than maintaining interest rates at a certain level (e.g. Levin at al. [2010]). Some economists reserve the term "quantitative easing" to the instance of increasing balance sheet of the central bank, while keeping its structure unchanged (see e.g. [Bernanke, Reinhart, 2004] and [Bernanke, Reinhart, Sack, 2004]), or changing only the liabilities (see e.g. [Shiratsuka, 2009]). These economists call changing the structure of the

monograph focuses primarily on the first two of the above actions, while the third topic is touched upon in the longest chapter and it represents a significant part of the monograph's summary.

Understanding the effects of unconventional monetary policy measures is of fundamental significance. Such measures have been taken by main central banks all over the world, primarily the FED and the ECB. The economies intended to be stabilized by these measures produce nearly a half of global GDP. Furthermore, their monetary policy influences monetary policy in other countries. Conditions to which the main central banks have applied the unconventional measures, although exceptional, are not that rare. Less than one third of countries have not experienced a serious banking crisis in the past four years. The remaining economies have seen at least one such crisis [Calomiris, 2013]⁴. A thorough assessment of the measures taken by the main central banks in response to the global crisis is a condition for avoiding their mistakes. Without recognizing the costs of such measures, it is possible that they become conventional methods for recurring economic crises. These measures allow postponing changes in other areas of economic policy, and thus may be used by governments to avoid political costs of such changes. Simultaneously, the recent financial crisis has taught politicians that even a fully independent central bank may be forced to take their duties, whenever they are not ready to fulfill them. Moreover, as presented in my monograph, it is possible to indicate mechanisms leading to normalization of macroeconomic situation, despite unconventional monetary policy measures. Identifying the real sources of this normalization is always difficult and never unequivocal. When, however, the macroeconomic situation normalizes, this will legitimize the unconventional measures as a way to avoid collapse of aggregate demand without any side effects.

Despite the significance of identifying the effects of unconventional monetary policy measures, the topic still remains under-researched. The lack of necessary research reflects the scarcity of empirical data. Before the financial crisis there had been only two instances when interest rates remained close to zero for an extended period of time: following the Great Depression in 1930s, particularly in the United States, and in Japan, following the burst of

balance sheet or increasing its assets part “credit easing” (see e.g. [Bernanke, Shiratsuka, 2009]). I do not apply this distinction as it is neither commonly used, nor matters for the conclusions presented in my work.

⁴ Financial crises have been even more frequent – banking crisis is not the only example thereof. It is, however, a crucial element of the ones, whose consequences are the topic of the analysis in the monograph.

a speculative bubble at the beginning of the 1990s (see [Homer, Sylla, 2005]). Thus the monograph is primarily a theoretical work.

My analysis is based on the New-Keynesian analytical framework, commonly used by central banks (see e.g. Christiano, Trabandt, Walentin [2011]). The purpose of using the New-Keynesian approach is to reflect central banks' approach to economic analysis. Such narrow purpose is caused by the fact that the standard form of the framework does not allow to discern the basic costs of maintaining interest rates close to zero after the financial crisis. As I prove in the monograph, these costs derive from the effects of such level of interest rates on the intensity of restructuring processes⁵ and the persistence of increased uncertainty⁶. Neither of the two occurrences is accounted for in the framework.

Due to the inability of the framework, commonly used by central banks, to assess the costs of interest rates close to zero, the analysis conducted in the monograph is mainly descriptive. However, every argument in each of the theoretical chapters is based on equations, which limit its degrees of freedom. In my opinion, the equations provide the analysis with rigor necessary for outlining the main mechanisms, through which the unconventional monetary policy measures, particularly interest rates close to zero, may have negative impact on economic growth after financial crises. Freedom of the analysis is further limited by inclusion of various parties (in particular: excessively indebted entities, including bad debtors⁷, their competitors - actual and potential ones, i.e. ones who have not yet begun certain activities, but could potentially do that at a different level of interest rates, and creditors) and the necessity to maintain coherence among the different parties' perspectives. Additionally, I verify the coherence of solutions to the problem of utility/profit maximization with the conclusions of analysis of selection that eliminates other entities, and thus other types of behavior, in different circumstances (see Alchian [1950]).

The monograph comprises an introduction, five theoretical chapters, one empirical chapter and a conclusion that includes recommendations for monetary policy.

⁵ Through restructuring I understand a flow of inputs towards more productive applications. The definition comes from Caballero [2007]

⁶ Uncertainty is defined as a situation, in which economic entities, through taking certain decisions, may, depending on circumstances, achieve different results, while not being able to assign objective probability to these circumstances. The subjectivity of these probabilities makes it impossible, or at least difficult, to insure one from negative scenarios. This definition of uncertainty is close to how Knight [1921] defined it.

⁷ The excessively indebted entities are the ones, whose debts exceed the value of their assets. Bad debtors are the excessively indebted entities that, at the normal level of interest rates, would not be able to service their liabilities.

The second chapter (the first chapter of the theoretical part of the book) outlines the effects of the New-Keynesian analytical framework's inability to account for the possible impact of monetary policy on intensity of restructuring processes. Moreover, it presents possible results of dropping another significant assumption of the framework, namely that a crisis does not affect central banks' reputation or their ability to manage expectations of economic agents.

Chapter three describes the three channels, through which interest rates close to zero may adversely affect the intensity of restructuring after the outburst of a financial crisis and, in effect, the efficiency of production factors. These channels are: (i) lowered exit rate, (ii) lowered incentives to improve productivity, particularly for the excessively indebted enterprises and (iii) locking a large part of production factors in their current use. This part of the chapter is based primarily on research on restructuring (e.g. [Aghion, Howitt, 2009; Caballero, 2007]), the effects of distortions differentiating enterprises or industries for efficiency of production factors (e.g. [Banerjee, Duflo, 2005; Jones, 2013]), soft budget constraint (e.g. [Kornai, 1980a and 1980b; Maskin, 1996]) and forbearance lending (see e.g. [Peek, Rosengren, 2005]). The chapter also describes links between restructuring and uncertainty. It demonstrates how delays in restructuring influence uncertainty and how uncertainty affects intensity of restructuring and productivity growth. It also touches upon the effects of uncertainty of interest rate path. This part of the chapter is based primarily on research on the nature of uncertainty (e.g. [Knight, 1921]), real option (e.g. [Dixit, Pindick, 1994]) and the significance of uncertainty for the shape of monetary policy (e.g. [Walsh, 2004]).

Chapter four describes eleven channels, through which interest rates close to zero may adversely affect the use of credit and other forms of external financing. These adverse effects occur in particular circumstances - when banks are not restructured following a financial crisis. I prove those effects to be the result of forbearance lending. It is worth noting that, until the beginning of the financial crisis, credit was not accounted for in models used by central banks. As it proved fundamental for the outbreak and the course of the financial crisis, credit has been hastily introduced to the New-Keynesian analytical framework. However, as demonstrated in the monograph, the way in which it was introduced does not reflect the post-crisis reality. This chapter is based primarily on research on asymmetry of information and its impact on external financing (e.g. [Dewatripont, Maskin,

1995; Diamond, 1984; 1991; Myers, Majluf, 1984; Rajan, 1992; Rajan, Winton, 1995; Stiglitz, Weiss, 1981)).

Chapters three and four extend the analysis from [Ciżkowicz, Rzońca, 2014]. This extension encompasses description of the mechanisms of strategic complementarity, through which interest rates close to zero encourage forbearance lending. Furthermore, chapter three explains why such level of interest rates lowers exit rate. Low exit rate in itself is not harmful, but has an adverse effect on productivity growth after speculative bubble bursting. The chapter also describes the impact of locking-in-effect on entry rate and incentives to innovate among enterprises not heavily indebted. It also presents significance of factors such as imports, intermediate goods, uneven distribution of excessive debt among industries or entities, or type of financial crisis, for intensity of restructuring at interest rates close to zero, and how this affects economies' vulnerability to adverse shocks. The chapter also describe the links between post-crisis restructuring of economies and uncertainty, as well as how interest rates close to zero affect them. The analysis is conducted not only from the perspective of owners of excessively indebted enterprises, but also deals with the incentives of executives managing such companies and their creditors. Moreover, the analysis demonstrates that the conclusion that interest rates close to zero lower intensity of restructuring can be drawn without solving the utility/ profit maximization problem. Lower intensity of restructuring may be the result of selection that eliminates other debtors and, in effect, other behaviors than when interest rates are held significantly above zero. With regard to the use of external financing after the crisis, the chapter four replaces a description from Ciżkowicz and Rzońca [2014] of seven effects of interest rates close to zero with an analysis of eleven channels through which they adversely affect such use. Each channel is described in the chapter in greater detail than in Ciżkowicz and Rzońca [2014] all effects in total. Furthermore, the chapter explains how the structure of financial sector affects the influence of interest rates close to zero on the use of external financing. Finally, the analysis demonstrates the effects of this influence not only on intensity of restructuring, but also on aggregate demand. The latter set of results reflects the actual significance of decreased uncertainty of interest rates (through forward guidance) on decisions by economic agents.

Chapter five focuses on how interest rates close to zero affect monetary aggregates, long-forgotten by central banks. Such level of interest rates, through delaying restructuring and increasing uncertainty, increase demand of economic agents for cash and, above all, of banks

for surplus reserves. These increases further dampen the influence of monetary base on money supply, already weakened by a crisis. The analysis then describes the dangers of quantitative easing. It demonstrates how the weakened influence of quantitative easing on money supply, caused by interest rates close to zero, escalates the adverse effects of such level of interest rates on intensity of post-crisis restructuring and persistence of increased uncertainty. The chapter is based on publications on: demand for real cash balances (e.g. [Goldfeld, Sichel, 2007]), money supply (e.g. [Brunner, Meltzer, 2007; Papademos, Modigliani, 2007]), reasons for gathering large surplus reserves by banks in the United States in 1930s (see e.g. [Brunner, 1965; Friedman, Schwartz, 1963]), quantitative easing (e.g. [Cecioni, Ferrero, Secchi, 2011; Stone, Fujita, Ishi, 2011; Habermeier et al., 2013]) and dangers of quantitative easing (see e.g. [Hannoun, 2012]).

The impact of interest rates close to zero on the ability to increase money supply was previously outlined in [Rzońca, 2004]. Chapter five of the monograph extends this analysis. The subject of the analysis in the chapter is not only the behavior of economic agents, but, most of all, of banks. The chapter focuses on liquidity services provided to banks and economic agents rather than on opportunity costs of holding cash by households. It explains why lowering interest rates to close to zero extends the period of growth of demand on both liquidity and real money stock, thus creating an illusion of infinite interest rate elasticity of money demand, and limiting likelihood of its swift return to pre-crisis levels, after it lastly becomes satiated. Above all, however, the chapter describes the side effects of intensive quantitative easing. It shows interactions between the quantitative easing and interest rates close to zero and explains how these interactions increase the risk of transformation of stagnation and low price dynamics to sudden increase in price level and collapse of aggregate demand. This part of the chapter argues that if quantitative easing was conducted at low interest rates, however clearly above zero, it could be more successful and, in effect, lower the probability of side effects occurring.

Chapter six, which ends the theoretical part of the monograph, argues that interest rates close to zero create circumstances that encourage large and chronic deficit and piling up of public debt. It then proceeds to show mechanisms, through which such chronic deficits contributes to extending the period of interest rates held close to zero by central banks. Based on this argument, the work describes a trap that an economy may fall into as a result of fiscal stimulus at interest rates close to zero. Furthermore, the described mechanism of delaying

fiscal consolidation by interest rates close to zero can be applied to any change in economic policy that could generate short-term costs. In particular, among such changes, I count structural reforms fostering post-crisis restructuring. The chapter is based primarily on comments about dangers of creating a speculative bubble on bond market by interest rates close to zero (e.g. [Baba et al., 2005] and [Greenlaw et al., 2013]).

This chapter of the monograph extends analysis from [Ciżkowicz, Rzońca, 2011a] and [Rzońca, Ciżkowicz, 2011]. It describes in greater detail the implications from the New-Keynesian analytical framework of inefficiency of monetary policy in fostering aggregate demand for effects of fiscal stimulus. Furthermore, it refers to the arguments supporting such a stimulus at interest rates close to zero, developed without reference to the framework. The chapter then moves to arranging the mechanisms that prolong periods of weak economic activity, increasing public debt and interest rates close to zero. It divides them into two groups: the ones, through which interest rates close to zero lead to large and chronic deficit and the ones, through which the large deficit pushes central banks to keeping interest rates close to zero. It then explains how the mechanisms change costs and benefits of such level of interest rates on social welfare. Simultaneously, it argues that the mechanisms that lead to postponement of fiscal consolidation, may be applied to any change in economic policy that generates short-term costs, in particular to structural reforms that foster post-crisis restructuring.

The structure of the theoretical part of the monograph reflects mechanisms, through which interest rates close to zero impact economic growth after financial crisis. This impact results from the interest rates affecting choices of economic agents and banks (chapters three and four), as well as central bank's decisions on quantitative easing (chapter five) and fiscal authorities' decisions on the size of fiscal deficit (chapter six). Without going beyond the interest rates' impact on economic agents' and banks' choices, assessment of their effects could prove incomplete and thus false. Even if, considering this impact, deep cuts in interest rates would appear the right central bank's reaction to the crisis, other measures taken by the central bank or fiscal authorities in response to these cuts could change this perspective (cf. [Acemoglu and Robinson, 2013]).

The majority of hypothesis presented in the theoretical part of the monograph are confronted with observations from major economies, where interest rates have been cut close to zero.

Theory developed in these chapters allow to explain (i) why despite six years having passed since the outbreak of the crisis, economic recovery in the US and Eurozone, remains weak compared to recoveries from past recessions (see e.g. [Bordo, Haubrich, 2012 or Schmitt-Grohé, Uribe, 2012]); (ii) why, despite the severe crisis, these economies have been experiencing one of the lowest bankruptcy rates in history (see e.g. [Deutsche Bank, 2013]); (iii) why so few entities initiate economic activity even though, much like in the US, net profits of enterprises remain one of the highest in history (see e.g. [Lahart, 2013]); (iv) why churning rates are so low (see e.g. [Lazear, Spletzer, 2012]); (v) why economic growth prospects are highly uncertain, even though in the past this uncertainty quickly subsided (see e.g. [Haddow et al., 2013]); (vi) why the variability of macroeconomic indicators is close to historical minimum and does not reflect this uncertainty (see e.g. [Goldman Sachs, 2013]); (vii) why the use of credit has been limited among companies in best financial shape, rather than among heavily indebted enterprises (see e.g. Balcerowicz et al, 2013); (viii) why money supply has not increased, despite a dramatic expansion of monetary base (see e.g. [Bordo, 2014]); (ix) why, despite the rise in public debt, unprecedented in times of peace (see e.g. [Reinhart, Rogoff, 2009]), governments still manage to find new creditors, who provide them with cheapest loans ever.

Chapter seven – the empirical one – focuses on analysis of Japan’s experiences after the burst of the speculative bubble at the beginning of the 1990s. The crisis, the country has been coping with since then, bears significant resemblance to the global financial crisis (see e.g. [Hoshi, Kashyap, 2008; 2010] or [Ueda, 2012]), including monetary policy measures taken. Interest rates in Japan have been maintained at close to zero since 1993. Since 1999, the country has been testing forward guidance. Since 2001 Japan has been loosening its monetary policy in quantitative terms.

In order to avoid the possibility that the occurrences in Japan (after the outburst of the financial crisis also in the US and the Eurozone) did not result from interest rates close to zero, but rather the crisis itself, the analysis compares Japan’s experience with the 1991 crisis in Sweden and the 1997 South Korean crisis. The two countries, in periods preceding economic turmoil, allowed for imbalances of the same scale as in Japan. However, in reaction to the outburst of the crisis, their central banks did not resort to unconventional measures in monetary policy.

The idea to compare Japan to South Korean and Sweden was inspired by [Rzońca, Ciżkowicz, 2010]. However, apart from a simple data analysis, significantly developed relative to Rzońca and Ciżkowicz [2010], chapter seven also includes a review of empirical research on productivity and credit dynamics, as well as on fiscal reaction function in Japan.

Chapter eight, the last chapter of the monograph, describes a method for conducting monetary policy following a burst of a speculative bubble. On the one hand, the method described would, similarly to unconventional monetary policy measures, protect financial system from collapsing. On the other hand, however, as opposed to the unconventional measures, it would not delay economic recovery. In general, it can be classified as a conventional policy adjusted to a situation of a crisis. The chapter also assesses monetary policy measures in countries that avoided the crisis, in the environment of interest rates close to zero and significant liquidity injected to global financial system by major central banks.

Recommendations from the chapter eight for interest rate policy following the financial crisis are very much similar to the ones from [Ciżkowicz, Rzońca, 2014]. I do, however, provide more arguments in their favor. Furthermore, as opposed to Ciżkowicz and Rzońca [2014], the chapter also includes recommendations for quantitative easing. In assessing monetary policies of countries which avoided the financial crisis, I extend the analysis presented in [Ciżkowicz, Rzońca, 2013a] through adding an explanation on why the major central banks will withdraw from unconventional measures and why this withdrawal is bound to be significantly delayed. I then proceed to identify the economies likely to be most adversely affected by the delays. Based on this identification, I assess macroeconomic policy in emerging economies after the outburst of the crisis. As opposed to Ciżkowicz and Rzońca [2013a], my arguments in favor of extending the period for achieving high economic activity by central banks in countries that avoided the crisis are based not only on risk premium analysis, but also on availability of broadly defined collateral and balance of payments arithmetic. Moreover, I systematize incentives for undertaking excessive risk, the source of which are low interest rates, as well as describe factors shaping the risk of substitution of domestic currency credit with foreign currency liabilities, other than distribution of interest rate hikes in time.

The main conclusions of the monograph can be summarized as below:

- Unconventional monetary policy measures undertaken following a financial crisis, in particular maintaining interest rates close to zero, may decrease intensity of economic restructuring, and thus permanently decrease (to say the least) output level in the long run.
- Uncertainty of economic prospects (perpetuated by the crisis), usually short-lived, may become persistent as a result of the unconventional measures. Variability of macroeconomic indicators ceases to be its approximation.
- Delays in deleveraging, following the financial crisis, caused by aggressive cutting of interest rates to zero could lead to deeper decrease in the ratio of credit to GDP in longer term. It also limits the chances to decrease this ratio through GDP growth, rather than through fall in credit.
- Interest rates close to zero may further decrease intensity of restructuring following a financial crisis, particularly in economies where financial sector is dominated by banks. However, quantitative easing blurs differences in restructuring intensity in the environment of interest rates close to zero between economies with different structures of financial sector.
- The links between the scale of quantitative easing and restructuring, uncertainty and economic agents' reactions to this uncertainty, may hide the dangers to price stability (and, more generally, macroeconomic stability) posed by quantitative easing. These links lead to extended periods of stagnation and low price dynamics, but they may also bring sudden price increases and collapse of economy.
- The unconventional monetary policy measures distort not only choices by economic agents, but also decisions of authorities. They encourage them to fiscal stimulus and then maintaining large fiscal deficit, which leads to piling up of public debt. The unconventional measures also encourage postponing structural reforms.
- To avoid the costs resulting from the unconventional measures, central banks should set a lower bound for interest rates clearly above zero and limit quantitative easing to keeping panic down in those segments of financial markets, where it poses the biggest threat to stability of the whole financial sector.
- If a given country avoided the crisis, its central bank should refrain from interest rate cuts of scale or pace that could result in growth in domestic demand, outpacing potential output more than in external environment.

Obviously, my monograph and previous publications are not the only ones that highlight the costs of interest rates close to zero. Reviews of these publications, which include thoughts on post-crisis circumstances (the focus on my research⁸) have been provided by, inter alia, BIS [2010; 2013, Borio [2012], IMF [2003], Issing [2011; 2012], McKinnon R. [2013a], Rajan [2013], Taylor [2013] and White [2012]. None of the publications, however, is as detailed as the review provided in my monograph. A single chapter from my book thwarts them. Even if they touch upon the mechanisms that lead to certain costs, such descriptions are limited to several sentences or paragraphs (at most). Not even research focusing on each cost separately, provides as broad an analysis as the relevant parts of my monograph.

The publication that provides the most detailed analysis of adverse impact of interest rates close to zero on restructuring intensity is probably Caballero, Hoshi and Kashyap [2006; 2008]. In their work, the researchers focus on the effects of supporting operations of bad debtors on entrance rate and new projects undertaken by existing enterprises. They, however, do not analyze other effects of such support on productivity, nor do they consider the more general problem of support in operations of excessively indebted entities. They also do not elaborate on mechanisms, through which interest rates close to zero encourage supporting operations of excessively indebted entities, including bad debtors. Their analysis is based exclusively on incentives affecting actual and potential competitors of bad debtors. Decisions taken by managers of entity groups in question, including creditors to bad debtors, are also outside the scope of the analysis. The coherence between the conclusions drawn from solving the profit maximization problem for competitors of bad debtors and the results of analysis of selection, which can eliminate different entities and behaviors in the environment of interest rates close to zero than at other levels of interest rates, is not verified. Each of the problems outside the scope of their analysis (Caballero, Hoshi and Kashyap [2006; 2008]) has been analyzed in the first part of chapter three of the Monograph.

The topic of how interest rates close to zero impact relationships between post-crisis restructuring and uncertainty is covered mostly by Kobayashi (e.g. [2000; 2006; 2007a; 2007b]). His entire work, however, is limited to only one type of uncertainty caused by delayed restructuring (uncertainty of payments) and analyses only one effect of this

⁸ The majority of publications of the costs of interest rates close to zero or, more generally, low interest rates, focus on the mechanisms through which they increase the risk of dangerous speculative bubbles in asset markets and, as a results lead to financial crises. (see e.g. [Ahearne et al., 2002; Bundesbank, 2012; BIS, 2010; Diamond, Rajan, 2009; Farhi, Tirole, 2012; Feldstein, 2002; Giavazzi, Giovannini, 2010; Goodfriend, 2001; Hoenig, 2010; Taylor, 2009]).

uncertainty (i.e. weakened specialization). The second part of chapter three of the monograph considers both more types of uncertainty caused by delays in restructuring than Kobayashi (uncertainty of supply, uncertainty of delivering on obligations, uncertainty of economic prospects and uncertainty of interest rates) and more adverse impacts of uncertainty on productivity (focusing heavily indebted entities on maintaining status quo; weakening diffusion of knowledge on how to produce more efficiently, limiting technology transfers from abroad, delaying new investment projects, particularly innovative ones, lowering churning rates that hinder the process of adjusting jobs to qualifications).

The topic of how interest rates close to zero impact the use of external financing is best covered by McKinnon (e.g. [2013b; 2013c]). In his work, however, he focuses on analyzing only two channels: costs of liabilities and safe assets. Other factors diminishing the use of external financing after the crisis (e.g. scarcity of capital) are not deemed related to interest rates close to zero. Apart from the channels analyzed by McKinnon, there exist publications discussing another one – channel of profits of enterprises (see e.g. [Caballero, Hoshi, Kashyap, 2006; 2008]). Chapter four of my monograph identifies eight additional channels.

The topic of central banks' ability to increase money supply in the environment of interest rates close to zero is mainly discussed in older publications on liquidity traps, e.g. [Keynes, 1936]⁹. This thread, however, not remembered as well as the theorem on perfect elasticity of demand on money at interest rates close to zero, has two significant weaknesses. First, it suggests that there exist circumstances, in which central banks permanently lose influence over money supply. However, Brunner and Meltzer [1968] proved that such a loss would require assumptions which either cannot be met or are not supported by empirical evidence. Second, the thread does not present a mechanism responsible for weakening the ability of central banks to increase money supply. It assumes that, in the environment of interest rates close to zero, banks' demand for surplus reserves is perfectly elastic, which reflects either their unwillingness to provide loans, or low demand for credit from economic agents. It does not, however, explain why the above would happen. My analysis in chapter five of the monograph is free of these weaknesses. It implies neither a complete, nor a permanent loss of control of central banks over money supply at interest rates close to zero. It does specify how this impact should change as time passes. Most of all, however, it indicates the mechanism responsible for weakening of the impact at interest rates close to zero.

⁹ The latest publication that tackles this problem is [Kimura et al., 2002].

The topic of public debt increased, as a result of interest rates close to zero, to levels that could lead to a fiscal crisis, has been thoroughly analyzed by Arellano, Conesa and Kehoe [2012], as well as Conesa and Kehoe [2012]. Their analysis, however, shows that persistently low rates of economic growth, which are the main reason why fiscal authorities allow public debt to grow to dangerous levels, do not depend either on interest rates close to zero, or fiscal stance. Furthermore, they assume that the relationship between fiscal deficit and interest rates close to zero is unidirectional: interest rates close to zero encourage running large deficit, however, the size of the deficit does not impact central banks' decisions on interest rates. My analysis of this issue (chapter six of the monograph) accounts for the impact of interest rates close to zero and fiscal stance on economic growth, as well as the dependence of interest rates being persistently held close to zero on fiscal deficit.

3. Other academic achievements

My other notable academic achievement is a book co-edited with prof. Leszek Balcerowicz [Balcerowicz, Rzońca (eds.), 2010]. It has three characteristics that differentiate it from most of other empirical works on economic growth. First, it compares pairs of countries with similar levels of GDP per capita, which then began to vary over time. The countries analyzed in pairs are also similar in many different ways, in particular in terms of unquantifiable factors, such as culture. Simultaneously, there is enough variation within the whole group of analyzed countries to allow for drawing general conclusions about the main determinants of economic growth. The sample comprises countries with low to high level of GDP per capita, large and small, islands and landlocked, rich in natural resources and completely lacking thereof, inhabited by representatives of all the largest religions, located across all the continents with existing states (except for Africa), with various age structures and levels of education. Second, systematic forces of growth and effects of various shocks are analyzed here jointly in an integrated context. The effort is done to assess the relative importance of shocks for economic performance in long run. Third, the systematic forces of growth are analyzed on two levels. We concentrate on underlying causes of growth, on institutions in particular, but we also carry out the conventional growth accounting allowing us to identify the proximate causes everywhere where it can contribute to deeper understanding of institutional determinants of growth. The book has been translated into Russian (see [Balcerowicz, Rzońca (eds.), 2012]) and English (see [Balcerowicz, Rzońca (eds.), 2015]).

Another of my academic achievements was co-authoring a series of five articles in journals listed in Journal Citation Database. Three of them concern monetary policy.

In the article [Ciżkowicz, Rzońca, 2014]¹⁰, mentioned in the previous part of the statement, we note that central banks' disregard for the impact of interest rates close to zero on natural interest rate may have damaging results. If such level of interest rates persistently lowered the natural interest rate, this would lead to a decrease in productivity of capital and labor and would limit central banks' ability to influence aggregate demand and inflation. We explain that interest rates close to zero can persistently lower the natural interest rate because they halt post-crisis restructuring and facilitate forbearance lending which crowds out, through several channels, credit for entities in good financial shape. In order to limit the occurrence of these effects, central banks should set the lower limit for interest rates at, say, 2%. The limit that is right for a given economy should be an increasing function of its economic growth and pre-crisis interest rates. We argue that, regardless of central banks' credibility, such a change in conducting monetary policy in an economy that requires post-crisis restructuring, would lead to better results than keeping interest rates close to zero.

In the article [Albinowski, Ciżkowicz, Rzońca, 2014]¹¹, we contribute to the new, albeit fast-growing empirical literature on the determinants of trust in central banks which, with the exception of one publication (see [Bursian, Faia, 2013]) disregards the impact of the links between the trust in the ECB and its policy. We aim at filling this gap. Like in most other studies we use panel data models based on the Eurobarometer survey on trust in the European Central Bank. Our main result is that when households have pessimistic expectations, aggressive cuts in interest rates have an adverse effect on households' trust in central bank. This result is in accordance with the 'lack-of-confidence shock' hypothesis developed by Schmitt-Grohé and Uribe (2012) and goes against the 'fundamental shock' hypothesis which would imply positive effects of aggressive cuts for trust in central bank.

In the article [Ciżkowicz, Rzońca, 2013b]¹² we attempt to assess the impact of inflation on corporate investment in the sample of 21 OECD countries in the years 1960–2005. The

¹⁰ The journal's impact factor is 0.208.

¹¹ The journal's impact factor is 0.518.

¹² The journal's impact factor is 0.391.

obtained negative relationship is statistically and economically significant. Moreover, the obtained results suggest a nonlinear character of this relationship: the marginal effect on corporate investment is the strongest at inflation rates between 3 and 5.5 per cent. Most of the previous studies suggested that the negative relationship accompanied higher inflation. We also demonstrate that after accounting for this negative relationship investment becomes independent of measures that approximate cost of capital.

The fourth article [Cizkiewicz, Rzońca, Umiński, 2013]¹³ explains the strong diversification in the volume and structure of exports in Polish regions, using a set of potential determinants originating from different foreign trade theories used in country level studies. Two sets of panel models show that regional export performance is positively dependent on labor productivity, share of foreign-owned companies in employment, education level of population, location in the country's border region and access to the sea, and negatively on the importance of agriculture in the region's economy and labor costs. We also demonstrate that exports of agricultural and food products are positively correlated with the importance of agriculture, labor productivity in agriculture and the economy of the region as a whole, availability of employees with an appropriate level of practical skills and access to the sea, and negatively with population density and location in the country's border region. Growth of this type of export is important for improvement of living conditions in many underdeveloped regions of Poland.

In the fifth article [Borys, Cizkiewicz, Rzońca, 2014]¹⁴ we identify fiscal policy shocks in the EU New Member States using four different methods, including two not previously used. We use panel data techniques to estimate the output response to these shocks. As opposed to other research, we analyze the results of both fiscal consolidation and stimulus. To further differentiate ourselves, we treat output reaction to fiscal shocks only as a starting point to analyzing reactions of various demand flows. We find that investment and export growth accelerate after fiscal consolidation and decelerate after fiscal stimulus when the shocks are expenditure-based. In contrast, private consumption does not respond to fiscal policy shocks. Expenditure-based fiscal consolidations reduce wages, supporting the view that fiscal consolidation of such composition enhances the competitiveness and profitability of domestic

¹³ The journal's impact factor is 0.393.

¹⁴ The journal's impact factor is 0.319.

enterprises. In contrast, we do not find evidence of fiscal shocks affecting households' confidence.

The above article is an update and an extension of the research conducted in [Rzońca, Ciżkowicz, 2005]. It is my most cited paper, which, inter alia, Giavazzi and Pagano, the pioneers in research on Non-Keynesian effects of fiscal shocks, refer to. Our analysis uses panel estimation techniques to examine the consequences of fiscal consolidation in New Member States. This analysis provides evidence that in these countries fiscal consolidation contributed substantially to acceleration of output growth even in the short term. However, the exact channels, through which non-Keynesian effects occurred, could not be unambiguously identified in the paper. We conclude the paper with a qualitative analysis of the outcomes of strong fiscal adjustments in the countries under consideration. That analysis shows that their experiences were quite similar to those of developed countries.

A much broader qualitative analysis of the outcomes of strong fiscal adjustments in New Member States is included in the book [Rzońca, 2007]. It also has an extensive theoretical part, which demonstrates, in particular, sensitivity of conclusions drawn from aggregate models on the results of fiscal shocks on modified assumptions. Furthermore, in this book, I systematize the most common explanations of Non-Keynesian effects of fiscal consolidations. The manuscript of this book was the basis, on which I received the Bank Handlowy Award from the Leopold Kronenberg Banking Foundation, the most prestigious award in Polish economics.

Among my other academic achievements are the three co-authored articles published in the "Ekonomista" journal, which was listed in the Journal Citation Reports database until 2014. These articles deal mainly with monetary policy, but they also touch upon the topic of economic growth.

In [Ciżkowicz, Rzońca, 2013a], mentioned in the previous part of the statement, we show that the basic causes of the recent global financial crisis, i.e. low interest rates in major economies, combined with surplus savings in the developing countries, may be linked to the deficiencies inherent to the international monetary system. We argue that these deficiencies have amplified as the result of the crisis. This conclusion serves to project the probable design of macroeconomic policies to be performed in the developed and developing countries. We point

to high costs of the macroeconomic policy performed by the major developed countries in their reaction to the crisis, which are reflected mainly in the delayed restructuring of the economies. Then we discuss the threats that arise from this reaction for the development of the emerging economies. In our opinion, this situation may justify a deliberate policy of a slower revival.

In [Ciżkowicz, Rzońca, 2011b] we review the theory and conclusions of empirical research on how inflation impacts corporate investment, quality of public spending, the scope of financial intermediation, taxes and economic agents' inflation-related expenditures. This article differentiates itself from other surveys of inflation costs in at least one of three ways. First, costs of inflation are systematized by how inflation impacts economic growth. Second, framework for classification of the costs is not the nature of inflation (expected vs unexpected), but its mechanisms of impacting economic growth. Third, the article references some publications which, due to e.g. their release date, were not included in other research (in Polish) on the costs of inflation.

In [Ciżkowicz, Rzońca, 2011c] we critically assess O. Blanchard et al. [2010], where they proposed that central banks should increase their inflation targets to approximately 4%. We recall two arguments against the increase of inflation targets that have been raised hitherto, namely related to risk premium, as well as economic and social costs of inflation. We also add and justify the third argument: the risk of the emergence of dangerous speculative bubbles on asset markets. We suggest that, in the light of the experience acquired from the global financial crisis, central banks should employ monetary analysis of inflationary pressures in addition to purely economic analysis.

4. Additional information

The list of my academic publications released after having received the title of Ph.D. includes (see appendix 7):

- 2 books (authored);
- 2 books (co-authored);
- 2 books (co-authored and co-edited) including one translated into English and Russian;

- 3 chapters in joint publications¹⁵;
- 19 scientific articles in journals, including 16 co-authored;
- 20 working papers, including 18 co-authored.

23 of the publications listed above are written in English (excluding direct translations), including 1 book (co-authored), 1 chapter in joint publications, 8 articles and 13 working papers. The five articles mentioned in the previous part of the statement were published in journals listed in part A of the scientific journals register by the Ministry of Science and Higher Education (Appendix to the announcement of the Minister of Science and Higher Education dated 17th December 2013). The articles are: Albinowski, Ciżkowicz, Rzońca [2014], Borys, Ciżkowicz, Rzońca [2014], Ciżkowicz, Rzońca [2013b], Ciżkowicz, Rzońca [2014], Ciżkowicz, Rzońca, Umiński [2013]. The remaining articles were published in scientific journals from part B of the register mentioned above („Bank i Kredyt”, „Ekonomista”, „Gospodarka Narodowa”, „Ruch Prawniczy, Ekonomiczny i Socjologiczny”, „Studia BAS”, „Zarządzanie Publiczne”). The working papers were published in editorial series by institutions such as Bank for International Settlements in Basel, CASE, ECB, Munich Personal RePEc Archive and the NBP.

Citation analysis of my publications varies, depending on citation database applied. The ‘Google Scholar’ database identifies 26 of my scientific publications (published after having received the Ph.D. title) cited in other works. The total number of citations in this database amounts to 150, with the h index estimated at 6. On the other hand, the ‘Publish or Perish’ database includes 40 of my publications released after having received the title of Ph.D., with estimated citation frequency of 84 and h index level of 5. The Web of Science database identifies seven of my publications released after 2005, with no citations as of today.

My scientific publications were presented during domestic and international seminars and conferences organized by the Central Bank of Chile, European University Institute in Florence, Italy, International Journal of Central Banking, the National Bank of Poland, Warsaw School of Economics, Cracow University of Economics, Katowice University of Economics, Poznan University of Economics, Jagiellonian University and the University of Lodz (see appendix 5).

¹⁵ Excluding chapters in books I have co-authored or co-edited.

My academic activity has been awarded by the Chancellor of WSE and the President of the NBP. As mentioned in the previous part of the statement, I have also received the Bank Handlowy Award from the Leopold Kronenberg Banking Foundation.

I have received an Opus 6 grant from the National Science Centre for the project I co-authored “Efficiency of Special Economic Zones in Poland as a tool for economic policy: a multidimensional econometric analysis with the use of panel data- and spatial models”. The project is going to be conducted in the incoming years.

Apart from the research part of my work, I also put much emphasis on teaching or, to put it more generally, on dissemination of knowledge on economics (for more details on this issue, see appendix 5). So far, I have supervised 13 Bachelor’s and 12 Master’s theses. I have given dozens of radio and TV interviews on economic issues. I have also authored tens of economics-themed articles for the most popular Polish journals and magazines, as well as prepared 8 reports on various topics concerning Polish economy and 9 analyses for the FOR Foundation. I contributed to the report by the World Bank on fiscal policy effects on growth in transition economies. I am also a co-author and co-editor for the ‘Ekonomia po polsku’ (‘Economics in Polish’) guide (see. [Filar, Rzońca, Wójtowicz (eds.) 2007]). As mentioned in the first part of the statement, I have participated in creating the educational website of the NBP (www.NBPportal.pl). I was also a member of the Economic Education Council at the NBP, responsible for supervising the most important projects of the Central Bank aimed at popularizing knowledge on economics. Furthermore, I have prepared agendas and lists of speakers for three international academic conferences organized by the National Bank of Poland. My other roles included serving as a member of Organizational Committee at the Academic Conferences of Young Economists and of the Academic Subcommittee of the Polish Entrepreneurship Olympics. I was also part of the jury of 3 competitions devoted to economics.

References

- Acemoglu D., Arellano M., Dekel E. (eds.) [2013b], *Advances in Economics and Econometrics. Tenth World Congress. Volume II. Applied Economics*, Cambridge University Press, Cambridge, New York.
- Acemoglu D., Robinson J. A. [2013], *Economics versus Politics: Pitfalls of Policy Advice*, “Journal of Economic Perspectives”, Vol. 27, No. 2, pp. 173–192
- Aghion P., Durlauf S.N. (eds.) [2005], *Handbook of Economic Growth*, Vol. 1a, Elsevier B.V, Amsterdam, London, San Diego.
- Aghion P., Howitt P. [2009], *The Economics of Growth*, MIT Press, Cambridge, London.
- Ahearne A.G., Gagnon J., Haltmaier J., Kamin S., Erceg Ch., Faust J., Guerrieri L., Hemphill C., Kole L., Roush J., Rogers J., Sheets N., Wight J. [2002], *Preventing Deflation: Lessons from Japan's Experience in the 1990s.*, “Board of Governors of the Federal Reserve System International Finance Discussion Paper”, No. 729.
- Albinowski M., Ciżkowicz P., Rzońca A. [2014]. *Links between the trust in the ECB and its interest rate policy*, “Applied Economics”, Vol. 46, No. 25, pp. 3090-3106.
- Alchian A.A. [1950], *Uncertainty, Evolution, and Economic Theory*, “Journal of Political Economy”, Vol. 58, No. 3, pp. 211–221.
- Arellano C., Conesa J.C., Kehoe T.J. [2012], *Chronic Sovereign Debt Crises in the Eurozone, 2010–2012*, “Federal Reserve Bank of Minneapolis Economic Policy Paper”, No. 4.
- Baba N., Nishioka S., Oda N., Shirakawa M., Ueda K., Ugai H. [2005b], *Japan's Deflation, Problems in the Financial System, and Monetary Policy*, “Monetary and Economic Studies”, Vol. 23, No. 1, pp. 47–111.
- Balcerowicz L., Rzońca A. [2008], *The fiscal cure may make the patient worse*, “Financial Times”, 11 December, pp. 13.
- Balcerowicz L., Rzońca A. (eds.) [2010], *Zagadki wzrostu gospodarczego. Siły napędowe i kryzysy – analiza porównawcza*, C.H. Beck, Warszawa.
- Balcerowicz L., Rzońca A. (eds.) [2012], *Загадки экономического роста. Движущие силы и кризисы - сравнительный анализ*, МЫСЛЬ, Москва
- Balcerowicz L., Rzońca A. (eds.) [2015], *Puzzles of Economic Growth*, World Bank, Washington, DC.
- Balcerowicz L., Rzońca A., Kalina L., Łaszek A. [2013], *Economic Growth in the European Union*, Lisbon Council, Brussels.
- Banerjee A., Duflo E. [2005], *Growth Theory Through the Lens of Development Economics*, [in:] Aghion P., Durlauf S. (eds.) [2005].
- Bernanke B.S., Reinhart V.R. [2004], *Conducting Monetary Policy at Very Low Short-term Interest Rates*, “American Economic Review”, Vol. 94, No. 2, pp. 85–90.
- Bernanke B.S., Reinhart V.R., Sack B.P. [2004], *Monetary Policy Alternatives at the Zero Bound: An Empirical Assessment*, “Brookings Papers on Economic Activity”, No. 2, pp. 1–78.
- BIS [2010], *BIS 80th Annual Report*, Bank For International Settlements, Basel.
- BIS [2013], *BIS 83rd Annual Report*, Bank for International Settlements, Basel.
- Blanchard O. J., Dell’Ariccia G., Mauro P. [2010], *Rethinking Macroeconomic Policy*, “IMF Staff Position Note”, No. 10/03.
- Bordo M.D. [2014], *How Much Did the Federal Reserve Learn from History in Handling the Crisis of 2007–2008?*, Presentation at the 130th Seminar by the mBank – CASE, 1st March.

- Bordo M.D., Haubrich J.G. [2012], *Deep Recessions, Fast Recoveries, and Financial Crises: Evidence from the American Record*, “NBER Working Paper”, No. 18194.
- Borio C.E.V. [2012], *The financial cycle and macroeconomics: What have we learnt?*, “BIS Working Paper”, No. 395.
- Borys P., Ciżkowicz P., Rzońca A. [2014], *Panel Data Evidence on the Effects of Fiscal Policy Shocks in the EU New Member States*, “Fiscal Studies”, Vol. 35, No. 2, pp. 189-224.
- Brunner K. [1965], *Institutions, Policy, and Monetary Analysis*, “Journal of Political Economy”, Vol. 73, No. 2, pp. 197–218.
- Brunner K., Meltzer A.H. [1968], *Liquidity Traps for Money, Bank Credit, and Interest Rates*, “Journal of Political Economy”, Vol. 76, No. 1, pp. 1–37.
- Brunner K., Meltzer A.H. [2007], *Money Supply*, [in:] Friedman B.M., Hahn F.H. (eds.) [2007].
- Bullard J. [2010], *Seven Face of ‘The Peril’*, “Federal Reserve Bank of St. Louis Review”, Vol. 92, No. 5, pp. 339–352.
- Bundesbank [2012], *Financial Stability Review*, Deutsche Bundesbank, Frankfurt am Main.
- Bursian D., Faia E. [2013], *Trust in the Monetary Authority*, “SAFE Working Paper”, No. 14.
- Caballero R.J. [2007], *Specificity and Macroeconomics of Restructuring*, MIT Press, Cambridge. London.
- Caballero R.J., Hoshi T., Kashyap A.K. [2006], *Zombie Lending and Depressed Restructuring in Japan*, “NBER Working Paper”, No. 12129.
- Caballero R.J., Hoshi T., Kashyap A.K. [2008], *Zombie Lending and Depressed Restructuring in Japan*, “American Economic Review”, Vol. 98, No. 5, pp. 1943–1977.
- Calomiris Ch.W. [2013], *Polityczne korzenie kryzysów bankowych i ograniczonej akcji kredytowej*, „Zeszyty BRE Bank – CASE”, No. 128.
- Cecioni M., Ferrero G., Secchi A. [2011], *Unconventional monetary policy in theory and practice*, Banca D’Italia Questioni di Economia e Finanza (Occasional Paper), No. 102.
- Christiano L.J., Trabandt M., Walentin K. [2011], *DSGE Models for Monetary Policy Analysis*, [in:] Friedman B.M., Woodford M. (eds.) [2011].
- Ciżkowicz P., Rzońca A. [2011a], *Skutki ekspansji fiskalnej w warunkach stóp procentowych bliskich zera*, „Zarządzanie Publiczne”, Vol. 16–17, No. 2–3, pp. 23–44.
- Ciżkowicz P., Rzońca A. [2011b], *Koszty inflacji – przegląd piśmiennictwa*, „Ekonomista”, No. 3, pp. 395–418.
- Ciżkowicz P., Rzońca A. [2011c], *Dlaczego banki centralne nie powinny podwyższać celu inflacyjnego?*, „Ekonomista”, No. 5, pp. 677–690.
- Ciżkowicz P., Rzońca A. [2013a], *Międzynarodowy system monetarny a globalny kryzys finansowy: wnioski dla polityki makroekonomicznej w gospodarkach rozwijających się*, „Ekonomista”, No. 5, pp. 625–645.
- Ciżkowicz P., Rzońca A. [2013b], *Does Inflation Harm Corporate Investment? Empirical Evidence from OECD Countries*, “Economics: The Open-Access, Open-Assessment E-Journal”, Vol. 7, No. 2013-06, pp. 1-38.
- Ciżkowicz P., Rzońca A. [2014], *Interest rates close to zero, post-crisis restructuring and natural interest rate*, “Prague Economic Papers”, No. 3(2014), pp. 315-329.
- Ciżkowicz P., Rzońca A., Umiński S. [2013], *The Determinants of Regional Exports in Poland – Panel Data Analysis*, “Post-Communist Economies”, Vol. 25, No. 2, pp. 206-224

- Conesa J.C., Kehoe T.J. [2012], *Gambling for Redemption and Self-Fulfilling Debt Crisis*, “Federal Reserve Bank of Minneapolis Staff Report”, No. 465.
- Deutsche Bank [2013], *Default Study 2013. Analysing a Decade of Record Low HY Defaults*, Deutsche Bank Markets Research, Deutsche Bank AG, London.
- Dewatripont M., Maskin E. [1995], *Credit and Efficiency in Centralized and Decentralized Economies*, “Review of Economic Studies”, Vol. 62, No. 4, pp. 541–555.
- Diamond D.W. [1984], *Financial Intermediation and Delegated Monitoring*, “Review of Economic Studies”, Vol. 51, No. 3, pp. 393–414.
- Diamond D.W. [1991], *Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt*, “Journal of Political Economy”, Vol. 99, No. 4, pp. 688–721.
- Diamond D.W., Rajan R.G. [2009], *The Credit Crisis: Conjectures about Causes and Remedies*, “American Economic Review. Papers and Proceedings”, Vol. 99, No. 2, pp. 606–610.
- Dixit A.K., Pindyck R.S. [1994], *Investment under uncertainty*, Princeton University Press, Princeton.
- Farhi E., Tirole J. [2012], *Collective Moral Hazard, Maturity Mismatch, and Systemic Bailouts*, “American Economic Review”, Vol. 102, No. 1, pp. 60–93.
- Feldstein M. [2002], *The Role for Discretionary Fiscal Policy in a Low Interest Rate Environment*, “NBER Working Paper”, No. 9203.
- Filar D., Rzońca A. Wójtowicz G. (eds.) [2007], *Ekonomia po polsku*, Wydawnictwo CeDeWu, Warszawa
- Friedman B.M., Hahn F.H. (eds.) [2007], *Handbook of Monetary Economics*, Vol. 1, Elsevier B.V., Amsterdam, London, San Diego.
- Friedman B.M., Woodford M. (eds.) [2011], *Monetary Economics*, Vol. 3A, Elsevier B.V., Amsterdam, London, San Diego.
- Friedman M., Schwartz A.J. [1963], *A Monetary History of the United States 1867–1960*, Princeton University Press, Princeton.
- Giavazzi F., Giovannini A. [2010], *Central Banks and the Financial System*, “NBER Working Paper”, No. 16228.
- Goldfeld S.M., Sichel D.E. [2007], *The demand for Money*, [in:] Friedman B.M., Hahn F.H. (eds.) [2007a].
- Goldman Sachs [2013], *The case for carry is firm*, „Global Markets Daily”, 18 December.
- Goodfriend M. [2001], *Financial Stability, Deflation, and Monetary Policy*, “Federal Reserve Bank of Richmond Working Paper”, No. 1.
- Greenlaw D., Hamilton J.D., Hooper P., Mishkin F.S. [2013], *Crunch Time: Fiscal Crises and the Role of Monetary Policy*, a report prepared for U.S. Monetary Policy Forum, New York City, 22 February.
- Habermeier K., Jacome L., Mancini-Griffoli T., Baba Ch., Chen J., Gray S., Mondino T., Saadi Sedik T., Tanimoto H., Ueda K., Valckx N., Dell’Ariccia G., Pescatori A., Valencia F., Bayoumi T., Sgherri S., Ismael M. [2013], *Unconventional Monetary Policies—Recent Experience And Prospects*, International Monetary Fund, Washington D.C.
- Haddow A., Hare Ch., Hooley J., Shakir T. [2013], *Macroeconomic uncertainty: what is it, how we can measure it and why does it matter?*, “Bank of England Quarterly Bulletin 2013 Q2”, Vol. 53, No. 2, pp. 100–109.
- Hannoun H. [2012], *Monetary policy in the crisis: testing the limits of monetary policy*, 47. Gouverneors’ Conference SEACEN in Seoul, 13–14 February.
- Homer S., Sylla R.E. [2005], *History of interest rates*, Wiley, Hoboken.
- Hoenig T.M. [2010], *The High Cost of Exceptionally Low Rates*, Bartlesville Federal Reserve Forum, 3rd June.

- Hoshi T., Kashyap A.K. [2008], *Will the U.S. Bank Recapitalization Succeed? Lessons from Japan*, “NBER Working Paper”, No. 14401.
- Hoshi T., Kashyap A.K. [2010], *Will the US Bank Recapitalization Succeed. Eight Lessons from Japan*, “Journal of Financial Economics”, Vol. 97, No. 3, pp. 398–417.
- IMF [2003], *Japan: Financial Stability Assessment and Supplementary Information*, “IMF Country Report”, No. 287.
- Issing O. [2011], *Lessons for Monetary Policy: What Should the Consensus Be?*, “IMF Working Paper”, No. 97.
- Issing O. [2012], *Central Banks – Paradise Lost*, „IMES Discussion Paper”, No. E-10.
- Jones Ch.I. [2013], *Misallocation, Economic Growth, and Input-Output Economics*, [in:] Acemoglu D., Arellano M., Dekel E. (eds.) [2013].
- Keynes J.M. [1936] *The General Theory of Employment, Interest and Money*, Macmillan, New York.
- Kimura T., Kobayashi H., Muranaga J., Ugai H. [2002], *The Effect of the Increase in Monetary Base on Japan’s Economy at Zero Interest Rates: An Empirical Analysis*, “IMES Discussion Paper”, No. E-22.
- Knight F.H. [1921], *Risk, Uncertainty and Profit*, Houghton Mifflin Company, Riverside Press Cambridge, Boston, New York.
- Kobayashi K. [2000], *Debt Overhang as a Delayed Penalty*, “MITI/RI Discussion Paper”, No. DOF-35.
- Kobayashi K. [2006], *Payment Uncertainty, the Division of Labor, and Productivity Declines in Great Depressions*, “Review of Economic Dynamics”, Vol. 9, No. 4, pp. 715–741.
- Kobayashi K. [2007a], *Forbearance impedes confidence recovery*, “Journal of Macroeconomics”, Vol. 29, No. 1, pp. 178–188.
- Kobayashi K. [2007b], *Payment Uncertainty and the Productivity Slowdown*, “Macroeconomic Dynamics”, Vol. 11, No. 2, pp. 231–248.
- Kornai J. [1980a], *Economics of Shortage*, North Holland, Amsterdam.
- Kornai J. [1980b], *‘Hard’ and ‘Soft’ Budget Constraints*, “Acta Oeconomica”, Vol. 25, No. 3–4, pp. 231–245.
- Lahart J. [2013], *Dark Side of Fat Margins*, “Wall Street Journal”, 24 October, p. 28.
- Lazear E., Spletzer R. [2012], *Hiring, Churn and the Business cycle*, “NBER Working Paper”, No. 17910.
- Levin A., Lopez-Salido D., Nelson E., Yun T. [2010], *Limitations on the Effectiveness of Forward Guidance at the Zero Lower Bound*, “International Journal of Central Banking”, Vol. 6, No. 1, pp. 143–189.
- Maskin E.S. [1996], *Theories of soft budget-constraint*, “Japan and the World Economy”, Vol. 8, No. 2, pp. 125–133.
- McKinnon R. [2013a], *The Near-Zero Interest Rate Trap*, “Wall Street Journal”, 31st July, p. 14.
- McKinnon R. [2013b], *The Unloved Dollar Standard: From Bretton Woods to the Rise of China*, Oxford University Press, Oxford.
- McKinnon R. [2013c], *Fed “stimulus” chokes indirect finance to SMEs*, “Central Banking Journal”, 28 March.
- Myers S.C., Majluf N.S. [1984], *Corporate Financing and Investment Decisions when Firms have Information that Investors Do Not Have*, “Journal of Financial Economics”, Vol. 13, No. 2, pp. 187–221.
- Papademos L., Modigliani F. [2007], *The Supply of Money and the Control of Nominal Income*, [in:] Friedman B.M., Hahn F.H. (eds.) [2007].

- Peek J., Rosengren E.S. [2005], *Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan*, "American Economic Review", Vol. 95, No. 4, pp. 1144–1166.
- Rajan R.G. [1992], *Insiders and Outsiders: The Choice Between Informed and Arm's-Length Debt*, "Journal of Finance", Vol. 47, No. 4, pp. 1367–1400.
- Rajan R.G. [2013], *A step in the dark: unconventional monetary policy after the crisis*, a lecture in memoriam of Andrew Crockett given at the Bank for International Settlements, 23rd June.
- Rajan R.G., Winton A. [1995], *Covenants and Collateral as Incentives to Monitor*, "Journal of Finance", Vol. 50, No. 4, pp. 1113–1146.
- Reinhart C.M., Rogoff K.S. [2009], *This Time is Different: Eight Centuries of Financial Folly*, Princeton University Press, Princeton.
- Rzońca A. [2004], *Stopy procentowe banku centralnego bliskie zera a ryzyko wystąpienia deflacji*, Część II, „Bank i Kredyt”, Vol. 34 No. 4, pp. 30–40.
- Rzońca A. [2007], *Czy Keynes się pomylił? Skutki redukcji deficytu w Europie Środkowej*, Wydawnictwo Naukowe Scholar, Warszawa
- Rzońca A. [2014], *Kryzys banków centralnych. Skutki stopy procentowej bliskiej zera*, Wydawnictwo C.H. Beck, Warszawa.
- Rzońca A., Ciżkowicz P. [2003], *A comment on "The relationship between policies and growth in transition countries"*, "Economics of Transition", Vol. 11, No. 4, pp. 743-748.
- Rzońca A., Ciżkowicz P. [2005], *Non-Keynesian effects of fiscal contraction in new member states*, "ECB Working Paper", No. 519.
- Rzońca A., Ciżkowicz P. [2010], *Stopy procentowe bliskie zera nie muszą być dobrą odpowiedzią na kryzys*, [in:] *Banki centralne w zarządzaniu kryzysem finansowym – Strategie wyjścia*, Zeszyty BRE Bank – CASE 111.
- Rzońca A., Ciżkowicz P. [2011], *Skutki ekspansji fiskalnej w warunkach stóp procentowych bliskich zera*, [in:] *Zróżnicowanie polityki fiskalnej w trakcie kryzysu lat 2007–2009 i po kryzysie*, Zeszyty BRE Bank – CASE 116.
- Schmitt-Grohé S., Uribe M. [2012], *The Making Of A Great Contraction With A Liquidity Trap and A Jobless Recovery*, "NBER Working Paper", No. 18544.
- Shiratsuka S. [2009], *Size and Composition of the Central Bank Balance Sheet: Revisiting Japan's Experience of the Quantitative Easing Policy*, "IMES Discussion Paper", No. E-25.
- Stiglitz J.E., Weiss A. [1981], *Credit Rationing in Markets with Imperfect Information*, "American Economic Review", Vol. 71, No. 3, pp. 393–409.
- Stone M., Fujita K., Ishi K. [2011], *Should the Recent Unconventional Balance Sheet Policies be Added to the Central Bank Toolkit? A Review of the Experience So Far*, "IMF Working Paper", No. 145.
- Taylor J.B. [2009], *Getting off track: How government actions and interventions caused, prolonged, and worsened the financial crisis*, Hoover Institution Press, Stanford.
- Taylor J.B. [2013], *Fed Policy Is a Drag on the U.S. Economy*, "Wall Street Journal", 13th January, p. 18.
- Ueda K. [2012], *Deleveraging and Monetary Policy: Japan Since the 1990s and the United States Since 2007*, "Journal of Economic Perspectives", Vol. 26, No. 3, pp. 177–202.
- Walsh C.E. [2004], *Implications of a Changing Economic Structure for the Strategy of Monetary Policy*, "UC Santa Cruz SCCIE Working Paper", No. 03-18.

- White W.R. [2012], *Credit Crises and the Shortcomings of Traditional Policy Responses*, Second International Conference of the Reserve Bank of India “Monetary Policy, Sovereign Debt and Financial Stability – The New Trilemma”, 1st-2nd February.

A handwritten signature in black ink, appearing to read "Aronca". The signature is written in a cursive style with a large, looped initial letter.