

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Economics**



**Bachelor Thesis**

**Comparison of banking systems in South Africa  
and the Czech Republic**

**Anežka Drašnarová**

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# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

## BACHELOR THESIS ASSIGNMENT

Anežka Drašnarová

Economics and Management

Thesis title

Comparison of banking systems in South Africa and the Czech Republic

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### Objectives of thesis

The main aim of this bachelor thesis is to compare banking systems in South Africa and the Czech Republic. This thesis will contain information of interest rates, central banks of both countries, namely Czech National Bank (CNB) and South African Reserve Bank (SARB) with regard to comparing monetary policy strategy and interest rates. It will also contain money market and capital market with consideration of population and differences between chosen countries. The thesis also takes a deeper look on independence of central banks and their origin, structure and functions.

### Methodology

Bachelor thesis is created by several research methods such as literary research, researches of money market and capital market with an aim to find out if there are same money markets and capital markets instruments and their proportions in both countries and the research focuses on the monetary policies strategy which is created by systems, tools, procedures, variables, targets and goals.

There is analytical part of the thesis which contains quantitative and qualitative methods for evaluating differences of banking systems in South Africa and Czech Republic. This thesis will also focus on comparison of interest rates, growth rates, inflation and foreign exchange rates through processing data by the office Excel program. This part consists of basic statistics such as significance analysis, regression analysis, correlation and visual part created by graphs for better interpretation which will improve the comprehension of differences.

**The proposed extent of the thesis**

40 pages

**Keywords**

Banking systems, comparison, central bank, monetary policy strategy, money market, capital market, money growth, interest rates, independence of central banks,

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**Recommended information sources**

Annual report Czech National Bank. Praha: Česká národní banka, [200]-.

Czech National Bank [online]. c2003-2016 [cit. 2016-10-04]. Dostupné z:

<http://www.cnb.cz/en/index.html>

JONES, Marie<sup>tte</sup> a Heidi SCHOEMAN. An introduction to South African banking and credit law. ISBN 9780409014433.

South African Reserve Bank [online]. [cit. 2016-10-04]. Dostupné z:

<https://www.resbank.co.za/Pages/default.aspx>

The economics of money, banking, and financial markets. 10. ed., Global ed. Boston, Mass: Pearson, 2013. ISBN 9780273765752.

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### **Declaration**

I declare that I have worked on my bachelor thesis titled "Comparison of banking systems in South Africa and the Czech Republic" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 15.3.2017

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Anežka Drašnarová

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# **Comparison of banking systems in South Africa and the Czech Republic**

## **Summary**

The aim of this thesis is to compare banking systems of two countries, namely South Africa and the Czech Republic. Main focus is on two important parts of banking.

First, central banking through monetary policies, monetary aggregates and independence of central banks in each country and also money exchange rate as well as interest rates and inflation. Evaluation of this part is based on research and comparison of objectives, tools and others what central banks can control and operate. The results, based on correlation analysis and researches, show quite a lot similarities in term of monetary policies and differences in rates mentioned above.

The second part is about the commercial banking which provides services to public. In evaluation of this section, through the regression and the correlation analysis, can be found comparison of financial markets and also comparison of two largest commercial banks (one from each country) based mostly on the ratios. There are big differences in number of commercial banks in the markets of particular countries. There are less commercial banks in South Africa they generate higher income in terms of ratios according to results of this part.

**Keywords:** Banking, South Africa, The Czech Republic, Central bank, Interest rates, Inflation, Monetary policy, Commercial banks, Financial market, Comparison

# Porovnání bankovních systémů v Jihoafrické Republice a České Republice

## Souhrn

Cílem této práce je porovnání bankovních systémů dvou zemí, konkrétně Jihoafrické republiky a České republiky. Hlavní důraz je kladen na dvě důležité části bankovníctví.

Za prvé, centrální bankovníctví prostřednictvím měnových politik, měnových agregátů a nezávislost centrálních bank v jednotlivých zemích a také peněžního kurzu, jakož i úrokové sazby a inflace. Vyhodnocení této části se opírá o výzkum a porovnávání cílů, nástrojů a také, co centrální banky mohou řídit a provozovat. Výsledky, založené na korelační analýze a rešerších, ukazují poměrně hodně podobností v horizontu měnové politiky a rozdíly v sazbách uvedených výše.

Druhá část je o komerčním bankovníctví, které poskytují služby pro veřejnost. Při hodnocení této části, skrze regresní a korelační analýzu, lze nalézt srovnávání finančních trhů a porovnání dvou největších komerčních bank (jedné z každé země), založené hlavně na poměrech. Existují velké rozdíly ve složení množství komerčních bank na trzích jednotlivých zemí. V Jihoafrické republice je méně komerčních bank, ale ty generují vyšší příjem, pokud jde o poměrech podle výsledků této části.

**Klíčová slova:** Bankovníctví, Jihoafrická republika, Česká republika, Centrální banka, Úrokové sazby, Inflace, měnová politika, Komerční banky, Finanční trh, Porovnání

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## **List of abbreviations**

SARB	South African Reserve Bank
CNB	Czech National Bank
ROA	Return on assets
ROE	Return on equity
MP	Margin profit
GDP	Gross domestic product
ZAR	South African Rand
CZK	Czech koruna
US\$	United States dollar
SBSA ltd.	The Standard Bank of South Africa Limited

## **Introduction**

From time immemorial people market their goods and services. At first they exchange one goods or services for another, well-known as the barter exchange, and it was very hard to utilize wants and needs, because there was not anything as a medium of exchange which was widely used and what determined the price. This problem was solved by presence of money in term of commodity money, such as silver, gold and so on and others types of medium of exchange. Later, with greater demand of money, people keep money and tend to collect them. But, not all people have money and they demanded for borrowing and people with money were willing to lend the money for some interest. The first mention of financial institution is from Babylon where the priests lend money to the merchants. And thus, the probable beginning of banking.

In a past was very hard to connect the lenders with the borrowers and this leads to found of indirect finance, where the lender and the borrower use the third part which connects then and thus provide the service. This should be instance of indirect financial system. As time pass there were more and more financial institutions around the world and they provided services, and also trade with each other in the intentions of making a profit.

Banking system represent all financial institutions within a country and is important in a term of deposition of money, making loans and other activities. The banks have some advantages because of massive amount of transactions provided, which lower their expenses, known as economy of scale.

This thesis wants to found how different can be the banking systems in two countries which does not have that much in common. If systems are similar or totally different in the term of management of banking system, financial intermediaries and others in last few years since there are global trade.

# **1 Objectives and Methodology**

## **1.1 Objectives**

Main aim of this thesis is to show how different or similar can be banking systems of two countries. The countries represented in this thesis are South Africa and the Czech Republic. It is necessary to briefly involve the history and the banking development of country because it is closely associated with central banking, the inflation, the interest rates and the financial markets in each country.

The thesis will deal mainly with central banking because it is a good indicator which can show the strategy of monetary policy, such as the systems, the goals, the targets, the procedures, the variables, the monetary aggregates and so on. And also with the commercial banking where will be possible to find comparison of banks in dependence on size of population and usage of services selected. There is also possible to find the comparison of two largest banks by their ratios, one from each country, selected in term of total asset.

## **1.2 Methodology**

Methodology of this thesis is composed by part of quantitative and qualitative researches in interest to find useful data for evaluating similarities and differences of banking systems in South Africa and the Czech Republic. For purpose of evaluating data through statistical analysis, such as the regression and the correlation analysis, will be used tools as Office Excel program and databases such as, World Development Indicators, Gender Statistics or from website named Organisation for economic co-operation and development. Based on synthesis of knowledge, teoretical research and information gained by reseaches of banking sectors in each country, the conclusion the the tesis will be created.

## **2 Theoretical Review**

### **2.1 Money**

Money are generally considered as everything which is commonly accept as a legal tender. Today's money concept is united term for currency in circulation such as coins and notes (paper money), and for accounting money which we can call as the accounting records on different bank accounts. According to Mishkin (2013),: "Economists define money (also referred to as the money supply) as anything that is generally accepted in payment for goods or services or in the repayment of debts."

Money as a stock concept is different from wealth and income. Wealth is reported in balance sheet and can be defined as a total collection of property that are used to store value. Income is a flow concept which shows a flow of earnings per unit of time and is reported in income statement, (Jílek, 2013).

#### **2.1.1 Functions of money**

Payment system evolved from commodity money, checks to fiat money, electronic payments and e-money (electronic money) which we use nowadays. There are three basic functions of money which distinguishes money from any other assets such as bonds, stocks and so on.

- Medium of exchange reduces transaction costs because it eliminates the difficulties of finding a "double coincidence of wants". A medium of exchange must be easily standardized, widely accepted, divisible, easy to carry and not deteriorate quickly. It is clear, that any goods or services can be purchased for the money as a medium of exchange and buyers and sellers do not have to search for someone who will be willing to change good A for good B and vice versa.
- Unit of account has a function to measure value in economy and reduce transaction costs. There are not medium of exchange or unit of account in barter economy thus every transaction is costly and more time consuming. In other words, unit of account lowers transaction costs.
- Store of value hold the saving function and money are temporary discarded from the circulations. Obviously other assets also have this function nevertheless money are most liquid of all assets and you can easily convert it. Unfortunately,

money loses value and price level increase during the inflation. Because of that people usually hold their wealth not only in this form (Mishkin, 2013).

### **2.1.2 Monetary aggregates**

Monetary aggregates represent summary of money supply and categorize it based on degree of liquidity. The greatest importance of monetary aggregates is in regulation of monetary policy. Monetary aggregates are mostly denoted by the letter M and with number which indicates the liquidity, from the most liquid to least liquid. For example, M0, M1, M2, M3 and every aggregate is previous aggregate plus a particular of the additional financial means. Every central bank can determine the contents of each group, and also quantity of groups by themselves. There is demarcation into three basic groups in most countries (Kratochvílová, 2016).

## **2.2 Financial system**

Financial system represents a set of markets for financial instruments and it is place for the individuals and institutions that trade in those markets. This system is used by households, firms and organizations who are interested in borrowing or lending the funds.

The users can use direct finance which means that they trade on financial markets by their own or they can use Financial intermediaries (indirect finance) (Černohorská, 2015, s.9).

### **2.2.1 Financial intermediaries**

Function of financial intermediaries is to connect lenders and savers with borrowers and spenders in financial market for some interest. Indirect finance is widely used around the world. Its positive aspect is that transaction costs, risk sharing, and information costs are lowered as financial intermediaries take advantage of economies of scale, and diversification of portfolio to lower risk.

Financial intermediaries can be divided into three groups according to (Mishkin, 2013).

#### **Depository Institutions**

This group of institutions cooperates with individuals and institutions by accept deposits and make loans. Depository institutions make an important role in the money

supply. These includes: Commercial, Savings and Loan Associations and Mutual Savings Banks, Credit unions.

### **Contractual Savings Institutions**

These financial institutions gain funds on periodical intervals. Contractual Savings Institutions can predict their outflow and they are able to invest their funds in long-term securities. These includes: Life Insurance Companies, Fire and Casualty Insurance Companies, Pension Funds and Government Retirement Funds.

### **Investment Intermediaries**

Finance companies, mutual funds, and money market mutual funds are included in this category. These includes: Finance companies, Mutual funds, Money market mutual instruments.

## **2.2.2 Financial markets**

Financial markets are usually divided into two categories based on maturity. Money markets are the markets for short-term borrowing and lending (usually less than one year) of financial instruments, such as Banker's acceptance, Guaranteed investment contracts, Certificate of deposits, Bank investment contract, Commercial paper and Treasury Bills. In the contrast are Capital markets which are determined by long-term financial instruments such as Treasury notes, Treasury bonds, Separate Trading of Registered Interest and Principal Securities (Srnc, 2009).

Another possibility of distribution of financial markets is in line with the product point of view. Credit market or banking market, securities market and foreign exchange market belong to this severance.

### **2.2.2.1 Foreign exchange market**

International financial market has their traditional instruments such as foreign bonds, which are bonds sold in a foreign country and denominated by currency of this country. Eurobond is a bond which is denominated in different currency than in currency of the country in which it is sold. Eurocurrencies can be explained as a foreign currencies deposited in banks outside the home country (Mishkin, 2013).

### 2.2.3 Inflation

Inflation can be explained as repeated the price growth in the economy. The prices of individual kinds of goods are growing in time as well as in the price level. Simply said, the price level is average price of goods. There is applied the law of demand and supply. The phenomenon when price decreases is called deflation.

Increasing prices of food, housing, petrol, clothes and other goods mean change in the price level thus inflation. Wages are negatively affected by inflation because their purchasing power declines. On the other hand, inflation does not negatively influence the owners of material goods, because the price of property is increasing with inflation growth. High level of inflation leads to reduction in demand, that contribute to overall reduction in the sales and therefore also in real product (Czech National Bank [online], c2003-2017).

#### 2.2.3.1 Degree of inflation

It is possible to partition inflation into three degrees of inflation: Slide inflation is deemed as acceptable with single-digit annual growth rate of inflation. Galloping inflation is causing serious economic difficulties with double-digit annual growth rate of inflation. Hyperinflation leads to the collapse of the monetary system with triple-digit annual growth rate of inflation.

#### 2.2.3.2 Measurement of inflation

There are few ways how to measure inflation. Most frequently used are consumer price index, producer price index, and deflator of gross national product.

- Consumer price index (CPI) measures the cost of market basket of goods and services. Each item has an associated fixed weight, with relative importance in household expenditure budgets;
- Deflator of gross domestic product (GDP deflator) is the ratio of nominal and real gross domestic product. This index uses variable scales and is based on the accounts of domestic product and retired income.



## **2.3 Banking system**

Represents collection of all banking institutions, such as within country and arrangement relations between them. The structure and function of banking system is interference by economics system, monetary stability, development of the financial markets, banking regulation, the history and the tradition in the country. Every banking institution is connected with other banking institutions inside and also outside of the county and can never exist alone in isolation. Banks usually cooperate in money markets where they trade with short-term instruments (Černohorská, 2015).

The partition of the banking system can depend on the presence and operations of central bank. Two stage banking system occurs if there are central bank and commercial banks in the country. Central bank ensures macroeconomic functions and a net of commercial banks ensures microeconomics functions. On the other hand, one stage banking system occurs if there is absence of central bank or if central banking and commercial banking merge into one mono-bank. Banking system can be divided into universal banking system, made by central bank and universal banks, who implement almost all banking activities and specialized banking system based on separate commercial and investment banking (Černohorská, 2015).

### **2.3.1 Central banks**

Function, status and goals are totally different from commercial banks because central bank's main goal is not to make a profit. Central bank is responsible for stability and liquidity of banking sector. Central bank performs issuance of cash circulations as the only institution in the country.

Central banking is distinguish into two basic groups of functions, such as macroeconomics functions, such as implementation of monetary policy, issue of cash money, and transactions in foreign exchange assets. Microeconomics functions, such as the regulation and supervision on banking system and perform as a bank of banks and bank of state (Kantnerová,2016, p.41 - 45).

### 2.3.1.1 Independence

For successful realization of the monetary policy and fulfilment of specified goal by central bank is necessary its independency which can be understood as independence on government and its decisions. However, central bank cannot be absolutely independent and should respect existing economic situation and an overall economic policy. Characters of independence are distinguishing into transparency, personal, institutional, functional and financial independence (Černohorská, 2015).

### 2.3.1.2 Monetary policy

Monetary policy can be considered as social activities that are trying to implement monetary instruments to regulate the amount of money in circulation in order to achieve predetermined monetary goals. Central banks are trying to reach their goals through several tools, operational procedures, policy instruments and targets.

#### 2.3.1.2.1 Tools of central bank

Tools which are in use by central bank can be split into direct and indirect tools.

Indirect tools operate on all financial market entities. Through these operations the central bank affects money in circulation. Discount policy in meaning of discount tools lies in the fact that changes in the total volume of all provided loans by central bank is subsequently reflected in liquid reserves of commercial banks, which significantly affects their lending capacity. Open market operations (OMOs) means that the central bank purchases or sells securities from commercial banks. Through this is central bank able to regulate commercial bank's liquidity reserve and their lending capacity. Central bank can directly buy or sell securities such as state bonds or treasury bonds or a usage of repo transactions which represent repurchase of securities in a predetermined time and price. Minimum reserves requirements specify the percentage of deposits which commercial banks have to hold in the account of a central bank. Conversion and swaps of foreign currencies also affect the lending capacity of commercial banks. Central bank can regulate it by purchase and sale of foreign currencies from commercial banks. Foreign exchange intervention stands for intentional influence on the development of the exchange rates of the domestic currency by the central bank. Either in relation to one, several or even all foreign currencies at the same time.

Direct tools are very rarely used in advanced economic systems and their use testifies to the failure of indirect tools. Liquidity rules are used to ensure liquidity of commercial banks. Credit contingents directly determine borrowing limits. Interest rate levels (interest rate ceilings) means that central bank can set the maximum or minimum of interest rates for commercial banks. Mandatory deposits are usually tools for central institutions or local government bodies.

#### 2.3.1.3 Policy instruments (operational variables)

Operational variables are those variables which the central bank can control directly. Policy instruments are commonly referred to three main groups and various operational variables can be used.

Direct controls on credit were abolished in most countries. Reserve aggregates or monetary base (and thus money supply) are used if central bank decides to have money supply targets. Official refinancing interest rate (Repo) is easily observable and measurable. Repo rate serves as the guideline for all the other interest rates in the market, and thus will affect amount of credit, money supply and eventually inflation. So, there is a link between the operational variable (repo) and the ultimate objective (price stability). This link is stronger than the link between money supply and inflation. Hence no longer money supply targets for most central banks.

Criteria for choosing operational variable are following: observability and measurability, controllability, predictable effect on goals.

##### 2.3.1.3.1 Targets (nominal anchor)

According to Frederic S. Mishkin (2012), “*A nominal anchor, a nominal variable—such as the inflation rate, the money supply, or an exchange rate – that ties down the price level or inflation to achieve price stability.*”

There are more targets, such as inflation target, intermediate targets and operational targets in banking systems. Intermediate target can be divided into monetary targets and exchange rate. Operational targets into interbank interest rate and reserve target level. Inflation targeting is widely used by central banks around the world including developing

countries. This strategy is build on establishing a certain degree of inflation which is request as price stability (Janáčková, 2015).

#### 2.3.1.3.2 Goals of monetary policy

The ultimate goals or objectives of monetary policy are price stability, financial stability, economic growth, high employment and output stability, interest-rate stability and foreign exchange markets stability. Central banks they are usually concentrated on financial or price stability.

Price stability as a primary goal of monetary policy is consistent with others mentioned goals in a long-run. However, in a short-run there are conflicts with output stability and interest rate stability.

Monetary policy can choose between two types of mandates. Hierarchical mandates put the goal of price stability first, and then say that as long as it is achieved other goals can be pursued and dual mandates are aimed to achieve two co-equal objectives.

### 2.3.2 Commercial banks

Part of commercial bank's profit is called interest rate margin which means difference between active and passive transactions, mainly gain by loan and deposit transactions. On the other hand, the investment banks operate on their and foreign accounts for a profit called commission. Nowadays are very common universal banks which are consist of the same transactions as a commercial and investment banks plus they provide more services, such as insurance instruments, advisory, consulting and so on.

Functions provided by commercial banks to clients through acceptance of deposits and providing loans can be divided into five sections: deposit function, function as an intermediary of payments, credit function, investment activities and services, cashless emission of money (Černohorská, 2015).

Creating revenues and increase the market value of capital are the main objectives of bank management. Commercial banks' other managerial tasks are profit maximization, maintaining an optimal relationship between liquidity and profitability, and increase in share price.

### 2.3.2.1 Financial Indicators

Financial ratio indicators are basic indicators of financial position in every entity, which also applies to commercial banks as well. Financial indicators relate to profit. Can be evaluated through return on equity (ROE), return on assets (ROA) and by profit margin (PM). Differences in indicators above express the result in percentage of different levels of risk undertaken or costs incurred between individual banks. Banks can also be evaluated via method CAMEL which is composed by capital, assets, management, earning and liquidity. Sometimes is used method CAMELS which is made from capital, assets, management, earning, liquidity and sensitivity to risk (Revenda, 2011).

## 2.4 Interest rates

Interest rates which are also quite often referred as the price of money and they are the remuneration paid by a debtor (borrower) to a creditor (lender) for the use of money in defined period is usually expressed in percentage. There are many different types of interest rates, such as term deposit rates, repurchase agreement (repo) rates, bank rates, base rates, government bond rates, corporate bond rates, Treasury bill rates, commercial paper rates, fixed interest rates, discount rates, coupon rates, real rates, nominal rates, risk-free rates, and so on (Mishkin, 2013).

### 2.4.1 Real and nominal interest rates

Real interest rate, adjusted from inflation, reflects the true cost of borrowing. On the other hand, nominal interest rate, mostly used by media, represents interest rate which is not adjusted from inflation (Kantnerová, 2016, p.12-15).

## 2.5 Research of selected countries

### 2.5.1 South Africa

Republic of South Africa is most southern country of African continent with 51,770 million inhabitants (The result of the census of 2011) divided into four ethnical groups, and eleven official languages. The president in South Africa is head of the executive power. Jacob Zuma hold this job since 2009.

There are three capital cities of South Africa and each of these cities hold one of the branches. There is executive and administrative areas of the government in Pretoria, the judicial branches of the government are situated in Bloemfontein and Cape Town is home of the legislative branch of the government. Official currency is South African rand (Ministerstvo zahraničních věcí České republiky [online], 2016).

#### 2.5.1.1 History and development

First bank named Lombard Bank was established on 23<sup>rd</sup> of April 1793 in Cape Town. However, the earliest suggestion for central bank in South Africa took place almost one hundred years later (1879). The proposals repeated the following few years until ten selected members of Parliament were chosen to examine the practicalities of establishing a central bank. The South African Reserve Bank which is the oldest central bank in Africa was opened for a business on 30<sup>th</sup> June 1921. The first banknotes were issued on 19<sup>th</sup> April 1922 (South African Reserve Bank [online], 1992).

South Africa experienced a long time as a Netherlands and England's colony and after that, there were apartheid and from 1948 to 1990. Nelson Mandela became a president after the first democratic elections in April 1994 (HULEC, 2010).

#### 2.5.1.2 South African Reserve Bank (SARB)

South African Reserve Bank has a unique position in economy like central banks in other countries. SARB's functions can be divided into two parts. First part, Banker and Advisor to Government which provides operations as Banker to Government and Administration of Exchange control. Second part, Management of the South African money and banking system which includes tasks such as, formulation and implementation of monetary policy, provision of liquidity to banks, issuing new currency (banknotes and coins), banker of other banks, settlement of interbank claims, bank supervision (Fact Sheets; South African Reserve Bank [online]).

According to South African Reserve Bank Act (1989): *“(1) The Bank shall be managed by a board of fourteen directors, consisting of- (a) a Governor, three Deputy Governors (of whom one shall be designated by the President of the Republic as Senior Deputy Governor) and three other directors, which Governor, Deputy Governors and other*

*directors shall be appointed by the President of the Republic after consultation with the Minister and the Board; and (b) seven directors elected by the shareholders.”.*

#### 2.5.1.2.1 Independence of SARB

In terms of the Constitution (Act No. 108 of 1996): “SARB, in pursuit of its primary object, must perform its functions independently and without fear, favour or prejudice, but there must be regular consultation between the Bank and the Cabinet member responsible for national financial matters.” SARB publish a monthly statement of its assets and liabilities and also an annual report to Parliament, hence the Bank is accountable to Parliament. The Bank Governor holds regular discussions with the Minister of Finance.

#### 2.5.1.2.2 Monetary aggregates

Measuring Money in South Africa is defined in four categories according South African Reserve Bank [online](1992).

**M0** also called M1(A) is consist of currency plus cheque and transmission accounts.

**M1** is made by M0 plus other demand deposits.

**M2** is equal to M1 plus other short-term deposits and Medium-term deposits.

Last **M3** is formed by a M2 plus long-term deposits.

#### 2.5.1.2.3 Monetary policy

Nowadays SARB has dual mandates and thus two objectives. Monetary Policy Committee is decision-making part of central bank which has theoretical and empirical support.

##### 2.5.1.2.3.1 Ultimate objectives

Latest SARB mission statement indicates SARB mandate is “to achieve and maintain price stability in South Africa”. This means that SARB want to protect the value of the South African currency in the interest of balanced and sustainable economic growth. Currency has internal and external value. An internal value means, stable purchasing power and that is equal to stable prices. On the other hand, the second value is external value which can be defined as exchange rate stability. There is no longer any explicit exchange rate targets in South Africa, because it is impossible to manage exchange rate in small-open economy. SARB realised that both internal and external value can be most effectively protected by targeting stable prices, therefore they use inflation targeting.

However, second objective is to promote financial stability of the country. The reason is, that financial stability promotes price stability and vice versa. Thought, price stability does not ensure financial stability, and absence of financial stability could seriously damage economic performance and cancel any improvements and “good work” which was made by monetary and other policies. Monetary policy cannot achieve financial stability by itself and need help of another policy tool named macroprudential policy (Fact Sheets; South African Reserve Bank [online]).

#### **2.5.1.2.3.2 Policy target**

South Africa, as many other countries, is focused on a final target in the form of an inflation target. By using an explicit nominal anchor in the form of an official inflation target (used since 2000), South Africa has achieved improved macroeconomic performance, including lower and more stable inflation. The range of inflation target is from 3% to 6% since 2009. (South African Reserve Bank [online],1992 )

#### **2.5.1.2.3.3 Monetary policy operational procedures**

SARB choose official refinancing interest rate as operational variable, which is also called repo rate, as operational variable.

The process of creating a liquidity requirement by using open market operations, reserve requirements and transfer of government funds is used by SARB. Central bank influences variables under its control (for example, bank reserves and thus market liquidity). This effectively force commercial banks to make use of the SARB refinancing (accommodation) system as result (Fact Sheets; South African Reserve Bank [online]).

#### **2.5.1.2.3.4 Policy instruments**

Exchange controls is direct tool which limits inflow and outflow of foreign exchange. There are still some foreign exchange controls in South Africa, but not a lot.

Amount of cash (reserves) to be held by banks at SARB known as reserve requirements which constitute 2.5% of banks’ total liabilities to public is not actively changed by SARB anymore and must be maintained over a monthly average period.

Accommodation (repo) policy and open market operations are the most important indirect policy instruments in South African banking system. Open market operations function is to ensure that its repo rate remains effective, the SARB must force banks to borrow a substantial amount (for example the liquidity requirement) from the SARB.



SARB should transact regularly in the money market to create and monitor such a shortage, and drains excess liquidity from the money market by levying a cash reserve requirement on banks, and using various types of open-market instruments. These instruments are following: South African Reserve Bank debentures, the debentures may have varying maturities and are auctioned weekly, normally on Wednesdays. At maturity, the Bank pays each bank the nominal amount plus interest. Reserve repos, SARB sells Government bonds from its monetary policy portfolio by using repurchase agreements and buys them back after certain period. For few last years is repo set to 7 percent. Foreign-exchange swaps, SARB buys/sells forex and sells/buys them back at later date (up to 12 months later). For example, to reduce liquidity the SARB will sell US dollars and buy them back forward. Movement of government funds between the SARB and the market, decrease liquidity by moving the funds from banks to the SARB. Accommodation (repo) policy is instrument, also called SARB's refinancing system, is the main mechanism used by SARB to implement monetary policy. SARB provided liquidity to commercial banks by way of main refinancing auctions - main repurchase (repo) auctions, Supplementary auctions and standing facilities, access to statutory cash reserves, and by special assistance. The point is, that the interest rate used for this financing is the official Repo rate and this is called the operational variable (South African Reserve Bank [online],1992).

#### 2.5.1.3 Commercial banking

In the Republic of South Africa was thirty-two banks in 2015. Which can be divided as, banks in liquidity, branches of foreign banks, foreign banks representatives, foreign controlled banks and locally controlled banks.

Five largest banks in South Africa had 89%, only 7% were made by local branches of international banks and 4% by other banks of total asset of the South African banking sector, in December 2015. According to total assets (in ZAR billion) The Standard Bank of South Africa Limited, FirstRand Bank Limited, Absa Bank Limited, Nedbank Limited and Investec Bank Limited are five largest banks in South Africa.

##### 2.5.1.3.1 The Standard Bank of South Africa Limited (SBSA Ltd.)

Standard Group Limited express itself as “integrated financial services group”. Services providing by this company can be divided into three groups such as, Persona & Business Banking (51%), Corporate & Investment Banking (36%), Wealth – which

includes Liberty Holdings Limited (10%) and rest 3% are from central and other. This results are made within South Africa, few others countries inside and also outside of African continent. One of the biggest part of this group (which operate is South Africa) is The Standard Bank of South Africa Limited thus is bank (part of group) which will be evaluated (Annual Report 2015: Standard Bank Group Limited, 2016).

General activities of SBSA are lending, funding, transactional banking, market access, strategic investments, investment in SBSA's people and operations (technologies and development). In SBSA are 35,652 permanent employees. Return on equity counted 15.5%, total capital adequacy ration was 15.3% and non-interest revenue to total income was 43% (Annual Report 2015: Standard Bank of South Africa, 2016).

## **2.5.2 Czech Republic**

The Czech Republic (Czechia) is located in Central Europe with Prague as a capital city where president Miloš Zeman housed, who holds his job since 2013. There are 10,572,427 (September 30, 2016) inhabitants in the country and Czech language is only one official language. The Czech Republic is a part of European union since 2004 and Czech koruna (CZK) is currency of this country. (The world factbook: Czechia, 2017)

### **2.5.2.1 History and development**

The first banking system of Czechoslovakia was made after disintegration of the Austro-Hungarian Empire through creating Bank Office at the Ministry of Finance and repatriation of commercial banks. From 1926 Czechoslovak National Bank was founded then German occupation lead to divide from Czechoslovak National Bank to two national banks, namely National Bank for Bohemia and Moravia and to Slovak national bank. Czech banking system almost return back after World War II. But from 1945 Czechoslovak National Bank changed from stock company to a public institution (Velek, 2000). In the year 1950 was establish unitary banking system through State Bank of Czechoslovakia which contained for example Investment Bank (Investiční Banka), Trade Bank (Živnostenská Banka), Czechoslovakian Commercial Bank Inc., Czech State Saving Bank etc. Regime changed in 1989 and one year later Economic reforms with Two stages banking system were accepted and this leads to quantitative growth of banks in the system. (Maturation period of the Czech Banking) (Velek, 2000).

### 2.5.2.2 Czech National Bank (CNB)

Czech National Bank was established on 1993 (also year of the Czech Republic's formation) which has function of central bank for the Czech Republic until nowadays (Velek, 2000).

Czech National Bank is an independent institution which have a role as a supervisor of the Czech financial market and is the Czech resolution authority. CNB has emission function and its position in the Czech economy as central bank is unique. This central bank plays the role of bank of banks function (in territory of the Czech Republic) and function as bank of the state. CNB disposes with monetary reserves of gold and foreign exchange and traded them. This institution has legislative authorization and can discuss restrictions and laws with government (Czech National Bank [online], c2003-2017).

Major bodies of CNB can be divided into two groups. First group, The Bank Board, made by seven members such as, Governor, two Vice-Governors and four Board members. They are appointed for six years by president of the Czech Republic. The Bank Board is the most important because part of CNB because their task is to formulate the monetary policy and make decisions about matter of fundamental importance. Second group, named advisory bodies is compose from two parts. Appeals Committee, prepare decisions for the Board issued in administrative proceedings and Financial Market Committee supervise on financial market, monitors the general concepts, strategies and approaches to financial market supervision, new trends or regulation and systematic issues of financial markets. CNB Bank Board (Czech National Bank [online], c2003-2017).

#### 2.5.2.2.1 Independence of CNB

Czech National Bank is institutionally independent, therefore CNB cannot receive or require guidelines from parliament, president, government, administrative authorities or any other body. CNB is considered as one of e most independent central banks around the world because of their transparency in a form of availability of information to public.

#### 2.5.2.2.2 Monetary aggregates

CNB defined monetary aggregates in same way as other countries of European Union. Monetary aggregates are defined as following:

**M1 (Narrow money)** is made by currency in circulation plus overnight deposits.

**M2 (“Intermediate” money)** is consist of M1 plus deposits with agreed maturity higher than 2 years and deposits redeemable at notice up to three months.

**M3 (Broad money)** means M2 plus repurchase agreement, money market fund (MMF) shares/units, and debt securities longer than two years (Harmonised monetary aggregates in the Czech Republic, Czech National Bank [online], c2003-2017)

#### 2.5.2.2.3 Monetary policy

Czech National Bank has one ultimate objective which is set via The Czech Constitution and the Act on the Czech National Bank.

##### 2.5.2.2.3.1 Ultimate objective

Price stability is ultimate objective of CNB according to Article 98 of the Constitution of the Czech Republic and in Article 2 of Act No. 6/1993 Coll., on the Czech National Bank. Price stability and its maintaining does not mean necessarily prices without single change but it could be understood as moderate growth in prices. A necessary to prerequisite for the implementation of monetary policy which leads to price stability is central bank independence. For this purpose the CNB use some monetary policy instruments in order to reach the functional independence (CNB Monetary Strategy document. *Czech National Bank* [online], c2003-2017).

##### 2.5.2.2.3.2 Policy target

Policy target in the Czech Republic is inflation targeting since 1998. From these year was target announced in “net” inflation without the impact of direct taxes and state price regulation. But CNB transform “net” target into overall inflation targeting since 2001. This target was set to level of three percent of inflation from 2001 to 2009. Nowadays is level of inflation set to two percent which correspond with policy target of European Central Bank (ECB). The main characteristics of inflation targeting can be regarded medium-term strategy, the use of the inflation forecasts, and publicly announcement of explicit inflation target or sequences of targets (Černohorská, 2015)

##### 2.5.2.2.3.3 Policy instruments

Czech National bank use following tools in the purpose of achievement of its objectives. Open market operations can be mentioned as first. Purpose of these operations is to guide the development of short-term interest rates and monetary base. CNB is directs money supply by purchasing and selling financial assets such as, treasury bills or

government bonds. The main instrument is repurchase agreement (repo). In the case that CNB needs to reduce the amount of money in circulation, commercial bank sells securities and gets them a certain amount of money that it withdraws from circulation. Basic duration of these repurchase agreements is determined on fourteen days (T2), but duration can be shorter and depends on evolution of liquidity in banking sector. Repo tenders are announced by the central bank usually three times a week. Supplementary tool for influencing liquidity are repo operations with three months to maturity. Nowadays is not this tool used anymore. Automatic facilities are used to store or provide one-day liquidity in overnight term. There is not determined interest rate through tender but via determination of discount and Lombard rate. These two rates create upper and lower limits for short-term interest rates. Lombard rate is marginal lending facility and sets upper limits. Discount rate which is deposit facility sets lower limits and cannot be negative. The central bank may thus rise the monetary base and also serve banks as lender of last resort, when a bank gets into trouble (CNB Monetary Strategy document. *Czech National Bank* [online], c2003-2017).

Second, minimum required reserves give duty to hold reserves intended in account of Czech National Bank. This requirement valid for every bank in the Czech Republic. (Jílek,2013)

Third, Foreign exchange interventions are used for changing the exchange rate of the domestic currency against foreign currency sale or purchase of foreign currency for domestic currency. This is case of fixing exchange rate between Czech koruna (CZK) and euro (€). CNB make CZK weaker artificially to euro because they are trying to maintain the exchange rate, which is close to CZK 27 to the euro since 2013 (CNB Monetary Strategy document. *Czech National Bank* [online], c2003-2017).

### 2.5.2.3 Commercial banking

There were forty-six banks and branches of foreign banks in the Czech Republic, 2015. Is possible to divide commercial banks in a term of size (large banks, medium-sized banks, small banks, foreign bank branches, building societies), or by ownership.

Five banks with highest total assets (in CZK billion) are Československá obchodní banka (ČSOB), Česká spořitelna, Komerční banka (KB), UniCredit Bank CZ and

Raiffeisenbank CZ. (Basic indicators of the financial market sectors. Czech National Bank [online], c2003-2017)

#### 2.5.2.3.1 Česká Spořitelna

Is a commercial bank focused on retail clients, small- and medium-sized enterprises, municipalities and cities and plays an important role in financing large corporations and providing financial market services. There were 10,536 employees in the company in 2015. Return on equity made 13%, return on assets was 1.5%, total capital adequacy ratio 21.3% and non-interest revenue to total income made 34.9% (*Annual Report 2015: Česká spořitelna, a.s.* [online], 2015).

### **3 Comparative analysis**

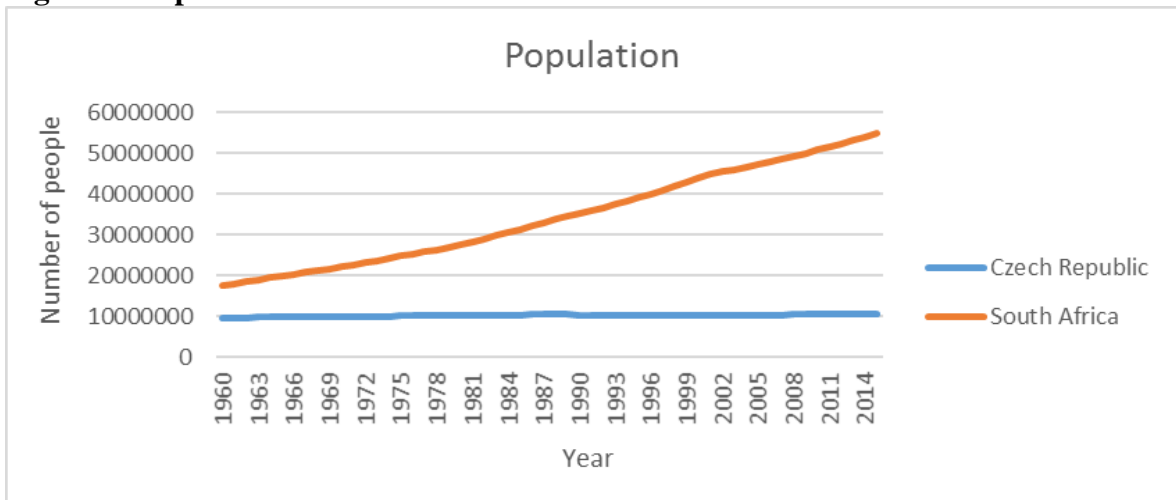
This part of thesis contain comparison between South Africa and the Czech Republic in a term of banking and financial systems. Practical part is divided into brief comparison of history, comparison of interest rates, foreign exchange rates and inflation. Summary and comparison of information about central banks which were provided in theoretical review will follow. And also comparison analysis of commercial banking between countries previously mentioned.

#### **3.1 Overview, History and development**

There can be found obvious differences between the Republic of South Africa and the Czech Republic. Location is one of the differences because South Africa is situated at the south of African continent and the Czech Republic is in the middle of Europe and is a part of European Union. Total area of countries is incomparable and population as is visible on Figure 1, could be explained as population growth in South Africa and population almost stagnate in of the Czech Republic.

History for every country is also really different and central banking in South Africa is much older. Similarities are just in establishment of the Czech Republic as independent state in 1993 and South African first democratic elections in 1994.

**Figure 1: Population**



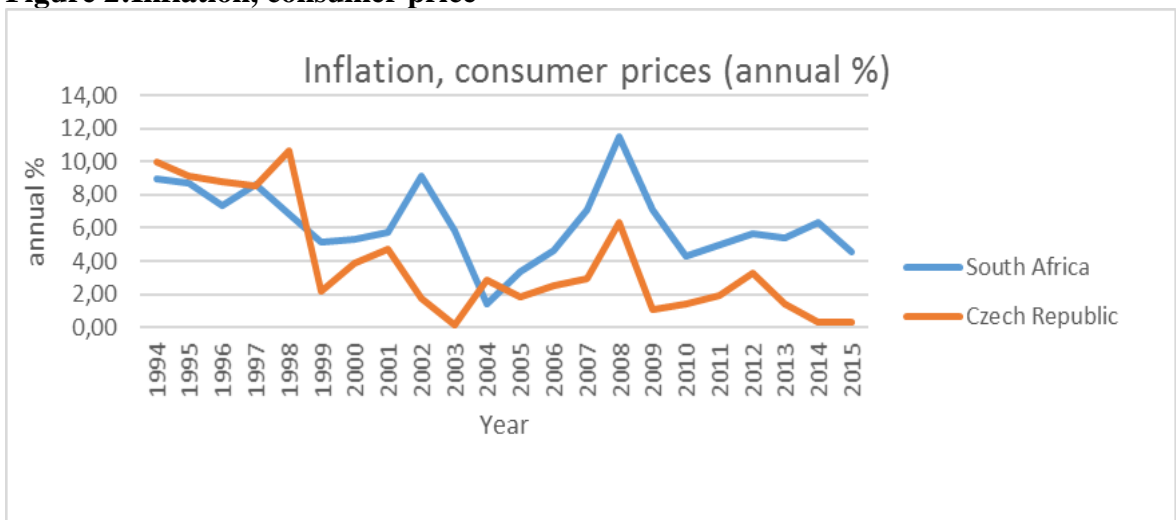
Source: Own data processing, Data: Monetary and Financial Statistics, c2016

## 3.2 Inflation and Interest rates

### 3.2.1 Inflation

On the Figure 2 is visible fluctuations of inflation which is calculated by consumer prices and is expressed in annual percentage. Correlation coefficient is 0.53 which shows that there is moderate positive relationship between inflation in South Africa and the Czech Republic. The highest inflation was 11.54% in South Africa 2008 and 10.63% (1998) in the Czech Republic on the other hand the lowest inflation were 0.11% in 2003 in the Czech Republic and 1.39% in South Africa, 2004.

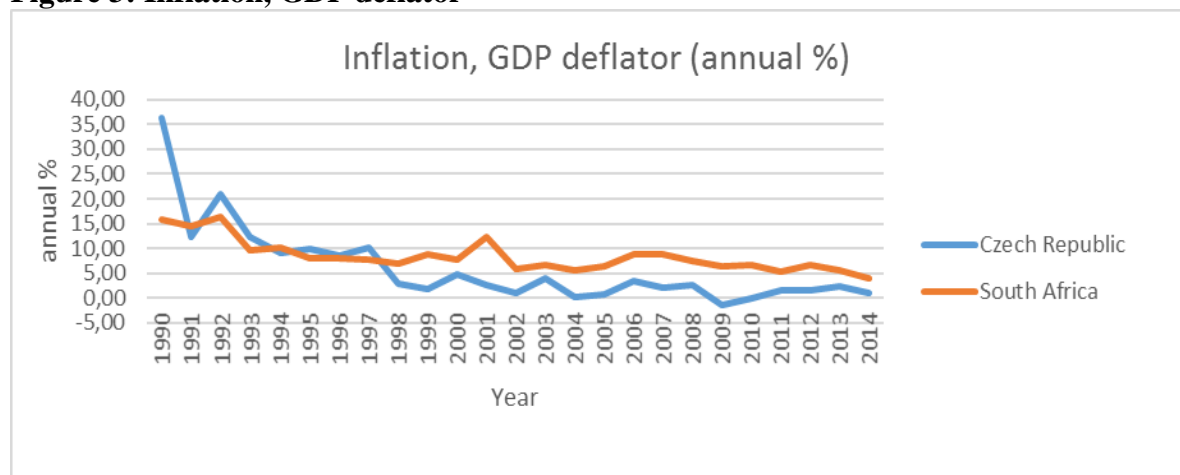
**Figure 2: Inflation, consumer price**



Source: Own data processing, Data: The World Bank [online], c2017

Inflation calculated by the annual growth rate on the GDP deflator is shown on Figure 3. Correlation coefficient is 0.80 which shows stronger positive relationship than inflation calculated by consumer prices. The highest value was 36.19% in 1991 and lowest -1.45% in 2010 in the Czech Republic. That shows that there was 1.45% of deflation in 2010 according GDP deflator. Maximum 16.47% and minimum 3.96% shows less fluctuation of inflation in South Africa than in the Czech Republic.

**Figure 3: Inflation, GDP deflator**



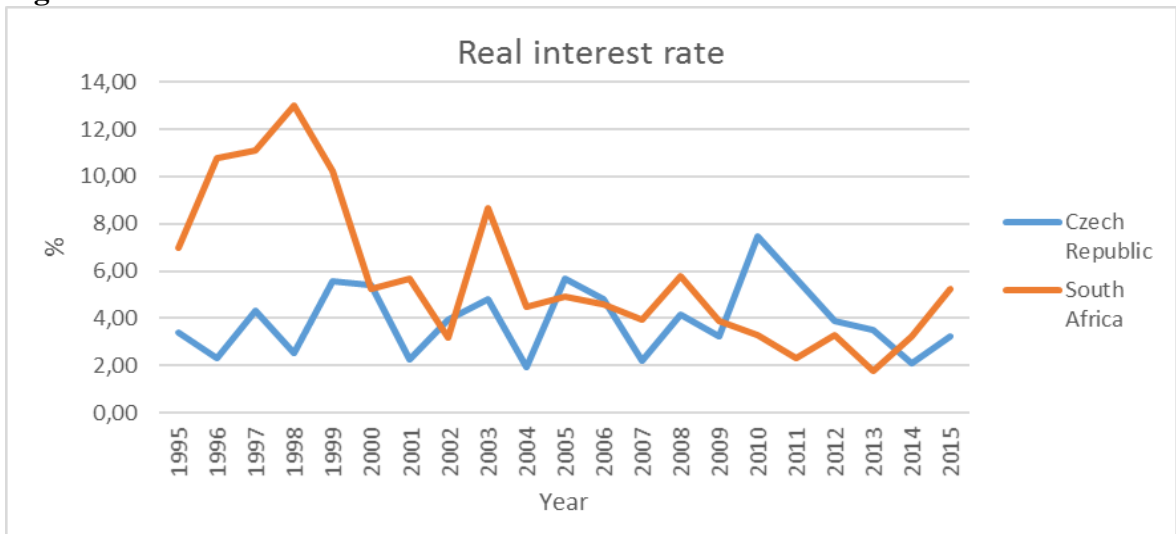
Source: Own data processing, Data: The World Bank [online], c2017

### 3.2.2 Interest rates

Figure 4 shows real interest rate which is known as interest rate adjusted from inflation. Correlation coefficient is -0.12 which mean that there is no relationship between real interest rates in South Africa and the Czech Republic. From the graph is visible that interest rates fluctuate over the time.



**Figure 4: Real interest rate**



Source: Own data processing, Data: The World Bank [online], c2017

In Figure 5 are displayed long-term interest rates (counted annually) which represent secondary market yields of long term (usually 10 year) bonds. From first look is obvious that South African long-term interest rates are higher than Czech. In other words, In South Africa are prices paid by the borrower for the use of funds higher. Correlation is 0.56 in this case which could be explained as moderate uphill or positive relationship.

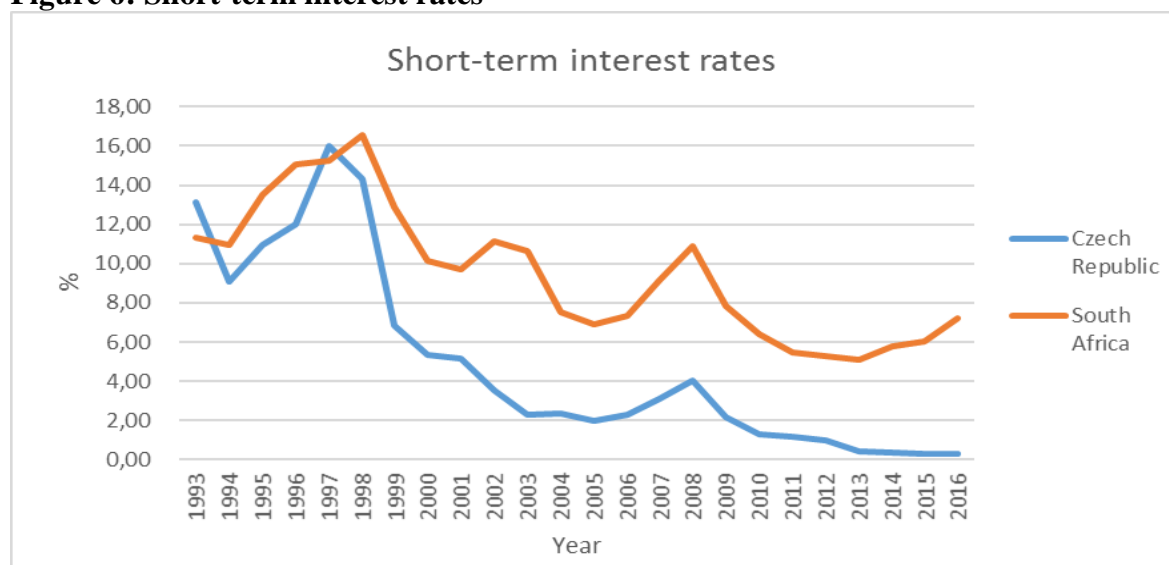
**Figure 5: Long-term interest rates**



Source: Own data processing, Data: Monetary and Financial Statistics, c2016

Short-term interest rates which are relate to money market instruments are displayed in Figure 6. In this case is correlation 0.90 which means that there is very strong positive linear relationship between Short-term interest rates in South Africa and the Czech Republic. Is evident that the highest percentage was 16.53% in South Africa in 1998 and the lowest percentage was 0.29% in the Czech Republic in year 2016 in a term of short-term interest rate.

**Figure 6: Short-term interest rates**



*Source: Own data processing, Data: Monetary and Financial Statistics, c2016*

### 3.3 Exchange rates

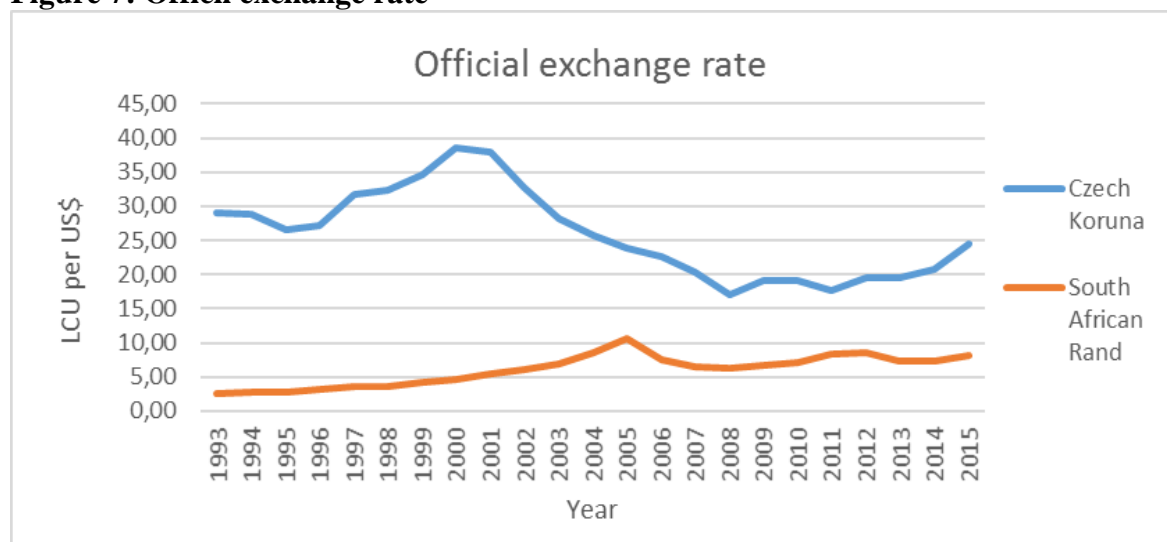
As mentoined earlier, South African Rand (ZAR) And Czech koruna (CZK) are the currencies of choosen countries. For comparison of two different currencies is used United States Dollar (US\$) as a common indicator.

Official exchange rate is determined by annual average based on monthly averages in Figure 7. Is visible that difference of currency values is reduced over the time. According to correlation variable which is -0.26 it is possible to say that there is weak negative relationship between CZK and ZAR.

The highest price of US\$ was CZK 38.60 in 2001 and ZAR 12.76 in 2015. Means that price of US\$ 1 was CZK 38.60 in 2001. Or it can be explained as ZAR 12.76 was

price in 2015 for 1 US\$. In 1993 was ZAR 3.27 and in 2008 was CZK 17.07 which refers the lowest prices of 1 US\$.

**Figure 7: Official exchange rate**



*Source: Own data processing, Data: The World Bank [online], c2017*

### 3.4 Central banking and money supply

This section of thesis is focused on comparison of South African Reserve Bank and Czech National Bank. Important to know is that both countries have two stages banking system.

Both central banks are central banks with unique position in economy of particular country and their roles such as, bank of banks, bank of the state last but not least is formulation and implementation of monetary policy.

Central banks are managed according to legislatives, but here are first differences. In SARB are fourteen directors and in CNB there are seven members in the Bank Board and rest is advisory bodies.

#### 3.4.1 Independence

In a both causes central bank is independent according to law and transparency via issued periodical statements, but also there is connection and thus communication with government. It is possible to say that CNB has more available information but also there are a lot information about SARB in their reports and fact sheets which are available to everybody.

### 3.4.2 Monetary aggregates / Money supply

South Africa has four categories of money aggregates and the Czech Republic has just three categories of monetary aggregates which are defined in a same way as in other countries of European Union. Table 1 visualise monetary aggregates which are similar to each other.

**Table 1: Comparison of monetary aggregates**

South Africa	Czech Republic
M0 or M1(A)	M1
M1 + M2	M2
M3	M3

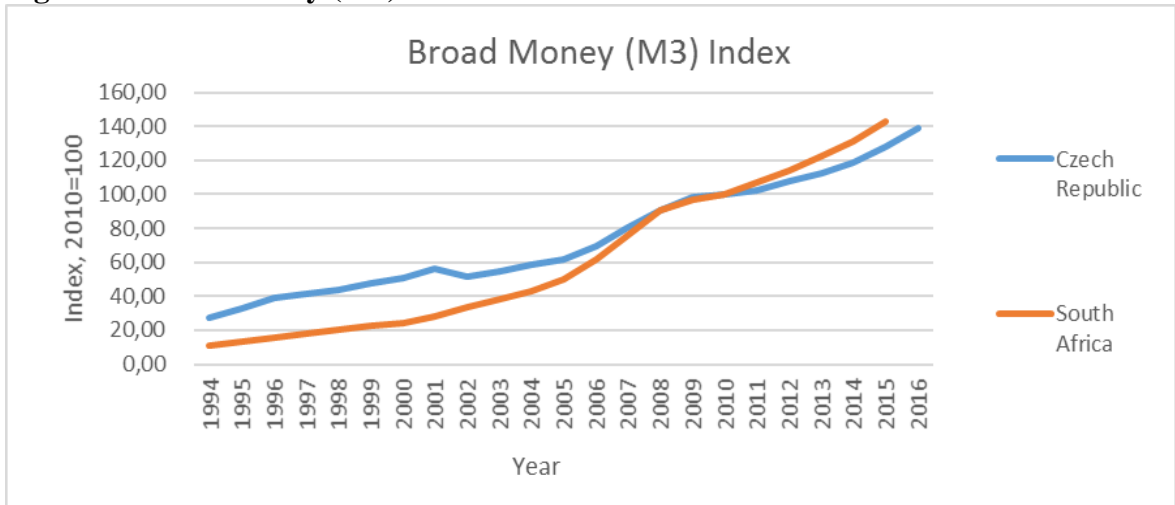
*Source: Own data processing, Data: Czech National Bank and South African Reserve Bank*

For reason of difference between division of monetary aggregates, this thesis shows index of M3 which refers to broad money, in a Figure 8 and index of M1 (South African M0 or M1(A)) known as narrow money in Figure 9, where year 2010 is equal 100.

Monetary aggregates are the amount of money which are supplied to an economy with intent to satisfy its current monetary needs. As is possible to see in Figure 8 an also in Figure 9, indexes of supply rise over the time.

In a closer look, Figure 8 display that broad money supply index in the Czech Republic grows less than in South Africa since 2010. This can be interpreted as monetary needs of broad money were higher in South Africa thus SARB supply broad money in higher proportion. Regardless, correlation coefficient is 0.995, which means that there is very strong linear positive relationship between both countries in term of broad money index.

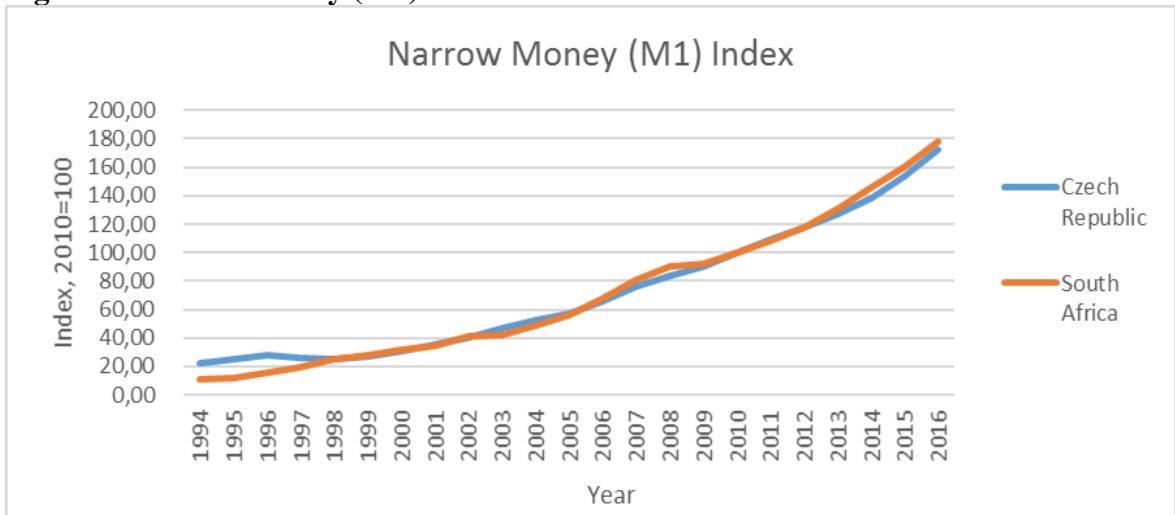
**Figure 8: Broad money (M3) index**



Source: Own data processing, Data: Monetary and Financial Statistics, c2016

Figure 9, which graphically represent comparison in supply of narrow money, shows also increases in both countries and with addition of correlation coefficient which is 0.996 is clear that there is nearly perfect positive linear relationship between indexes of narrow money (for the Czech Republic and M0 for South Africa).

**Figure 9: Narrow money (M1) index**



Source: Own data processing, Data: Monetary and Financial Statistics, c2016

### **3.4.3 Monetary policy**

South African Reserve Bank has dual mandate and Czech National Bank has hierarchical mandate.

#### 3.4.3.1 Ultimate objectives

SARB and CNB has same ultimate objective, which is price stability in a term of achieving and maintaining and for this objective is necessary to have central bank's independence which occurs in both countries. Financial stability is second ultimate objective in SARB.

#### 3.4.3.2 Policy targets

Inflation targeting is a form of target in both countries, but this policy target is in the Czech Republic since 1998 and in South Africa since 2000. And both countries changed the setting of inflation in 2009 last time. In a case of South Africa is range of inflation set between 3-6% and in the Czech Republic is 2% which is same as policy target of European Central Bank.

#### 3.4.3.3 Policy instruments

In both central banks are open market operations very important bunch of instruments though they control and regulate money market. The main instrument from open market operations is Repurchase agreements or repo. Repo rate is set differently for each country. Repo set by SARB is 7% and repo set by CNB is 0.05%. In central banking of the Czech Republic is possible to see Lombard rate and Discount rate.

As a next important policy tool should be minimum required reserves or reserve requirements which are 2.5% in South Africa and 2% in the Czech Republic.

The biggest difference is instrument which is use by CNB named Foreign exchange interventions which is trying to maintain € / CZK exchange rate in a proportion of €1 for CZK 27. Reason is that the Czech Republic has interest in attractiveness in term of supply relatively cheap labour and export.

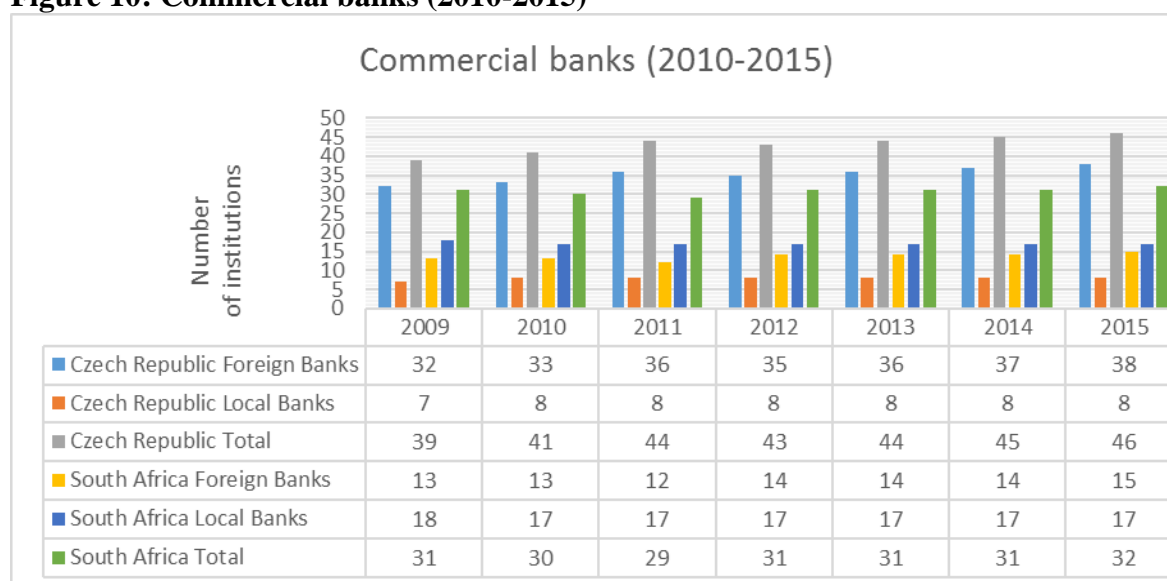
### 3.5 Commercial banking

Commercial banking in both countries differ quite a lot. It is possible to see from Figure 10, that number of institutions in the Czech Republic is higher and if it takes into consideration the difference in the number of inhabitants. Because of this fact, Czech customer can choose from more variants of institutions which will provide services. Although there is not visible number of branch offices which indicates availability for consumer of banking, it is logical that there are more branch offices in South Africa because of the size of the country.

It is also possible to see that here were the highest number of registered banks in year 2015 in both countries. Correlation between number of people and total number of banks is different for every country. In the Czech Republic is correlation 0.963 which means that there is strong positive relationship, and in South Africa is this correlation only 0.583 which refer to moderate positive relationship.

According to regression analysis of total number of banks (dependent variable  $y$ ) and population (independent variable  $x$ ) in particular country, it is possible to say that previously mentioned regression in South Africa is not significant thus P-value is 0.218. In a contrast of this result is same regression analysis which was made for the Czech Republic in a term of how significant is number of bank to population, P-value 0,000495 show us that there is significance and R-squared has fit of 92.74% and coefficient is 0,000066. In other words, if population in the Czech Republic will grow by 100,000 people, the number of total banks will increase by 6.6 banks.

**Figure 10: Commercial banks (2010-2015)**



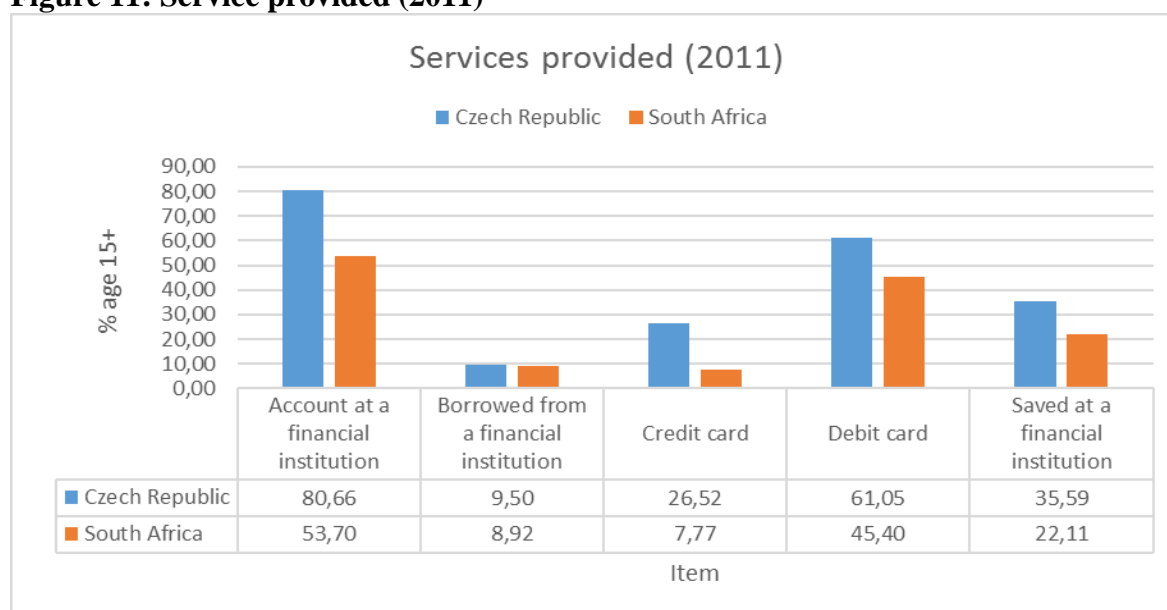
*Source: Own data processing, Data: databases of Czech National Bank and South African Reserve Bank*

Figures 11 and 12 provide an overview on five chosen services provided in both countries by financial intermediaries (commercial banks). And the values are denoted in percentage of respondents older than 15 years.

Figure 11 shows that there were more services provided in the Czech Republic than in South Africa. The biggest difference (26.96%) is in the section called Account at a financial institution, which shows greater use of financial institutions in the Czech Republic and the smallest difference (0.58%) is in the column Borrowed from a financial institution, indicating a similar proportion of population who used financial institutions for borrowing money.



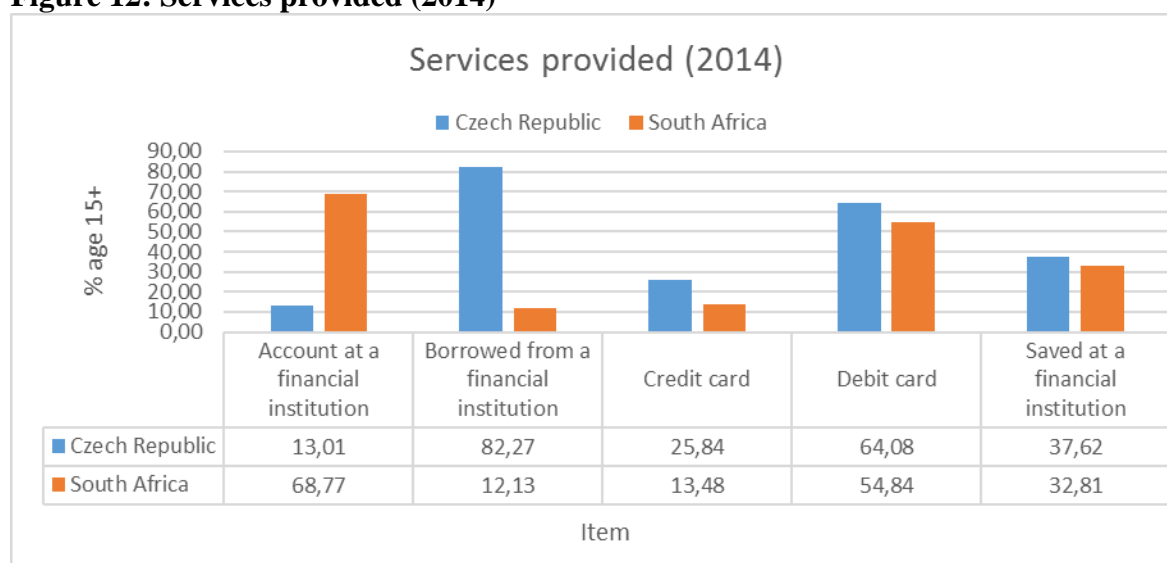
**Figure 11: Service provided (2011)**



*Source: Own data processing, Data: Gender Statistics. The World Bank [online], c2017*

Figure 12 shows same indicators as Figure 11, but with the difference of measured year. At the first look is easy to see huge change in Account at a financial institution, where during the three years people in South Africa started to use accounts at financial institutions much more and on other hands the percentage of Czech people using accounts at financial institutions decreased. This movement caused difference of 55.76% between South Africa and the Czech Republic. In Borrowed from a financial institution where was the smallest difference, in 2014 population of the Czech Republic borrowed 70.14% more from financial institutions than people in South Africa. Proportions of credit cards, debit cards and money saved at a financial institutions doesn't change rapidly. There are little percentage changes, which are higher in South Africa which means that differences of using these services are lower.

**Figure 12: Services provided (2014)**



*Source: Own data processing, Data: Gender Statistics. The World Bank [online], c2017*

### 3.5.1 Comparison of largest commercial banks

Main aim of this part of thesis is to compare two largest commercial banks (from each country one). Česká Spořitelna and The Standard Bank of South Africa Limited are largest commercial banks in case of ranking is set by total assets in 2015. This part (5.5.1) will represent and evaluate banks based on their Annual Reports 2015 and other documents issued by them.

Capital Adequacy Ratio which is measure of a bank's capital an can be expressed as a percentage of a bank's risk weighted credit exposures is higher in Česká Spořitelna (21.3%) in comparison with SBSA ltd.(15.3%) where is Capital Adequacy Ratio lower by 6%. This result can be explained that Česká Spořitelna has higher degree of protection of depositor's monies. Non interest income total income ratio is different by 8.1% between chosen banks. This ratio was in SBSA 43% and in Česká Spořitelna only 34.9%, which shows that SBSA ltd. generated revenue from transactions where are not interests (annual fees, monthly account service charges, inactivity fees, check and deposit slip fees, etc.) more than Česká Spořitelna. In a term of return on equity is SBSA ltd. (15.5%) better off than Česká Spořitelna (13%). Meaning of this indicator shows that SBSA ltd. has the amount of net income returned as a percentage of shareholders equity greater by 2.5%.

## **4 Results and Discussion**

Results and discussion can be explained as an evaluation and overview of the previous chapter. The different size in the meaning of population growth in South Africa and more or less stagnation in the Czech Republic, diversity of history of central banks where the South African Reserve Bank is much more older than the Czech National Bank, and conditions are taken into account.

### **4.1 Inflation and Interest rates**

#### **4.1.1 Inflation**

Inflation based on consumer prices, which includes domestic and foreign goods bought by customer, shows only a moderate positive relationship between inflation of both countries. Through maximums and minimums it is visible that South Africa fluctuated more. Inflation measured via GDP deflator can be interpreted as inflation measured by all prices of domestic goods and services, is correlated with a stronger positive relationship and in South Africa fluctuated less. It is also possible to connect fluctuations with inflation targets which were re-set by central banks in 2009 and according to that can be explained the reduction of fluctuation.

#### **4.1.2 Interest rates**

This thesis shows and explained three interest rates. Real interest rates, in a figure 4, which are adjusted from inflation, fluctuate quite a lot and there is no relationship between real interest rates of each country. But still, the South African real interest rate fluctuated more, as can be proved by the highest rate in 1998 (12.99%) and the lowest rate in 2013 (1.75%) which make a difference of 11.24% during 15 years. In the long-term interest rates of both countries have a moderate positive relationship, but in South Africa this long-term interest rate is higher than in the Czech Republic whole 15 years and the smallest difference between them (3.68%) was in 2007. Short-term interest rates have a very strong positive relationship and from 1998 is the short-term interest rate of South Africa above the Czech one.

According to this observation it is possible to say, that only some of interest rates has similar fluctuation in both countries. More fluctuation in real interest rates and higher long- and short-term indicate more stable economic in the Czech Republic.

## **4.2 Exchange rates**

Correlation coefficient shows weak relationship between countries' currencies. This can be explained also by restriction issued by central banks. And it is possible to say that ZAR is stronger currency than CZK.

## **4.3 Central banking**

In central banking compared before, are differences in management but on the other hand both central banks are communicating with government in a purpose of the best performance despite of their independency which is high in both cases.

Monetary aggregates setting differs but high positive correlation coefficients of M1 (M0 in a case of South Africa) and M3 indexes can be explained as that both central banks issued money similarly.

### **4.3.1 Monetary policy**

Despite differing monetary mandates is visible that both central banks have similar objectives and use almost same tools. Difference could be seen in different settings of repo rates, higher required reserves by 0.5% in South Africa and tool of foreign exchange interventions which is used by CNB in interest to hold stable exchange rate to euro.

## **4.4 Commercial banking**

Markets of financial intermediaries are different for both countries. Number of banks in the Czech Republic is slightly higher than in South Africa, which means that customer in the Czech Republic has more options from services provided to choose. By running of correlation between each country and their population was found result that in the Czech Republic is stronger relationship with number of banks and population than in South Africa. And through regression analysis was observed that there is significant relationship only in the Czech Republic in term of population and number of banks and such population in the Czech Republic will grow by 100,000 people, the number of total banks will increase by 6.6 banks.

#### **4.4.1 Banks comparison**

Comparison of two largest banks, namely Standard Bank of South Africa limited and Česká Spořitelna clarify that percentage of a bank's risk weighted credit exposures was higher in Česká Spořitelna which can be explained as lower degree of protection of depositor's monies. SBSA ltd. generated higher non interest income total income ratio and also return of equity which showhs that SBSA ltd. is better off than Česká Spořitelna. This can be caused by higher number of competition in the Czech Republic which is in comparison of size of market really high.

## 5 Conclusion

Thesis determined similarities and differences of South African and Czech banking systems as well. Movement of real, long-term and short-term interest rates indicated economy of South Africa less stable. Similar result was brought by inflation rates which were determined in two ways, such as consumer prices and GDP deflator. According these two different measurement of inflation, is clear that population in South Africa is more susceptible by fluctuating inflation in a case of buying domestic and foreign goods. But on the other hand, inflation measured by all prices of domestic goods and services (GDP deflator) shows larger fluctuation in the Czech Republic. However, central banks of both countries want to stabilised inflation by inflation targeting. Exchange rate of local currencies, measured by US\$, shows ZAR as a stronger currency than CZK. This result could slightly correspond with dealing of CNB in a process of making stable price of €/CZK, which means that CNB tries to fix exchange rate because of making country more interesting for other countries in term of export Czech goods and cheap labour provided within country.

South African Reserve Bank and Czech National Bank has similar objectives, known as price stability, but South Africa has also financial stability as a second objective. Many tools which are used in developed economies, are independent and transparent, but still there can be found differences. Nominal anchor, in the form of inflation targeting, is represent in both countries but with different rates. And both central banks focus on open market operations, mainly in repo rate. Monetary aggregates are interpreted differently but according to data processed in this thesis, is possible to say that money supply is similar in both countries.

In case of commercial banks, there are dissimilarity in number of banks and size of population. That could be understood as greater opportunity to decide which institution to choose in perspective of Czech financial market. From perspective of South African financial intermediaries is greater opportunity to provide services for larger group of people. This can be reason why Standard Bank of South Africa limited which is the largest bank in South Africa, according to total asset, has better performance than Česká Spořitelna, which represent the largest bank based on total assets in the Czech Republic.

At the end, it is not possible to clearly say which banking system is better, because differences between the countries are huge.

## 6 References

VELEK, Jan. *Základní informace o českém bankovníctví*. Prague: Bankovní institut vysoká škola, 2000. ISBN 80-7265-034-3.

SRNEC, Karel. *Banking: banks, banking services, banking sector*. Prague: Czech University of Life Sciences Prague, Institute of Tropics and Subtropics, 2009. ISBN 978-80-213-1928-8.

HULEC, Otakar. *Dějiny jižní Afriky*. 2. rozš. vyd. Prague: NLN, Nakladatelství Lidové noviny, 2010. 413 s. Dějiny států. ISBN 978-80-7422-039-5.

ČERNOHORSKÁ, Liběna. *Komplexní pohled do bankovního světa*. Pardubice: Univerzita Pardubice, 2015. ISBN 978-80-7395-863-3.

FREDERIC S. MISHKIN. *The economics of money, banking and financial markets*. 10th ed., global ed. Boston, Mass: Pearson, 2012. ISBN 9780273765738.

JANÁČKOVÁ, Stanislava. *Lesk a bída měnové politiky: peníze tajemství zbavené?*. Prague: Institut Václava Klause, 2015. Publikace (Institut Václava Klause). ISBN 978-80-87806-99-9.

FAURE, AP. *Financial Institutions: An Introduction*. Gordon'S Bay: Quoin Institute, 2015. ISBN 978-87-403-0886-0.

REVENDA, Zbyněk. *Centrální bankovníctví*. 3., aktualiz. vyd. Praha: Management Press, 2011. ISBN 978-80-7261-230-7.

THE CONSTITUTIONAL ASSEMBLY. *The Constitution of the Republic of South Africa, 1996: as adopted on 8 May 1996 and amended on 11 October 1996*. 17th Amendment Act. [Cape Town (PO Box 1191, Cape Town 8000): Constitutional Assembly, 2011. ISBN 978-062-1390-636.

Monetární politika. *Finance* [online]. Lukáš Pololáník, 2013 [cit. 2017-02-26]. Available from: <http://www.finance.cz/zpravy/finance/183999-monetarni-politika-nastroj-centralni-banky/>

*Interest Rates - An Introduction*. Gordon'S Bay: Quoin Institute, 2015. ISBN 978-87-403-0861-7.

Jihoafrická republika. *Ministerstvo zahraničních věcí České republiky* [online]. Prague: Zastupitelský úřad ČR v Pretorii, 2016 [cit. 2017-03-01]. Available from: [http://www.mzv.cz/jnp/cz/encyklopedie\\_statu/afrika/jihoafricka\\_republika/index.html](http://www.mzv.cz/jnp/cz/encyklopedie_statu/afrika/jihoafricka_republika/index.html)

The world factbook: Czechia. *Central intelligence agency* [online]. Washington: Central Intelligence Agency, 2017 [cit. 2017-03-01]. Available from: <https://www.cia.gov/library/publications/the-world-factbook/geos/ez.html>

*South African Reserve Bank amendment act*. In: . Pretoria: Government Gazette, 1989, year 2010, number 90.

*South African Reserve Bank* [online]. Pretoria: South African Reserve Bank, 1992 [cit. 2017-03-07]. Available from: <https://www.resbank.co.za/Pages/default.aspx>

*Czech National Bank* [online]. Prague: Czech National Bank, c2003-2017 [cit. 2017-03-07]. Available from: <http://www.cnb.cz/en/index.html>

CNB Bank Board. *Czech National Bank* [online]. Prague: Czech National Bank, c2003-2017 [cit. 2017-03-07]. Available from: [http://www.cnb.cz/en/about\\_cnb/bank\\_board/](http://www.cnb.cz/en/about_cnb/bank_board/)

Harmonised monetary aggregates in the Czech Republic. *Czech National Bank* [online]. Prague: Czech National Bank, c2003-2017 [cit. 2017-03-07]. Available from: [https://www.cnb.cz/en/statistics/money\\_and\\_banking\\_stat/stat\\_mb\\_met/stat\\_mb\\_harm\\_aggreg.html](https://www.cnb.cz/en/statistics/money_and_banking_stat/stat_mb_met/stat_mb_harm_aggreg.html)

CNB Monetary Strategy document. *Czech National Bank* [online]. Prague: Czech National Bank, c2003-2017 [cit. 2017-03-07]. Available from: [https://www.cnb.cz/en/monetary\\_policy/strategic\\_documents/c\\_dms.html](https://www.cnb.cz/en/monetary_policy/strategic_documents/c_dms.html)

*Inflation* [online]. Utrecht: Triami Media BV, c2010-2017 [cit. 2017-03-09]. Available from: <http://www.inflation.eu/>

*Banks Daily* [online]. Prague: Banking Directory, c2007-2017 [cit. 2017-03-10]. Available from: <http://banksdaily.com>

Monetary and Financial Statistics. *Organisation for economic co-operation and development* [online]. Paris: OECD, c2016 [cit. 2017-03-10]. Available from: <http://stats.oecd.org/index.aspx?queryid=169#>

South African Registered Banks and Representative Offices. *South African Reserve Bank* [online]. Pretoria: South African Reserve Bank [cit. 2017-03-10]. Available from: <https://www.resbank.co.za/RegulationAndSupervision/BankSupervision/Pages/SouthAfricanRegisteredBanksAndRepresentativeOffices.aspx>

*The World Bank* [online]. Washington: The World Bank Group, c2017 [cit. 2017-03-10]. Available from: <http://www.worldbank.org/>

Basic indicators of the financial market sectors. *Czech National Bank* [online]. Prague: Czech National Bank, c2003-2017 [cit. 2017-03-10]. Available from: [http://www.cnb.cz/en/supervision\\_financial\\_market/aggregate\\_information\\_financial\\_sector/basic\\_indicators\\_financial\\_market/index.html](http://www.cnb.cz/en/supervision_financial_market/aggregate_information_financial_sector/basic_indicators_financial_market/index.html)

Inflation. *Czech National Bank* [online]. Prague: Czech National Bank, c2003-2017 [cit. 2017-03-10]. Available from: <https://www.cnb.cz/en/statistics/inflation/index.html>



Fact Sheets. *South African Reserve Bank* [online]. Pretoria: South African Reserve Bank [cit. 2017-03-10]. Available from: <https://www.resbank.co.za/Publications/FactSheets/Pages/default.aspx>

Why is the CNB independent? *Czech National Bank* [online]. Prague: Czech National Bank, c2013-2017 [cit. 2017-03-10]. Available from: [http://www.cnb.cz/en/faq/why\\_is\\_the\\_CNB\\_independent.html](http://www.cnb.cz/en/faq/why_is_the_CNB_independent.html)

*Annual Report 2015: Česká spořitelna, a.s.* [online]. Prague: Česká spořitelna, **2015** [cit. 2017-03-12]. Available from: [http://www.csas.cz/static\\_internet/en/Obecne\\_informace/FSCS/CS/Prilohy/cs\\_vz2015.pdf](http://www.csas.cz/static_internet/en/Obecne_informace/FSCS/CS/Prilohy/cs_vz2015.pdf)

*Annual Report 2015: Standard Bank Group Limited* [online]. Johannesburg Standard Bank Group Limited, 2016, **2015** [cit. 2017-03-12]. Available from: <http://annualreport2015.standardbank.com/pdf/Standard-Bank-Group-Annual-Integrated-Report-Report-to-Society-2015.pdf>

*Annual Report 2015: Standard Bank of South Africa* [online]. Johannesburg: Standard Bank of South Africa, 2016, **2015** [cit. 2017-03-12]. Available from: [http://reporting.standardbank.com/downloads/SBSA\\_FY15\\_Annual%20report.pdf](http://reporting.standardbank.com/downloads/SBSA_FY15_Annual%20report.pdf)

*Standard Bank* [online]. Johannesburg: Standard Bank, c2014 [cit. 2017-03-12]. Available from: <http://www.standardbank.co.za/standardbank/>

*Bank Supervision Department: Annual Report 2015* [online]. Pretoria: South African Reserve Bank, 2016, **2015** [cit. 2017-03-12]. ISSN 1811-4431.

Gender Statistics. *The World Bank* [online]. Washington: The World Bank, c2017 [cit. 2017-03-14]. Dostupné z: <http://databank.worldbank.org/data/reports.aspx?source=gender-statistics>