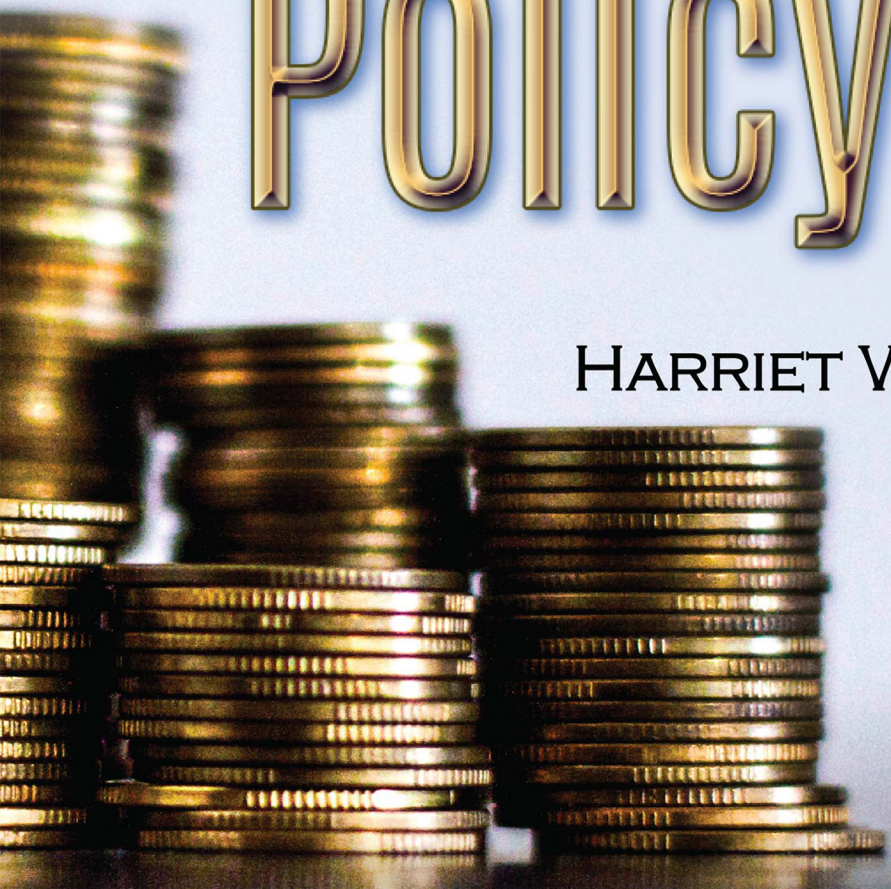
Monetary Policy



Harriet Ward
Editor

Perspectives, Strategies and Challenges

Monetary, Fiscal and Trade Policies

NOVA

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MONETARY POLICY

PERSPECTIVES, STRATEGIES AND CHALLENGES

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HARRIET WARD
EDITOR

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PREFACE

Chapter One discusses the role of central banks in our economies, with more emphasis on the U.S. Federal Agency, and their monetary policy to stabilize the economy (correct the business cycle) and satisfy their ultimate objectives: price stability, growth, employment, long-term interest rates, and current account balances. Chapter Two investigates the impact of shocks of Monetary Policy Actions on the real economy and the stock market performance. Chapter Three focuses on analyzing monetary policy under high level of eurosation in Serbia.

Chapter 1 – This chapter discusses the role of central banks in our economies, with more emphasis on the U.S. Fed, and their monetary policy to stabilize the economy (correct the business cycle) and satisfy their ultimate objectives: price stability, growth, employment, long-term interest rates, and current account balances. The traditional instruments of monetary policy will be discussed and the regulatory role of central banks will be covered, too. Policy implications and the efficiency of the latest monetary policy will be mentioned together with the future perspective of the public policies that are in use since the great depression and during the latest global financial crisis. The monetary policy has to be such that it will prevent the economic crises because their social costs are enormous. People lost, during the seven latest financial crises (1929, 1937, 1966, 1973, 1987, 2000, and 2007), all their wealth and they have to be persuaded to start trusting again the markets and their institutions for the purpose of their creation and their effectiveness towards the ultimate objective, which is the maximization of the social welfare in our democratic societies. The effectiveness of the latest monetary policy (closed to zero target rates) will be analyzed and supported with data from the U.S. and Euro-zone markets. The new experimental policy ("quantitative easing") by

the U.S. Fed to increase the monetary base and the money supply, to stimulate aggregate demand, production, and to reduce unemployment is examined by using specific rules (Sack-Wieland and Taylor rules) instead of discretions. These zero target rates have affected negatively savings because the deposit rates fell closed to zero and the real saving rate became negative (depositors are paying the banks to accept their deposits), which is a disincentive to save. This policy has increased the risk in our economies because is forcing depositors to avoid banks (disintermediation) and invest in financial assets, which are very risky for risk averse depositors. Of course, this monetary policy has improved the financial markets and the authors saw even a new stock market bubble from 2009 to 2016. The effect of monetary policy on the real sector of the economy is still relatively small. Deposits' rates have to cover, at least, the inflation rate and to be below the discount rate. Loans must have an interest rate ceiling to protect borrowers, especially the credit cards holders, from their high rates.

Chapter 2 – This chapter investigates the impact of shocks of Monetary Policy Actions on the real economy and stock market performance. Using a Bayesian Panel VAR model, I assess the macroeconomic impact in the 19 EU countries over the period 1996-2015, by measuring the impact of monetary policy shocks on the real economic activity and the stock market performance conditions of 19 EU countries. The authors show that monetary policy contractions lead to a fall in real economic activity and tighten liquidity market conditions. The results provide evidence of asymmetric monetary policy action effects on the real economy and the financial markets across the 19 EU countries.

Chapter 3 – The chapter focuses on analysing monetary policy under high level of eurosation in Serbia. When it comes to the implementation of monetary policy, the key role of the National Bank of Serbia is to ensure monetary and financial stability. Monetary stability means a low, stable and predictable inflation and confidence in the currency, while financial stability means a sound financial system in which banks and other financial organizations function well and responsibly safeguard their clients' money. National Bank of Serbia chose inflation targeting, which sets price stability as the main objective of monetary policy. The inflation target, defined in terms of the annual percentage change in the consumer price index, is the only numerical guideline for the monetary policy implemented by the National Bank of Serbia. To implement monetary policy the National Bank of Serbia uses various instruments. The main monetary policy instrument of the National Bank of Serbia is the key policy rate, interest rate applied in its main

open market operations (at the moment, reverse repo transactions – repo sale of securities, with one-week transaction maturity). Currently, in Serbia approximately 30% of dinar loans and deposits in total corporate and household lending and deposit activity are denominated in dinar. But this high level of euroisation limits the effect of monetary policy and its instruments. In these circumstances interest rate channel is not the most significant channel of the monetary policy transmission mechanism, but on the other hand exchange rate channel is. Consequently, there is a high impact of exchange rate movements on inflation rate through pass-through coefficient. The implementation of exchange rate policy is entrusted to the National Bank of Serbia, as the main regulator of the financial system. A mere use of managed floating exchange rate, as the chosen exchange rate regime, is an appropriate solution in the current economic circumstances and in accordance with the desired objective of monetary policy. But in order to maintain stable exchange rate National Bank of Serbia intervening in the interbank foreign exchange market to prevent excessive daily fluctuations of the dinar exchange rate against the euro. To support the process of dinarisation, the National Bank of Serbia and the Government of the Republic of Serbia signed the Memorandum on the Strategy of Dinarisation of the Serbian Financial System in April 2012. Only more extensive use of the dinar in the financial system and better currency matching of income and expenses of the non-bank sector will improve the country's financial stability, lessen the risk of exchange rate volatility in the most vulnerable sectors of the economy, and enhance the effectiveness of monetary policy. The paper will show the way of functioning of monetary policy and its instruments in Serbia, followed by their limitations in the application because of the high degree of euroisation, as well as measures that the National Bank of Serbia and the Government of the Republic of Serbia implemented in order to increase the use of dinars in the financial system.

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Chapter 1

CENTRAL BANKS, MONETARY POLICY, AND THEIR EFFICIENCY

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ABSTRACT[1]

This chapter discusses the role of central banks in our economies, with more emphasis on the U. S. Fed, and their monetary policy to stabilize the economy (correct the business cycle) and satisfy their ultimate objectives: price stability, growth, employment, long-term interest rates, and current account balances. The traditional instruments of monetary policy will be discussed and the regulatory role of central banks will be covered, too. Policy implications and the efficiency of the latest monetary policy will be mentioned together with the future perspective of the public policies that are in use since the great depression and during the latest global financial crisis. The monetary policy has to be such that

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it will prevent the economic crises because their social costs are enormous. People lost, during the seven latest financial crises (1929, 1937, 1966, 1973, 1987, 2000, and 2007), all their wealth and they have to be persuaded to start trusting again the markets and their institutions for the purpose of their creation and their effectiveness towards the ultimate objective, which is the maximization of the social welfare in our democratic societies. The effectiveness of the latest monetary policy (closed to zero target rates) will be analyzed and supported with data from the U. S. and Euro-zone markets. The new experimental policy ("quantitative easing") by the U. S. Fed to increase the monetary base and the money supply, to stimulate aggregate demand, production, and to reduce unemployment is examined by using specific rules (Sack-Wieland and Taylor rules) instead of discretions. These zero target rates have affected negatively savings because the deposit rates fell closed to zero and the real saving rate became negative (depositors are paying the banks to accept their deposits), which is a disincentive to save. This policy has increased the risk in our economies because is forcing depositors to avoid banks (disintermediation) and invest in financial assets, which are very risky for risk averse depositors. Of course, this monetary policy has improved the financial markets and we saw even a new stock market bubble from 2009 to 2016. The effect of monetary policy on the real sector of the economy is still relatively small. Deposits' rates have to cover, at least, the inflation rate and to be below the discount rate. Loans must have an interest rate ceiling to protect borrowers, especially the credit cards holders, from their high rates.

Keywords: estimation, time-series models, forecasting and other model applications, consumption and saving, interest rates, central banking, monetary policy, international policy coordination

JEL (Classification): C13, C22, C53, E21, E43, E50, E52, F42

I. INTRODUCTION: HISTORY OF CENTRAL BANKNING

(i) The North American Banks (1781-1912)

"Δός ἡμῖν βοήθειαν ἐκ θλίψεως, καί ματαία σωτηρία ἀνθρώπου." (Ψαλ. 107, 13)

Some Founding Fathers of the United States of America[2] were strongly opposed to the formation of a central banking system; the fact that England tried to place the colonies under the monetary control of the Bank of England[3] was seen by many as the "last straw"[4] of oppression, which led directly to the American Revolutionary War.[5] But, others there were strongly in favor of a central bank. Robert Morris (1734-1806), as Superintendent of Finance, helped

[2] Historian Richard B. Morris identified the following seven figures as the key Founding Fathers: Benjamin Franklin (1706-1790), George Washington (1789-1797), Alexander Hamilton (1755-1804), John Jay (1745-1829), John Adams (1797-1801), Thomas Jefferson, (1801-1809), and James Madison (1809-1817). Adams, Jefferson, and Franklin worked on the committee to draft the *Declaration of Independence*. Hamilton, Madison, and Jay were authors of the Federalist Papers, advocating ratification of the *Constitution*. Washington commanded the revolutionary army. All served in important positions in the early government of the United States. See, Morris (1973). Other authors mention that a few from the Founding fathers (i.e., Jefferson, Franklin, etc.) were supporters of the Jacobins, who were responsible for the destructive "French Revolution," so they were in favor of a Central Bank. See, http://judeo-masonic.blogspot.com/2010/02/illuminati-in-america.html.

[3] The *Bank of England*, formally the *Governor and Company of the Bank of England*, is the Central Bank of the United Kingdom and the model on which most modern central banks have been based. Established in 1694, it is the second oldest central bank in the world, after the Sveriges Riksbank (or simply Riksbanken the Central Bank of Sweden established in 1668) and the world's 8th oldest bank.

(https://en.wikipedia.org/wiki/List_of_oldest_banks_in_continuous_operation). The Bank of England was privately owned by stockholders from its foundation in 1694 until nationalized in 1946. In 1998, it became an "independent public organization," wholly owned by the *Treasury Solicitor* on behalf of the government, with "independence" in setting monetary policy. The *Government Legal Department* (previously called the *Treasury Solicitor's Department* until 2015) is the largest in-house legal organization in the U.K.'s Government Legal Service. The Department is headed by the *Treasury Solicitor*. The office was enshrined in law by the *Treasury Solicitor Act 1876*, which established the Treasury Solicitor as a "corporation sole" (an office with perpetual succession). Employees of the Department exercise legal powers, which are vested in the corporation sole.

[4] The last of a series of annoyances and disappointments that led to the final loss of patience, temper, trust, and hope.

[5] The *American Revolutionary War* (1775–1783), also known as the American War of Independence and the *Revolutionary War* in the United States, was the armed conflict between Great Britain and thirteen of its North American colonies, which had declared themselves the independent United States of America. France, eager for revenge after its defeat in the Seven Years' War (1756-1763), signed an alliance with the new nation in 1778 that proved decisive in the ultimate victory. The American Revolutionary War had its origins in the resistance of many Americans to taxes, which they claimed were unconstitutional, imposed by the British parliament. Then, an open armed conflict between the Kingdom of Great Britain and thirteen of its colonies began. On July 2, 1776, the Continental Congress formally voted for independence, and issued its Declaration on July 4, 1776. But, the "European" influence, the "aristocracy," and their revolutionary philosophy remained in the new United States of America and were exploiting and oppressing the new comers (European immigrants). See, O'Donnell (2015).

to open the *Bank of North America* in 1782,[6] and has been accordingly called by Thomas Goddard (1777-1814) "the father of the system of credit and paper circulation in the United States." As ratification in early 1781 of the Articles of Confederation had extended to Congress (Senate and House with 100 Senators and 435 Representatives) the sovereign power to generate bills of credit,[7] it passed later that year an ordinance to incorporate a privately subscribed national bank following in the footsteps of the Bank of England. However, it was thwarted in fulfilling its intended role as a nationwide central bank due to objections of "alarming foreign influence and fictitious credit," favoritism to foreigners and unfair policies against less corrupt state banks issuing their own notes,[8] such that Pennsylvania's legislature repealed its charter to operate within the Commonwealth in 1785.

[6] *The President, Directors, and Company, of the Bank of North America*, commonly known as the *Bank of North America*, was a private bank first chartered on May 26, 1781 by the Confederation Congress and opened in Philadelphia on January 7, 1782. It was the Nation's first de facto Central Bank. It was succeeded in its role as central bank by the First Bank of the United States in 1791.

[7] *Bill of credit* is a phrase from Article One, Section 10, Clause One of the United States Constitution. It refers to a document, similar to a banknote that is issued by a government representing its indebtedness to the holder and typically designed to circulate as money. The Constitution explicitly prohibits the states from issuing bills of credit and coining money. States are only permitted to make gold and silver legal tender. British colonies in North America would issue bills of credit in order to deal with fiscal crises, although doing so without receiving them as revenue in like amounts would increase the money supply, resulting in price inflation and a drop in value relative to the pound sterling. The documents would circulate as if they were currency, and colonial governments would accept them as payment for debts like taxes. They were not always considered legal tender for private debts. Colonial decisions on the issuance of bills of credit were also frequently the subject of disputes between differing factions within the colony, and with royally appointed governors. During the American Revolutionary War (1775-1783) the Continental Congress frequently issued bills. Because of inflation they rapidly declined in value, leading to the unfavorable comparison that something was "not worth a Continental." United States Notes as obligations of the United States, are examples of Bills of Credit as they used to be inserted by the Treasury into circulation free of interest (production of USN halted in 1971 during termination of the Bretton Woods System). By comparison, Federal Reserve Notes are backed by debt purchased by the Federal Reserve, and thus generate seigniorage (the difference between the value of money and the cost to produce and distribute it), or interest, for the Federal Reserve System, which serves as a lending parent to the Treasury and the public.

[8] A *banknote* (*bill* or *paper money* or *note*) is a type of negotiable instrument known as a promissory note, made by a bank, payable to the bearer on demand. Banknotes were originally issued by commercial banks, who were legally required to redeem the notes for legal tender (usually gold or silver coin) when presented to the chief cashier of the originating bank. These commercial banknotes only traded at face value in the market served by the issuing bank. Commercial banknotes have primarily been replaced by national banknotes issued by central banks. National banknotes are generally legal tender, meaning that medium of payment is allowed by law or recognized by a legal system to be valid for

In 1791, former Morris aide and chief advocate for Northern mercantile interests, Alexander Hamilton (1755-1804), the Secretary of the Treasury (1789-1795), accepted a compromise with Southern lawmakers to ensure the continuation of Morris's Bank project; in exchange for support by the South for a national bank.[9] As a result, the *First Bank of the United States* (1791–1811) was chartered by Congress within the year and signed by George Washington soon after. The First Bank of the United States was modeled after the Bank of England and a little differed from today's central banks. It was partly owned by foreigners, who shared in its profits, as they are currently almost all the central banks. But, it was not solely responsible for the country's supply of banknotes. It was responsible for only 20% of the currency supply; state banks accounted for the rest.[10] In 1811 its twenty-year charter expired and was not renewed by Congress. Absent of the federally chartered bank, the next several years witnessed a proliferation of federally issued Treasury Notes[11] to create credit as the government struggled to finance the War of 1812;[12] a suspension of specie payment by most banks soon followed as well.

meeting a financial obligation. Historically, banks sought to ensure that they could always pay customers in coins, when they presented banknotes for payment. This practice of "backing" notes with something of substance is the basis for the history of central banks backing their currencies in gold or silver. Today, most national currencies have no backing in precious metals or commodities and have value only by fiat. With the exception of non-circulating high-value or precious metal issues, coins are used for lower valued monetary units, while banknotes are used for higher values. Now, they are in process to abandon notes (cash) and use only "electronic money" (debit and credit cards).

[9] See, "A Brief History of Central Banking in the United States" by Edward Flaherty. http://www.let.rug.nl/usa/essays/general/a-brief-history-of-central-banking/introduction---what-is-central-banking.php

[10] Several founding fathers bitterly opposed this Bank. Thomas Jefferson saw it as an engine for speculation, financial manipulation, and corruption. See, Hitchens (2005).

[11] A *Treasury Note* was a type of short term debt instrument issued by the United States prior to the creation of the Fed in 1913. Without the alternatives offered by a federal paper money or a central bank, the U.S. government relied on these instruments for funding during periods of financial stress such as the War of 1812, the Panic of 1837, and the American Civil War (1861-1865). While the Treasury Notes, as issued, were neither legal tender nor representative money, some issues were used as money in lieu of an official federal paper money. However the motivation behind their issuance was always funding federal expenditures rather than the provision of a circulating medium. These notes matured in no more than three years. Often they were receivable at face value by the government in payment of taxes and for purchases of publicly owned land.

[12] The War of 1812 was a military conflict that lasted from June 18, 1812, to February 18, 1815, fought between the U.S.A. and the U.K., its North American colonies, and its North American Indian allies. Historians in the United States and Canada see it as a war in its own right, but Europeans often see it as a minor theatre of the Napoleonic Wars (1803-1815). By the war's end in early 1815 the key issues had been resolved and peace came with no boundary changes.

After five years, the federal government chartered its successor, the *Second Bank of the United States* (1816–1836). James Madison (1751-1836) signed the charter with the intention of stopping runaway inflation that had plagued the country during the five-year interim. It was basically a copy of the First Bank, with branches across the country. Andrew Jackson (1767-1845), who became president in 1828, denounced the bank as an engine of corruption. His destruction of the bank was a major political issue in the 1830s and shaped the Second Party System (1828-1854), as Democrats in the states opposed banks and Whigs[13] supported them. He was unable to get the bank dissolved, but refused to renew its charter. The end of the bank saw a period of runaway inflation, which was purposefully engineered by the bankers. Jackson attempted to counteract this by executive order requiring all Federal land payments to be made in gold or silver. This produced the Panic of 1837,[14]

[13] The *Whig Party* was a political party active in the middle of the 19th century in the United States. Four Presidents belonged to the Party while in office. Along with the rival Democratic Party, it was central to the Second Party System from the early 1830s to the mid-1850s. It originally formed in opposition to the policies of President Andrew Jackson (in office 1829–1837) and his Democratic Party. In particular, the Whigs supported the supremacy of Congress over the Presidency and favored a program of modernization, banking and economic protectionism to stimulate manufacturing. It appealed to entrepreneurs and planters, but had little appeal to farmers or unskilled workers. It included many active Protestants, and voiced a moralistic opposition to the Jacksonian Indian removal policies. Party founders chose the "Whig" name to echo the American Whigs (Patriots, also known as Revolutionaries, Continentals, Rebels, or American Whigs, were those colonists of the Thirteen Colonies, who rebelled against British control) of 1776, who fought for independence. "Whig" meant opposing tyranny. Historian Frank Towers has specified a deep ideological divide: "Democrats stood for the 'sovereignty of the people' as expressed in popular demonstrations, constitutional conventions, and majority rule as a general principle of governing, whereas Whigs advocated the rule of law, written and unchanging constitutions, and protections for minority interests against majority tyranny." See, Frank Towers, "Mobtown's Impact on the Study of Urban Politics in the Early Republic," *Maryland Historical Magazine* 107 (Winter 2012) pp: 469-75, p 472, citing Robert E, Shalhope, *The Baltimore Bank Riot: Political Upheaval in Antebellum Maryland* (2009) p. 147.

[14] The *Panic of 1837* was a financial crisis in the United States that generated a major recession, which lasted until the mid-1840s. Profits, prices, and wages went down, while unemployment went up drastically. Pessimism abounded during the time. The panic had both domestic and foreign origins. Speculative lending practices in western states, a sharp decline in cotton prices, a collapsing land bubble, international specie (bullion coins struck from precious metals) flows, and restrictive lending policies in Great Britain were all to blame. On May 10, 1837, banks in New York City suspended specie payments, meaning that they would no longer redeem commercial paper in specie at full face value. Despite a brief recovery in 1838, the recession persisted for approximately seven years. Banks collapsed, businesses failed, prices declined, and thousands of workers lost their jobs. Unemployment may have been as high as 25% in some locales. The years 1837 to 1844 were, generally speaking, years of deflation in wages and prices.

which lasted four years, but later recovered and produced a little more stable economic growth.

In the period from 1837-1862, only state-chartered banks existed. They could issue bank notes against specie (gold and silver coins) and the states heavily regulated their own reserve requirements, interest rates for loans and deposits, the necessary capital ratio,[15] etc. These banks had existed since 1781, in parallel with the Banks of the United States. The Michigan Act (1837) allowed the automatic chartering of banks that would fulfill its requirements without special consent of the state legislature. This legislation made creating unstable banks easier by lowering state supervision in states that adopted it. The real value of a bank bill was often lower than its face value, and the issuing bank's financial strength generally determined the size of the discount. By 1797 there were 24 chartered banks in the U.S.; with the beginning of the *Free Banking Era* (1837) there were 712.

During the free banking era ("Wildcat Banking"),[16] the banks were short-lived compared to today's commercial banks, with an average lifespan of five years. About half of the banks failed, and about a third of them went out of business because they could not redeem their notes.[17] During the free banking era, some local banks took over the functions of a central bank. In New York, the New York Safety Fund provided deposit insurance for member banks.[18] In

[15] Today, ccapital adequacy ratios (CARs) are a measure of the amount of a bank's core capital expressed as a percentage of its risk-weighted asset. Capital adequacy ratio is defined as:

$$CAR = \frac{T_1 + T_2}{\alpha} \geq 10\%$$

where, T_1 = TIER 1 CAPITAL = (paid up capital + statutory reserves + disclosed free reserves) - (equity investments in subsidiary + intangible assets + current & b/f losses), which can absorb losses without a bank being required to cease trading; TIER 2 CAPITAL = (A) Undisclosed Reserves +(B) General Loss reserves +(C) hybrid debt capital instruments and subordinated debts, which can absorb losses in the event of a winding-up and so provides a lesser degree of protection to depositors; Risk can either be weighted assets) or the respective national regulator's minimum total capital requirement. If using risk weighted assets. The percent threshold varies from bank to bank (10% in this case, a common requirement for regulators conforming to the Basel Accords (Basel Accords) and is set by the national banking regulator of different countries.

[16] *Wildcat banking* refers to the practices of banks chartered under state law during the periods of non-federally regulated state banking between 1816 and 1863 in the United States, also known as the Free Banking Era. This era, commonly described as an example of free banking, was not a period of true free banking, as banks were free of only federal regulation; banking was regulated by the states. The actual regulation of banking during this period varied from state to state.

[17] Shaffer (2005, p. 102).

[18] The *Safety Fund System* was one of many banking systems created after the failure of the Second Bank of the United States and before a national banking system was established. Officially passed under the Safety Fund Act in 1829, the system required banks to hold at

Boston, the Suffolk Bank guaranteed that bank notes would trade at near par value, and acted as a private bank note clearinghouse.

Then, the era of National Banks begins in 1863 until the creation of the Federal Reserve System in 1913. The National Banking Act of 1863, besides providing loans in the Civil War (1861-1865) effort of the Union,[19] included also the following provisions: (1) To create a system of national banks. They had higher standards concerning reserves and business practices than state banks. Recent research indicates that state monopoly banks had the lowest long run survival rates.[20] The office of Comptroller of the Currency[21] was created to supervise these banks. (2) To create a uniform national currency. To achieve this, all national banks were required to accept each other's currencies at par value. This eliminated the risk of loss in case of bank default. The notes were printed by the Comptroller of the Currency to ensure uniform quality and prevent counterfeiting. (3) To finance the war, national banks were required to back up their notes with Treasury securities, enlarging the market and raising its liquidity.

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least 3 percent of capital stock as reserves. Prior to the Act, New York banks were notoriously corrupt and bank customers had no protection from losses they would occur. These reserves were held in a common fund with all the banks of New York and were to be used to pay all debts of failed banks except capital stock. Banks were also subject to inspections to ensure proper compliance with new banking regulations. After the Panic of 1837, the Safety Fund System was nearly bankrupt.

[19] The *Union* referred to the United States of America and specifically to the national government and the 23 free states and five border states that supported it. The Union was opposed by 11 southern slave states that formed the *Confederate States* or "the Confederacy." The Northeast provided the industrial resources for a mechanized war producing large quantities of munitions and supplies, as well as financing for the war. The Midwest provided soldiers, food, horses, financial support, and training camps. Most states had Republican governors, who energetically supported the war effort and suppressed anti-war subversion in 1863–1864. The Democratic Party strongly supported the war in 1861 but in 1862 was split between the War Democrats and the anti-war element led by the "Copperheads. The war years were "quite prosperous" (sic) except where serious fighting and guerrilla warfare took place along the southern border. Prosperity was stimulated by heavy government spending and the creation of an entirely new national banking system. The Union states invested a great deal of money and effort in organizing psychological and social support for soldiers' wives, widows, orphans, and for the soldiers themselves. Draft resistance was notable in some larger cities, especially New York City with its massive anti-draft riots of 1863 and in some remote districts such as the coal mining areas of Pennsylvania.

[20] See, Warren E. Weber, "New Evidence on State Banking Before the Civil War," Working Paper 642, July 2006.https://www.minneapolisfed.org/research/wp/wp642.pdf.

[21] The *Office of the Comptroller of the Currency (OCC)* is an independent bureau within the United States Department of the Treasury that was established by the National Currency Act of 1863 and serves to charter, regulate, and supervise all national banks and thrift institutions and the federal branches and agencies of foreign banks in the United States. But, this too much "independence" from the government (actually, the citizens' interest) of our institutions has caused and continue to create serious social problems.

By 1865, there were already 1,500 national banks. In 1870, 1,638 national banks stood against only 325 state banks. The tax led in the 1880s and 1890s to the creation and adoption of checking accounts. By the 1890s, 90% of the money supply was in checking accounts. Two problems still remained in the banking sector. The first was the requirement to back up the currency with Treasuries. When the Treasuries fluctuated in value, banks had to recall loans or borrow from other banks or clearinghouses.[22] The second problem was that the system created seasonal liquidity spikes. A rural bank had deposit accounts at a larger bank, that it withdrew from when the need for funds was highest, e.g., in the planting season. When combined liquidity demands were too big, the bank again had to find a "lender of last resort." These liquidity crises led to bank runs, causing severe disruptions and depressions, the worst of which was the Panic of 1907.

But, national bank notes were not "lawful tender," and could not be used as bank reserves under the National Bank Act. The Federal government issued greenbacks, which fulfilled this role along with gold.[23] Congress suspended the gold standard in 1861 early in the Civil War and began issuing paper currency (*greenbacks*). The federally issued greenbacks were gradually supposed to be eliminated in favor of national bank notes after the Specie Payment Resumption Act of 1875 was passed.[24] However, the elimination of the greenbacks was suspended in 1878 and the notes remained in circulation. Federal debt throughout the period continued to be paid in gold. In 1879, the United States had returned to the gold standard, and all currency could be redeemed in gold.

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[22] A *clearing house* is a financial institution that provides clearing and settlement services for financial and commodities derivatives and securities transactions. These transactions may be executed on a future exchange or securities exchange, as well as off-exchange in the over-the-counter (OTC) market. A clearing house stands between two clearing firms (also known as member firms or clearing participants) and its purpose is to reduce the risk of one (or more) clearing firm failing to honor its trade settlement obligations. A clearing house reduces the settlement risks by netting offsetting transactions between multiple counterparties, by requiring collateral deposits (also called "margin deposits"), by providing independent valuation of trades and collateral, by monitoring the credit worthiness of the clearing firms, and in many cases, by providing a guarantee fund that can be used to cover losses that exceed a defaulting clearing firm's collateral on deposit. Also, it acts as a clearing firm.

[23] See, Friedman and Schwartz (1963, p. 21).

[24] The *Specie Payment Resumption Act* of January 14, 1875, was a law in the United States, which restored the nation to the gold standard through the redemption of previously unbacked United States Notes and reversed inflationary government policies promoted directly after the American Civil War. The decision further contracted the nation's money supply and was seen by critics as an exacerbating factor of the so-called "Long Depression," which struck in 1873 and continued until 1879.

In early 1907, the New York Times Annual Financial Review published Paul Warburg's[25] (a partner of Kuhn, Loeb and Co.)[26] first official reform plan, entitled "A Plan for a Modified Central Bank," in which he outlined remedies that he thought might avert panics. Early in 1907, Jacob Schiff,[27] the

[25] *Paul Moritz Warburg* (1868 – 1932) was a Jewish German-born American banker, and an early advocate of the U.S. Federal Reserve System. Warburg was born in Hamburg, Germany, to the Warburg family, a Jewish banking dynasty with origins in Venice. His parents were Moritz and Charlotte Esther (Oppenheim) Warburg. He worked for Samuel Montague & Company, bankers, in London in 1889–1890, the Banque Russe pour le Commerce Etranger in Paris in 1890–1891. In 1891, Warburg entered the office of the family banking firm of M. M. Warburg & Co., which had been founded in 1798 by his great-grandfather. He was admitted to a partnership in the family firm in 1895. On October 1, 1895, Warburg was married in New York City to Nina J. Loeb, daughter of Solomon Loeb, founder of the New York investment firm of Kuhn, Loeb & Co. Warburg settled in New York in 1902 as a partner in Kuhn, Loeb & Co., where the influential Jacob Schiff, his brother-in-law, was senior partner. Warburg remained a partner in the family firm in Hamburg, but he became a naturalized American citizen in 1911. He was a member of Temple Emanu-El in New York City. Warburg was elected a director of Wells Fargo & Company in February 1910. He resigned in September 1914 following his appointment to the Federal Reserve Board, and Jacob Schiff was elected to his seat on the Wells Fargo board. Warburg died at his home in New York City on January 24, 1932. At the time of his death, he was chairman of the Manhattan Company and a director of the Bank of Manhattan Trust Company, Farmers Loan and Trust Company of New York, First National Bank of Boston, Baltimore & Ohio Railroad, Union Pacific Railroad, Los Angeles & Salt Lake Railroad, Western Union Telegraph Company, American I.G. Chemical Company, Agfa Ansco Corporation, and Warburg & Company of Amsterdam.

[26] *Kuhn, Loeb & Co.* was a bulger bracket (the world's largest and most profitable multi-national) investment bank founded in 1867 by Abraham Kuhn and Solomon Loeb. Under the leadership of Jacob H. Schiff, it grew to be one of the most influential investment banks in the late 19th and early 20th centuries, financing America's expanding railways and growth companies, including Western Union and Westinghouse, and thereby becoming the principal rival of J.P. Morgan & Co. In the years following Schiff's death in 1920, the firm was led by Otto Kahn and Felix Warburg, men who had already solidified their roles as Schiff's able successors. The firm lost its independence in 1977 when it merged with Lehman Brothers, creating Lehman Brothers, Kuhn, Loeb Inc. The combined firm was itself acquired in 1984 by American Express, forming Shearson Lehman/American Express and with that, the Kuhn, Loeb name was lost. And in September 2008, Lehman Brothers went bankrupt.

[27] *Jacob Henry Schiff* (born *Jakob Heinrich Schiff*; 1847– 1920) was a Jewish-American banker, businessman, and "philanthropist" (*sic*). He helped finance, among many other things, the Japanese military efforts against the Christian Tsarist Russia in the Russo-Japanese War (8 February 1904 – 5 September 1905) by extended a critical series of loans to the Empire of Japan, in the amount of $200 million (£41.2). Their behavior is exactly the same even today. He was born in Frankfurt, Germany and migrated to the U.S. in 1865, where he joined the firm Kuhn, Loeb & Co. His father, Moses Schiff, was a broker for the Rothschilds in Germany. Schiff was educated in the schools of Frankfurt and was first employed in the banking and brokerage business as an apprentice in 1861. From his base on Wall Street, he was the foremost Jewish leader from 1880 to 1920 in what later became known as the "Schiff era." He also became a director of many corporations, including the

CEO of Kuhn, Loeb and Co., in a speech to the New York Chamber of Commerce, warned that "unless we have a central bank with adequate control of credit resources, this country is going to undergo the most severe and far reaching money panic in its history." The amazing is that he was very prophetic, "the Panic of 1907" hit full stride a few months later, in October (*sic*).

These peculiar bankers (guided by their self-interest) felt the real problem in the U. S. economy was that the United States was the last major country without a private ("independent") central bank, which will provide stability and emergency credit in times of financial crisis. While segments of the financial community and political leaders were worried about the power that had accrued to JP Morgan and other foreign "financiers"; most were more concerned about the general frailty of a vast, decentralized banking system that could not regulate itself without the extraordinary intervention of one authority (the government). Financial leaders, who advocated a private central bank with an elastic currency after the Panic of 1907[28] included Frank Vanderlip,[29]

National City Bank of New York, Equitable Life Assurance Society, Wells Fargo & Company, and the Union Pacific Railroad.

[28] The *Panic of 1907*; also known as the *1907 Bankers' Panic* or *Knickerbocker Crisis*, was a United States financial crisis that took place over a three-week period starting in mid-October of 1907, when the New York Stock Exchange fell almost 50% from its peak the previous year. Panic occurred, as this was during a time of economic recession, and there were numerous runs on banks and trust companies. It spread throughout the nation when many state and local banks and businesses entered bankruptcy. Primary causes of the run included a retraction of market liquidity by a number of New York City banks and a loss of confidence among depositors, exacerbated by unregulated side bets (gambling) at bucket shops (stock market). The collapse of the Knickerbocker spread fear throughout the city's trusts as regional banks withdrew reserves from New York City banks. Panic extended across the nation as vast numbers of people withdrew deposits from their regional banks. Financier J.P. Morgan intervened and pledged large sums of his own money, and convinced other New York bankers to do the same, to shore up the banking system. By November, a further crisis started that was due to the heavy borrowing of a large brokerage firm that used the stock of Tennessee Coal, Iron and Railroad Company (TC&I) as collateral. Collapse of TC&I's stock price was averted by a takeover by Morgan's U.S. Steel Corporation (the move approved by President Theodore Roosevelt (1858-1919). The following year, Senator Nelson W. Aldrich, father-in-law of John D. Rockefeller, Jr., established and chaired a commission to investigate the crisis and propose future solutions, leading to the creation of the Federal Reserve System.

[29] *Frank Arthur Vanderlip, Sr.* (1864 – 1937) was an American banker. He was Assistant Secretary of the Treasury from 1897-1901, and was president of the National City Bank of New York from 1909 to 1919. When the stock market and the financial system collapsed in the Panic of 1907, Vanderlip worked closely with other bankers, led by J.P. Morgan, to stop the depositors' run on banks that was leading to economic disaster. In November 1910, at the invitation of Senator Nelson Aldrich, Vanderlip joined a small group of leading bankers on a train to Jekyll Island, Georgia, which later became known as the Jekyll Island group. The bankers formulated the outline to a plan that laid the groundwork for the drafting of the

Myron T. Herrick,[30] William Barret Ridgely,[31] George E. Roberts,[32] Isaac Newton Seligman[33] and Jacob H. Schiff. They stressed the need for an elastic money supply that could expand or contract as needed. After the scare of 1907 the bankers demanded reform; the next year, Congress established a Commission of experts to come up with a nonpartisan solution.

Rhode Island Senator Nelson Aldrich,[34] the Republican leader in the Senate, ran this Commission personally, with the aid of a team of economists.

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eventual *Federal Reserve Act*. In the final month and a half before the Act's enactment on December 23, 1913, Vanderlip's alternative plan for a Federal Reserve Act nearly derailed the one that President Wilson and the Democratic leadership were promoting. Several of Vanderlip's ideas were incorporated into the final Federal Reserve Act. See, *New York Times* article, November 7, 1913. See also, *Vicki (2013).*

[30] *Myron Timothy Herrick* (1854 – 1929) was a Republican politician from Ohio. He served as the 42nd Governor of Ohio and subsequently, he served as U.S. Ambassador to France from 1912 to 1914 and again from 1921 to 1929. He was an unsuccessful candidate for the U.S. Senate in 1916 against Atlee Pomerene.

[31] *William Barret Ridgely* (1858 – 1920) was a U.S. Comptroller of the Currency from 1901 to 1908. Ridgely engaged in mining, manufacturing, and banking in Illinois before President Theodore Roosevelt named him Comptroller in 1901. During his term, Congress passed legislation extending the corporate existence of the national banks for the second time. Ridgely resigned as Comptroller to accept the presidency of a national bank in Missouri, which had failed the previous year and was reorganized under his leadership. In 1909 he returned to private business in the Eastern states.

[32] *George Evan Roberts* (1857 – 1948) was Director of the United States Mint from 1898 to 1907, and again from 1910 to 1914. He then became president of the Commercial National Bank in Chicago. As a newspaper editor, Roberts was particularly interested in economic and monetary policy. He was an opponent of free silver (the Silverites promoted bimetallism, the use of both silver and gold as currency at the ratio of 16 to 1). In 1902, Roberts authored the Iowa Republican Party's platform "on tariffs," which criticized protectionism and supported reciprocity (free trade). Upon leaving government service in 1914, Roberts became assistant to the president of the National City Bank in New York City. He became a vice president of the bank in 1919, a position he held until 1931, when he became one of the bank's economic advisers, a position he held until his death. In 1929, he headed a delegation of financiers to Panama to study that country's finances. He was a member of the Gold Delegation of the Financial Committee of the League of Nations from 1930 to 1932.

[33] *Isaac Newton Seligman* (1855 – 1917) was a Jewish-American banker and communal worker. In 1878, after a two-year apprenticeship in the firm of Seligman & Hellman in New Orleans, he joined the New York branch, of which he became head in 1885, on the death of his father Joseph Seligman and his brother. He was a trustee of nineteen important commercial, financial, and other institutions and societies, including the Munich Life Assurance Company, St. John's Guild, and the McKinley Memorial Association. He was a member of the Committee of Seventy, of Fifteen, and of Nine, each of which attempted at various times to reform municipal government in New York; of the last-named body he was chairman. He was a trustee of Temple Emanu-El and of the Hebrew Orphan Asylum, as well as of the United Hebrew Charities, and also a member of the Ethical Culture Society. He was married to Guta Loeb (1865–1956), daughter of banker Solomon Loeb.

[34] *Nelson Wilmarth Aldrich* (1841 – 1915) was an American politician and a leader of the Republican Party in the Senate, where he served from 1881 to 1911. By the 1890s he was

They went to Europe and were impressed with how the central banks in Britain and Germany appeared to handle the stabilization of the overall economy and the promotion of international trade. Aldrich's investigation led to his plan in 1912 to bring central banking to the United States, with promises of financial stability, expanded international roles, control by impartial experts and no political meddling in finance. Aldrich asserted that a central bank had to be, paradoxically, decentralized somehow, or it would be attacked by local politicians and bankers as had the First and Second Banks of the United States. The Aldrich plan was introduced in 62nd and 63rd Congresses (1912 and 1913), but never gained much traction as the Democrats in 1912 won control of both the House and the Senate as well as the White House. He worked with several key bankers and economists, including Paul Warburg, Abram Andrew,[35] and Henry Davison,[36] to design a plan for an American central bank

one of the "Big Four" key Republicans, who largely controlled the major decisions of the Senate. He was referred to by the press and public alike as the "General Manager of the Nation," dominating all tariff and monetary policies in the first decade of the 20th century. In a career that spanned three decades, Aldrich helped to create an extensive system of tariffs that protected American factories and farms from foreign competition. He was in a party for the re-structuring of the American financial system through the institution of the federal income tax amendment, which he originally opposed. His most important contribution was the design of the modern Federal Reserve System. Reformers denounced him as representative of the evils of Big business. Aldrich became wealthy with investments in street railroads, sugar, rubber and banking. He married into the Rockefeller family, and his descendants became powerful figures in American politics and banking.

[35] *Abram Piatt Andrew Jr.* (1873 – 1936) was an economist. He also pursued postgraduate studies in the Universities of Halle and Berlin (Germany), and Paris. He was instructor and assistant professor of economics at Harvard University from 1900 to 1909. In January 1907 Andrew published a paper that anticipated the economic panic that hit in the fall of that year. On the strength of this paper as well as on his strong economics education, Andrew was selected to serve on the National Monetary Commission tasked with reforming the American banking system. Andrew took a leave from Harvard and spent two years studying the central banks of Germany, Britain and France. He served as Director of the U.S. Mint in 1909 and 1910, and as Assistant Secretary of the Treasury during 1910-1912. He attended the "historic" meeting at Jekyll Island in 1910 with commission chairman Nelson W. Aldrich, Henry P. Davison, Benjamin Strong, Paul Warburg, and Frank A. Vanderlip. The commission's report recommended the creation of a Federal Reserve System. See, Wessel (2009). Also, http://www.jekyllclub.com/2010/12/part-three-abram-piatt-andrew/ .

[36] *Henry Pomeroy Davison, Sr.* (1867 – 1922) was a banker. He was born in Troy, Pennsylvania. After completing his education he became a bookkeeper in a bank managed by one of his relatives, and at age 21 he gained employment at a bank in Bridgeport, Connecticut, the hometown of his wife Kate Trubee. His oldest son, F. Trubee Davison, was a director of personnel for the CIA. His other son Henry Pomeroy Davison, Jr. was a director at *Time* magazine and a member of the secret society of Skull and Bones. He moved to New York City where he was employed by the Astor Place Bank, and sometime later became president of the Liberty National Bank. Several years later he was involved in the founding and formation of the Bankers Trust Company. In 1909 he became a senior partner at JP Morgan & Company, and in 1910 he was a participant in the secretive meeting on Jekyll Island,

in 1911. On December 23, 1913, at 6:02 p.m., Woodrow Wilson signed the Federal Reserve Act[37] patterned after Aldrich's vision into law, creating the modern *Federal Reserve System*, the Central Bank of the United States ("the Fed").

Of course, there is a lot of criticism for central banking, as it is for all the institutions that we have created to promote our social welfare and more or less have failed to satisfy their ultimate objective. On November 5, 2008, Thomas J. DiLorenzo was saying: "Central banking has been a corrupt, mercantilist scheme and an engine of corporate welfare from its very beginning in the late 18th century. The first central bank, the Bank of North America, was "driven through the Continental Congress by [congressman and financier] Robert Morris in the Spring of 1781," wrote Murray Rothbard in *The Mystery of Banking* (p. 191).[38] The Philadelphia businessman Morris had been a defense contractor during the Revolutionary War who "siphoned off millions from the public treasury into contracts to his own … firm and to those of his associates." He was also "leader of the powerful Nationalist forces" in the new country. The main objective of the Nationalists, who were also known as Federalists, was essentially to establish an American version of the British mercantilist system, the very system that the Revolution had been fought against. Indeed, it was this system that the ancestors of the Revolutionaries had fled from when they came to America.

As Rothbard explained, their aim was: "To reimpose in the new United States a system of mercantilism and big government similar to that in Great Britain, against which the colonists had rebelled. The object was to have a strong central government, particularly a strong president or king as chief executive, built up by high taxes and heavy public debt. The strong government was to impose high tariffs to subsidize domestic manufacturers, develop a big navy to open up and subsidize foreign markets for American

Georgia that led to the creation of the Federal Reserve and has generated much speculation over the years. With the entry of the U.S. in World War I in 1917, Davison was named Chairman of the War Council of the American Red Cross. After the end of the war, he pressed for the creation of an international organization to coordinate the work of the different national Red Cross societies. Based on his recommendations, the League of Red Cross Societies was founded on May 15, 1919 by the societies of Great Britain, France, Japan, Italy, and the United States. Davison, wanted the League of Red Cross Societies to supersede the ICRC in controlling the Red Cross action in international affairs.

[37] See, *The Federal Reserve System: Purposes and Functions*, Eighth Edition, Board of Governors of the Federal Reserve System, Washington, D.C., 1994. Also, https://en.wikipedia.org/wiki/Federal_Reserve_Act

[38] See, Murray Rothbard, *The Mystery of Banking*. http://store.mises.org/Mystery-of-Banking-P528.aspx

exports, and launch a massive system of internal public works. In short, the United States was to have a British system without Great Britain (p. 192).

An important part of the "Morris scheme," as Rothbard called it, was "to organize and head a central bank, to provide cheap credit and expanded money for himself and his allies. The … Bank of North America was deliberately modeled after the Bank of England." The Bank was given a monopoly privilege of its notes being receivable in all tax payments to state and federal government, and no other banks were permitted to operate in the country. It "graciously agreed to lend most of its newly created money to the federal government," wrote Rothbard, and "the hapless taxpayers would have to pay the Bank principal and interest."

Despite these monopolistic privileges, a lack of public confidence in the Bank's inflated notes led to their depreciation and the Bank was privatized by the end of 1783. But Morris did not give up on his scheme. He recruited a young Alexander Hamilton[39] to serve more or less as his political puppet within the Washington administration. (Rothbard called Hamilton "Morris's youthful disciple.") In fact, the reason why Hamilton became Treasury secretary, despite having no reputation at all in the field of finance, was the recommendation by Morris to George Washington. (During the Revolutionary War, when he was an aide to Washington, Hamilton took the time to write Morris a 30-page letter proclaiming that he agreed with every one of his ideas about protectionist tariffs, corporate subsidies, and a government-run bank to finance them).

Further, Morris and his fellow Nationalists wanted a king-like chief executive who would rule over a mercantilist empire, just as the king of England ruled over his mercantilist empire. They, of course, would be the ones to advise and instruct the "king" and benefit financially from such an empire. So their young protégé Hamilton commenced his seven-year crusade to overthrow the first U.S. constitution (the Articles of Confederation) by calling

[39] *Alexander Hamilton* (1755 or 1757 – 1804) was a Founding father of the United States, chief staff aide to General George Washington, one of the most influential interpreters and promoters of the U.S. Constitution, the founder of the nation's financial system, the founder of the Federalist Party, the world's first voter-based political party, the founder of the U.S. Coast Guard, and the founder of New York Post newspaper. As the first Secretary of the Treasury, Hamilton was the primary author of the economic policies of the George Washington administration. Hamilton took the lead in the funding of the states' debts by the Federal government, the establishment of a national bank, a system of tariffs, and friendly trade relations with Britain. He led the Federalist Party, created largely in support of his views; he was opposed by the Democratic-Republican Party, led by Thomas Jefferson and James Madison, which despised Britain and feared that Hamilton's policies of a strong central government would weaken the American commitment to Republicanism.

for a new constitutional convention to supposedly "revise" the Articles of Confederation. At the convention, Hamilton laid out his (really Morris's) plan: a permanent president who would appoint all the governors and who would have veto power over all state legislation. Under such a plan, state sovereignty would have been destroyed, and there would have been no escape from the central government's high taxes, protectionist tariffs, heavy debt, and foreign-policy imperialism, the agenda of the Nationalists.

The Hamilton/Morris plan was defeated, of course, as was the proposal made at the convention to include a central bank among the delegated powers to the federal government. But the government was more highly centralized, as "the Nationalist forces pushed through a new Constitution" and "were on their way to re-establishing the mercantilist and statist British model…" (p. 193). They begrudgingly acquiesced in a Bill of Rights in return for the anti-Federalists' support for the new Constitution. And most importantly, writes Rothbard, "A critical part of their program was put through in 1791 by their leader, Secretary of the Treasury, Alexander Hamilton, a disciple of Robert Morris. Hamilton put through Congress the First Bank of the…. United States…. modeled after the old Bank of North America [whose]….longtime president and former partner of Robert Morris, Thomas Willing of Philadelphia, was made president of the New Bank."

In making his case to President Washington for the constitutionality of a central bank, which had been explicitly rejected at the constitutional convention, Hamilton invented the idea of "implied powers" of the Constitution. These were "powers" that were not expressly delegated to the federal government in the document, but could be "implied" by clever lawyers like Hamilton. This of course became a roadmap for the total destruction of constitutional limitations on the powers of the federal government.

The First Bank of the United States "promptly fulfilled its inflationary potential," Rothbard writes in his *History of Money and Banking in the United States* (p. 69).[40] It issued millions of dollars in paper money and demand deposits "pyramiding on top of $2 million in specie." The Bank invested heavily in the U. S. government, and "The result of the outpouring of credit and paper money by the new Bank of the United States was … an increase [in prices] of 72 percent" from 1791–1796. Northern merchants provided the main political support for Hamilton's Bank, whereas southern politicians like Jefferson supplied most of the opposition to it, seeing it as nothing more than a

[40] See, *History of Money and Banking in the United States*. http://store.mises.org/History-of-Money-and-Banking-in-the-United-States--P191.aspx

vehicle for financing an American version of the corrupt British mercantilist system, which would be destructive of liberty and prosperity. They were right, of course, and remain right to this day.[41]

(ii) The Creation of the Federal Reserve System (1913-Present)

The new President, Woodrow Wilson (1913-1921),[42] became the principal mover for banking and currency reform in the 63rd Congress, working with

[41] See, Thomas J. DiLorenzo (11/05/2008). https://mises.org/profile/thomas-j-dilorenzo

[42] *Thomas Woodrow Wilson* (1856 – 1924) was an American politician and academic, who served as the 28th President of the United States from 1913 to 1921. Wilson earned a Ph.D. in political science at Johns Hopkins University, and served as a professor and scholar at various institutions before being chosen as President of Princeton University, a position he held from 1902 to 1910. Running for president in 1912, he was the first Southerner elected as president since 1848. He was a leading force in the Progressive Movement, bolstered by his Democratic Party's winning control of both the White House and Congress in 1912. In office, Wilson reintroduced the spoken State of the Union Address, which had been out of use since 1801. Leading the Congress, now in Democratic hands, he oversaw the passage of "progressive" legislative policies unparalleled until the New Deal in 1933. Included among these were *the Federal Reserve Act*, *Federal Trade Commission Act*, *the Clayton Antitrust Act*, and *the Federal Farm Loan Act*. Having taken office one month after ratification of the Sixteenth Amendment (allows the Congress to levy an income tax without apportioning it among the states), Wilson called a special session of Congress, whose work culminated in *the Revenue Act of 1913*, reintroducing an income tax and lowering tariffs. Through passage of *the Adamson Act*, imposing an 8-hour workday for railroads, he averted a railroad strike and an ensuing economic crisis. Upon the outbreak of World War I in 1914, Wilson maintained a policy of neutrality, while pursuing a more aggressive policy in dealing with Mexico's civil war (1910-1920). In April 1917, when Germany resumed unrestricted submarine warfare, Wilson asked Congress to declare war in order to make "the world safe for democracy." The United States conducted military operations alongside the Allies, although without a formal alliance. Also in 1917, he denied sanctuary to Tsarist Russia's Nicholas II and his immediate family, when Nicholas was overthrown in that year's February Revolution and forced into abdication that March, the October Revolution and Bolshevik rule, a decision that became controversial the following year with the shooting of the Romanov family by the troops of the Jewish Yakov Mikhailovich Yurovsky in 1918. During WWI by loaning billions of dollars to Britain, France, and other Allies, the United States aided their finance of the war effort (*sic*). Following years of advocacy for suffrage on the state level, in 1918 he endorsed the Nineteenth Amendment, whose ratification provided all women the right to vote by its ratification in 1920, over Southern opposition. Wilson staffed his government with Southern Democrats, who believed in segregation. He gave department heads greater autonomy in their management. Early in 1918, he issued his principles for peace, the *Fourteen Points*, and in 1919, following armistice, he traveled to Paris, promoting the formation of a League of Nations, concluding the Treaty of Versailles. A devoted Presbyterian, Wilson infused morality into his internationalism, an ideology now referred to as "Wilsonian" (an activist foreign policy calling on the nation to promote global democracy). For his sponsorship of the League of Nations, Wilson was awarded the 1919 Nobel Peace Prize. At the end of 1913, summing up the president's efficacy, the *Saturday*

the two chairs of the House and Senate Banking and Currency Committees, Rep. Carter Glass of Virginia and Sen. Robert L. Owen of Oklahoma. It was Wilson who insisted that the regional Federal Reserve banks be controlled by a central Federal Reserve board appointed by the president with the advice and consent of the U. S. Senate. Wilson named Paul Warburg and other prominent bankers to direct the new system. While power was supposed to be decentralized, the New York branch dominated the Fed as the "first among equals." The new system began operations in 1915 and played a major role in financing the Allied and American war effort. The strengthening of the Federal Reserve during the Great Depression was later a major accomplishment of Franklin D. Roosevelt's New Deal.

Wilson had not waited for completion of the tariff legislation to proceed with his next item of reform, banking, which he initiated in June 1913. After consulting with Brandeis, Wilson declared the banking system must be "public not private, must be vested in the government itself so that the banks must be the instruments, not the masters, of business." He tried to find a middle ground between conservative Republicans, led by Senator Nelson W. Aldrich, and the powerful left wing of the Democratic Party, led by William Jennings Bryan, who strenuously denounced private banks and Wall Street. The latter group wanted a government-owned central bank that could print paper money as Congress required. The compromise, based on the Aldrich Plan but sponsored by Democratic Congressmen Carter Glass and Robert Owen, allowed the private banks to control the 12 regional Federal Reserve Banks, but appeased the agrarians by placing controlling interest in the System in a central board appointed by the president with Senate approval. Moreover, Wilson convinced Bryan's supporters that because Federal Reserve notes were obligations of the government, the plan met their demands for an elastic currency. Having 12 regional banks, with designated geographic districts, was meant to weaken the

Evening Post magazine stated, "This administration is Woodrow Wilson's and non-other's. He is the top, middle and bottom of it. There is not an atom of divided responsibility… the Democratic Party revolves about him. He is the center of it—the biggest Democrat in the country—the leader and the chief." Woodrow Wilson signed the 1913 Federal Reserve Act, but a few years later he wrote: "I am a most unhappy man. I have unwittingly ruined my country. A great industrial nation is controlled by its system of credit. Our system of credit is concentrated. The growth of the nation, therefore, and all our activities are in the hands of a few men. We have come to be one of the worst ruled, one of the most completely controlled and dominated Governments in the civilized world no longer a Government by free opinion, no longer a Government by conviction and the vote of the majority, but a Government by the opinion and duress of a small group of dominant men." (Woodrow Wilson). See, http://www.themoneymasters.com/the-money-masters/famous-quotations-on-banking/ Also, *Heckscher, August (1991), Woodrow Wilson, Easton Press.*

influence of the powerful New York banks, a key demand of Bryan's allies in the South and West, and was a key factor in winning Glass' support. The Federal Reserve Act passed in December 1913.

William Jennings Bryan,[43] now Secretary of State, long-time "enemy" of Wall Street and still a power in the Democratic Party, threatened to destroy the bill. Wilson masterfully came up with a compromise plan that pleased bankers and Bryan alike. The Bryanites were happy that Federal Reserve currency became liabilities of the government rather than of private banks and by provisions for federal loans to farmers. Wilson convinced the anti-bank Congressmen that because Federal Reserve notes were obligations of the government, the plan fit their demands. Wilson assured southerners and westerners that the system was decentralized into 12 districts, and thus would weaken New York City's Wall Street influence and strengthen the hinterlands; but, unfortunately, these things did not happen. After much debate and many amendments Congress passed the *Federal Reserve Act* or *Glass-Owen Act*, as it was sometimes called at the time. President Wilson signed the Act into law on December 23, 1913.

The Federal Reserve's power developed slowly in part due to an understanding at its creation that it was to function primarily as a reserve, a money-creator of last resort to prevent the downward spiral of withdrawal/withholding of funds, which characterizes a monetary panic.[44] At the outbreak of World War I, the Federal Reserve issued war bonds, and so became the primary retailer for war bonds under the direction of the Treasury. After the war, the Federal Reserve, led by Paul Warburg and New York Governor Bank President Benjamin Strong (he served as Governor of the

[43] *William Jennings Bryan* (1860 – 1925) was an American orator and politician from Nebraska, and a dominant force in the populist wing of the Democratic Party, standing three times as the Party's candidate for President of the United States (1896, 1900, and 1908). He served two terms as a member of the U.S. House of Representatives from Nebraska and was U.S. Secretary of State under President Woodrow Wilson (1913–1915). He resigned because of his pacifist position on World War I. Bryan was a devout Presbyterian, a strong advocate of popular democracy (which is a notion of direct democracy based on referendums and other devices of empowerment and concretization of popular will), and an "enemy" of the banks and the gold standard. He demanded "Free Silver" because he believed it undermined the evil "Money Power" and put more cash in the hands of the common people. He was a peace advocate, a supporter of Prohibition (of alcohol), and an opponent of Darwinism (the delusion of evolution) on religious and humanitarian grounds. He promoted Free Silver in 1896, anti-imperialism in 1900, and trust-busting (anti-trust law or competition law or anti-monopoly law) in 1908, calling on Democrats to fight the trusts (big corporations) and big banks, and embrace anti-elitist ideals of republicanism.

[44] "… to provide for the establishment of Federal reserve banks, to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes." (Federal Reserve Act).

Federal Reserve Bank of New York for 14 years), convinced Congress to modify its powers, giving it the ability to both create money, as the 1913 Act intended, and destroy money, as a central bank could. During the 1920s, the Federal Reserve experimented with a number of approaches, alternatively creating and then destroying money which, helped create the late-1920s stock market bubble.[45] After Franklin D. Roosevelt[46] took office in 1933, the Federal Reserve was subordinated to the Executive Branch,[47] where it remained until

[45] Friedman, Milton and Rose Friedman (1980), *Free to Choose*, Chapter 3: "The Anatomy of a Crisis."

[46] *Franklin Delano Roosevelt* (1882 – 1945), commonly known as *FDR*, was an American statesman and political leader, who served as the President of the United States from 1933 to 1945. A Democrat, he won a record four presidential elections and dominated his party after 1932 as a central figure in world events during the mid-20th century, leading the United States during a time of worldwide economic depression and World War II. His program for relief, recovery and reform, known as the *New Deal*, involved a great expansion of the role of the federal government in the economy. As a dominant leader of the Democratic Party, he built the New Deal Coalition that brought together and united labor unions, big city machines, white ethnics, African Americans, and rural white Southerners in support of the party. The Coalition significantly realigned American politics after 1932, creating the Fifth Party System and defining American liberalism throughout the middle third of the 20th century. Roosevelt spearheaded unprecedented major legislation and issued a profusion of executive orders that instituted the New Deal; a variety of programs designed to produce relief (government jobs for the unemployed), recovery (economic growth), and reform (through regulation of Wall Street, banks and transportation). He created numerous programs to support the unemployed and farmers, and to encourage labor union growth while more closely regulating business and high finance. The repeal of *Prohibition* (of alcoholic beverages) in 1933 added to his popularity, helping him win re-election by a landslide in 1936. The economy improved rapidly from 1933 to 1937; but then, it relapsed into a deep recession in 1937–38. The bipartisan Conservative Coalition that formed in 1937 prevented his packing the Supreme Court (*Judicial Procedures Reform Bill of 1937*), and blocked almost all proposals for major liberal legislation (except the *minimum wage*, which did pass). When the war began and unemployment ended, conservatives in Congress repealed the two major relief programs, the WPA and CCC. However, they kept most of the regulations on business. Along with several smaller programs, major surviving programs include the *Securities and Exchange Commission* (SEC), the *Wagner Act* (*The National Labor Relations Act of 1935*), the *Federal Deposit Insurance Corporation* (the insurance limit was initially $2,500 per ownership category; today, it is up to $250,000 per ownership category) and *Social Security*. The *Modern American liberalism* is the dominant version of liberalism in the United States. It is characterized by *classical liberalism*, and combines liberal ideas of civil liberty and equality with support for social justice and a mixed economy. The *modern liberal philosophy* strongly endorses government spending on programs such as education, health care, and welfare. Important social issues, today, include addressing inequality, voting rights for minorities, and the criminal detestable issues like, reproduction (abortion) and other women's rights (sic), and the latest perversion by supporting the same-sex marriage, and also, some immigration reforms.

[47] In political systems based on the principle of separation of powers, authority is distributed among several branches (*executive*, *legislative*, *judicial*); an attempt to prevent the concentration of power in the hands of a small group of people. In such a system, the

1951, when the Federal Reserve and the Treasury department (President Harry S. Truman)[48] signed an *accord*[49] granting the Federal Reserve full independence[50] over monetary matters while leaving fiscal matters to the

executive does not pass laws (the role of the legislature) or interpret them (the role of the judiciary).

[48] *Harry S. Truman* (1884 – 1972) was the 33rd president of the United States (1945–53), a politician of the Democratic Party. He served briefly as Vice President (1945) before he succeeded to the presidency on April 12, 1945 upon the death of Franklin D. Roosevelt. He was president during the final months of World War II, making the decision to drop the atomic bomb on Hiroshima and Nagasaki (*sic*). Truman increased tensions with the Soviet Union, which made the start of the Cold War that continues up to now. Truman helped found the United Nations in 1945, issued the Truman Doctrine in 1947 to contain Communism, and got the $13 billion Marshall Plan enacted to rebuild Western Europe. Truman oversaw the Berlin Airlift of 1948 and the creation of NATO in 1949. When communist North Korea invaded South Korea in 1950, he sent in U.S. troops and those from the new poor NATO allies and he started the Korean War. He created the CIA and the National Security Council. In 1952, Truman secretly consolidated and empowered the cryptologic elements of the United States by creating the National Security Agency (NSA). Truman had announced support for Zionism and in 1943 he called for a homeland for those Jews. However, State Department officials were reluctant to offend the Arabs, who were opposed to the establishment of a Jewish state in the large region long populated and dominated culturally by Arabs. American diplomats with experience in the region were opposed, but Truman told them he had few Arabs among his constituents. Truman later cited as decisive in his recognition of the Jewish state the advice of his former business partner, Eddie Jacobson, a Jew whom Truman absolutely trusted. Truman decided to recognize Israel over the objections of Secretary of State George Marshall, who feared it would hurt relations with the populous Arab states. Truman recognized the State of Israel on May 14, 1948, eleven minutes after it declared itself a nation. The knowledge of history is necessary for all social scientists.

[49] The *1951 Accord*, also known simply as the *Accord*, was an agreement between the U.S. Department of the Treasury and the Federal Reserve that restored independence to the Fed. During World War II, the Federal Reserve pledged to keep the interest rate on Treasury bills fixed at 0.375 percent. It continued to support government borrowing after the war ended, despite the fact that the CPI rose 14% in 1947 and 8% in 1948, and the economy was in recession. President Harry S. Truman in 1948 replaced the then-Chairman of the Fed Marriner Eccles with Thomas B. McCabe for opposing this policy, although Eccles's term on the board continued for three more years. The reluctance of the Federal Reserve to continue monetizing the deficit became so great that, in 1951, President Truman invited the entire Federal Open Market Committee to the White House to resolve their differences. William McChesney Martin, then Assistant Secretary of the Treasury, was the principal mediator. Three weeks later, he was named Chairman of the Federal Reserve, replacing McCabe.

[50] The Federal Reserve is subject to oversight by the Congress, which often reviews the Federal Reserve's activities and can alter its responsibilities by statute. Therefore, the Federal Reserve can be more accurately described as "independent within the government" rather than "independent of government." The 12 regional Federal Reserve Banks, which were established by the Congress as the operating arms of the nation's central banking system, are organized similarly to private corporations (possibly leading to some confusion about "ownership"). For example, the Reserve Banks issue shares of stock to member banks. *The Case Against Independence*: "Proponents of a Fed under the control of the president or

Treasury. The Federal Reserve's monetary powers did not dramatically change for the rest of the 20th century, but in the 1970s it was specifically charged by Congress to effectively promote "the goals of maximum employment, stable prices, and moderate long-term interest rates" as well as given regulatory

Congress argue that it is undemocratic to have monetary policy (which affects almost everyone in the economy) controlled by an elite group that is responsible to no one. The current lack of accountability of the Federal Reserve has serious consequences: If the Fed performs badly, there is no provision for replacing members (as there is with politicians). True, the Fed needs to pursue long-run objectives, but elected officials of Congress vote on long-run issues also (foreign policy, for example). If we push the argument further that policy is always performed better by clue groups like the Fed, we end up with such conclusions as the Joint Chiefs of Staff should determine military budgets or the IRS should set tax policies with no oversight from the president or Congress. Would you advocate this degree of independence for the joint Chiefs or the IRS? The public holds the president and Congress responsible for the economic well-being of the country, yet they lack control over the government agency that may well be the most important factor in determining the health of the economy. In addition, to achieve a cohesive program that will promote economic stability, monetary policy must be coordinated with fiscal policy (management of government spending and taxation). Only by placing monetary policy under the control of the politicians, who also control fiscal policy can these two policies be prevented from working at cross-purposes. Another argument against Federal Reserve independence is that an independent Fed has not always used its freedom successfully. The Fed failed miserably in its stated role as "lender of last resort" during the Great Depression, and its independence certainly did not prevent it from pursuing an overly expansionary monetary policy in the 1960s and 1970s (and from 2008-2015) that contributed to rapid inflation in those periods. Our earlier discussion also suggests that the Federal Reserve is not immune from political pressures. Its independence may encourage it to pursue a course of narrow self-interest rather than the public interest. There is yet no consensus on whether Federal Reserve independence is a good thing, although public support for independence of the central bank seems to have been falling during the latest global financial crisis in both the United States and abroad. Others argue that it is not only unlawful for the Fed to be independent, it is unconstitutional for the Fed to have any regulatory control over the value of our money. The power to regulate the value of U.S. money is vested specifically in the U.S. Congress. Congress cannot delegate or divest itself of a Constitutional power. This power is vested in Congress, and Congress alone has the lawful power to regulate the value of our money and the exchange value of foreign currencies. See the U.S. Constitution, Article I, Sections 1 and 8: "All legislative powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives. ... The Congress shall have power ... To borrow money on the credit of the United States ... To coin money, regulate the value thereof, and of foreign coin ...". Congress simply cannot lawfully divest itself a Constitutional authority! What other constitutional powers are vested in Congress? Here's three examples: The power to declare war. The power to impeach the President. The power to levy taxes. Congress could not delegate these powers, and it cannot delegate its monetary policy powers, either. Unfortunately, some economists and banking interests seem to think that an independent Fed is desirable. They want you to believe that it is necessary for monetary policy to be independent of Congress. Not only is this "independence" unnecessary, it is unlawful! It is simply not allowed by our Constitution. As you might expect, people, who like the Fed's policies are more likely to support its independence, while those who dislike its policies advocate a less independent Fed. See, http://economistsview.typepad.com/economistsview/2007/01/fed_independenc_1.html.

responsibility over many consumer credit protection laws. A central bank is the term used to describe the authority responsible for policies that affect a country's interest rate and supply of money. More specifically, a central bank uses its tools (instruments) of monetary policy (discussed in Section II) to keep the short-term interest rate (overnight federal funds rate) at its target and to affect the monetary base (currency held by the public plus bank reserves) and to achieve important policy goals (objectives).

The story of central banking goes back at least to the seventeenth century, to the founding of the first institution recognized as a central bank, the Swedish Riksbank. Established in 1668 as a joint stock bank; it was chartered to lend funds to the government and to act as a clearing house for commerce. A few decades later (1694), the most famous central bank of the era, the Bank of England, was founded also as a joint stock company to purchase government debt. Other central banks were set up later in Europe for similar purposes, though some were established to deal with monetary disarray. For example, the Banque de France was established by Napoleon in 1800 to stabilize the currency after the hyperinflation of paper money during the destructive and shameful French Revolution,[51] as well as to aid in government finance. The Bank of Greece was founded in 1927 and its operations started officially in 1928. Early central banks issued private notes which served as currency, and they often had a monopoly over such note issue.

While these early central banks helped fund the government's debt, they were also private entities that engaged in banking activities. Because they held the deposits of other banks, they came to serve as banks for bankers, facilitating transactions between banks or providing other banking services. They became the repository for most banks in the banking system because of their large reserves and extensive networks of correspondent banks. These factors allowed them to become the lender of last resort in the face of a financial crisis. In other words, they became willing to provide emergency cash to their correspondents in times of financial distress.

The Federal Reserve System belongs to a later wave of central banks, which emerged at the turn of the twentieth century. These banks were created primarily to consolidate the various instruments that people were using for currency and to provide financial stability. Many also were created to manage the gold standard, to which most countries adhered. The gold standard, which prevailed until 1914, meant that each country defined its currency in terms of a

[51] See, https://www.jacobinmag.com/2015/07/french-revolution-bastille-day-guide-jacobins-terror-bonaparte/.

fixed weight of gold (the U. S. dollar was defined as 0.048 troy oz. of pure gold or a mint parity of $20.67/oz. of Gold).[52] Central banks held large gold reserves to ensure that their notes could be converted into gold, as was required by their charters. When their reserves declined because of a balance of payments deficit or adverse domestic circumstances, they would raise their discount rates (the interest rates at which they would lend money to the other banks). Doing so would raise interest rates more generally, which in turn attracted foreign investment, thereby bringing more gold into the country.

Central banks, in the past, adhered to the gold standard's rule of maintaining gold convertibility above all other considerations. Gold convertibility served as the economy's nominal anchor. That is, the amount of money banks could supply was constrained by the value of the gold they held in reserve, and this in turn determined the prevailing price level. And because the price level was tied to a known commodity, whose long-run value was determined by market forces, expectations about the future price level were tied to it as well. In a sense, early central banks were strongly committed to price stability. They did not worry too much about one of the modern goals of central banking (the stability of the real economy) because they were constrained by their obligation to adhere to the gold standard.

Also, central banks of that era learned to act as lenders of last resort in times of financial stress, when events like bad harvests, defaults by railroads, or wars precipitated a scramble for liquidity (in which depositors ran to their banks and tried to convert their deposits into cash). The lesson began early in the nineteenth century as a consequence of the Bank of England's routine response to such panics. At the time, the Bank of England (and other European central banks) would often protect their own gold reserves first, turning away their correspondents in need. Doing so precipitated major panics in 1825, 1837, 1847, and 1857, and led to severe criticism of the Bank. In response, the Bank of England adopted the "responsibility doctrine," proposed by the economic writer Walter Bagehot,[53] which required the Bank to subsume its

[52] See, Kallianiotis (2013a).

[53] *Walter Bagehot* (1826 – 1877) was a British journalist, businessman, and essayist, who wrote extensively about government, economics, and literature. In 1855, Bagehot founded the *National Review* with his friend Richard Holt Hutton. In 1860, he became editor-in-chief of *The Economist*. In his book, *Lombard Street: A Description of the Money Market* (1873), Bagehot seeks to explain the world of finance and banking. His observations on finance are often cited by central bankers, even recently in the wake of the global financial crisis, which began in 2007. Of particular importance is "Bagehot's Dictum" that in times of financial crisis central banks should lend freely to solvent depository institutions, only against good collateral and at interest rates that are high enough to dissuade those borrowers that are not genuinely in need. See, Tucker (2009).

private interest to the public interest of the banking system as a whole. The Bank began to follow Bagehot's rule, which was to lend freely on the basis of any sound collateral offered; but at a penalty rate (that is, above market rates) to prevent moral hazard. The bank learned its lesson well. No financial crises occurred in England for nearly 150 years after 1866. It was not until August 2007 that the country experienced its next crisis, the contagion effect, due to globalization (systemic risk).

The U. S. experience was most interesting. It had two central banks in the early nineteenth century, the First Bank of the United States (1791–1811) and the Second Bank of the United States (1816–1836). Both were set up on the model of the Bank of England, but unlike the British, Americans bore a deep-seated distrust of any concentration of financial power in general, and of central banks in particular in private hands, which has been proved that they were right, so that in each case, the charters were not renewed. Unfortunately, they did not prevent it even with the creation of the Fed.

Then, it followed an 80-year period characterized by considerable financial instability. Between 1836 and the onset of the Civil War (1861-1865), a period known as the Free Banking Era (1837-1862),[54] where states allowed virtual free entry into banking with minimal regulation. Throughout the period, banks failed frequently, and several banking panics occurred. The payments system was notoriously inefficient, with thousands of dissimilar-looking state bank notes and counterfeits in circulation. In response, the government created the national banking system during the Civil War. While the system improved the efficiency of the payments system by providing a uniform currency based on national bank notes, it still provided no lender of last resort, and the era was rife with severe banking panics. The crisis of 1907 led to the creation of the Federal Reserve in 1913, which was given the mandate of providing a uniform and elastic currency (that is, one which would accommodate the seasonal, cyclical, and secular movements in the economy) and to serve as a lender of last resort.

Before 1914, central banks did not attach great weight to the goal of maintaining the domestic economy's stability. This changed after World War I, when they began to be concerned about employment, real activity, and the price level. The shift reflected a change in the political economy of many countries, where suffrage was expanding, labor movements were rising, and restrictions on migration were being set. In the 1920s, the Fed began focusing on both external stability (which meant keeping an eye on gold reserves,

[54] In that period, only state-chartered banks existed.

because the U. S. was still on the gold standard) and internal stability (which meant keeping an eye on prices, output, and employment). But as long as the gold standard prevailed, external goals dominated.

Unfortunately, the Fed's inexperience on monetary policy led to serious problems in the 1920s and 1930s. When it came to managing the nation's quantity of money, the Fed followed a principle called the *real bills doctrine*. The doctrine argued that the quantity of money needed in the economy would naturally be supplied so long as Reserve Banks lent funds only when banks presented eligible self-liquidating commercial paper for collateral. One corollary of the real bills doctrine was that the Fed should not permit bank lending to finance stock market speculation, which explains why it followed a tight policy in 1928 to offset the Wall Street boom. The policy led to the beginning of recession in August 1929 and the crash in October of the same year. Then, in the face of a series of banking panics between 1930 and 1933, the Fed failed to act as a lender of last resort. As a result, the money supply collapsed, and massive deflation and depression followed. The Fed erred because the real bills doctrine led it to interpret the prevailing low short-term nominal interest rates as a sign of monetary ease, and they believed no banks needed funds because very few member banks came to the discount window.

After the Great Depression, the Federal Reserve System was reorganized. The Banking Acts of 1933[55] and 1935[56] shifted power definitively from the Reserve Banks to the Board of Governors. In addition, the Fed started a better cooperation with the U. S. Treasury. The Fed regained its independence from the Treasury in 1951, whereupon it began following a deliberate countercyclical policy under the directorship of its Chairman, William McChesney Martin, Jr. During the 1950s this policy was quite successful in ameliorating several recessions and in maintaining low inflation. At the time, the United States and the other advanced countries were part of the Bretton

[55] The *Banking Act of 1933* (enacted June 16, 1933) was a statute enacted by the U.S. Congress that established the Federal Deposit Insurance Corporation (FDIC) and imposed various other banking reforms. The entire law is often referred to as the *Glass–Steagall Act*, which used to relate to four provisions of the Banking Act of 1933 that limited commercial bank securities activities and affiliations between commercial banks and securities firms. Also, the separation of commercial and investment banking, the creation of the Federal Open Market Committee, Regulation Q, and Regulation of "speculation." See, http://www.federalreservehistory.org/Events/DetailView/25.

[56] The *Banking Act of 1935* passed on August 19, 1935 and was signed into law by the president, Franklin D. Roosevelt, on August 23, 1935. The act changed the structure and power distribution in the Federal Reserve System that began with the *Banking Act of 1933* (the *Glass–Steagall Act*). The act contained three main sections or "Titles." See, http://www.federalreservehistory.org/Events/DetailView/26.

Woods System, under which the U. S. pegged the dollar to gold at $35/oz. and the other countries pegged to the dollar (the *Gold Exchange Standard*). The link to gold may have carried over some of the credibility of a nominal anchor and helped to keep inflation low.

The picture changed dramatically in the 1960s when the Fed began following a more activist stabilization policy. In this decade it shifted its priorities from low inflation toward high employment. Possible reasons include the adoption of Keynesian ideas and the belief in the Phillips curve trade-off between inflation and unemployment.[57] The consequence of the shift in policy was the buildup of inflationary pressures from the late 1960s until the end of the 1970s. The causes of the Great Inflation are still being debated, but the era is renowned as one of the low points in Fed history. The restraining influence of the nominal anchor disappeared, and for the next two decades, inflation expectations took off.

The inflation ended with Paul Volcker's shock therapy from 1979 to 1982, which involved monetary tightening and the raising of policy interest rate (federal funds rate) to double digits.[58] The Volcker shock led to a sharp recession, but it was successful in breaking the back of high inflation expectations. In the following decades, inflation declined significantly and has stayed low ever since. Since the early 1990s the Fed has followed a policy of implicit inflation targeting, using the federal funds rate as its policy instrument. In many respects, the policy regime currently followed echoes the convertibility principle of the gold standard, in the sense that the public has come to believe in the credibility of the Fed's commitment to low inflation.

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[57] The expectations augmented Phillips curve is: $\pi_t = \pi_t^e + \psi(u_{t-1} - u_t^N)$.

See, Kallianiotis (2004). With data from the U.S. economy from 1950:04 to 2015:03, we have the following results:

$\pi_t = \underset{(0.037)}{1.033}^{***}\pi_t^e + \underset{(0.065)}{-0.090}(u_{t-1} - u_t^N)$, $R^2 = 0.352$, $SER = 3.408$, $D-W = 2.019$, $N = 780$. During this period, we had: $\bar{\pi} = 3.509\%$, $\sigma_\pi = \pm 4.216\%$. Phillips curves are very logical relationships between unemployment and inflation. When unemployment is high, inflation is low because the demand for goods and services is falling (assuming that the inflation is a demand-side inflation). But later, the inflation is a supply-side inflation (due to businesses greediness to maximize their profitability and the changes of business structure from competitive markets to oligopolies and monopolies) and even with high unemployment in our society, prices do not fall. Unfortunately, the unemployment and inflation data are also misstated. The official data are very low compared with the *Shadow Government Statistics*. For June 2016: (SGS) gave, $u = 22.9\%$ and $\pi = 8.7\%$; official rates were, $u = 4.9\%$ and $\pi = 1.0\%$ (*sic*).

[58] The Fed's target rate (effective) was in 1981:06, $i_{FF}^{eff} = 19.10\%$. (*Economagc.com).*

An increasingly important role for central banks is financial market stability and not directly an economic stability (growth). The evolution of this responsibility has been similar across the advanced countries. In the gold standard era, central banks developed a lender-of-last-resort function, following Bagehot's rule.[59] But financial systems became unstable between the world wars, as widespread banking crises plagued the early 1920s and the 1930s. The experience of the Fed was the worst. The response to banking crises in Europe at the time was generally to bail out the troubled banks with public funds. This approach was later adopted by the United States with the Reconstruction Finance Corporation, but on a limited scale. After the Depression, every country established a financial safety net, comprising deposit insurance and heavy regulation that included interest rate ceilings and firewalls between financial and commercial institutions. As a result, there were no banking crises from the late 1930s until the mid-1970s anywhere in the advanced world. But, then, deregulations started and the banking crises were following,[60] which have caused an enormous social cost to the citizens of the countries.

This changed dramatically in the 1970s. The Great Inflation undermined interest rate ceilings and inspired financial innovations designed to circumvent the ceilings and other restrictions. These innovations led to deregulation and increased competition. Banking instability reemerged in the United States and abroad, with such examples of large-scale financial disturbances as the failures

[59] It is widely accepted that in times of financial crisis, central banks should follow *Bagehot's rule*, which can be summarized as: *"Lend without limit, to solvent firms, against good collateral, at 'high rates'."* However, during the latest global financial crisis, the Fed and the ECB seem to be following quite a different rule, which is best summarized as: *"Lend freely even on junk collateral at 'low rates'." See,* http://www.macroresilience.com/2011/09/12/bagehots-rule-central-bank-incentives-and-macroeconomic-resilience/

[60] After the Great Depression. A´. 20th Century: (1) Secondary banking crisis of 1973–1975 in the UK. (2) Kastelli crisis 1982 in Turkey. (3) Japanese asset price bubble (1986–2003). (4) Savings and loan crisis of the 1980s and 1990s in the U.S. (5) Finnish banking crisis of 1990s. (6) Swedish banking crisis (1990s). (7) Peruvian banking crisis of 1992. (8) Venezuelan banking crisis of 1994. (9) 1997 Asian financial crisis. (10) 1998 collapse of Long-Term Capital Management. (11) 1998 Russian financial crisis. (12) Argentine economic crisis (1999–2002). (13) 1998–99 Ecuador banking crisis. B´. 21st century: (14) 2002 Uruguay banking crisis. (15) 2003 Myanmar Banking Crisis. (16) Late-2000s financial crisis, including: (i) Subprime mortgage crisis in the U.S. starting in 2007; (ii) 2008 United Kingdom bank rescue package; (iii) 2008 United States bank rescue package; (iv) 2009 United Kingdom bank rescue package; (v) 2008–2009 Belgian financial crisis; (vi) 2008–2012 Icelandic financial crisis; (vii) 2008–2009 Russian financial crisis; (viii) 2008–2009 Ukrainian financial crisis; (ix) 2008–2012 Spanish financial crisis; (x) 2008–2011 Irish banking crisis; (xi) 2009-2016 Greek banking crisis; (xii) 2012-2013 Cypriot banking crisis; (xiii) 2016 Italian banking crisis. (17) Venezuelan banking crisis of 2009–10.

of Franklin National in 1974 and Continental Illinois in 1984 and the savings and loan crisis in the 1980s.[61] The reaction to these disturbances was to bail out banks considered "too big to fail," a reaction which likely increased the possibility of moral hazard. Many of these issues were resolved by the Depository Institutions Deregulation and Monetary Control Act of 1980 and the Basel I Accords, which emphasized the holding of bank capital as a way to encourage prudent behavior. The U. S. bank failures from 2008 to November 2016 were a total of 520 banks.[62]

Another problem that has reemerged in modern times is that of asset (financial and real) booms and busts, which are caused mainly by the easy monetary policy (low federal funds rate). Stock market and housing booms are often associated with the business cycle boom phase, and busts often trigger economic downturns. Central bank policy is to not defuse booms before they turn to busts for fear of triggering a recession, but to react after the bust occurs and to supply ample liquidity to protect the payments and banking systems. This was the policy followed by Alan Greenspan[63] after the stock market crash of 1987. It was also the policy followed later in the incipient financial crises of the 1990s and 2000s. Ideally, the policies should prevent financial crises before their occurrences and not to remove the excess liquidity once the threat of crisis has passed because the recessions destroy businesses, employment, incomes, and human lives.

Undoubtedly, the history of the Federal Reserve from 1913 to the present is very interesting for us to understand its policies, objectives, and roles in the U. S. economy.[64] In designing the New Bank, Glass and Willis took lessons

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[61] The *savings and loan crisis* of the 1980s and 1990s (the *S&L crisis*) was the failure of 1,043 out of the 3,234 Savings and Loan Associations in the U.S. from 1986 to 1995. The Federal Savings and Loan Insurance Corporation (FSLIC) closed or otherwise resolved 296 institutions from 1986 to 1989 and the Resolution Trust Corporation (RTC) closed or otherwise resolved 747 institutions from 1989 to 1995. See, Curry and Shibut (2000).

[62] In 2008: 25 banks failed, in 2009: 140, in 2010: 157, in 2011: 92, in 2012: 51, in 2013: 24, in 2014: 18, in 2015: 8, and in 2016 up to the month of November, 5 banks failed. See, https://www.fdic.gov/bank/individual/failed/banklist.html

[63] "The former Federal Reserve chairman, Alan Greenspan, has conceded that the global financial crisis has exposed a 'mistake' in the free market ideology which guided his 18-year stewardship of U.S. monetary policy. A long-time cheerleader for deregulation, Greenspan admitted to a congressional committee on October 23, 2008 that he had been 'partially wrong' in his hands-off approach towards the banking industry and that the credit crunch had left him in a state of shocked disbelief. 'I have found a flaw', said Greenspan, referring to his economic philosophy. 'I don't know how significant or permanent it is. But I have been very distressed by that fact.' See, https://www.theguardian.com/business/2008/oct/24/economics-creditcrunch-federal-reserve-greenspan.

[64] See, https://www.minneapolisfed.org/community/student-resources/central-bank-history/history-of-central-banking#new

from the First and Second Banks of the United States. They removed the private role of the bank in commercial lending, so that the New Bank would be a largely "public institution." Profits (e.g., for seigniorage, etc.)[65] in excess of cost were handed over to the U. S. Treasury. In addition, the Fed was given authority over the nation's payments system. Financial transfers and check processing that were handled by private clearinghouses would now be conducted by the Fed, with the fees for such services going to run the Bank.

The Board of Governors of the Federal Reserve System (the Fed) is made up of seven members appointed by the president of the United States for fourteen years and confirmed by the Senate. The Federal Reserve System was decentralized into twelve District Banks[66] and their twenty-five Branches, which operated independently,[67] and with an oversight board located in Washington, D. C. Each District Bank issued its own money, backed by the promise to redeem this money in gold. After Congress passed and President

[65] *Seigniorage*, also spelled *seignorag*e or *seigneurage* (from French *seigneuriage* "right of the lord (*seigneur*) to mint money"), is the difference between the value of money and the cost to produce and distribute it. The term can be applied in the following ways: (1) Seigniorage derived from specie (metal coins) is a tax, added to the total price of a coin (metal content and production costs), that a customer of the mint had to pay to the mint, and that was sent to the sovereign of the political area. (2) Seigniorage is the difference between the value of money and the cost to produce it; in other words, it is the economic cost of producing a currency within a given economy or country. It is most often defined by the difference between the cost of printing new currency and the face value of that same currency. Seigniorage may be counted as revenue for a government (through its central bank), when the money that is created is worth more than it costs to produce it. This revenue is often used by governments to finance portions of their expenditures without having to collect taxes. If, for example, it costs the U.S. government $0.05 to produce a $1 bill, the seigniorage is $0.95, or the difference between the two amounts. In some situations, the production of currency can result in a loss instead of a gain for the government creating the currency. For example, the U.S. penny was shown to cost 1.7 cents in 2014 with a face value of 1 cent. While the basic principle behind seigniorage suggests a country is able to profit from the production of new bills, there can be other factors affecting the entire transaction. Within the United States, should the Federal Reserve agree to increase the number of dollars available within the U.S. economy, it will purchase a Treasury bill in exchange for permitting the production of more dollars. While the government may appear to profit when the cost of production is lower than the face value of the bills, it is important to note that Treasury bills require interest payments to be made to the Federal Reserve in addition to the original investment placed when the Treasury bill was purchased.

[66] The Federal Reserve officially identified Districts are: 1-A Boston, 2-B New York, 3-C Philadelphia, 4-D Cleveland, 5-E Richmond, 6-F Atlanta, 7-G Chicago, 8-H St. Louis, 9-I Minneapolis, 10-J Kansas City, 11-K Dallas, and 12-L San Francisco.

[67] Of course, the majority of people have different view on the structure and control of central banks. "Until the control of the issue of currency and credit is restored to government and recognized as its most conspicuous and sacred responsibility, all talks of the sovereignty of Parliament and of democracy is idle and futile." William Lyon Mackenzie King, Canadian Prime Minister (1874-1950). See,
http://www.brainyquote.com/quotes/authors/w/william_lyon_mackenzie_ki.html

Wilson signed the Federal Reserve Act in 1913, Congress established 12 District Banks to reflect the distribution of population and banking in the country. Each Reserve Bank has its own board of nine directors chosen from outside the Bank (from commercial banks and the public).

Today, what the Federal Reserve is best known for is its monetary policy. Even New York Fed President Benjamin Strong had begun conducting open market operations in the 1920s. Many historians blame the Fed's botched monetary policy for the length and severity of the Great Depression. But, it was when President Franklin Roosevelt took the nation off the gold standard in 1933 that monetary policy really matured. Then, the nation was explicitly using fiat money for the first time, a formal authority became necessary to ensure that policy would be carried out responsibly. In 1935, Congress created the Federal Open Market Committee,[68] to be the Fed's monetary policy arm. The Fed has operated independent of the political process. Still, the Federal Reserve regularly reports to Congress and must answer questions and address issues important to the House and the Senate. This System of independent (private) central banks[69] has been imposed almost to all the countries around the world, with their main role the market stability.[70]

[68] The FOMC has 12 members; it is composed of the seven members of the Board of Governors and five of the twelve Reserve Bank presidents. The president of the Federal Reserve Bank of New York is a permanent member; the other presidents serve one-year terms on a rotating basis. The FOMC meets roughly every six (6) weeks, nine (9) times per year at the offices of the Board of Governors in Washington, D.C.

[69] There is a lot of skepticism regarding the current banking and financial markets (Wall Street) crises, due to direct results of our private central bank systems. http://public centralbank.com/

[70] Here are some significant bear markets since the Great Depression in the DJIA:

(1) Peak on September 3, 1929 (DJIA was 381.17), trough on July 8, 1932 (DJIA was 41.22), decline of –339.95 points or –89.2%, and with calendar days to bottom 1,038.

(2) Peak on March 10, 1937 (DJIA was 194.40), trough on April 28, 1942 (DJIA was 92.92), decline of –101.48 points or –52.2%, and with calendar days to bottom 1,874.

(3) Peak on February 9, 1966 (DJIA was 995.15), trough on May 26, 1970 (DJIA was 631.16), decline of –363.99 points or –36.6%, and with calendar days to bottom 1,566.

(4) Peak on January 11, 1973 (DJIA was 1051.7), trough on December 6, 1974 (DJIA was 577.60), decline of –474.10 points or –45.1%, and with calendar days to bottom 693.

(5) Peak on August 25, 1987 (DJIA was 2,722.42), trough on November 19, 1987 (DJIA was 2,722.42), decline of –983.68 points or –36.1%, and with calendar days to bottom 85.

(6) Peak on January 14, 2000 (DJIA was 11,722.98), trough on October 9, 2002 (DJIA was 7,286.27), decline of –4,436.71 points or –37.8%, and with calendar days to bottom 1,000. An economist had predicted in 2000 that the DJIA index must be 9,000 instead of 11,700, but his paper was rejected for publication until he was forced to take out this figure. Of course, reality has shown that his figure was also overestimated the correct market value of the index.

(7) Peak on October 9, 2007 (DJIA was 14,164.53), trough on March 9, 2009 (DJIA was 6,547.05), decline of -7,617.48 points or -53.78%, and with calendar days to bottom 517.

II. MONETARY POLICY AND ITS INSTRUMENTS AND OBJECTIVES

(i) The Goals of Monetary Policy

> "Νόσημα γάρ αἴσχιστον εἶναι φημί συνθέτους λόγους."
> Αἰσχύλος (c. 525 – 455 B. C.) "*Προμηέας Δεσμότης*."

The Federal Reserve Act[71] lays out the goals of monetary policy. "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." The roles played by the Fed are: (1) Market Stabilization, (2) Control of the Money Supply, (3) Lender of Last Resort (through the discount window), (4) Supervisor of the Banking System, and (5) Maintaining and Improving the Payment Mechanism (clearing of checks, supply of currency and coins, wiring funds, preserving confidence for the monetary unit).

There are five (5) key goals or ultimate objectives of modern monetary policy. (1) The first and most important is price stability or stability in the value of money. Today this means maintaining a sustained low rate of inflation ($\bar{\pi} \leq 2\%$). (2) The second goal is maximum employment (not full employment: $u = u^N \cong 4\%$). (3) The third one is a stable real economy, maximum sustained output (economic growth, g_{GDP}). (4) The fourth is moderate long-term interest rates ($\bar{i}_{L-T}$). (5) The fifth goal can be an equilibrium in the Balance of Payments (Current Account, $CA \cong 0$). Another way to put it is to say that monetary policy is expected to smooth the business cycle and offset shocks to the economy. Of course, a major objective of the Fed is financial stability. This encompasses an efficient and smoothly running payments system, correction of systemic disruptions that can occur during a plunge in stock prices, and the prevention of financial crises.

(8) Peak on December 20, 2016 (DJIA was 19,979.72), and continues to increase (the bubble is growing so far by +13,432.67 points or +205.17%, which is +26.474% per annum). See, Kallianiotis (2012).

[71] See, https://www.federalreserve.gov/aboutthefed/fract.htm.

Monetary policy is the process by which the monetary authority (central bank, the Fed) of the country controls the supply of money (targeting the non-borrowed reserves) or the interest rate (targeting the overnight federal funds rate) or targeting an inflation rate to ensure price stability, to sustain maximum output and employment, and to maintain general trust in the currency (its exchange rate with other currencies). The Fed's policy influences the demand for or supply of reserves at banks and other depository institutions, and through this market, the effects of monetary policy are transmitted to the rest of the economy. The demand for reserves (R^D) has two components, required reserves (R_R)[72] and excess reserves (R_E). The Fed supplies reserves to the banking system (R^S) in two ways, lending through the Federal Reserve discount window, borrowed reserves (R_B) and buying government securities or mortgage back securities (open market operations), non-borrowed reserves (R^*). Then, the total reserves (R_T) are:

$$R_T = R^D = R_R + R_E \equiv R_B + R^* = R^S \tag{1}$$

Further, *monetary policy* is referred to as either being expansionary (easy money) or contractionary (tight money), where an expansionary policy increases the total supply of money (M^s) in the economy more rapidly than usual, and contractionary policy expands the money supply more slowly than usual or even shrinks it. Expansionary policy is traditionally used to try to combat unemployment (u) in a recession ($-g_{GDP}$) by lowering interest rates (reducing the target federal funds rate, $\bar{i}_{FF}$) in the hope that easy credit will entice businesses into expanding and increase growth and employment.[73] Contractionary policy is intended to slow inflation (π) in order to avoid the resulting distortions and deterioration of asset values (financial and real).

[72] The reserve requirements are an infrequently used, but powerful tool of monetary policy. Every depository institution is required to maintain a reserve requirement ratio (r_R) of its transactions accounts [check book accounts, demand deposits (DD)]. Then, $R_R = r_R \,.\, DD$. For net transaction accounts: \$0.0 - \$10.3 million, $r_R = 0\%$; from \$10.3-\$44.4 million, $r_R = 3\%$; and over \$44.4 million, $r_R = 10\%$. Beginning October 2008, the Fed pays interest on required reserve balances and excess balances.

[73] Higher employment is necessary because it increases personal income, consumption, and demand for goods and services (AD); this aggregate demand generates an increase in aggregate supply (AS) and production in our economy: $AD \Rightarrow AS$.

Monetary policy differs from *fiscal policy*, which refers to taxation (T) and government spending (G).

(ii) The Instruments and Implementation of Monetary Policy

The Fed uses the following tools (instruments) of monetary policy. *General Instruments of Control:* (1) Open market operations (OMO), (2) the discount rate (i_D), (3) the reserve requirement ratios (r_R); *Selective Controls*: (4) the margin requirements (r_m), (5) the interest rate ceilings ($\bar{i}_D$), (6) the consumer credit (C_C), (7) the real estate credit (C_{RE}); *Moral Suasion:*[74] (8) informal requests to member banks, (9) publicity, and (10) direct contacts. The Federal Reserve targets the federal funds rate at a specific level (i.e., $\bar{i}_{FF} = 0.25\%$) and given the money demand (M^d), it uses the monetary policy instruments to supply the money (M^s) needed to keep the federal funds rate on its target level.

The *expansionary* (easy money) policy can be obtained with an Open Market Purchase (OMP) or reduction of the discount rate ($i_D \downarrow$) or decrease of the reserve requirement ratio ($r_R \downarrow$) or by lowering the margin requirement ratio ($r_m \downarrow$). The *contractionary* (tight money) policy requires the opposite actions, an Open Market Sales (OMS) or increase of the discount rate ($i_D \uparrow$) or increase of the reserve requirement ratio ($r_R \uparrow$) or by raising the margin requirement ratio ($r_m \uparrow$). Furthermore, monetary policies are described also as *accommodative*, if the interest rate set by the central monetary authority is intended to create economic growth; *neutral*, if it is intended neither to create growth nor combat inflation; or *tight* if intended to reduce inflation. The effects of these policies on the economy are as follows:

Easy:

$$OMP \Rightarrow R\uparrow \Rightarrow MB\uparrow \Rightarrow m_M \Rightarrow M^s\uparrow \Rightarrow i\downarrow \Rightarrow C\uparrow \text{ and } I\uparrow \Rightarrow AD\uparrow \Rightarrow GDP\uparrow \text{ and } u\downarrow$$

[74] Moral suasion is a monetary policy tool of the Fed, in which its officers and staff try to persuade bankers and the public through speeches and written communications to conform more closely to the central bank's goals.

Tight:

$$OMS \Rightarrow R\downarrow \Rightarrow MB\downarrow \Rightarrow m_M \Rightarrow M^s\downarrow \Rightarrow i\uparrow \Rightarrow C\downarrow and\ I\downarrow \Rightarrow AD\downarrow \Rightarrow \pi\downarrow and\ i_{L-T}\downarrow and\ CA\uparrow$$

Monetary policy can be implemented by changing the size of the monetary base ($MB = C + R$). Central bank uses open market operations to change the monetary base. The central bank buys or sells reserve assets (usually financial instruments such as bonds, government bonds and mortgage back securities) in exchange for money on deposit at the central bank. Those deposits are convertible to currency. Together such currency and deposits constitute the monetary base, which is the general liabilities of the central bank in its own monetary unit. Usually other banks can use base money as a fractional reserve[75] and expand the circulating money supply by a larger amount. By changing the proportion of total assets to be held as liquid cash (r_R), the Federal Reserve changes the availability of loanable funds.[76] This acts as a change in the money supply.[77] Central banks typically do not change the reserve requirements often, as it can create volatile changes in the money supply and may disrupt the banking system.

Central banks normally offer a *discount window*,[78] where commercial banks and other depository institutions are able to borrow reserves (R_B) from the Central Bank to meet temporary shortages of liquidity caused by internal or external disruptions. This creates a stable financial environment, where investment can occur; thereby affecting the money supply, allowing for the growth of the economy as a whole. An overview of the monetary policy is presented in Figure 1.

The latest global financial crisis (2007 to present)[79] has generated a new form of monetary policy, particularly used when interest rates are kept at or near zero percent ($i_{FF} \cong 0\%$) and try to stimulate the markets and the

[75] *Fractional-reserve banking* is the practice whereby a bank accepts deposits, makes loans or investments, and holds reserves that are equivalent to a fraction (only 10% of transaction balances, DD) of its deposit liabilities. Reserves are held at the bank as currency (C), or as deposits in the bank's accounts at the central bank (R). Fractional-reserve banking is the current form of banking practiced in most countries worldwide.

[76] Available for loanable funds: $(R_E) = R_T - R_R$.

[77] Approximately: $\Delta(M^s) = \frac{1}{r_R}\Delta(R_E)$

[78] The discount rate was ($i_D = 1\%$) on July 15, 2016 and became 1.25% on December 14, 2016.

[79] See, Kallianiotis (2015a).

economy with an enormous growth of money supply,[80] having also concerns about deflation, which is referred to as *unconventional monetary policy*.[81] These include credit easing,[82] quantitative easing,[83] forward guidance,[84] and signaling.[85] In credit easing, a central bank purchases private sector assets to improve liquidity and improve access to credit. Signaling can be used to lower market expectations for lower interest rates in the future. For example, during the credit crisis of 2008, the U. S. Fed indicated rates would be low for an

[80] The monetary base was (8/15/2007), $860.826 billion and became (9/16/2015), $4,165.782 billion; a growth of 383.928% or 47.99% per annum. The money supply (M2) from $7,350.60 billion reached $13,054.00 billion during the same period; a growth of 77.59% or 9.699% per annum. The money supply continues to grow; with December 5, 2016, it was $13,231.80 billion. See, https://fred.stlouisfed.org/series/BASE.

[81] See, Williamson (2014).

[82] In introducing the Federal Reserve's response to the 2008 financial crisis, Fed Chairman Ben Bernanke distinguished the new program, which he termed "credit easing" from Japanese-style quantitative easing. Credit easing involves increasing the money supply by the purchase not of government bonds, but of private-sector assets, such as corporate bonds and residential mortgage–backed securities. In 2010, the Federal Reserve purchased $1.25 trillion of mortgage-backed securities to support the sagging mortgage market. These purchases increased the monetary base in a way similar to a purchase of government securities.

[83] *Quantitative easing (QE)* is a monetary policy used by central banks to stimulate the economy, when standard monetary policy has become ineffective (and fiscal policy has been abandoned). A central bank implements quantitative easing by buying financial assets from commercial banks and other financial institutions, thus raising the prices of those financial assets and lowering their yield, while simultaneously increasing the money supply. However, when short-term interest rates ($i_{FF}^{eff} \cong 0\%$) reach or approach zero, this method can no longer work (liquidity trap). In such circumstances monetary authorities may then use quantitative easing to further stimulate the economy by buying assets of longer maturity than short-term government bonds, thereby lowering longer-term interest rates further out on the yield curve. Quantitative easing can help ensure that inflation does not fall below a target. Risks include the policy being more effective than intended in acting against deflation (leading to higher inflation in the longer term, due to increased money supply, as it happened in the U.S. lately with $\pi \cong 6\%$, *SGS*), or not being effective enough if banks do not lend out the additional reserves because there is no demand for investment.

[84] *Forward guidance* is a tool used by a central bank to exercise its power in monetary policy in order to influence, with their own forecasts, market expectations of future levels of interest rates. Communication about the likely future course of monetary policy is known as "forward guidance." Individuals and businesses will use this information in making decisions about spending and investments. Thus, forward guidance about future policy can influence financial and economic conditions, today. The strategy can be implemented in an explicit way, expressed through communication of forecasts and future intentions, sometimes known as *Odyssean* forward guidance. Implied forward guidance also exists, sometimes referred to as *Delphic* forward guidance. It is a softer and less-binding version of forward guidance to achieve similar effects. Among the main central banks, Delphic forward guidance dominates, although there are a couple of exceptions such as the U.S. Fed, which makes quite specific but still conditional statements, and the Bank of Japan, too.

[85] *Signaling* (or *signalling*) is the idea that one party (termed the agent) credibly conveys some information about itself to another party (the principal).

"extended period," until the middle of 2015.[86] The Fed raised the federal funds rates from 0.25% to 0.50% on December 16, 2015, and on December 14, 2016 to 0.75%, but the enormous liquidity for seven years keeps the effective rate below 0.70%.

A specificity of international optimal monetary policy is the issue of strategic interactions and competitive devaluations, which is due to cross-border spillovers in quantities and prices. Therein, the national authorities of different countries face incentives to manipulate the terms of trade[87] to increase national welfare in the absence of international policy coordination. Though research by Corsetti and Penseti (2005) suggests that the gains of international policy coordination might be small, such gains may become very relevant if balanced against incentives for international noncooperation.

Monetary decisions today take into account a wider range of factors, such as:

1. short-term interest rates;
2. long-term interest rates;
3. velocity of money through the economy;
4. exchange rates;
5. credit quality (credit rating);
6. bonds and equities (debt and corporate ownership);
7. government versus private sector spending/savings;
8. international capital flows of money on large scales;
9. financial derivatives such as options, swaps, futures contracts, etc.

[86] Further heterodox monetary policy proposals include the idea of *helicopter money*, whereby central banks would create money without assets as counterpart in their balance sheet. The money created could be distributed directly to the population as a citizen's dividend. This option has been increasingly discussed since March 2016 after the ECB's president Mario Draghi said he found the concept "very interesting." See, http://bruegel.org/2015/01/permanent-qe-and-helicopter-money/

[87] Terms of trade (TOT) = $\frac{P_M}{P_X} = \frac{S\,P^*}{P}$, where, P_M = price of imports, P_X = price of exports, S = spot exchange rate ($/€), P^* = foreign price, and P = domestic price. See, Kallianiotis (2013b, pp. 14-19).

Monetary Policy Instruments	Supply of Base Money	Money Multiplier Process	Intermediate Targets	Ultimate Policy Goals	Demand for Money
$OMO \quad \Rightarrow$		$c = \frac{C}{D}$	$\bar{i}_{FF}$	$\bar{\pi}$	
$i_D \quad \Rightarrow$	$MB \quad \Rightarrow$	$r = \frac{R}{D} \quad \Rightarrow$	M^s	u^N and g_{GDP}	$\Leftarrow \quad M^d$
$r_R \quad \Rightarrow$	$(C+R)$	m_D	$(M1, M2, MZM)$	$\bar{i}_{L-T}$	
$r_m \quad \Rightarrow$		m_M	$(M3)$	$CA \cong 0$	

Note: OMO = open market operations, i_D = discount rate, r_R = reserve requirements ratio, r_m = margin requirements, MB = monetary base, C = currency in circulation outside Federal Reserve banks and the U.S. Treasury, R = reserves, D = deposits, $\bar{i}_{FF}$ = target federal funds rate, $M1, M2, MZM, M3$ = monetary aggregates, $\bar{\pi}$ = moderate inflation rate, u^N = natural level of unemployment rate, g_{GDP} = growth of real output (GDP), $\bar{i}_{L-T}$ = moderate long-term interest rate, CA = balance in the current account; deposit multiplier: $m_D = \frac{1}{c+r} = f(c,r) = f(c; i, i_D, r_R, \sigma)$, where $\frac{\partial m_D}{c} < 0, \frac{\partial m_D}{i} > 0, \frac{\partial m_D}{i_D} < 0, \frac{\partial m_D}{r_R} < 0, \frac{\partial m_D}{\sigma} < 0$, i = market rate of interest, σ =uncertainty; money multiplier: $m_M = \frac{1+c}{c+r} = f(c,r) = f(c; i, i_D, r_R, \sigma)$, where $\frac{\partial m_M}{c} > 0, \frac{\partial m_M}{i} > 0, \frac{\partial m_M}{i_D} < 0, \frac{\partial m_M}{r_R} < 0, \frac{\partial m_M}{\sigma} < 0$; deposits: $D = m_D . MB$ and money supply: $M^s = m_M . MB$; and demand for money: $M_t^d = f(Q_t, P_t, i_t, S_t)$, where Q_t = real income, P_t = price level, i_t = nominal rate of interest, and S_t = spot exchange rate. See, Kallianiotis (2013a, p. 105).

Figure 1. Overview of Monetary Policy.

Beginning with New Zealand in 1990, central banks began adopting formal, public inflation targets with the goal of making the outcomes, if not the process, of monetary policy more transparent. The Bank of England exemplifies both these trends. It became independent of government through the Bank of England Act 1998 and adopted an inflation target of 2.5% RPI, revised to 2% of CPI in 2003. The European Central Bank adopted, in 1998, a definition of price stability within the Euro-zone as inflation of under 2% Harmonised Index of Consumer Prices (HICP). In 2003, this was revised to inflation below, but close to, 2% over the medium term. Since then, the target of 2% has become common for other major central banks, including the Federal Reserve (since January 2012) and the Bank of Japan (since January 2013).

Further, it continues to be some debate about whether monetary policy can (or should) smooth business cycles. A central conjecture of Keynesian economics is that the central bank can stimulate aggregate demand in the short run, because a significant number of prices in the economy are fixed in the short run and firms will produce as many goods and services as are demanded (in the long run, however, money is neutral, as in the neoclassical model). However, some economists from the new classical school contend that central banks cannot affect business cycles.

Furthermore, the distinction between the various types of monetary policy lies primarily with the set of instruments and target variables that are used by the monetary authority to achieve their goals, as follows:

Monetary Policy	Target Market Variable	Long Term Objective
Inflation Targeting	Interest rate on overnight debt	A given rate of change in the CPI
Price Level Targeting	Interest rate on overnight Debt	A specific CPI number
Monetary Aggregates	The growth in money Supply	A given rate of change in the CPI
Fixed Exchange Rate	The spot price of the Currency	The spot price of the currency
Gold Standard	The spot price of gold	Low inflation as measured by the gold price
Mixed Policy	Usually interest rates	Usually unemployment + CPI change

III. MODERN MONETARY POLICY AND ITS FFICIENCY

> "Πονηροί δέ ἄνθρωποι καί γόητες προκόψουσιν ἐπί τό χεῖρον,
> πλανῶντες καί πλανώμενοι, σύ δέ μένε ἐν οἶς ἔμαθες καί ἐπιστώθης,
> εἰδώς παρά τίνος ἔμαθες." (Β΄Τιμοθ. γ΄ 13-14).

(i) Macroeconomic Theory and Modern Monetary Policy

Macroeconomics is an area of study that is fraught with controversy, due to different school of thoughts that economists belong and different ways of their thinking and solving the broad socio-economic problems. Macroeconomics is seen as being of significant national importance, but the concepts that are involved in understanding macroeconomic functions are difficult to understand well. For example, what is an aggregate price level? How do we understand a budget deficit or a budget surplus? And are all budget deficits the same? Macroeconomic concepts are discussed in the media on a daily basis, such as, the real GDP growth rate, the inflation rate, the unemployment rate, the budget deficit, the interest rate, financial markets, and public policies.

Further, the advent of social media (but their view is subjective) has made it possible for anyone to become a macroeconomic commentator. We all have become self-styled macroeconomic experts, who make claims about the state of the federal budget, the monetary policy, the financial markets and institutions often relying on "common sense" logic to make our cases. The surge in public interest in matters macroeconomic has been channeled by the dominant neo-liberal paradigm in economics for many years has negative socio-political effects on our democratic nations.[88] As a consequence, the

[88] *Neoliberalism* (or *neo-liberalism*) is a term, which has been used since 1938, but became more prevalent in its current meaning in the 1970s and 1980s by scholars in a wide variety of social sciences and critics primarily in reference to the resurgence of 19th century ideas associated with *laissez-faire economic liberalism*. Advocates of free market (but not free people) avoid the term "neoliberal"; they support extensive economic liberalization policies such as privatization (confiscation and sell-off of public wealth), fiscal austerity, deregulation, free trade, and reductions in government spending (abandonment of social policies) in order to enhance the role of the private sector in the economy. The implementation of neoliberal policies and the acceptance of neoliberal economic theories in the 1970s are seen by some academics as the root of financialization of capitalism and its transformation to debtism, with the financial crisis of 2007-2010 and the Euro-zone debt crisis that continues up to 2016, as one of the ultimate results. After 1980s, the usage of the term had shifted. It had not only become a term with negative connotations employed

public understanding becomes questionable by orthodox concepts and conclusions that, in themselves, are erroneous, but also lead to policy outcomes that undermine prosperity, self-sufficiency, democracy, sovereignty, and subvert public purpose. The abandonment of full employment in the 1980s, the introduction of half time and part time employment without health benefits and the willingness to tolerate mass unemployment is a manifestation of this inhumane syndrome.

The dominant macroeconomics paradigm, which prior to the global financial crisis had pronounced that the business cycle was largely dead[89] and that we had entered a period of "great moderation," categorically failed to foresee the consequences of the labor market, the outsourcing, and the financial deregulation that it had promoted. Some would argue that its lack of empirical content, even though that the true economic data (not the official) were showing the wrong trend and its demonstrated failure to predict novel facts (the Global Financial Crisis) renders the mainstream macroeconomics a pseudo-scientific, degenerative research program following the classification scheme proposed by Imre Lakatos in 1970.[90]

However, any sense that the crisis would lead to a major examination of the role of mainstream economics and action to change the curricula taught and research agendas pursued were short-lived. Mainstream (liberal and deceived) economists and international institutions exercised their anti-government free-market (actually, value-free) biases and effectively

principally by critics of market reform, but it also had shifted in meaning from a moderate form of liberalism to a more radical and *laissez-faire* capitalist set of ideas (the inhumane globalization, the destruction of the sovereign nations, the demotion of the factor labor, and the control of humans). Scholarship on the phenomenon of neoliberalism has been growing. The impact of the global 2007-2016 crisis has also given rise to new scholarship that critiques neoliberalism and seeks developmental alternatives by taking into consideration human beings and their welfare. "Wall Street by manipulating the markets and Washington's incompetence by lying and deceiving people have torn apart the lives of decent, hardworking Americans." See, Davidson (2015).

[89] On February 20, 2004 the ex-Fed Governor Ben S. Bernanke presented a paper in Washington entitled "The Great Moderation," which summarized the views held by the vast majority of (politically correct) economists that the business cycle was dead! See, Bernanke (2004).

[90] *Imre Lakatos* [*Lakatos Imre* was born *Imre (Avrum) Lipschitz*; 1922 – 1974] was a Jewish-Hungarian philosopher of mathematics and science, known for his thesis of the fallibility of mathematics and its "methodology of proofs and refutations" in its pre-axiomatic stages of development, and also for introducing the concept of the "research programme" in his methodology of scientific research programs. In March 1944 the Germans invaded Hungary and Lakatos along with Éva Révész, his then-girlfriend and subsequent wife, formed soon after that event a Marxist resistance group. Actually, all the extreme systems have been developed by the same people. But, there is a race (Ἑλληνικῆς καταγωγῆς) of moral philosophers that accept only the Truth.

reconstructed what was a private (banks') debt crisis into a sovereign debt crisis, especially in poor Euro-zone member-nations (like the civilizer of the world, Greece). The dynamics that created the crisis (deregulation, reduced financial oversight, enormous debts) continue to be advocated by the mainstream as solutions.[91]

The public debate is dominated by claims that fiscal austerity (high taxes, reductions of salaries, wages, and pensions, layoffs of works and reduction of their income) is the only viable path to recovery and leading multilateral agencies such as the IMF, EU, ECB, the OECD, and others with suspicious objectives have produced glowing forecasts, which denied that major fiscal retrenchments would damage growth because it reduces aggregate demand and consequently production.[92] The fiscal austerity is another form of social terrorism.

Modern Monetary Theory (MMT) is a coherent, internally consistent and well-developed macroeconomics framework, which is ground in the operational reality of the capitalist monetary economy that its main objective is the market stability and value maximization of our financial assets. Its track record in explaining major events over the last two decades (including the global financial crisis and its aftermath) suggests that it is a progressive research program incapable of predicting novel facts, which are confirmed by subsequent events. Then, its efficiency is questionable because it failed to resonate with the wider public and its social objective.

It is apparent that many economists end up believing things and supporting policies that actually undermine our own best interests because of the way the arguments are presented to us. In other words, many people accept falsehoods as truth[93] and ideology triumphs over evidence. Studies have highlighted the extent to which pre-existing biases influence the way, in which

[91] In the 1980s and beyond, the mainstream revision of the past gathered pace. Weber (1997, p. 71) wrote that the rise of the "New Economics," characterized by the: "… globalization of production, changes in finance, the nature of employment, government policy, emerging markets, and information technology, had contributed … to the dampening of the business cycle." The "facets" which had smoothed out growth and supply shocks would now be: "… less important in a more flexible and adaptive economy that adjusts to shocks more easily and with less propensity for sparking a new cycle." Weber also implicated the decline in union strength, more flexible labor markets, and the rapid growth of the financial sector as contributing to the end of the business cycle. What a delusion for this new gilded age!

[92] This view was unchallenged by the controlled media commentators. Subsequently, the IMF has been forced to admit its calculations were in error (IMF apology article) although this admission, stunning for what it represents, has had little impact on the dominant discourse. See, https://www.theguardian.com/business/2013/jun/05/imf-underestimated-damage-austerity-would-do-to-greece.

[93] See, Davidson (2015).

individuals interpret factual information, including straightforward (but manipulated by the authorities) statistical data. This presents a problem for the communication by researchers to the public of research outcomes that bear on public policy design, particularly where findings may be counter-intuitive, or may challenge a dominant or controversial discourse, as in the case of the anti-humane economic austerity or the deceptive climate change that we can observe the error by learning a little history.

Of course, people created the economy, the institutions, and the markets to satisfy their needs. People are the basis, the purpose, and everything in our world. There is nothing natural about it because we have our intellect and the abilities given by God to improve the world and reach perfection. Concepts such as the "natural rate of unemployment," which imply that the economy is a natural system that should be left to its own equilibrating forces to reach its natural state, like any living system cannot be right. The natural rate of unemployment is, $u^N = 4\%$, for the U. S., but the optimal must be $u^O = 0\%$. Our objective, as social scientists, must be optimality in all aspects of humanity.

Also, we formed nations[94] and governments (agents) to satisfy our needs. We as voter-taxpayers (principals) also came to understand that our creation, the economy and our institutions (central banks, etc.), would only serve our common purposes if they were subject to oversight and control by our agent that act in our favor, which is the democratic government. Capitalism cannot be in tension with labor, but deliver employment outcomes that satisfy the desire of labor for work and with its income to buy the goods and services provided by capitalists and regulated by the government to improve the living standards (education, health care, housing, infrastructures, safety and security, etc.). Then, our public policies must be mixed policies (monetary and fiscal).[95]

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[94] With optimal characteristics, like, <<όμόαιμον, όμόγλωσσον, όμόθρησκον, όμότροπον>> (omoemon = same blood, omoglosson = same language, omothriskon = same religion, omotropon = same ways, behaviour). **A**ccording to Herodotus **(**Ηρόδοτος, a Greek historian who was born in Halicarnassus, Caria and lived in the fifth century B.C., c. 484–425 B.C., who is referred as "The Father of History").

[95] The celebratory, smug, and subjective (exaggerated) confidence of the mainstream economists is best summarized by Robert E. Lucas Jr. in his presidential address to the American Economic Association in 2003: "Macroeconomics was born as a distinct field in the 1940's, as a part of the intellectual response to the Great Depression. The term then referred to the body of knowledge and expertise that we hoped would prevent the recurrence of that economic disaster. My thesis in this lecture is that macroeconomics in this original sense has succeeded: Its central problem of depression prevention has been solved, for all practical purposes, and has in fact been solved for many decades. There remain important gains in welfare from better fiscal policies, but I argue that these are gains from providing

The sentiments expressed by Lucas (2003) coincided with the major shift in policy direction towards so-called microeconomic reform, which resulted in extensive financial deregulations and labor market reform. The pre-conditions for what was to become the global financial crisis were set in place during this period after 1980s. Real wages growth started to lag behind productivity growth as a result of attacks on unions and the rising precariousness of work (increased casualization, temporary jobs, minimum wages without health insurance, less than 40-hours work per week, and rising underemployment), which undermined the capacity of workers to pursue adequate recompense.[96] The loss of capacity to maintain consumption growth was "overcome" by the burgeoning financial sector with its redistribution of wealth from the naïve investors to the rapacious speculators, which grew rapidly on the back of a massive increase in private sector debt, increasingly provided to more and more marginal borrowers ($r_m = 50\%$), then packaged up into complex derivatives and on-sold to the next sucker.

In the early 1990s, as the neo-liberal credit binge (massive accumulation of debt; from "capitalism" to "debtism")[97] was beginning, the early proponents of what is now broadly known as Modern Monetary Theory (MMT) drew on earlier heterodox theory (functional finance)[98] and added particular operational insights about the monetary system, with which to develop an alternative narrative about the way the monetary capitalist system operated. Even in those early stages of the private debt build-up it was clear that a major crisis was approaching, given the ill-considered financial practices that were emerging.[99] And then, we are paying for our (their) mistakes.

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people with better incentives to work and to save, not from better fine-tuning of spending flows. Taking U.S. performance over the past 50 years as a benchmark, the potential for welfare gains from better long-run, supply-side policies exceeds by far the potential from further improvements in short-run demand management." See, http://pages.stern.nyu.edu/~dbackus/Taxes/Lucas%20priorities%20AER%2003.pdf.

[96] See, http://www.thesimpledollar.com/a-dose-of-financial-reality/.

[97] See, Davidson (2015).

[98] *Functional finance* is an economic theory proposed by Abba P. Lerner [Abraham Ptachya Lerner (1903-1982) was a Jewish Russian-born British economist], based on effective demand principles and chartalism. It states that government should finance itself to meet explicit goals, such as taming the business cycle, achieving full employment, ensuring growth, and low inflation. See, https://en.wikipedia.org/wiki/Functional_finance.

[99] The Great Moderation was brought to a stark halt by the global financial crisis, which began in early August 2007, when the French bank BNP Paribus stopped withdrawals from three investment funds in response to the growing concern about the viability of the sub-prime loan portfolios in the U.S. Later in the same month, there was a run on the British bank Northrock. As the wealth that had been built up during the Great Moderation started to prove illusory, with housing and share prices falling sharply, the crisis escalated. In September 2008, Lehman Brothers collapsed. At that point, the myth of self-regulating

Unfortunately, any sense that the latest crisis would lead to a major examination of the role of mainstream economics (as the queen of social sciences) and action to change public policies (monetary and fiscal), the curricula taught, and research agendas pursued were short-lived. The mainstream profession began to reconstruct what was a private debt crisis into a sovereign debt crisis, which suited their anti-government (and in some cases, the West's anti-specific nation prejudice), free market biases.[100] The dynamics that had created the crisis (deregulation, reduced oversight, greediness, privatization, over-indebtedness, low federal funds rates, etc.) were advocated as solutions. The public debate and the controlled media were flooded with claims about that fiscal austerity was the only viable path to take and leading multilateral agencies such as the IMF,[101] the OECD, and the World Bank

markets was exposed and the entire edifice of mainstream economic theory lost creditability. Unfortunately, none of the dominant models taught in universities or used by academics in scholarly articles was equipped to predict the crisis or offer viable solutions to the crisis. See, Wessel (2009).

[100] On October 23, 2008 as the crisis was escalating, the former Fed Chairman, Alan Greenspan, appeared before the U.S. House Committee on Oversight and Government Reform, which was investigating the "The Financial Crisis and the Role of Federal Regulators." The Chairman of the Committee, Henry Waxman asked Greenspan whether his free market ideology that pushed him to make regrettable decisions. He replied Mr. GREENSPAN. Well, remember, though, whether or not ideology is, is a conceptual- framework with the way people deal with reality. Everyone has one. You have to. To exist, you need an ideology. The question is, whether it exists is accurate or not. What I am saying to you is, yes, I found a flaw, I don't know how significant or permanent it is, but I have been very distressed by that fact …Chairman WAXMAN. You found a flaw? Mr. GREENSPAN. I found a flaw in the model that I perceived is the critical functioning structure that defines how the world works, so to speak. Chairman WAXMAN. In other words, you found that your view of the world, your ideology, was not right, it was not working. Mr. GREENSPAN. Precisely. That's precisely the reason I was shocked, because I had been going for 40 years or more with very considerable evidence that it was working exceptionally well. See, U.S. House of Representatives, 2008. http://www.law.du.edu/documents/corporate-governance/legislation/preliminary-transcript-crisis.pdf.

[101] The criticisms against IMF are unique in the history of international institutions. Overseas Development Institute (ODI) research undertaken in 1980 included criticisms of the IMF, which support the analysis that it is a pillar of what activist Titus Alexander (1996) calls global apartheid. (1) Developed countries were seen to have a more dominant role and control over less developed countries (LDCs). (2) The Fund worked on the incorrect assumption that all payments disequilibria were caused domestically. The G-24, on behalf of LDC members, and the U.N. Conference on Trade and Development (UNCTAD) complained that the IMF did not distinguish sufficiently between disequilibria with predominantly external as opposed to internal causes. This criticism was voiced in the aftermath of the 1973 oil crisis. Then LDCs found themselves with payments deficits due to adverse changes in their terms of trade, with the Fund prescribing *stabilisation programmes* similar to those suggested for deficits caused by government over-spending. Faced with long-term, externally generated disequilibria, the G-24 argued for more time for LDCs to adjust their economies. (3) Some IMF policies may be anti-developmental; the report said

that deflationary effects of IMF programmes quickly led to losses of output and employment in economies, where incomes were low and unemployment was high. Moreover, the burden of the deflation is disproportionately borne by the poor. (4) The IMF's policies lack a clear economic rationale. Its policy foundations were theoretical and unclear because of differing opinions and departmental rivalries whilst dealing with countries with widely varying economic circumstances. ODI conclusions were that the IMF's very nature of promoting market-oriented approaches attracted unavoidable criticism. On the other hand, the IMF could serve as a scapegoat while allowing governments to blame international bankers. The ODI conceded that the IMF was insensitive to political aspirations of LDCs, while its policy conditions were inflexible. Argentina, which had been considered by the IMF to be a model country in its compliance to policy proposals by the Bretton Woods institutions, experienced a catastrophic economic crisis in 2001, which some believe to have been caused by IMF-induced budget restrictions (which undercut the government's ability to sustain national infrastructure even in crucial areas such as health, education, and security) and privatization of strategically vital national resources. Others attribute the crisis to Argentina's misdesigned fiscal federalism, which caused subnational spending to increase rapidly. The crisis added to widespread hatred of this institution in Argentina and other South American countries, with many blaming the IMF for the region's economic problems. The current, as of early 2006, trend toward moderate left-wing governments in the region and a growing concern with the development of a regional economic policy largely independent of big business pressures has been ascribed to this crisis. The same austerities have been imposed to Greece since 2009 and the country is in a very deep recession for eight years, with citizens committing suicides and young educated Greeks to migrate to Europe and other countries to find employment (an enormous brain drain). In an interview, the former Romanian Prime Minister Călin Constantin Anton Popescu-Tăriceanu claimed that "Since 2005, IMF is constantly making mistakes when it appreciates the country's economic performances." Former Tanzanian President Julius Nyerere, who claimed that debt-ridden African states were ceding sovereignty to the IMF and the World Bank, famously asked, "Who elected the IMF to be the ministry of finance for every country in the world?" Former chief economist of IMF and current Reserve Bank of India (RBI) Governor Raghuram Rajan, who predicted Financial Crisis of 2007-2008, criticized IMF for remaining a sideline player to the Developed world. He criticized IMF for praising the monetary policies of the U.S., which he believed were wreaking havoc in emerging markets. He had been critical of the ultra-loose money policies of the Western nations and IMF. The IMF has been criticized for being "out of touch" with local economic conditions, cultures, and environments in the countries they are requiring policy reform. The economic advice the IMF gives might not always take into consideration the difference between what spending means on paper and how it is felt by citizens. Jeffrey Sachs argues that the IMF's "usual prescription is 'budgetary belt tightening to countries who are much too poor to own belts.'" Sachs wrote that the IMF's role as a generalist institution specializing in macroeconomic issues needs reform. Conditionality has also been criticized because a country can pledge collateral of "acceptable assets" to obtain waivers, if one assumes that all countries are able to provide "acceptable collateral." One view is that conditionality undermines domestic political institutions. The recipient governments are sacrificing policy autonomy in exchange for funds, which can lead to public resentment of the local leadership for accepting and enforcing the IMF conditions. Political instability can result from more leadership turnover as political leaders are replaced in electoral backlashes. IMF conditions are often criticized for reducing government services, thus increasing unemployment. Another criticism is that IMF programs are only designed to address poor governance, excessive government spending, excessive government intervention in markets, and too much state ownership. This assumes that this narrow range of issues represents the only possible problems; everything is standardized and differing

produced wrong measures, estimates, and forecasts, which denied that major fiscal restrictions would damage growth.

(ii) The Latest Pursued Inefficient Monetary Policies

The Great Depression (1929-1930) was the first major systemic effect between the U. S. and a few European economies because the correlation with other economies was negative. But, after 1980, the correlation became positive and very high ($\rho_{g_{GDP}, g_{GDP^*}} \cong +1$), due to globalization. For this reason the U. S. financial crisis in 2007 affected all the European countries and many others around the world. In 1933, the U. S. introduced the Glass-Steagall Act based on deposit insurance (FDIC) and on regulation of designated commercial and investment banks, which gave to us 66 years of crisis-free (until 1999 that it was repealed).[102] The SEC allowed big investment banks to increase their

contexts are ignored. A country may also be compelled to accept conditions it would not normally accept had they not been in a financial crisis in need of assistance. On top of that, regardless of what methodologies and data sets used, it comes to same conclusion of exacerbating income inequality. With Gini coefficient, it became clear that countries with IMF programs face increased income inequality. It is claimed that conditionalities retard social stability and hence inhibit the stated goals of the IMF, while Structural Adjustment Programs lead to an increase in poverty in recipient countries. The IMF advocates "austerity programmes," cutting public spending and increasing (individuals') taxes even when the economy is weak, to bring budgets closer to a balance, thus reducing budget deficits. Countries are often advised to lower their corporate tax rate. In *Globalization and Its Discontents*, Joseph E. Stiglitz, former chief economist and senior vice-president at the World Bank, criticizes these policies. He argues that by converting to a more monetarist approach, the purpose of the fund is no longer valid, as it was designed to provide funds for countries to carry out Keynesian reflations, and that the IMF "was not participating in a conspiracy, but it was reflecting the interests and ideology of the Western financial community" (sic). International politics play an important role in IMF decision making. The clout of member states is roughly proportional to its contribution to IMF finances. The United States has the greatest number of votes and therefore wields the most influence. Domestic politics often come into play, with politicians in developing countries using conditionality to gain leverage over the opposition in order to influence policy.

[102] Starting in the early 1960s federal banking regulators interpreted provisions of the Glass–Steagall Act to permit commercial banks to engage in an expanding list and volume of securities activities. The lost wealth and personal hardship resulting from these people's policies are incalculable, yet their economic influence continues unabated. These policies are first anti-American and of course, against the international financial system and the sovereign nations. Rickards (2014, pp. 196-197) calls this, "The Rubin Web of Influence clique, which exercises global control." Also, Stiglitz (2009), who had opposed repeal of Glass-Steagall Act, said. "This was the culmination of a $300 million lobbying effort by the banking and financial services industries and spearheaded in Congress by Senator Phil Gramm." The "democracy" of lobbyists.

debt-to-capital ratios (from 12/1 to 30/1 or higher) to be able to buy more mortgage-backed securities, but they inflated the housing bubble even more. Another challenge was that posed by derivatives in the 21st-century deregulated markets. In August 2007, a major financial crisis started from the U. S. and spread very fast globally (to European and Asian financial markets). By Fall 2008, this had become a global debt crisis and by Fall of 2009, it had winded to a systemic economic crisis with the burdens of the Euro-area common currency, common public policy, and sovereign debt crises. The seeds of this global economic crisis had been sown with the deregulation of the commercial and investment banking sectors in the 1980s and 1990s and with their new financial "innovations."[103] Then, the immense liquidity, the enormous debts, the huge financial and real estate bubbles,[104] the bank lending and the new securitization practices, created a mountain of risky debts that could not be serviced, when the value of these assets (real and financial) fell. Those are the outcomes of any exaggeration in our societies, but for this reason we have governments, public policies, regulatory authorities, and central banks to prevent these catastrophic outcomes[105] that affect negatively the welfare of the nations and disrupt the lives of their citizens.

The Fed kept the interest rate closed to zero lower bound ($\bar{i}_{FF} = 0.25\%$) since December 2008 and on September 13, 2012 in a statement, it said, "exceptionally low levels for the federal funds rate are likely to be warranted at least through mid-2015." Finally, it raised the federal funds rate to 0.50% on

[103] The corruption in banking became "scientific" and "innovative" and went out of control. Six banks (Citi, J.P. Morgan, UBS, RBS, HSBC, and Bank of America) agreed to pay a total of $4.3 billion to resolve allegations they tried to game the foreign exchange market. See, *The Wall Street Journal*, November 13, 2014, pp. A1 and C1. Unfortunately for the U.S., its legal system is also illegal (corrupted). A court overturned two insider-trading convictions and ruled it isn't always illegal to trade stocks using inside information, a blow to the Justice Department. See, *The Wall Street Journal*, December 11, 2014, pp. A1 and A6. Republican nominee for the presidency and currently the U.S. President, Donald Trump, promised Republicans a country of "law and order" and of "generosity and warmth" in his speech at the Republican Convention on July 21, 2016. See, *The Wall Street Journal*, July 22, 2016, pp. A1 and A5.

[104] The Chinese housing market has started to show similar signs as the U.S. housing in 2007. See, Koech and Wang (2014). Also, an Australian housing bubble is in progress.

[105] Unfortunately, the same people that were working for the Fed or government and have all these insiders' information and hopefully, they could work as banks' regulators, are hiring by the Wall Street firms (i.e., Goldman Sachs), so they cannot contribute to the nation's welfare; they satisfy the needs and interest of their private firms (conflict of interest). See, Jessica Silver-Greenberg, Ben Protess, and Peter Eavis, "Rising Scrutiny As Banks Hire From the Fed," *The New York Times*, November 20, 2014, pp. A1 and B8. See also, http://www.bloomberg.com/news/2014-11-21/dudley-defends-new-york-fed-supervision-in-heated-senate-hearing.html.

December 16, 2015 and to 0.75% on December 14, 2016.[106] The Federal Reserve holds trillion of dollars' worth of government and mortgage-backed securities to keep the interest rate low. The monetary base from (8/2008) $877 billion reached (4/2015) $4,531 billion.[107] The U. S. Treasury pays interest to the Fed on its securities held by the central bank and the Fed is receiving the proceeds of printing money (seigniorage), too. By keeping the interest rate below the rate of inflation, it generates an "inflation tax," which erodes the value of our dollar holdings. The inflation target policy, the payment of interest on reserves, the use of forward guidance, and the quantitative easing QE)[108] have changed the dual mandate (inflation and unemployment) that comes from the U. S. Congress. This is obvious that the public policy is determined by the Fed and not by the Treasury (the government) and the results prove that it is not very effective. The ECB kept a high interest rate until the end of 2013[109] and the member-nations suffer from lack of liquidity (especially, Greece, for which liquidity and capital controls have been used by the ECB as "weapons" to force the government to follow the Troika's orders) in the middle of a deep recession.

The latest complexity of the nations and their obligations towards the EU, the EMU, the "allies," and the citizens have generated enormous government spending, common rules, inefficiency, waste, and debts. All these expenditures have been financed by taxes and government borrowing. Our latest consumption had exceeded any historic measures. Individuals were spending the largest proportion of their life wealth by borrowing the present value of their exaggerated expected future income. The words "saving" and "thrift"

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[106] See, https://www.federalreserve.gov/newsevents/press/monetary/20151216a.htm.

[107] With April 16, 2015, there were $2.460 trillion of government securities, $1.734 trillion mortgage-backed securities, and other assets of $0.337 trillion; total: $4.531 trillion. There was a growth of 416.65% in seven years or 59.52% per annum. Something seems very wrong, here. This quantitative easing policy does not work. The U.S. has just flooded the world with dollars, which has made angry the other nations. See, http://nypost.com/2014/10/12/obamas-4-trillion-gift-to-the-rich/. See also, *Ron Paul's Final Warning:* https://orders.cloudsna.com/chain?cid=MKT147626&eid=MKT178797 &step= start&hpmv=2##AST26696. In June 2016 fell to $3.846 trillion. See, https://fred. stlouisfed.org/series/AMBSL.

[108] Even Fed's chairman, Benjamin Bernanke, said, "…the problem with QE is it works in practice, but it doesn't work in theory." See, Williamson (2014, p. 118). Unfortunately, it does not work in practice, too; the economy cannot recover since 2009 and the unemployment is very high. The unemployment rate with June 2016 was: $u = 22.9\%$. See, http://www.shadowstats.com/article/c810x.pdf.

[109] ECB's overnight deposit rate was changed as follows. In 12/10/2008: 2.50%; 1/21/2009: 2%; 3/11/2009: 1.5%; 4/8/2009: 1.25%; 12/14/2011: 1%; 7/11/2012: 0.75%; 5/8/2013: 0.50%; 12/13/2013: 0.25%; 6/11/2014: 0.15%; 9/10/2014: 0.05%; and on 3/16/2016: 0.00%. See, https://www.ecb.europa.eu/stats/monetary/rates/html/index.en.html

were not part of the modern vocabulary anymore after 1970s. Banks were offering without any restrictions the amount of money that people wanted to borrow by increasing the risk-premium for a highly indebted customer and by selling their loans portfolia to other institutions. As a result of this irrational behavior individuals ended up with loans, which exceeded their life-cycle income and their monthly interest payment had become the largest component of their expenses. Banks with their enormous risk premia and their collateral on loans were the only winners.[110] Similar behavior was followed by corrupted governments and their inefficient treasuries; so their debts and deficits have reached the colossal amounts that are impossible to be paid back even with any austerities (enormous taxes, even property taxes, and reductions in salaries, wages, and pensions) imposed on the citizens or with any privatizations (sell offs) of the public wealth of the nations.[111] What a delusion that we were living for so many years! And many times, it was promoted by the authorities.

Central banks actually can monetize any amount of debt the Treasury (or other agencies) issue, up to the point of a collapse of confidence in their currencies. If national income, after the recession, can pay the interest on the debt, with enough left over to reduce total debt as a percentage of GDP, then the situation should remain stable. If there is not enough national income left over after the interest to reduce the debt as a percentage of GDP, and if this condition persists, then the U. S. will eventually go bankrupt. The same holds

[110] Here, it is an answer of one of my students on the following risk premium question: *Is the Risk Premium on our credit cards justifiable?*

"This is my ethical perspective on Risk Premium on credit cards. While pursuing my undergraduate degree, I worked for one of the most corrupt credit card companies. It is a sub-prime credit card company that preyed on vulnerable people with bad or no credit. The card would be sent out to consumers with $198 in processing fees with a $250 credit line. People did not read the small printed brochures and people would just activate these cards. People would use these credit cards and not realize that they only had $52 to spend. At that point the card would be maxed out and the company began charging over limit fees of $30 and an interest rate of 29.99%. Soon this was followed by $35 late fees. I do not believe that a high Risk Premium is morally justifiable. I was the representative on the other end of the phone who listened to story after story. For example, an elderly person who purchased a prescription because he/she needed it; a young mother who put gas in her car; a disabled person who did not understand how the credit card worked. These were vulnerable people who were taken advantage of by a greedy, avaricious company. This credit card company did more than mitigate their risks. The company preyed on poor, uneducated people. As a side note, the owner of this company last year received an award for philanthropist of the year. This puts a real spin on what Americans views as value. This is an ethical/moral perspective on the horrors of unchecked free market capitalism." [K. L. (FIN 508) Summer 2013].

[111] See, Kallianiotis (2013c).

for all the EU member-nations and in trouble are those that are members of the EMU because they have lost their national public policies (they have no independent central banks, no domestic monetary policies, and no national currencies). The deficits are sustainable or unsustainable when,

$$(\dot{q} + \pi) - i \neq \left|\dot{t} - \dot{g}\right| \tag{2}$$

sustainable if, $(4\% + 2\%) - 3\% > 2\%$

not sustainable if, $(3\% + 1\%) - 2\% < 3\%$

where, $\dot{q}$ = the growth of real output (GDP), π = inflation, $\dot{q} + \pi = \dot{y}$ = the growth of nominal GDP, i = borrowing (interest) cost (as a percentage of GDP), and $\dot{t} - \dot{g} < 0$ = primary deficit (as a percentage of GDP).

This second numerical example is showing an unsustainable condition.[112] The key factors in primary deficit sustainability (PDS) are borrowing costs (I), real output (Q), inflation (π), taxes (T), and government spending (G). The best way to move toward sustainability is to increase real growth (the production of the nation). Another way is the one that EU (the Troika and lately, the Quartet) is using for its member-nations, improving debt sustainability by increasing taxes,[113] which is absolutely wrong during periods of recessions or depressions. Also, if taxes are held steady and spending is cut, the primary deficit shrinks, but this policy is contractionary and does not stimulate an economy that is in recession. The central banks' policies can affect inflation (π) and interest rate (I) cost of borrowing, which can influence the PDS and finally, the debt as a percentage of the GDP. In the absence of higher real growth, either politicians must reduce deficits or the central banks must produce inflation and reduce the cost of borrowing, with its

[112] In U.S., the situation at the end of 2015 was: $(2.4\% + 0.7\%) - 2.44\% < 2.5\% \Rightarrow 0.66\% < 2.5\%$ = primary deficit, which is Unsustainable. See, also, Davidson (2015) and Rickards (2014). In Greece for 2015, it was: $(-0.2\% - 1.1\%) - 4.3\% < 7.2\% \Rightarrow -5.6\% < 7.2\%$ = primary deficit; but, the Quartet is forcefully imposed primary surplus (*sic*), which is disastrous and inhumane.

[113] They imposed taxes also on property (houses, lands, and any structure) since September 11, 2011, which is completely unethical. You are an owner of your home and you pay "rent" to the government. Then, how this can be called "ownership"? There is no ownership in extreme systems, communism or capitalism! See, http://livingingreece.gr/2011/09/19/new-property-tax-greece/

excess supply of liquidity. The output is: $GDP = C + I + G + X - M$. A recovery is an increase in GDP, but this is going up due to increase in government spending (increase in national debt) and not major effect on the rest of the economy. The deficit became unsustainable. The national economy has fallen so far that it could take years to climb back, where it was a few years ago.

Recently, all the economic gains have gone to the big banks, which are making huge revenues from interest income (the spread between loans' and deposits' rate is enormous)[114] and at the same time are threatening and extorting people (with foreclosures) and countries (with sell offs and confiscations of the public wealth) that cannot pay off their loans. During the economic crisis (2007-2016), governments (taxpayers) bailed out these failing banks, which cost to taxpayers $24.8 trillion in the U.S.[115] With this irrational behavior (deficits and debts) of individuals and governments, global banks are in control of them and of their central banks;[116] the socio-economic system (the free market and its prototype, the EMU) is in a social descent, which restricts the hope from the young people. The latest crisis, which continues in many countries, is the first of its kind in human history; thus, this could not have happened by mistake. Responsible for any social problem are the powerless governments that did not regulate the corrupted markets and institutions and from leaders, they became followers; and also, the misinformed from the propaganda of the controlled media ignorant people (voters), who did not prevent the current crisis of waste and of global catastrophe by voting out from the government the ineffective politicians.

Further, interest charges are like a strongly "regressive tax" that the poor pay to the rich (banks and usurers). The poorer pays higher "tax rates" (high risk premium) because of his higher credit risk. The risk premium in the U.S.

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[114] In July 2016, the bank prime rate was ($i_P = 3.50\%$) and the credit cards rate was going up to ($i_{CC} = 39.99\%$), official inflation rate was ($\pi = 1.0\%$), but the *SGS* inflation was ($\pi_{SGS} = 5.0\%$); the deposit rate is ($i_D = 0.045\%$). The spread between loans and deposits rates was ($spread = i_L - i_D = from 3.455\% \; to \; 39.945\%$) and the real deposit rate was negative; depositors were paying a fee to the banks to hold their money, which is a disincentive to save: ($r_D = i_D - \pi_{SGS} = 0.045\% - 5.0\% = -4.955\%$).

[115] See, "U.S. taxpayer Exposure Financial Bailouts of 2008." http://www.usfederalbailout.com/program_details. Also, from 2008-2016, 520 U.S. banks went bankrupt and many in Europe.

[116] Eight families are in control of all the banking system since Goldsmith in the Middle Ages in England. They are: (1) the Goldman Sachs, (2) the Rockefellers, (3) the Lehmans, (4) the Kuhn Loebs, (5) the Rothschilds, (6) the Warburgs, (7) the Lazards, and (8) the Israel Moses Seifs. See, http://www.globalresearch.ca/the-federal-reserve-cartel-the-eight-families/25080.

on credit cards is up to the unfair and unethical rate of 35%. Thus, there is a redistribution of wealth from the poor (Main Street) to banks (Wall Street). Governments have to intervene and put a cup on the interest rate (i.e., a maximum of 5% above the prime rate) and a floor on the deposit rate (i.e., a minimum of 1% above the true inflation rate), as Graph 1 shows and of course, to regulate the greediness of the market and financial institutions. The U. S. economy had long been characterized by international imbalances in its current[117] and capital accounts and enormous public and private debts[118] that have to be financed heavily by foreign capital and by money printing (Fed's reserves). The quantitative easing of the Fed is something that we see for the first time in Economic History.[119] At the same time the country lost its agriculture and manufacturing and became a pure service economy that is very vulnerable to business cycles and has caused enormous unemployment,[120] reduction in income, and destruction of the small cities, towns, and country side of the nation. Some economists believe that this ruin of the domestic main sectors of the economy (agricultural and industrial) is normal and they call this detrimental process as "structural transformation."[121] The ECB did not increase the monetary base and this tight money policy has contributed to the deep recessions. It was €899.514 billion (September 2008), it became

[117] The current account gap in the United States widened to -$511.8 billion or 3.1% of the GDP in the first quarter of 2016. See, http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=3&isuri=1&903=128

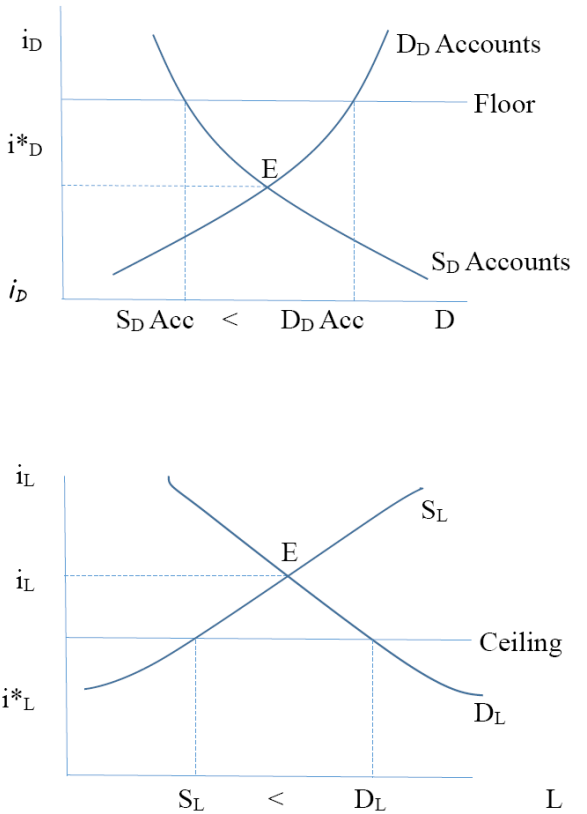
[118] The total U.S. debt (public and private) was: $205 trillion at the end of 2015, which is 1,244.64% of the GDP. The Real GDP at the end of 2015 was $16.471 trillion. See, Davidson (2015) and *Economagic.com*.

[119] QE is criticized as follows: (1) It is lowering the value of the dollar. (2) It does not fuel credit, bank lending, and of course investments. (3) It will lead the economy to high inflation. (4) It led the economy to a Liquidity Trap, which can cause deflation, too. (5) It has generated a currency war and caused competitive devaluation to the BRICS countries. See also, http://fortune.com/2014/07/11/quantitative-easing-fed-critics/

[120] See, Louis Efron, "Tackling the Real Unemployment Rate: 12.6%." *Forbes.com*, http://www.forbes.com/sites/louisefron/2014/08/20/tackling-the-real-unemployment-rate-12-6/ . Also, other sources give an unemployment for the U.S. of 23% in October 2014; in January 2015, it was 23.2%; and lately, June 2016 has fallen to 22.9%, but the official unemployment rate reached 4.7% (*Economagic.com*). See, http://www.shadowstats.com/alternate_data/unemployment-charts Fed said that U.S. On July 28, 2016, Fed said that U.S. is at full employment ($u = 4.9\%$). See, http://www.bloomberg.com/news/articles/2016-07-28/hidden-message-in-fed-s-statement-u-s-is-at-full-employment . At the DNC (July 25-28, 2016), Democrats were talking about the improvement of our economy and the high prospects that are following (*sic*).

[121] See, Sposi and Grossman (2014).

€1,292.102 billion (January 2015), and lately €1,983.240 billion (June 30, 2016).[122]



Note: D =deposits, L =loans, D_D = demand for deposits, S_D = supply of deposits, i_D = interest rate on deposits, i_D^* = optimal interest rate on deposits, D_L = demand for loans, S_L = supply of loans, i_L = interest rate on loans, i_L^* = optimal interest rate on loans; $i_{D_t}^* = \pi_t^e + 1\%$ and $i_{L_t}^* = i_{P_t} + 5\%$.

Graph 1. Deposits and Loans Markets.

[122] A growth of 43.64% in 6.5 years (6.71% p.a.). This monetary policy was completely unacceptable in the middle of a depression in EMU. And the last one and a half (1 ½) year, it increased the base money by 53.489% (35.659% p.a.). See, http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=123.ILM.M.U2.C.LT01.Z5.EUR

Also, large current account surpluses earned by Japan and by China were recycled to the U. S. in the form of purchasing of U. S. government[123] and private sector securities (debt instruments). It allows the U. S. to pursue its twin deficits (current account and budget deficit or national debt). The low price of Chinese products kept U. S. inflation low,[124] but unemployment high; and because of this low by construction inflation, a lower inflation premium, a surprising low risk (low risk premium), and a quantitative easing by the Fed,[125] the U. S. interest rate retained low (it was kept low to "improve" the financial market).[126] With this menial cost of capital, people were encouraged to finance their consumption and investment by increasing their indebtedness. This also caused many bubbles in our assets (financial and real). When these constructed bubbles burst, the social losses were enormous, following by recessions and huge unemployment in the U. S. and in 2007 a global financial crisis started and destroyed the Euro-zone peripheral countries because of their enormous debts and other socio-political problems that European governments did not prevent them, due to their corruption, common currency, and direct control from … the "forerunners," let us call them with a politically correct name, "Brussels."[127]

[123] Japanese investors were holding $1.2244 trillion and Chinese $1.2237 trillion of U.S. Treasury debt at the end of February 2015, See, *The Wall Street Journal*, April 16, 2015, pp. A1 and A6.

[124] In the U.S. the calculation of CPI has been changed twice, first in 1980 and then, in 1990. Methodological shifts in government reporting have depressed reported inflation. The SGS reports an inflation for July 2014 of 10% and for July 2016 of 4.9%. See, http://www.shadowstats.com/alternate_data/inflation-charts. Last year, with the fall in price of oil ($44.45/barrel on January 28, 2015), the Fed started worrying about deflation. There is no need to worry except to change the measurement of inflation by going back to the true 1980 calculation of CPI, but they want to show smaller loss of the real return (i.e., -1% instead of the true -5% to -10%). In February 2016, the price of oil was even lower, $30.32/barrel. This is a true economic war against the oil producing countries. (*Economagic.com)*.

[125] See, Kallianiotis (2014a, b, and c).

[126] The DJIA from 6,547.05 (March 9, 2009) reached 19,974.62 (December 20, 2016). A growth by 13,427.57 points or 205.093% in 8.25 years (26.464% p.a.). The new bubble is ripe enough and ready to burst carrying away the world to a global depression and universal chaos. These are the results when responsibility, moderation (μέτρον), and social interest are lost from our policy makers.

[127] Germany had caused too many problems; two military wars in Europe (WW I from July 28, 1914 to November 11, 1918 and WW II from September 1, 1939 to August 15, 1945) and a third one, an economic war (from 2009-present). What is wrong with the other Europeans and they cannot isolate Germany? What are the powers behind Germany? What is Germany's philosophy and its historic role? At least, British understood the EU oppression and voted NO (to leave EU) at their Brexit referendum on June 23, 2016.

Unfortunately, the enormous money printing by the Fed[128] has created the previous and the current asset bubbles and a currency war among the nations.[129] Also, inflation is expected to rise sharply. Of course, the U. S. was exporting inflation abroad through the exchange rate mechanism (devaluation of the dollar).[130] But, the U. S. keeps its inflation low by importing goods from these countries that have low prices and by changing the way measuring the CPI (underestimate). The Fed is always afraid of deflation and with its low federal funds rate, it creates bubbles in every market, financial,[131] housing, precious metals, etc. following by recession and the latest systemic crisis. Tens of trillions of dollars disappeared from the simple investors and were added to the wealth of speculators, brokers, and banks. The double digits unemployment kept the inflation low during these eight years of enormous liquidity. Europe's unemployment is catastrophic; it is worse than the Great Depression of 1929. It has reached 30% in some Euro-zone countries and the youth unemployment is closed to 60%. This is not a depression, but the worst humanitarian crisis during period of peace and the responsible people (politicians since 1980) must be persecuted.

Consequently, central banks (as independent from the governments, but dependent to the banks) are in favor of the markets; that means against deflation. Deflation $(-\pi_t)$ is increasing the real rate of interest (r_t), rate of return for depositors and cost on loans for borrowers.

$$r_t = i_t - (-\pi_t) \tag{3}$$

[128] The money supply (M2) grew 74.99% or 7.63% per annum (from $7,319.9 billion to $12,809.3 billion from August 2007 to June 2016). The correlation between money supply and CPI is: $\rho_{m,p} = +0.993$; then, the average inflation rate must be 7.58% per annum for the last nine years and 10 months, but has been depressed (intentionally miscalculated). (*sic*). See, http://research.stlouisfed.org/fred2/series/BASE/□.

[129] See, http://eic.cfainstitute.org/2013/11/18/currency-war-iii-how-will-it-play-out/.,

[130] Foreign nations want to promote their exports and they must prevent their currencies from appreciation; then, they have to increase money supply and cause inflation in their countries. Lately, the dollar has started appreciated. From 1.3924 $/€ (5/6/2014) reached 1.0497 $/€ (3/16/2015). On August 19, 2015, it was 1.1120 $/€ and then, after the Brexit, it started appreciated and was 1.0987 $/€ (7/26/2016). Lately, the dollar depreciated again to 1.1266 $/€ and 1.3234 $/£ (8/24/2016). Further, on December 20, 2016, there were 1.0388 $/€ and 1.2368 $/£. Fed has flooded the world with dollars ($\rho_{M^*,EUS} = +0.704$ and $\rho_{M^*,UKS} = +0.010$).

[131] Even after the latest financial crisis, a new bubble has been created in the financial market. The DJIA from 6,547.05 (March 9, 2009) reached 18,312.39 (May 19, 2015); a growth of 11,765.34 points or 179.70% in 6 years (29.95% per annum). At the beginning of 2016, this bubble started losing air. On February 11, 2016, the DJIA had fell to 15,660.18 (a loss of -14.48% in 9 months).

But, it is increasing the growth of real income ($\dot{q}_t$), even with negative nominal GDP ($-\dot{y}_t$),

$$\dot{q}_t = -\dot{y}_t - (-\pi_t) \quad (4)$$
$$\text{if } |\pi_t| > |\dot{y}_t|$$

and most importantly, it is increasing the living standards, which is beneficial for the people. Then, deflation is good for our risk-averse depositors, our society and its welfare. The zero interest rate ($i_{FF} \cong 0$) by the Fed and the ECB caused the deposit rates to fall closed to zero, which has generated a transfer of the wealth from depositors to banks or has made risk-averse people to invest in financial assets, which has made them risk-takers, without their will. The savers are paying instead of receiving for their deposits a real interest rate [$r_{D_t} = i_{D_t} - \pi_t < 0$][132] and banks are relending this cost-free money with a high interest rate.

Unfortunately, the central banks' policy penalizes savers and discourages them to deposit money in banks (intermediation) and encourages them to invest in risky assets (stocks and bonds) to prop up, artificially the value of financial assets and these markets (disintermediation). Fed's policy makes individuals, speculators and risk-takers. If this low deposit rate is reducing the deposits of banks, they have to increase their capital requirements to be able to offer more loans or to write off the bad loans or to borrow from the discount window. Risk averse savers want a reasonable return with low risk (FDIC insurance) on their bank accounts, but the Fed with its zero policy rate ensures that savers receive nothing (actually paying interest to the banks).[133] Of course, during these periods of easy money policy, the risk (uncertainty) in the economy is high and people are saving more; savings are increasing.[134] But,

[132] A negative real deposit rate is a payment to the banks. We became "Switzerland," where the depositors pay a fee to the Swiss banks for their illegal deposits, there, which is actually, less than the taxes that they avoid back to their homes. True tax-heaven! If we do not stop this global corruption, there will be no hope for our society. These international laws and agreements are completely unethical or "illegal."

[133] Then, this zero interest rate by the Fed is completely anti-social, risky, speculative, and bubble creating public policy. An ineffective monetary policy, which has created a new casino for our citizens. Thanks to God that the U.S. government has established casinos in every city that people have something to do; to waste their money, time, and destroy their families.

[134] The average saving rate since 1950 is 6.78%. In 2007M11, was -0.5% and in 2012M12 reached 10.5%. In 2015M01, it was 5.5%. (*Economagic.com*). With May 2016, the personal

during these periods of high risk, banks are reluctant to expand loans to small and medium size enterprises (the creators of employment).[135] In Euro-zone, these small businesses went all bankrupt. Thus, this closed to zero interest rate policy by the Fed favors only the big corporations and the large banks (the labor cost minimizers or creators of unemployment).[136] This is a reason that unemployment remains high, because small businesses cannot get loans and big businesses do not create new jobs; they are job creators abroad, as MNCs.[137]

Consequently, deposits in the banks were declining. The main reason that financial institutions lose their deposits is the low deposit rate and the inflation that make the real deposit rate negative ($r_{D_t} < 0$). In Euro-zone countries, depositors withdrew their deposits, due to uncertainty in their countries (and due to capital controls in Greece) and put them to Swiss banks and other safe-havens. The deposit rate must exceed the inflation rate for people to save and provide their deposits to our financial institutions (banks) and consequently to our economy and then, make us less dependent on foreign capital and sovereign nations and also, with less supply of credit by the Fed to banks. In case that banks have sufficient deposits to offer loans, there will be no need to borrow from the Fed (discount window or non-borrowing reserves)[138] or from foreign banks (Euro-banks) or the unmentionable Troika or by issuing notes. Savers must have a positive real rate of interest on their deposits; then, the nominal rate of interest must exceed inflation, but the Fed does not permit it.

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savings rate in U.S. was 5.3%. See, http://www.tradingeconomics.com/united-states/personal-savings

[135] Unfortunately, our policies took care the destruction of the small businesses a long time ago by ignoring the United States Anti-Trust Laws and creating the private monopolies. See, https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws. Now, EU is doing the same and have these enormous unemployment, there.

[136] The zero federal funds rate distorts the interbank lending market by keeping rates too low and deprives small business of working capital loans and hurts their ability to fund job creation. See, Rickards (2014, p. 80).

[137] Consequently, this policy encourages globalization and contributes to the destruction of the sovereign nations (independent and self-sufficient nations will be eliminated, as it happened in Euro-zone). Since the beginning of 2000, the U.S. economy has lost 5 million manufacturing jobs. The GOP candidate and current President, Donald Trump said, he will bring businesses and jobs back to the U.S. See, http://www.pbs.org/newshour/making-sense/trump-says-hell-bring-jobs-back-to-america-economists-are-skeptical/

[138] The discount rate was for many years ($i_{DW} = 0.75\%$); then, it became ($i_{DW} = 1.00\%$); and lately, 1.25%. But, it must be above the interest rate floor on deposits ($i^*_{D_t}$); which is, $(i_{DW_t} > i^*_{D_t} = \pi^e_t + 1\%)$, otherwise, banks will continue to borrow from the Fed and will depress the deposit rate to zero.

The Fed enforces negative real rates through financial repression since December 2008. But, stock market is very speculative and savers want to deposit their savings to bank accounts. Money (deposits) in the bank is a primary form of wealth preservation and a source of capital for our businesses. The negative real rate of interest for deposits is an unethical way that Fed uses to "steal" the money from the risk averse savers. The theft of wealth from traditional savers has become a "respective" theory in monetary economics.[139] The current quantitative easing is an example of these theories. The scope of this chapter is to determine the effectiveness of monetary policies (in Fed[140] and in ECB) and to recommend target rates by using rules instead of discretions.

Furthermore, the U. S. national debt had surpassed 119% of GDP[141] and deficits had tended to be up to 11% during the latest financial crisis. In Euro-zone, the national debts were from 9.7% (Estonia) to 176.9% (Greece) of the GDP, with an average of 85.2% for the fiscal year 2015. The budget deficits, for the same year, were from -1.2% (surplus, Luxembourg) to 7.2% (Greece) of the GDP. This was partly due to industry (banks) rescue plans (different bailouts), stimulus plans, and economic stabilizers (i.e., unemployment benefits, etc.). The chronic deficits come from incomparable American characteristics (its market oriented economy), which in large part has been caused by policies of tax reductions, especially for the upper income groups and businesses since 1980s. Taxes are going up for everyone with the new fiscal cliff deal on January 1, 2013. Taxes in Euro-zone are catastrophic with the primary surpluses that the EMU imposes on its member-nations during this debt crisis. This policy is completely absurd and it is inconceivable that the leaders (actually, followers) of the countries accepted it (sic). Also, U. S. has an increase in spending for Medicare (prescription drugs) and for all these wars that are going on (in Iraq, Afghanistan, Syria, Ukraine, Levant, Libya, etc.).[142] America's problems, so far, were limited, due to good economic growth because of demographic expansion (massive immigration and relatively high fertility rates), its manufacturing, and because of the dollar's

[139] The Fed's form of theft from savers has a "nice" name given by economists; it is called "money illusion." Then, money printing on its own cannot create any real growth, but can create an illusion of growth by increasing nominal prices and nominal GDP. Economists are social scientists and they owe to act this way by developing theories and practices that improve social welfare; otherwise, they cannot justify even their objective as professionals.

[140] The U.S. Fed has also been covered in Kallianiotis (2015b).

[141] The U.S. national debt (12/22/2016) was $19.944 trillion and the GDP $16.713 trillion.

[142] The strange of all these wars is that only Christians have been affected. Unfortunately, there are moral perpetrators behind these jihadists. Who are these enemies of Christians?

preeminent role as the international reserve currency since 1944.[143] But, the illegal (mostly Muslims) migration has changed the European identity and has changed the name of the old Christendom to Eurostan; but the worst are the daily terrorist attacks to poor citizens.[144] The Fed provides the dollars (Fed's liabilities) that are used to pay for the nation's deficits by buying the government debt instruments (U. S. Treasury liabilities) and mortgage back securities (private debt liabilities), but ECB did not follow the same policy; it had other "directions." We live in a fragile world, which is based on recycling of liabilities[145] and redistributing wealth. Of course, the mal-investment in financial assets, the asset bubbles, the overleverage, the corruption, and the income inequality[146] are going to deteriorate further the social coherence of our heterogeneous nations (mixtures of people and cultures). The public policy makers have a lot of work to do in the near future.

(iii) A Theoretical Model of Monetary Policy Efficiency

The Fed and its copy, the ECB, are responsible for an effective monetary policy, which will improve the real sector of the economies, first and then, the financial markets or simultaneously. The growth of the variables of the quantity theory of money (monetarist view) gives,

$$\dot{m}_t + \dot{v}_t = \dot{q}_t + \pi_t \tag{5}$$

where, $\dot{m}_t$ = the growth of money, $\dot{v}_t$ = the percentage change of velocity of money, $\dot{q}_t$ = the growth of the real output, and π_t = the inflation rate.

The important objectives of the central banks are output (maximum employment, but better should be literally full employment, $u_t \cong 0\%$) and price (inflation target 2% or less per annum) stability.[147] The correlation and

[143] See, Kallianiotis (2014b and c).

[144] On July 27, 2016, they attacked a Church and killed the priest during the service in France. See, http://www.nytimes.com/2016/07/29/world/europe/france-church-attack.html?_r=0 . Also, a jihadist killed the Russian ambasador in Turkey. (TV News *Fox*, December 20, 2016).

[145] From *capitalism*, we have, now, a new system, *debtism*. See, Davidson (2015).

[146] We are in a new gilded age, worse than the one in 1870s. See, O'Donnell (2015).

[147] The ECB has only one mandate, price stability: "Price stability is defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below

causality of the monetary instruments (i_{FF} or i^{*}_{OND}, and M^{S}) with the policy objective variables (P, $DJIA$, Q, u, i_{L-T}, and CA)[148] and with the other interest rates are very important measures. Some believe in discretionary monetary policy and others in specific rules. Central banks' behavior (reaction to inflation and to output-employment) can be presented with their target rate reaction function, as eq. (6) shows, Sack-Wieland (1999) rule:

$$\bar{i}_{FF_t} = \rho\, \bar{i}_{FF_{t-1}} + (1-\rho)(\pi_t + r_t^{*}) + \alpha_{\pi}(\pi_t - \pi_t^{*}) - \alpha_u(u_t - u_t^{N}) + \varepsilon_t \qquad (6)$$

where, $\bar{i}_{FF_t}$ = the target federal funds rate or $i^{*}_{ONC_t}$ = ECB overnight credit to banks rate, π_t = the inflation rate as measured by the GDP deflator, π_t^{*} = the desired inflation rate, r_t^{*} = the assumed equilibrium real rate of interest, u_t = the unemployment rate, u_t^{N} = the natural level of unemployment, and ρ = the weight put on the past federal funds rate.

We can run a regression of eq. (6), by putting $u_t - u_t^{N} = u_t^{GAP}$, which become eq. (7). The target interest rate will follow the changes in inflation and unemployment based on the coefficients estimated in eq. (7). This policy rate measured by the interest rate reaction function must be Fed's target rate:

$$\bar{i}_{FF_t} = \alpha_0 + \alpha_1\, \bar{i}_{FF_{t-1}} + \alpha_2 \pi_t + \alpha_3 u_t^{GAP} + \alpha_4 u_{t-1}^{GAP} + \varepsilon_t \qquad (7)$$

The size of the partial adjustment,[149] coefficient α_1, which is 0.985^{***} provides direct evidence that the observed degree of persistence in federal

2%." Unemployment is not part of the ECB objectives. See, https://www.ecb.europa.eu/press/pr/date/2003/html/pr030508_2.en.html

[148] The objective of monetary policy is also the improvement of financial market (increasing the prices of financial assets). The objective of the firms' is: $\underset{Max}{V} = \frac{E(EBIT)(1-t)}{i_a}$, where, V = the present market value of the firm, $E(EBIT)$ = firm's expected earnings (cash flows), t =corporate tax rate (fiscal policy instrument), i_a = the average cost of capital (monetary policy instrument). Thus, the market value ($V \uparrow$) can increased by reducing the interest rate ($i_a \downarrow$).

[149] Using monthly data for the U.S. economy (1954:M08-2015:01), we have:

funds is greater than the one that can be attributed to systematic policy responses to lasting inflation and output (unemployment) fluctuations. The coefficients of regression show that the federal funds rate must respond significantly to an increase in inflation ($\alpha_2 = 0.016^{***}$), but less aggressively to cause an increase in real rates and a tight monetary policy. The federal funds interest rate must also respond aggressively to an increase in unemployment ($\alpha_3 = -0.574^{***}$) to create a reduction in interest rate and an effective easy monetary policy. During the recent financial crisis and recession,[150] the federal funds must respond significantly to an increase in inflation ($\alpha_2 = 0.013^{***}$), but there is no need to reduce the federal funds rate when the unemployment ($\alpha_3 = -0.050$) is increasing (the effect is insignificant). Thus, this latest easy monetary policy is ineffective on employment.

In addition, the Taylor rule is a specific case of eq. (6), with $\rho = 0$ and we get by substituting also the natural logarithm of GDP with the unemployment rate, the eq. (8):

$$\bar{i}_{FF_t} = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) - \alpha_u(u_t - u_t^N) \tag{8}$$

Taylor (1993) recommended an $\alpha_\pi = 0.5$ and $\alpha_u = -0.5$. The rule "proposes" a high interest rate (a "tight" monetary policy) when inflation rate is above its target, in order to reduce inflationary pressure and a low interest rate ("easy" monetary policy) when the unemployment is above its natural level to stimulate production, output, and employment.[151] Rules-based

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$\bar{i}_{FF_t} = 0.079^{**} + 0.985^{***}\,\bar{i}_{FF_{t-1}} + 0.016^{***}\pi_t - 0.574^{***}u_t^{GAP} + 0.544^{***}u_{t-1}^{GAP}$
(0.040) (0.006) (0.005) (0.097) (0.097)

$R^2 = 0.980,\quad SER = 0.500,\quad F = 9{,}034.992,\quad D\text{-}W = 1.395,\quad N = 726$

[150] By using data during the financial crisis (2007:08-2015:01), we have the following results for eq. (7):

$\bar{i}_t = -0.035 + 0.922^{***}\,\bar{i}_{t-1} + 0.013^{***}\pi_t - 0.050\,u_t^{GAP} + 0.053\,u_{t-1}^{GAP}$
(0.047) (0.013) (0.003) (0.062) (0.062)

$R^2 = 0.991,\quad SER = 0.119,\quad F = 2{,}317.940,\quad D\text{-}W = 1.173,\quad N = 90$

[151] In September 2014, the U.S. must have a target interest rate (1.75%): $\bar{i}_{FF} = 2\% + 1\% + 0.5(2\% - 2\%) - 0.5(6.5\% - 4\%) = 1.75\%$; but it was 0.25%, which was very low and did not improve growth and did not reduce unemployment. For the Euro-zone, the overnight

monetary policy yields superior economic performance. Highly discretionary policy is unfocussed. Policymakers kept rates too low and for too long during the 2000s and now from 2008 to the present, relative to what Taylor's rule approach would prescribe. For the Euro-zone, the common target rate of the ECB does not work anywhere because every country is different and needs its own domestic central bank, monetary policy, and target rate. The results from 1970 to 2015 by using Taylor's and Sack-Wieland's Rules appeared in Tables 1, 2, and 3.

Further, we might determine the interest rates (on loans and deposits). The market interest rate on loans (i_L) can depend on the following variables:

$$i_{L_t} = f(i_{FF_t}, i_{P_t}, i^*_{L_t}, Y_{B_t}, \pi^e_t, u_t, C_t, T_t, L_t, D_t, \sigma_t)$$
$$f_{i_{FF}} > 0, f_{i_P} > 0, f_{i^*_L} > 0, f_{Y_B} < 0, f_{\pi^e} > 0, f_u < 0, f_C > 0, f_T > 0, f_L > 0, f_D < 0, f_\sigma > 0 \quad (9)$$

where, i_L = loans rate, i_{FF_t} = federal funds rate (monetary policy instrument), i_{P_t} = prime rate, $i^*_{L_t}$ = interest rate ceiling with a RP = 5% above the prime rate: ($i^*_{L_t} = i_{P_t} + 5\%$), Y_{B_t} = income of borrower, π^e_t = expected inflation, u_t = unemployment rate, C_t = consumption, T_t = taxes, L_t = loans, D_t = deposits, and σ_t = risk (uncertainty) of the borrower.

Also, the equilibrium interest on deposits (i_D) or savings (i_S) depends on the following variables:

$$i_{D_t} = f(i_{FF_t}, i_{P_t}, i^*_{D_t}, \pi^e_t, Y_t, u_t, C_t, S_t, T_t, L_t, D_t, \sigma_t)$$
$$f_{i_{FF}} > 0, f_{i_P} > 0, f_{i^*_D} > 0, f_{\pi^e} > 0, f_Y < 0, f_u > 0, f_C > 0, f_S < 0, f_T > 0, f_L > 0, f_D < 0, f_\sigma > 0 \quad (10)$$

where, $i^*_{D_t}$ = interest rate floor with an incentive to save, at least 1%, above the expected inflation rate ($i^*_{D_t} = \pi^e_t + 1\%$), Y_t = income, and S_t = savings.

rate must have been (-3.05%): $i^*_{OND} = 0.4\% + 1\% + 0.5(0.4\% - 2\%) - 0.5(11.3\% - 4\%) = -3.05\%$; but, it was 0.15%, which could not improve the high unemployment, there.

The optimal interest rates are these that maximizes social welfare. The individual's utility depends on interest rates (federal funds rate or ECB overnight rate, deposits rate, and loans rate) and other factors (goods, services, and values), too.

$$u_t^j = f(i_{FF_t}, i^*_{OND_t}, i^*_{D_t}, i^*_{L_t}, G_{1_t}, G_{2_t}, G_{3_t}, ..., S_{1_t}, S_{2_t}, S_{3_t}, ..., V_1, V_2, V_3, ...) \tag{11}$$

where, u_t^j = utility of individual j in period t, G_{1_t} = good 1 consumed in period t, S_{1_t} = service 1 used in period t and $V_1, V_2, V_3, ...$ = value 1, value 2, value 3, etc. (values do not depend on time; they were, are, and will be the same over time).[152]

Then, the social welfare is presented as follows,

$$\max \quad U_t = f(u_t^A, u_t^B, u_t^C, ... u_t^N) \tag{12}$$

where, U_t = the social welfare function, and $u_t^A, u_t^B, u_t^C, ..., u_t^N$ = the utility of individual j (j = A, B, C,…, and N).

Finally, to see the effects of monetary and fiscal policy (their efficiency) on our economy, we can use a vector auto-regression (VAR) with dependent variables the three public policy objectives, maximum employment (u_t), price stability (π_t), and maximum sustained output (q_t) and independent ones, the three mixed public policy tools, federal funds rate (i_{FF_t}), taxes (t_t), and government spending (g_t), as follows:

$$\begin{aligned}
u_t &= \alpha_{10} + A_{11}(L)u_{t-1} + A_{12}(L)\pi_{t-1} + A_{13}(L)q_{t-1} + A_{14}(L)i_{FF_t} + A_{15}(L)t_t + A_{16}(L)g_t + \varepsilon_{1t} \\
\pi_t &= \alpha_{20} + A_{21}(L)u_{t-1} + A_{22}(L)\pi_{t-1} + A_{23}(L)q_{t-1} + A_{24}(L)i_{FF_t} + A_{25}(L)t_t + A_{26}(L)g_t + \varepsilon_{2t} \\
q_t &= \alpha_{30} + A_{31}(L)u_{t-1} + A_{32}(L)\pi_{t-1} + A_{33}(L)q_{t-1} + A_{34}(L)i_{FF_t} + A_{35}(L)t_t + A_{36}(L)g_t + \varepsilon_{3t}
\end{aligned} \tag{13}$$

[152] Values represent wisdom, "the Truth," and the truth does not evolve over time. Evolution exists only to things that we experiment and we change over time trying to improve them and through knowledge to reach a better secular level. Unfortunately, the human knowledge is incomplete and very poor, due to high cost (time, money, and opportunity cost) of acquiring it and due to misinformation, so we cannot reach "the Truth." The proof is obvious by looking around and observe what is going on, today, in our ignorant world with so much deception.

where, $t_t = \ln T_t$ = taxes (government revenue) and $g_t = \ln G_t$ = expenditures (government spending).

The estimation of the above VAR, eq. (13), will show the effectiveness of the two public policies, monetary and fiscal on our ultimate objective variable. This current enormous liquidity is just money that sits in banks as excess reserves and does not produce inflation. Inflation appears only if consumers and businesses borrow and spend these reserves as printed money. Also, high unemployment and low growth keep prices low. The enormous imports from low cost of production countries contribute to the low prices, too.[153]

(iv) Some Empirical Results

It is relevant to test the above equations by applying data monthly from the U. S. economy and a few series from Euro-zone. The data, taken from *economagic.com*, *Eurostat*, *Yahoo.com*, and *Bloomberg.com* are monthly from 1959:01 to 2015:12. They comprise, consumption (USPCE), income (USPI), money supply (M2), savings deposits-including MMDAs (USD), small-denomination time deposits (USSDTD), total deposits (USTD=USD+USSDTD), Dow Jones Industrial Average (USDJIA), wealth (USW=M2+USDJIA), U. S. wages and salaries (USWS), U. S. personal current taxes (USPCTR), government spending (USGCE), budget deficit (USBD), national debt (USND), loans or consumer credit outstanding (USCCO), unemployment rate (USU), taxes or U. S. government current tax receipts (USGCTR), federal funds rate (USFFR), prime rate (USPR), interest rate or corporate bonds rate (Baa), LIBOR 3-month rate (LIBOR3M), 3-monthe U. S. T-Bill rate (STT3M), TED rate for measuring the risk (=LIBOR3M-STT3M), gold prices (GOLD) for measuring again uncertainty, consumer price index (USCPI), inflation rate (USINF), real gross domestic product (USRGDP2009), CD rate 1-moth (USCD1MONTH), EU harmonized indices of consumer prices (EUHICP), EU unemployment rate (EUU), and ECB overnight deposit rate (ECBOND).

First, a correlation and causality test is run for all the above variables. We see that the instrument of monetary policy (i_{FF}) federal funds rate (USFFR) causes ($\Rightarrow$) consumption-LUSPCE (-10.174***), personal income-LUSPI (-15.729***), financial markets-LUSDJIA (-2.354*), money supply-LUSM2 (-

[153] The artificially (by construction in the futures market) low price of oil ("economic war") keeps inflation at a very moderate level.

8.497***), unemployment-USU (-8.826***), inflation-USINF (+30.654***), taxes-LUSGCTR (-5.456***), government spending-LUSGCE (-13.832***), national debt-LUSND (-5.969***), prime rate-USPR (+155.316***), corporate bonds rate-BAA (+12.128***), LIBOR rate-LIBOR3M (+59.003***), TED spread (+3.122**), consumers price index-LUSCPI (-39.518***), real GDP-LUSRGDP2009 (-6.027***), and 1-month CD rate-USCD1MONTH (+30.503***).[154]

Further, the 3-monthT-Bill rate-STT3M is caused ($\Leftarrow$) by consumption-LUSPCE (-4.844***), personal income-LUSPI (-4.201**), financial markets-LUSDJIA (-4.171**), wealth-LUSW (-4.414**), money supply-LUSM2 (-3.321**), unemployment-USU (-10.544***), inflation-USINF (+4.069**), taxes-LUSGCTR (-5.718***), loans-LUSCCO (-2.589*), prime rate-USPR (+23.987***), LIBOR rate-LIBOR3M (+11.740***), TED spread (+11.714***), consumers price index-LUSCPI (-2.594*), and real GDP-LUSRGDP2009 (-6.060***). The corporate bonds rate-BAA is caused ($\Leftarrow$) by consumption-LUSPCE (-4.400**), financial markets-LUSDJIA (-6.605***), wealth-LUSW (-5.358***), federal funds rate-USFFR (+12.128***), unemployment-USU (-4.453**), inflation-USINF (-13.450***), taxes-LUSGCTR (-2.436*), prime rate-USPR (+9.278***), LIBOR rate-LIBOR3M (+7.809***), 3-monthT-Bill rate-STT3M (+13.145***), TED spread (+6.597***), price of gold-LGOLD (-2.673*), consumers price index-LUSCPI (-13.464***), and 1-month CD rate-USCD1MONTH (+11.519***).

Also, the prime rate-USPR (loans) is caused ($\Leftarrow$) by consumption-LUSPCE (-3.411**), federal funds rate-USFFR (+155.316***), unemployment-USU (-12.615***), inflation-USINF (+3.593**), loans-LUSCCO (-3.415**), corporate bonds rate-BAA (+27.662***), LIBOR rate-LIBOR3M (+15.011***), 3-monthT-Bill rate-STT3M (+171.636***), TED spread (+4.712***), consumers price index-LUSCPI (-3.439**), real GDP-LUSRGDP2009 (-2.531*), and 1-month CD rate-USCD1MONTH (+112.984***). Then, the 1-month CD rate-USCD1MONTH (deposits) is caused ($\Leftarrow$) by consumption-LUSPCE (-3.497**), personal income-LUSPI (-2.928*), financial markets-LUSDJIA (-3.950**), wealth-LUSW (-3.351**), wages and salaries-LUSWS (-2.313*),

[154] The causality if from federal funds rate, $i_{FF} \Rightarrow X$ (variables); the correlation is showing with a (+) or (-) denoting positive or negative correlation; the numbers in parentheses show the F-Statistics of the Granger causality tests; ***= significant at the 1% level, ** = significant at the 5% level, and * = significant at the 10% level.

money supply-LUSM2 (-2.459*), federal funds rate-USFFR (+30.503***), unemployment-USU (-14.919***), inflation-USINF (+4.011**), taxes-LUSGCTR (-4.207**), government spending-LUSGCE (-3.175**), national debt-LUSND (-3.657**), loans-LUSCCO (-6.315***), prime rate-USPR (+11.657***), LIBOR rate-LIBOR3M (+48.526***), 3-monthT-Bill rate-STT3M (+42.346***), TED spread (+10.644***), consumers price index-LUSCPI (-5.292***), and real GDP-LUSRGDP2009 (-7.517***).

Furthermore, the U. S. data from 1950:01 to 2014:06 give the following correlation ($\rho_{m,p}$) and causality ($\Rightarrow$) results for the logarithms of the variables money supply (m), price level (p), and real output (q):

$$\rho_{m,p} = +0.993 \quad and \quad m \Rightarrow (+2.430^{*}) \Rightarrow p,$$

$$\rho_{m,q} = +0.992 \quad and \quad q \Rightarrow (+45.427^{***}) \Rightarrow m \quad also \quad m \Rightarrow (+20.377^{***}) \Rightarrow q,$$

and $\rho_{q,p} = +0.981 \quad and \quad q \Rightarrow (+3.928^{**}) \Rightarrow p$.

The rate of growth of these variables (averages and standard deviations) are: $\bar{\pi} = 3.798\% \quad and \quad \sigma_{\pi} = 4.127\%$, $\bar{\dot{m}} = 6.618\% \quad and \quad \sigma_{\dot{m}} = 7.078\%$, $\bar{\dot{v}} = -0.207\% \quad and \quad \sigma_{\dot{v}} = 12.092\%$, $\bar{\dot{q}} = 3.029\% \quad and \quad \sigma_{\dot{q}} = 7.294\%$.

Their correlation and causalities give: $\rho_{\dot{m},\pi} = -0.023 \quad and \quad \dot{m} \Rightarrow (-3.873^{**}) \Rightarrow \pi$,

$\rho_{\dot{m},\dot{q}} = +0.153 \quad and \quad \dot{q} \Rightarrow (+45.998^{***}) \Rightarrow \dot{m} \quad also \quad \dot{m} \Rightarrow (+28.776^{***}) \Rightarrow \dot{q}$,

\and $\rho_{\dot{q},\pi} = -0.017 \quad and \quad \pi \Rightarrow (-3.676^{**}) \Rightarrow \dot{q}$.

Thus, federal funds have a significant negative effect on loans rate; prime rate has a significant positive effect, consumption has a significant negative effect, and risk a significant positive effect on loans rate. Federal funds have a significant effect on deposit rate; prime rate has a positive significant effect, income has a significant negative effect, consumption a significant positive effect, deposits a significant effect, and risk has a significant positive effect on deposits rate. Table 4 gives the estimations of eq. (9) and (10), interest rates on loans and on deposits. The estimation of the VAR, eq. (13), appeared in Table 5, reveals that monetary policy is not very effective on unemployment, prices, and growth. Taxes and government spending are effective on the three objective variables.

By using the Sack-Wieland (SWR) and the Taylor rule (TR), eqs. (7) and (8), we determine the target rate during the periods 1982-2014 and 1970-2014 for the U. S. and 2008-2015 for the Euro-zone, which are presented in Tables 1, 2, and 3. According to eq. (8), the target rates from the Fed are most of the

times high (to reduce inflation) and became too low after 2008 (but unemployment has not been reduced). The ECB key interest rate was 3.75% in 2008 and became 1.45% in 2009; then, it fell to 1.25% during the two years of 2010 and 2011. In 2012, it fell to 0.75% and in 2013 to 0.50%. Lately, the ECB decided to increase liquidity by reducing the interest rate in 2014 to 0.15% and in 2015 to 0.05%. The results show that this common policy rule in Euro-zone was only in favor of Germany and Austria; for the other countries the overnight rate was very high (ineffective policy tool). The U. S. federal funds rate is very low according to Taylor's rule. Table 3 shows inflation, unemployment, target rate, and recommended rate (from Taylor's rule) in the U. S. and Euro-zone. Then, the current interest rate systems are not optimal and the monetary policies ineffective.

The results show that most of the times the Fed's and the ECB's target rates are above the recommended rate, which is very helpful for the financial market, but not for the other sectors of the economy. In 1979 and lately, after 2009, the Fed's rate is below the recommended by Taylor's rule, with its objective to improve the economy that was in a recession and to reduce the double digit unemployment rate; but unfortunately, it has been proved to be ineffective and it has created a new bubble in the financial market,[155] a devaluation of the dollar, inflation in the economy, negative real return to savers (redistribution of wealth from individuals to banks and speculators), and encouragement of outsourcing ("internal devaluation" to make wages and salaries and the level of economic welfare the same as in developing countries, due to globalization). The ECB's high interest rate and low liquidity has destroyed the Euro-zone economies. The economy needs a mixed public policy, fiscal (without austerities) and a monetary one to recover from the latest global (systemic) financial crisis and the Euro-debt crises and a protection for its domestic industries from foreign competitors.

[155] The DJIA from 6,547.05 (3/9/2009) reached 17,279.74 (9/19/2014). A growth of 10,732.69 points or 163.93%, which is 29.81% per annum. On August 15, 2016 reached 18,661.25; a growth of 12,114.2 points. This is a huge an abnormal bubble that will burst very soon. In December 2016, it reached 20,000.

Table 1. U.S. Inflation, Unemployment, Target Rates, and Recommended Rates (Taylor's and Sack-Wieland Rule)

Month	Inflation	Unemployment	Fed's Target Rate		Recommended Rates		Differences	
Year	π	u	$\tilde{i}_{FF}$	i_{FF}^{eff}	TR	SWR	TR	SWR
10/82	3.7%	10.4%	9.5%	9.71%	2.31%	10.02%	+7.19%	-0.52%
12/82	-4.91%	10.8%	8.5%	8.95%	-10.76%	8.94%	+19.26%	-0.44%
7/84	4.62%	7.5%	11.5%	11.23%	5.18%	10.86%	+6.32%	+0.64%
8/86	2.19%	6.9%	5.9%	6.17%	1.83%	6.63%	+4.07%	-0.73%
9/87	6.28%	5.9%	7.3%	7.22%	8.47%	6.89%	-1.17%	+0.41%
2/88	3.11%	5.7%	6.5%	6.58%	3.81%	6.89%	+2.69%	-0.39%
5/89	6.8%	5.2%	9.8%	9.81%	9.61%	9.92%	+0.19%	-0.12%
9/92	3.4%	7.6%	3%	3.22%	3.30%	3.36%	-0.30%	-0.36%
2/95	4.78%	5.4%	6%	5.92%	6.47%	5.75%	-0.47%	+0.25%
1/96	7.02%	5.6%	5.3%	5.56%	9.72%	5.74%	-4.42%	-0.44%
11/98	0.0%	4.4%	4.8%	4.83%	-0.2%	5.2%	+5%	-0.4%
5/00	1.4%	4.1%	6.5%	6.27%	2.05%	6.06%	+4.45%	+0.44%
6/03	1.31%	6.3%	1%	1.22%	0.81%	1.25%	+0.19%	-0.25%
6/06	2.37%	4.6%	5.3%	4.99%	3.25%	5.05%	+2.05%	+0.25%
10/08	-9.86%	6.6%	1%	0.97%	-16.09%	1.44%	+17.09%	-0.44%
12/08	-9.49%	7.2%	0.25%	0.16%	-15.83%	0.09%	+16.08%	+0.16%
10/09	3.17%	10.2%	0.25%	0.12%	1.65%	-0.04%	-1.4%	+0.29%
7/10	3.7%	9.5%	0.25%	0.18%	2.8%	0.24%	-2.55%	+0.01%
3/11	11.64%	9%	0.25%	0.14%	14.97%	0.36%	-14.72%	-0.11%
1/12	10.26%	8.2%	0.25%	0.08%	13.29%	0.44%	-13.04%	-0.19%
9/12	6.24%	7.8%	0.25%	0.14%	7.47%	0.45%	-7.22%	-0.2%
9/13	2.16%	7.2%	0.25%	0.08%	1.63%	0.19%	-1.38%	+0.06%
1/14	5.32%	6.6%	0.25%	0.07%	6.69%	0.32%	-6.44%	-0.07%
5/14	4.21%	6.3%	0.25%	0.09%	5.16%	0.26%	-4.91%	-0.01%

Note: TR = Taylor Rule and SWR = Sack-Wieland Rule. In Differences, a (+) shows the target rate exceeds the recommended rate and a (-) reveals that the target is less than the recommended rate. The data show the following correlation and causality between the policy rates and the economic goals (u *and* π): (1) $\rho_{\tilde{i}_{FF},u} = +0.009$ and $\tilde{i}_{FF} \Rightarrow u\ (F = 8.649^{***})$; $\rho_{\tilde{i}_{FF},\pi} = +0.499$ and $\tilde{i}_{FF} \Rightarrow \pi\ (F = 29.870^{***})$. (2) $\rho_{i_{FFTR},u} = -0.121$ and $i_{FFTR} \Rightarrow u\ (F = 4.910^{***})$; $\rho_{\tilde{i}_{FFTR},\pi} = +0.992$ and $i_{FFTR} \Rightarrow$ *does not* $\Rightarrow \pi\ (F = 0.127)$. (3) $\rho_{i_{FFSW},u} = +0.009$ and $i_{FFSW} \Rightarrow u\ (F = 6.963^{***})$; $\rho_{\tilde{i}_{FFSW},\pi} = +0.504$ and $i_{FFSW} \Rightarrow \pi\ (F = 25.467^{***})$. Source: *Economagic.com.*

Table 2. U.S. Inflation, Unemployment, Target Rates, and Recommended Rates (Taylor's Rule)

Year	Inflation	Unemployment	Fed's Target Rate	Recommended Rates	Differences
19701	5.57%	6.1%	9%	7.305%	+1.695%
19791	13.26%	6%	14%	18.89%	-4.89%
19821	3.83%	10.8%	15%	2.345%	+12.655%
19891	4.64%	5%	10%	6.46%	+3.54%
19921	2.97%	7.8%	4%	2.555%	+1.445%
19981	1.61%	4.3%	5.5%	2.265%	+3.235%
20001	3.44%	4.0%	6.25%	5.16%	+1.09%
20021	2.48%	6.0%	1.75%	2.72%	-0.97%
20061	2.53%	4.4%	5.75%	3.595%	+2.155%
20091	2.82%	10.0%	0.25%	1.23%	-0.98%
20111	3.02%	9.0%	0.25%	2.03%	-1.78%
7/20141	3.13%	6.2%	0.25%	3.595%	-3.345%
7/20142	3.13%	6.2%	0.25%	2.263%	-2.013%

Note: [1] the coefficients are: $\alpha_\pi = 0.5$ and $\alpha_u = -0.5$, [2] the coefficients are: $\alpha_\pi = 0.25$ and $\alpha_u = -0.75$.

Source: *Economagic.com.*

Table 3. Euro-zone and U.S. Inflation, Unemployment, Target and Recommended Rates

(Taylor's Rule): $\bar{i}_{FF_t} = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) - \alpha_u(u_t - u_t^N)$

Year	Country	Inflation	Unemployment	Target Rates	Recommended Rates	Differences
2008	Euro-zone	3.3%	7.6%	3.75%	3.15%	+0.60%
	Portugal	2.7%	8.5%	3.75%	1.80%	+1.95%
	Ireland	3.1%	6.4%	3.75%	4.46%	-0.71%
	Italy	3.5%	6.7%	3.75%	3.90%	-0.15%
	Greece	4.2%	7.7%	3.75%	4.45%	-0.70%
	Spain	4.1%	11.3%	3.75%	2.50%	+1.25%
	Cypress	4.4%	3.7%	3.75%	6.75%	-3.00%
	Germany	2.8%	7.5%	3.75%	2.45%	+1.30%
	Austria	3.2%	3.8%	3.75%	4.90%	-1.15%
	France	3.2%	7.5%	3.75%	3.05%	+0.70%
	Netherlands	2.2%	3.1%	3.75%	3.75%	0.00%
	U.S.A	3.8%	7.3%	1.00%	4.05%	-3.05%

Year	Country	Inflation	Unemployment	Target Rates	Recommended Rates	Differences
2009	Euro-zone	+0.3%	9.5%	1.45%	-2.30%	+3.75%
	Portugal	-0.9%	10.6%	1.45%	-4.65%	+6.10%
	Ireland	-1.7%	12.0%	1.45%	-6.55%	+8.00%
	Italy	+0.8%	7.8%	1.45%	-0.70%	+2.15%
	Greece	+1.3%	9.5%	1.45%	-0.80%	+2.25%
	Spain	-0.2%	17.9%	1.45%	-7.25%	+8.70%
	Cypress	+0.2%	5.4%	1.45%	-0.40%	+1.85%
	Germany	+0.2%	7.8%	1.45%	-1.60%	+3.05%
	Austria	+0.4%	4.8%	1.45%	+0.20%	+1.25%
	France	+0.1%	9.1%	1.45%	-2.40%	+3.85%
	Netherlands	+1.0%	3.7%	1.45%	+1.65%	-0.20%
	U.S.	-0.4%	10.0%	0.25%	-3.60%	+3.85%
2010	Euro-zone	+1.6%	10.1%	1.25%	-0.65%	+1.90%
	Portugal	+1.4%	9.7%	1.25%	-0.75%	+2.00%
	Ireland	-1.6%	13.9%	1.25%	7.35%	+8.60%
	Italy	+1.6%	8.4%	1.25%	+0.20%	+1.05%
	Greece	+4.7%	12.6%	1.25%	+2.75%	-1.50%
	Spain	+2.0%	19.9%	1.25%	-4.95%	+6.20%
	Cypress	+2.6%	6.3%	1.25%	+2.75%	-1.50%
	Germany	+1.2%	7.1%	1.25%	+0.25%	+1.00%
	Austria	+1.7%	4.4%	1.25%	+2.35%	-1.10%
	France	+1.7%	9.3%	1.25%	-0.10%	+1.35%
	Netherlands	+0.9%	4.5%	1.25%	+1.10%	+0.15%
	U.S.	+1.6%	9.8%	0.25%	-0.50%	+0.75%
2011	Euro-zone	+2.7%	10.1%	1.25%	+1.00%	+0.25%
	Portugal	+3.6%	12.9%	1.25%	+0.95%	+0.30%
	Ireland	+1.2%	14.7%	1.25%	-3.55%	+4.80%
	Italy	+2.9%	8.4%	1.25%	+2.15%	-0.90%
	Greece	+3.1%	17.7%	1.25%	-2.20%	+3.45%
	Spain	+3.1%	21.4%	1.25%	-4.05%	+5.30%
	Cypress	+3.5%	7.9%	1.25%	+3.30%	-2.05%
	Germany	+2.5%	5.9%	1.25%	+2.80%	-1.55%
	Austria	+3.6%	4.2%	1.25%	+5.30%	-4.05%
	France	+2.3%	9.2%	1.25%	+0.85%	+0.40%
	Netherlands	+2.5%	4.4%	1.25%	+3.55%	-2.30%
	U.S.	+3.2%	9.0%	0.25%	+2.30%	-2.05%

Table 3. (Continued)

Year	Country	Inflation	Unemployment	Target Rates	Recommended Rates	Differences
2012	Euro-zone	+2.5%	11.3%	0.75%	+0.10%	+0.65%
	Portugal	+2.8%	15.9%	0.75%	-1.75%	+2.50%
	Ireland	+1.9%	14.7%	0.75%	-2.50%	+3.25%
	Italy	+3.3%	10.7%	0.75%	+1.60%	-0.85%
	Greece	+1.0%	24.3%	0.75%	-8.65%	9.40%
	Spain	+2.4%	24.8%	0.75%	-6.80%	+7.55%
	Cypress	+3.1%	11.9%	0.75%	+0.70%	+0.05%
	Germany	+2.1%	5.5%	0.75%	+2.40%	-1.65%
	Austria	+2.6%	4.3%	0.75%	+3.75%	-3.00%
	France	+2.2%	9.8%	0.75%	+0.30%	+0.45%
	Netherlands	+2.8%	5.3%	0.75%	+3.55%	-2.80%
	U.S.	+2.1%	8.1%	0.25%	+1.10%	-0.85%
2013	Euro-zone	+1.3%	12.0%	0.50%	-2.05%	+2.55%
	Portugal	+0.4%	16.5%	0.50%	5.65%	+6.15%
	Ireland	+0.5%	13.1%	0.50%	-3.80%	+4.30%
	Italy	+1.3%	12.2%	0.50%	-2.15%	+2.65%
	Greece	-0.9%	27.3%	0.50%	-13.00%	+13.50%
	Spain	+1.5%	26.1%	0.50%	-8.80%	+9.30%
	Cypress	+0.4%	15.9%	0.50%	-5.35%	+5.85%
	Germany	+1.6%	5.3%	0.50%	+1.75%	-1.25%
	Austria	+2.1%	4.9%	0.50%	+2.70%	-2.20%
	France	+1.0%	10.3%	0.50%	-1.65%	+2.15%
	Netherlands	+2.6%	6.7%	0.50%	+2.55%	-2.05%
	U.S.	+1.5%	7.7%	0.25%	+0.40%	-0.15%
2014	Euro-zone	+0.4%	11.3%	0.15%	-3.05%	+3.20%
	Portugal	-0.2%	13.4%	0.15%	-5.00%	+5.15%
	Ireland	+0.3%	10.5%	0.15%	-2.80%	+2.95%
	Italy	+0.2%	12.9%	0.15%	-4.15%	+4.30%
	Greece	-1.4%	27.0%	0.15%	-13.60%	+13.75%
	Spain	-0.2%	23.7%	0.15%	-10.15%	+10.30%
	Cypress	-0.3%	16.4%	0.15%	-6.65%	+6.80%
	Germany	+0.8%	4.8%	0.15%	+0.80%	-0.65%
	Austria	+1.5%	4.9%	0.15%	+1.80%	-1.65%
	France	+0.6%	10.3%	0.15%	-2.25%	+2.40%
	Netherlands	+0.3%	6.7%	0.15%	-0.90%	+1.05%
	U.S.	+1.6%	6.3%	0.25%	+1.25%	-1.00%
2015	Euro-zone	+0.0%	10.1%	0.05%	-3.05%	+3.10%
	Portugal	+0.5%	13.2%	0.05%	-3.85%	+3.90%
	Ireland	+0.0%	9.8%	0.05%	-2.90%	+2.95%
	Italy	+0.1%	12.4%	0.05%	-4.05%	+4.10%

Year	Country	Inflation	Unemployment	Target Rates	Recommended Rates	Differences
	Greece	-1.1%	26.0%	0.05%	-12.65%	+12.70%
	Spain	-0.6%	23.0%	0.05%	-10.40%	+10.45%
	Cypress	-1.6%	16.2%	0.05%	-8.50%	+8.55%
	Germany	+0.1%	4.8%	0.05%	-0.25%	+0.30%
	Austria	+0.8%	5.6%	0.05%	+0.40%	-0.35%
	France	+0.1%	10.3%	0.05%	-3.00%	+3.05%
	Netherlands	+0.2%	7.0%	0.05%	-1.20%	+1.25%
	U.S.	+0.7%	5.3%	0.25%	+0.40%	-0.15%

Note: See Table 1. The coefficients are: $\alpha_\pi = 0.5$ and $\alpha_u = -0.5$, the other variables are: $r_t^* = 1\%$, $\pi_t^* = 2\%$, and $u_t^N = 4\%$.

Table 4. Estimates of the Loans and Deposits Rates: Eq. (9) and (10)

Variables	i_{L_t}	i_{L_t}	i_{L_t}	i_{D_t}	i_{D_t}	i_{D_t}
C	31.799***	44.621***	45.721**	5.467***	6.315***	-16.083***
	(6.404)	(11.895)	(19.649)	(1.353)	(2.049)	(4.323)
i_{FF_t}	0.408	-0.038	-0.590***	0.613***	0.439***	-1.183***
	(0.260)	(0.137)	(0.208)	(0.076)	(0.101)	(0.219)
i_{P_t}	-0.280	-0.026	0.429**	0.385***	0.591***	2.085***
	(0.279)	(0.139)	(0.216)	(0.085)	(0.113)	(0.228)
$\ln Y_t$	0.438	0.438	0.438	-2.747**	-4.541***	-5.932***
	(1.668)	(1.668)	(1.668)	(1.193)	(1.398)	(1.542)
π_t	-0.009	-0.006**	-0.005	-0.010***	-0.010***	-0.005
	(0.010)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
u_t	0.258***	-0.035	-0.014	-0.009	0.001	-0.097***
	(0.061)	(0.069)	(0.079)	(0.016)	(0.023)	(0.033)
$\ln C_t$	5.783***	3.993***	-4.277*	1.795	3.082**	9.813***
	(1.824)	(1.453)	(2.199)	(1.132)	(1.447)	(2.047)
$\ln T_t$	-2.545*	-0.229	-0.360	-0.430	-0.643	0.238
	(1.519)	(0.796)	(0.911)	(0.643)	(0.744)	(0.781)
$\ln D_t$	-0.001***	0.001	0.001	0.483**	0.673**	-2.036***
	(0.001)	(0.001)	(0.001)	(0.190)	(0.265)	(0.414)

Table 4. (Continued)

Variables	i_{L_t}	i_{L_t}	i_{L_t}	i_{D_t}	i_{D_t}	i_{D_t}
$\ln L_t$	5.235***	1.002	1.352	0.143	0.389	-0.668
	(0.833)	(1.790)	(2.416)	(0.324)	(0.459)	(0.925)
TED_t	1.218***	0.137*** $\ln P_{Gold_t}$	-0.471* TED_t	0.529***	0.535*** $\ln P_{Gold_t}$	0.178*
	(0.115)	(0.051)	(0.255)	(0.037)	(0.047)	(0.096)
$AR(1)$	-	0.943***	0.948***	-	0.433***	0.419***
		(0.021)	(0.023)		(0.058)	(0.069)
$MA(1)$	-	0.306***	0.264***	-	-	-
		(0.060)	(0.069)			
R^2	0.847	0.982	0.969	0.995	0.995	0.995
SSR	88.217	10.158	8.316	8.675	7.401	5.777
F	173.420	1544.033	612.904	5146.837	5358.970	3787.086
$D-W$	0.271	2.026	2.040	1.303	2.008	1.969
N	292	291	227	286	285	221

Note: $\ln C_t$ = LUSPCE = ln of personal consumption expenditure, $\ln Y_t$ = LUSPI = ln of personal income, $\ln L_t$ = LUSCCO = loans or consumer credit outstanding, $\ln T_t = t_t$ = LUSGCTR = ln of taxes or U.S. government current tax receipts, i_{L_t} = BAA = loans rate or corporate bonds rate, TED_t = TED rate for measuring the uncertainty (=LIBOR3M-STT3M), $\ln P_{Gold_t}$ = LGOLD = gold prices, i_{FF_t} = USFFR = U.S. federal funds rate, π_t = USINF = U.S. inflation rate, g_t = LUSGCE = ln of government consumption expenditures, i_{P_t} = USPR = U.S. prime rate, p_t = LUSCPI = ln of consumer price index, q_t = LUSRGDP2009 = ln of real GDP, i_{D_t} = USCD1MONTH = CD rate 1-month maturity (deposits rate), u_t = USU = unemployment rate, LIBOR3M = LIBOR 3-month rate, STT3M = 3-monthe U.S. T-Bill rate, $\ln D_t$ = USTD = total deposits, $\Rightarrow$ = causes, *** = significant at the 1% level, ** = significant at the 5% level, and * = significant at the 10% level.

Source: *Economagic.com.*

Table 5. The VAR Estimation of Public Policy Effectiveness: Eq. (13)

Variables	u_t	p_t	q_t
C	-0.658	-0.011	0.126***
	(1.324)	(0.020)	(0.181)
u_{t-1}	0.969***	0.001	-0.003***
	(0.038)	(0.001)	(0.001)
u_{t-2}	-0.013	-0.001	0.004***
	(0.037)	(0.001)	(0.002)
p_{t-1}	4.548**	1.334***	-0.057
	(2.329)	(0.036)	(0.063)
p_{t-2}	-4.195**	-0.339***	0.043
	(2.321)	(0.036)	(0.062)
q_{t-1}	-4.721***	-0.027	0.847***
	(1.152)	(0.018)	(0.031)
q_{t-2}	4.848***	0.029	0.133***
	(1.133)	(0.017)	(0.030)
i_{FF_t}	-0.060***	0.001**	-0.001
	(0.013)	(0.001)	(0.001)
$i_{FF_{t-1}}$	0.070***	-0.001	-0.001
	(0.014)	(0.001)	(0.001)
t_t	-3.141***	0.009	0.206***
	(0.498)	(0.008)	(0.013)
t_{t-1}	2.118***	-0.010	-0.178***
	(0.513)	(0.008)	(0.014)
g_t	1.996**	0.001	0.134***
	(0.706)	(0.011)	(0.019)
g_{t-1}	-1.252*	0.004	-0.145***
	(0.712)	(0.011)	(0.019)
R^2	0.988	0.999	0.999
SSR	21.908	0.005	0.016
F	4774.112	4603553	778834.6
N	713	713	713

Note: See, Table 4.
Source: See, Table 4.

IV. Some Socio-Politico-Economic Considerations of Central Banking

> "Γνώσεσθε τήν ἀλήθειαν, καί ἡ ἀλήθεια ἐλευθερώσει ὑμᾶς."
> (Ἰωάν. η΄, 32).

(i) Social Implications of the Central Banks Efficiency

The unprecedented latest financial crisis, which is still going on;[1] it was not only the result of bad lending (sub-prime mortgages) as Bernanke admitted it,[2] but the uncontrolled (deregulated) complexity and the innovative instruments in U. S. (derivatives, credit-default swaps, hedge funds, toxic assets, short-selling, futures markets, gambling, etc.),[3] and the oppressive, anti-democratic EMU in Europe, which have increased instability to these greedy markets and poor citizens. Actually, one party transfers the risk to the other (redistribution of risk and also, redistribution of wealth) if certain events happen and if the expectations of this party will be proved correct, its profits will soar (zero-sum games and not instruments to manage risk).[4] In the U. S., the self-interest and the complicated bets for maximizing personal returns, without knowing the financial position of the others and in Europe, the oppressive rules of the EU towards its members, led these markets to servitude by the "dark powers." Even, "Bernanke won a prize for the best undergraduate economics thesis for a paper demonstrating how deregulating natural gas prices could be good for the economy." (*sic*). This uncontrolled (deregulated) free-market philosophy and practice (extreme liberalism) will cause unwelcome pain for many years to come even after the recovery because it will lead us very soon to the 2nd depression of the 21st century, due to their

[1] The U.S. is in its weakest recovery since 1949. The average GDP growth during each expansion (at an annualized rate) was: 1949-1953: 7.6%, 1954-1957: 4.0%, 1958-1960: 5.6%, 1961-1969: 4.9%, 1970-1973: 5.1%, 1975-1980: 4.3%, 1980-1981: 4.4%, 1982-1990: 4.3%, 1991-2001: 3.6%, 2001-2007: 2.8%, 2009-2016: 2.1%. See, Eric Morath, "U.S. in Weakest Recovery Since '49," *The Wall Street Journal*, July 30-31, 2016, pp. A1 and A2.

[2] See, Wessel (2009, p. 129).

[3] Stiglitz (2009) says that "even then (when he was chairman of the Council of Economic Advisors during the Clinton administration), it was clear that derivatives posed a danger." Warren Buffett saw derivatives as "financial weapons of mass destruction."

[4] These markets from investment and capital supplier ones have become dangerous casinos, which affect not only the participants, as the true casinos, but the entire economy. Extremist Neo-liberalism!

innovative quantitative easing and its new bubbles, which show the lack of efficiency of the central banks.

Fed reduced drastically the federal funds rate to 0.25% (quantitative easing) in December 2008 to affect positively (increase) the money supply. Fed was buying bonds and mortgage back securities from the 18 primary dealers in New York City and offered to them trillions of dollars by which they were buying stocks; forcing the stock prices and the stock indexes to increase so much that we have a new, worse than the previous, bubble. The Fed is manipulating the stock market. But, the ECB reduced its overnight rate only to 2.5% at the same period. This expansionary monetary policy has increased drastically the money supply in the U. S. Also, Fed was and it is still using "forward guidance," a communication policy, with which it tries to mitigate fear in markets and promises that will continue with the same policy for some time, until a certain target will reached. Of course, if communication can be improved, information asymmetries can be reduced, markets become more efficient and costs to consumers' will fall. At a given price level, it was expected the aggregate demand (AD) to increase. More liquidity in the economy and closed to zero interest rate was expected to equate money supply with money demand. This lower cost of capital was expected to stimulate more investment and consumption. More investment and consumption require a higher level of GDP for spending balance. All these would shift AD to the right and the economy will improve. But, the AD did not rise because people were unemployed their debts were enormous, and the uncertainty for the future huge. The cost of capital (loans' rate) went down and the banks had all this liquidity (excess reserves) generated by the Fed, but people (and small businesses) did not borrow; they did not have the required qualifications to borrow and they did not want more debt. Then, individuals' demand fell and firms' investment declined, too, because in an economy demand creates its own supply ($AD \Rightarrow AS$) and not the opposite, as the neo-classical school believes.[5] Actually, consumption and investment fell and AD decreased drastically, which affected negatively production, output, and employment. For Euro-zone, this high overnight rate was catastrophic because of lack of liquidity to the member-nations (and even capital controls for the "disobedient" Greeks).

[5] These neo-classical ideas have been permuted to global oppression; deprivation of humans' freedoms and nations' sovereignty.

Unfortunately, investment (I)[6] is a very important component of the aggregate demand (AD)[7] and affects GDP and employment. Lack of domestic investment, due to outsourcing is the contributor of the high unemployment in the country.[8] Fed tried, with zero interest rate for seven years, to increase investment and to help the economy to grow, the ECB discovered it just in November 2013; but investment depends on the demand for the products that there will be produced and this demand depends on the income of our people, which is very low, due to unemployment, high taxes, and high accumulated debts. ECB and policy makers in Europe and Japan have turned to negative interest rates to encourage people to spend more instead of saving (investing), but this did not happen.[9] Uncertainty and lack of consumers' confidence affects negatively aggregate demand. The consumer can spend the present value of his future income and wealth, but uncertainty makes this prospective income very low and very risky. Thus, he does not borrow, he does not spend, he does not study, he does not hope, he starts becoming depress and other psychological problems deteriorate his mental and physical health. Finally, he is discouraged and does not look for a job at all and unfortunately, the most of the jobs are part-time with minimum wages and without healthcare coverage. Thus, the Fed's and ECB's policy by reducing the interest rate cannot affect directly the economy, but only indirectly, if the prospective investments will

[6] Gross domestic investment (billions). In 2006: $3,233.0; in 2007: $3,236.0; in 2008: $3,059.4; in 2009: $2,525.1; in 2010: $2,752.6; in 2011: 2,877.8; in 2012: $3,126.1; in 2013: $3,298.6; in 2014: $3,481.0; and in 2015: $3,670.0 billion (http://sub1.economagic.com/em-cgi/data.exe/nipa/A50205-W170RC).

[7] The aggregate demand is: $AD = C + I + G + X - M \equiv AS = GDP \equiv Y$.

[8] Globalization with its outsourcing has caused enormous problems to advanced economies (U.S. and EU). The main criticisms of globalization: (1) Weaker countries lose their culture, tradition, language, and identity. (2) Counties become more dependent on each other and the correlation of their economies increases ($\rho_{A,B} \cong +1$). That is why economic crises move from one country to other countries very fast (systemic risk). (3) Poor countries become poorer and are experiencing high exploitation. (4) More powerful countries dictate their "rules of game" for others. (5) Growth of international crime (terrorism, ISIS, drags, human trafficking, illegal weapons, etc.). (6) Countries are not able to control financial flows and illegal migration (Muslims from Middle East and Africa smuggled from Turkey into EU and have been stuck in Greece by closing the boarder in Skopje and other European nations). (7) Companies from developed countries move their business to developing countries with less salaries. It causes growth of unemployment in developed countries and destruction of their manufacturing, their small cities, towns, and country sides. See, *Stiglitz (2002).*

[9] See, "Negative rates' Big Surprise: More Saving," *The Wall Street Journal*, August 9, 2016, pp. A1 and A10.

take place and if businesses would come back to the U. S.[10] In Europe, the contractionary fiscal policy (austerities) and the sell-offs of the state owned enterprises have destroyed the economies and the prospects of the poor people.[11]

[10] *The Goal of the Trump Plan: Fighting for American Businesses and Workers*. "America has always been a trading nation. Under the Trump administration trade will flourish. However, for free trade to bring prosperity to America, it must also be *fair trade*. Our goal is not protectionism but accountability. America fully opened its markets to China but China has not reciprocated. Its Great Wall of Protectionism uses unlawful tariff and non-tariff barriers to keep American companies out of China and to tilt the playing field in their favor. If you give American workers a level playing field, they will win. At its heart, this plan is a negotiating strategy to bring fairness to our trade with China. The results will be huge for American businesses and workers. Jobs and factories will stop moving offshore and instead stay here at home. The economy will boom. The steps outlined in this plan will make that a reality. When Donald J. Trump is president, China will be on notice that America is back in the global leadership business and that their days of currency manipulation and cheating are over. We will cut a better deal with China that helps American businesses and workers compete. *The Trump Plan will Achieve the Following Goals:* (1) *Bring China to the bargaining table* by immediately declaring it a currency manipulator. (2) *Protect American ingenuity and investment* by forcing China to uphold intellectual property laws and stop their unfair and unlawful practice of forcing U.S. companies to share proprietary technology with Chinese competitors as a condition of entry to China's market. (3) *Reclaim millions of American jobs and reviving American manufacturing* by putting an end to China's illegal export subsidies and lax labor and environmental standards. No more sweatshops or pollution havens stealing jobs from American workers. (4) *Strengthen our negotiating position* by lowering our corporate tax rate to keep American companies and jobs here at home, attacking our debt and deficit so China cannot use financial blackmail against us, and bolstering the U.S. military presence in the East and South China Seas to discourage Chinese adventurism." See, https://www.donaldjtrump.com/positions/us-china-trade-reform. And of course, we hope to improve the relationship with Russia, which is a Christian European nation with a western culture! The unfair, costly, and unjustifiable cold war has caused enormous debts and uncertainty to the entire world. The most important cause of the Cold War was the suspicion and rivalry between Truman and Stalin. The controlled and subjective mass media have contributed to these problems. John Swinton, the former Chief of Staff at the *New York Times* was asked to give a toast before the prestigious New York Press Club in 1953. He made this candid confession that there is no independent press. [It's worth noting that Swinton was called "The Dean of His Profession" by other newsmen, who admired him greatly].

[11] The world "planners" started with Europe and Europeans, the most advanced continent and by integrated (control) them, it will be easy for the rest of the world to be persuaded to accept without serious resistance the global control (globalization). "We are grateful to the Washington Post, the New York Times, Time Magazine and other great publications whose directors have attended our meetings and respected their promises of discretion for almost 40 years.....It would have been impossible for us to develop our plan for the world if we had been subjected to the lights of publicity during those years. But, the world is more sophisticated and prepared to march towards a world government. The super-national sovereignty of an intellectual elite and world bankers is surely preferable to the national auto-determination practiced in past centuries." This frightful quote is from David Rockefeller.
See, http://www.goodreads.com/author/quotes/9951.David_Rockefeller).

Further, the artificial growth of the service economy (financial markets) and the decline in manufacture and agriculture (mal-investment and outsourcing without protection of domestic industries) will affect negatively the western market-oriented and consumption-driven economies and certainly, their superficial "civilization" (quality of life). The rise of the financial and military warlord that act in their own self-interest and against the country's and citizens' interest cannot contribute to the long-term growth of the countries. The most of these warlords operate through bribery, corruption, coercion, exploitation of people, and by using many other unethical and immoral means to satisfy their wrong objectives. These are serious problems for the western economies and societies; they will destroy their own middle class and they will lead their nations to bereavement and disappearance. This is the policy of the "new age" and its "forerunners" are following it with great piety. Governments have to put some control to all these wrong situations. Governments[12] must be of an optimal size, efficient, uncorrupted, and democratic. But, too often in politics everything is a short-term solution and the long run problems and national objectives are ignored. The elite oligarchy satisfies its interests ahead and mostly ignoring the national interest.

Our privately owned central banks,[13] principally the Fed and the ECB, do want inflation,[14] but they want it to be orderly rather than disorderly. They

[12] Unfortunately, today we see many parasitic government officials, who cannot contribute to the well-being of the country, but they are responsible for any mal-investment, waste, and gorging at the expense of the taxpayers. Also, their foreign policies are completely wrong and cause serious humanitarian and monetary problems. An example, can be the following movie; *Hillary's America*. The latest film, which takes audiences on a gripping journey into the secret history of the Democratic Party and the contentious rise of presidential candidate Hillary Clinton. In *Hillary's America*, New York Times #1 best-selling author and celebrated filmmaker Dinesh D'Souza reveals the sordid truth about Hillary and the secret history of the Democratic Party. This eye-opening film sheds light on the Democrats' transition from pro-slavery to pro-enslavement; how Hillary Clinton's political mentor was, literally, a cold-blooded gangster; and how the Clintons and other Democrats see foreign policy not in terms of national interest, but in terms of personal profit. *Hillary's America* uncovers how their plan is to simply steal America, according to the author of the movie.

[13] The central banks all over the world have something in common that makes them highly interdependent and reduces their domestic independent policies. The governors in many central banks around the world are coming from MIT and were students of Stanley Fischer. (1) Stanley Fischer (ex-governor Bank of Israel and now vice chairman of the Fed), (2) Ben S. Bernanke (ex-governor U.S. Fed), (3) Mario Draghi (governor ECB), (4) Mervyn King (ex-governor Bank of England), (5) Lucas Papademos (ex-governor of Bank of Greece, ex-ECB vice president, and ex-prime minister of Greece), (6) Athanassios Orphanides (ex-governor Bank of Cyprus), (7) Duwuri Subbarao (ex-governor Reserve Bank of India), (8) Jose De Gregorio (ex-governor of Central Bank of Chile), (9) Charles Bean (King's deputy in Bank of England), and (10) Oliver Blanchard (IMF). Amazing coincidences. (*sic*).

want the inflation to come in small doses so that it goes unnoticed because the inflation is a supply-side (cost-push) inflation. Gold is highly volatile,[15] and when it spikes up sharply, it raises inflationary expectations.[16] The Fed and the BIS reduce the price of gold not to keep them down forever, but rather to keep the increases orderly so that consumers and savers do not notice inflation. Inflation of 3% per annum is barely noticed, but if it remains for twenty years, it reduces the value of the national debt more than in half. This kind of slow, steady inflation is the central banks' goal,[17] but their effectiveness on the real economy is very limited.[18]

The question is, now. What was it needed? It was needed an increase in aggregate demand through an increase in government spending (government investment and expenditures)[19] and a reduction in individuals' taxes; a fiscal expansionary policy. In this case, the aggregate demand will shift to the right because the government spending and the lower taxes will increase individuals' disposable income and employment; this personal income will increase consumption and investment to produce the goods and offer the services demanded by individuals and businesses. This policy (fiscal) will stimulate demand, production, growth, and employment. The role of the government is very important and cannot be ignored by our current market oriented economy. The optimal solution can be a mixed public policy (fiscal and monetary) simultaneously.

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[14] "The Federal Open Market Committee (FOMC) judges that inflation at the rate of 2 percent (as measured by the annual change in the price index for personal consumption expenditures, or PCE) is most consistent over the longer run with the Federal Reserve's mandate for price stability and maximum employment." (*sic*). See, https://www.federalreserve.gov/faqs/economy_14400.htm.

[15] It has lately, a mean price, $\overline{P}_{Gold} = \$684.9/oz$ and a volatility, $\sigma_{P_{Gold}} = 470.145$.

[16] Their correlation is: $\rho_{P_{Gold},CPI} = +0.878$ and causality: $P_{Gold} \Rightarrow (F = 2.960^{***})\ CPI$ and $P_{Gold} \Rightarrow (F = 2.501^{**})\ \pi$.

[17] See, Rickards (2004, pp. 278-279).

[18] The U.S. growth of the real GDP was only 0.2% for the first quarter of 2015. See, http://www.bloomberg.com/news/articles/2015-04-29/economy-in-u-s-stalls-on-slump-in-business-spending-exports and the low growth of GDP continues; in 2016 Q1: it was 0.8%, in 2016 Q2: 1.2%, and in 2016 Q3: 3.2%. See, http://www.tradingeconomics.com/united-states/gdp-growth.

[19] Government Consumption Expenditures and Gross Investment were: In 2006: $2,690.6 billion; in 2007: $2,865.3 billion, +$174.7 billion compared to the previous year; in 2008: $3,049.7 billion, +$184.4 billion; in 2009: $3,122.0 billion, +$72.3 billion; in 2010: $3,184.2 billion, +$62.2 billion; in 2011: $3,160.4 billion, -$23.8 billion less than the year 2010; in 2012: $3,143.5 billion, -$16.9 billion; in 2013: $3,117.7 billion, -$25.8 billion; in 2014: $3,171.4 billion, +$53.7 billion; in 2015: $3,236.3 billion, +$64.9 billion; and in 2016 Q2: $3,266.7 billion, +$30.4 billion higher compared to 2015. (http://sub1.economagic.com/ em-cgi/data.exe/nipa/Q30905-A822RC).

(ii) Monetary Policy and Its Effects on Wall Street and Main Street

As it was mentioned above, Fed reduced the federal funds rate to 0.25% (quantitative easing; the "unconventional approach to monetary policy")[20] to affect positively (increase) the money supply and this liquidity to stimulate the stock market (Wall Street). Really the money supply has increased drastically (MB from $850.8 billion in September 2007 became $4,149.505 billion in September 2014).[21] The liquidity effect caused the market rate of interest to fall. This lower interest rate (cost of capital) could stimulate more investment and consumption, but it did not happen. More investment and consumption require a higher level of GDP (income) for spending balance, which means full employment and highly paid permanent jobs. All these will improve confidence of individuals[22] and will shift aggregate demand to the right and the economy (Main Street) will improve. But, the aggregate demand did not rise because people were unemployed (zero income) and their debts were enormous (bankrupt). The cost of capital (loans' rate) went down and the banks had all this liquidity (excess reserves) generated by the Fed, but people did not borrow; they did not have the required qualifications to borrow and they did not want more debt.[23] But, consumption and investment in our

[20] See, Williamson (2015).

[21] A growth of the MB by $3,298.705 billion or 387.718% (55.39% per annum). Then, if inflation is a monetary phenomenon (according to Monetarist School), we have a price increase of about 50%. Lately (8/17/2016), MB fell to $3,871.858 and in November 2016 to $3,629.723 billion. See, https://research.stlouisfed.org/fred2/series/BASE/

[22] The Consumer Confidence Index was on 1/12/1999: 145, it fell on 3/9/2009: 25, it became 1/12/2011: 72, and in July 2016 reached 97.3. It seems that consumers' confidence is still very low. See, https://www.conference-board.org/data/consumerconfidence.cfm.

[23] The optimal debt for individuals is zero. Also, the housing market is still very weak. "No one is getting crazy mortgages today. Regulatory changes in the wake of the crisis and chastened (thus much more cautious) mortgage lenders make that all but impossible. The financial affliction of negative homeowners' equity, in which the house is worth less than the mortgage due, is fast fading. At the worst of the problem, close to 17 million homeowners were underwater. By the end of 2016, that should be down to a more typical 5 million homeowners." See, https://www.washingtonpost.com/realestate/a-look-at-the-trends-that-will-impact-the-financial-stakes-in-housing/2016/01/06/44de14ce-9d16-11e5-a3c5-c77f2cc5a43c_story.html. Also, the inventories of unsold cars were huge. "In the past several years, one of the topics covered in detail on these pages has been the surge in such gimmicks designed to disguise lack of demand and end customer sales, used extensively by US automotive manufacturers, better known as "channel stuffing," of which General Motors is particularly guilty and whose inventory at dealer lots just hit a new record high. But did you know that when it comes to flat or declining sales and stagnant end demand, channel stuffing is merely the beginning? Houston...We have a problem! Nobody is buying brand new cars anymore! Well they are, but not on the scale they once were. Millions of

advanced societies depend on debt (borrowing). For this reason, consumption and investment fell; thus, aggregate demand decreased, which affected negatively production, output, and unfortunately, employment.

Federal Reserve policy is affecting the financial market, but its wrong policy punishes savings, investment, small business, and consequently, aggregate demand and production. The high unemployment,[24] in this case, can be deflationary, a scenario that the Fed does not like at all. Of course, the domestic public policies are affecting the other nations, their currency value, their inflation, their exports, and a currency war starts, which causes a global chaos. An excess liquidity (easy monetary policy) cannot improve the economy if businesses are unwilling to invest capital and create the jobs associated with such investment because their objective is profitability and not job creation. In that case, the investment must be done by the government, public investment,[25] and by encouraging and supporting small (family) businesses to invest, too.

Furthermore, a nation's saving rate[26] is a key determinant of its independence from foreign capital and its long-run economic prosperity. Fed has to impose a floor (minimum) on deposit rates. When the saving rate is higher, the waste is lower and more resources are available for investment in new plant and equipment. This investment will increase production, employment, wages, incomes, and labor productivity. The high production will increase the economic well-being (welfare) of the citizens. The U.S. tax system discourages saving because the disposable income is not enough to cover the necessary consumption of the average household. Of course, saving is a virtue and people must learn from kindergarten that they must save. The tax code could provide an incentive to save.[27] Globalization has also replaced

brand new unsold cars are just sitting redundant on runways and car parks around the world. There, they stay, slowly deteriorating without being maintained." See, http://www.zerohedge.com/news/2014-05-16/where-worlds-unsold-cars-go-die.

[24] In June 2016, the official unemployment rate was: 4.9% (http://data.bls.gov/timeseries/LNS14000000) and the SGS's measure was: 22.9% (http://www.shadowstats.com/alternate_data/unemployment-charts). In November 2016, it was 4.6%. (*sic*).

[25] The foreign investments are not always beneficial for a nation. For example, the foreign investment in Euro-zone nations has increased, especially by Chinese and this increased demand for euros kept the euro overvalued even during the European debt crises, which affected negatively exports and tourism.

[26] The savings rate with June 2016 was 5.3%. See, http://www.tradingeconomics.com/united-states/personal-savings

[27] Some people are in favor of a consumption tax, as Alan Greenspan said in 2005. See, Andrew Balls, "Greenspan Backs Consumption Tax in His Principles of Reform," *The Financial Times*, March 4, 2005. But, this tax will fall on people (families) with high consumption and low income, which is unfair.

the workers in developed countries with workers in less developed countries and the number of middle-skill jobs has declined,[28] which has contributed to the restriction of the middle class. Most of the new jobs are part-time or half-time[29] with minimum wages and salaries and without health insurance.

Consequently, this cycle has to break, otherwise the country will become poorer and poorer and it will reach bankruptcy. The newly created jobs by businesses generate an income that cannot cover the basic needs even of a single person and people have to borrow at a high loans rate to complement their low income. Fed has to put an interest rate ceiling on these consumers' loans. Universities are doing the same, they hire temporary adjunct professors with a payment of $2,500 per course without any benefits.[30] The middle class is the foundation of the economy and with an impoverished middle class,[31] businesses will go bankrupt one after the other and at the end the entire country will fail and because the U. S. economy is the largest of the world, a contingent effect will affect negatively the global economy (systemic risk). Thus, the U. S. has to change its public policy and make it more social (improving the "Main Street"), in favor of its citizens and not in favor of the businesses, institutions, markets (the "Wall Street"), and "allies" because if citizens will be destroyed economically, markets will collapse.

Besides, Fed policy is based on forecasting, which is a very difficult process. If the Fed underestimates expected growth, its target rate will be too low, which can cause inflation and negative real rate of interest, as it is during this period. Such conditions hurt savings and capital formation, due to low supply of funds. In case that the Fed overestimates expected growth, then its policy will be a tight one (high target rate). This will lead the economy into a recession and high unemployment and the price of stocks to fall. Consequently, forecasting errors in either direction generate policy errors and serious problems to the financial and real sector of the economy. But, the correct forecasting is having a small probability of occurrence.[32]

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[28] See, Cheremukhin (2014). This is another dangerous negative effect on the middle class of the country.

[29] New innovations for workers exploitation appeared in our "free market" system. The factor labor does not have any value today; globalization is taking care of these previous "difficulties" by equalizing wages globally.

[30] See, *Pacific*Standard (PS)*, Business & Economics, http://www.psmag.com/business-economics/are-adjunct-professors-the-new-fast-food-workers

[31] See, David Leonhardt and Kevin Quealy, "U.S. Middle Class Is No Longer World's Richest," *The New York Times*, April 23, 2014, pp. A1 and A14.

[32] We saw lately, the IMF forecasting; they were completely wrong, which is very suspicious because we all make mistakes, but not unceasingly and feignedly.

The current quantitative easing (zero target rate policy) is a monetary policy to reach Fed's goals, which is a negative real rate of interest with higher inflation that exceeds the nominal rate of interest. By mismeasurement and underreporting of inflation does not mean that prices are not going up. This manipulation of our perceptions of the economy does not improve the economy, but jeopardize our future. Real wages are plunging and real return from our investment (deposits) is negative. Banks make significant profits by borrowing at a zero short-term rate, offered by the Fed and by the depositors and lending this money for longer terms and higher rates. This can produce losses to the banks if the interest rate will rise because banks are stuck with the long-term fixed-rate assets (mortgages and corporate loans). In this case, the Fed's solution might be the forward guidance, which is not sufficient to reduce the future economic risk.

In summary, the economy needs to raise interest rate (deposit rates) and wages to boost household income; but these policies, while helping people are against businesses and the financial market. The U. S. public policy is pro-market one and not pro-citizens. The behavior towards the citizens is the same as it was in 1880s, during the *first gilded age* of the U. S. economy.[33] Continued high taxes and wage suppression without health insurance will exacerbate the twin crises of high debt and income inequality that might bring a new deeper financial crisis than the previous one, a deep recession, and many bankruptcies, which lead to social unrest, looting of businesses and homes, and many deaths, due to ownership of guns by everyone.[34] The economies of the U. S., Europe, and Japan are very anemic and might be soon in decline, and due to globalization (high correlation among the economies) the depression will become global and the only place for someone to hide will be the small villages, where he can be self-sufficient, as it was 100 years ago.

Federal Reserve Chairwoman Janet Yellen said the chances of recession this year are "quite low" despite mounting worries that the U. S. could be heading toward a downturn after seven years of tepid economic expansion.

[33] "… the State must actively promote equal opportunity via market intervention and social reform to defend republic ideals and institutions in the face of a grasping, monopolizing capitalist system. Laissez-faire made sense in the eras of the Founders and Andrew Jackson, but in the subsequent age of industrial capitalism it threatened to destroy the republic… monopoly power posed an even greater threat… State authority must be brought to bear in the economic sphere to protect republican liberty, equality, and citizenship was by far [Henry George's] greatest and most enduring legacy." See, O'Donnell (2015, p. 274). It seems that we are living a second gilded age in the U.S.

[34] This is another social crisis in the U.S., which does not exist in any other nations. Why the country cannot provide the safety and security to its citizens and they have to protect themselves by their own means? Something is wrong, here.

"The U. S. economy is doing well," she said Tuesday (6/21/2016), kicking off two days of testimony to Congress on the economic outlook and monetary policy. "My expectation is that the U. S. economy will continue to grow." [35] The neoliberalism that currently the private central banks promote, has created a new gilded age for the U. S. and the EU nations.[36] Central banks must be public; they must belong to governments (the democratically elected officials). Some broad principles regarding our agents (central banks and governments) and us, the principals (voter-taxpayers) can be the followings:

[35] See, Jon Hilsenrath, *The Wall Street Journal*, June 21, 2016. http://www.wsj.com/articles/yellen-points-to-slow-growth-and-low-rates-in-the-long-run-1466517612.

[36] Opponents of neoliberalism commonly argue the following points: (1) Globalization can subvert nations' ability for self-determination and soon they will lose their sovereignty. (2) The replacement of a government-owned monopoly with private foreign companies, each supposedly trying to provide the consumer with better value service than all of its private competitors, removes the efficiency that can be gained from the economy of scale and increase the prices of their products or services. (3) Even if it could be shown that neoliberal capitalism increases productivity, it erodes the conditions in which production occurs long term, i.e., resources/nature, requiring expansion into new areas, which create conflicts with other nations. It is therefore not sustainable within the world's limited geographical space. (4) Exploitation: critics consider neo-liberal economics to promote exploitation and social injustice. Labor lose completely its rights that had acquired with so many struggles and sacrifices in the past. (5) Negative economic consequences: Critics argue that neo-liberal policies produce severe economic inequalities. (6) Mass incarceration of the poor: some critics claim that neoliberal policies result in an expanding secular state and the criminalization of all traditional indigenous values of the nations. (7) Increase in corporate power: some organizations and economists believe neoliberalism, unlike liberalism, changes economic and government policies to increase the power of corporations, markets, and financial institutions and a shift to benefit the upper classes. (8) Anti-democratic: some informed (those who know the Truth) scholars contend that neoliberalism undermines the basic elements of democracy and value system. (9) There are terrains of struggles for neoliberalism locally and socially. Urban citizens are increasingly deprived of the power to shape the basic conditions of daily life. People living in small towns and country sides are a little better. (10) Trade-led, unregulated economic activity and lax state regulations and controls of MNCs lead to poverty and social chaos. (11) Deregulation of the labor market produces "flexibility" and casualization of labor, greater informal part-time, minimum wages employment, and a considerable increase in industrial accidents and occupational diseases, making workers miserable and increasing suicides. (12) Instead of citizens, it produces consumers and debtors. Instead of communities and family businesses, it produces shopping malls. The net result is an atomized society of disengaged individuals, who feel demoralized and socially powerless in a mixture of people without common language, common culture, common objectives, common future, but with a lot of fear, due to terrorism and other crimes. (13) According to the economists Howell and Diallo, neoliberal policies have contributed to a U.S. economy, in which 30% of workers earn low wages (less than two-thirds the median wage for full-time workers), and 35% of the labor force is underemployed; only 40% of the working-age population in the U.S. is adequately employed. See, C.J. Polychroniou, The Violence of Neoliberalism and the Attack on Higher Education. *Truthdig*, March 27, 2013.

1) The Government is the people (citizens, tax-payers) and all institutions must be public; satisfying the objective of the people, their social welfare.
2) The government is our primary agent (elected by citizens-voters) and like all agents, citizens cede resources and discretion to it because citizens trust that it can create social benefits for all the people that individually cannot be achieved. Citizens understand scale, size, efficiency, fairness, justice, democracy, and all the values that a government ought to have.
3) Governments invest in people's immediate well-being by providing essential services (safety, security, education, healthcare, etc.) without the need for profit.
4) Governments invest in the next generation's well-being through building productive infrastructure that delivers services for decades and other public investments to eliminate the private monopolies.
5) Citizens empower governments with unique characteristics so that it can pursue their interests without the constraints they face themselves.
6) People understand that a deficit for the country means that they have to find funds (taxes) to cover it and it is temporary and only during periods of recession; the currency-issuing government will fund the deficits and it is funding individuals' and businesses' spending through supply of credit (reserves) and it is encouraging savings by individuals and it must offer a decent risk-free deposit rate.
7) A government deficit, during periods of recession, enhances individuals' welfare and businesses' being because it boosts people's income, employment, and allows to the economy more options to recover.

The key challenge that might face central banks in the future will be to balance their three main policy goals. The primary goal of the central bank is to provide price stability (currently viewed as low inflation over a long-run period, $\pi \leq 2\%$). This goal requires credibility to work and reporting of the true inflation rate, which is different than the official one. In other words, people need to believe that the central bank will tighten its policy if inflation threatens. This belief needs to be backed by actions. Such was the case in the mid-1990s when the Fed tightened in response to an inflation scare. Such a strategy can be greatly enhanced by good communication and correct measurement of inflation.

The second policy goal is stability and growth of the real economy ($\bar{g}_{GDP}$, Q^F, and u^N). Considerable evidence suggests that low inflation is associated with better growth and overall macroeconomic performance. Nevertheless, big shocks still occur, threatening to derail the economy from its growth path. When such situations threaten, research also suggests that the central bank should temporarily depart from its long-run inflation goal ($\pi \cong 2\%$) and ease monetary policy to offset recessionary forces.[37] Moreover, if market agents believe in the long-run credibility of the central bank's commitment to low inflation, the cut in policy interest rates will not engender high inflation expectations. Once the recession is avoided or has played its course, the central bank needs to raise rates and return to its low-inflation goal.

The third policy goal is financial stability ($\bar{g}_{DJIA}$). Research has shown that it also will be improved in an environment of low inflation (low inflation premium and consequently, low interest rates), although some economists argue that asset price booms are borne in such an environment. In the case of an incipient financial crisis such as that we had witnessed in August 2007, the current view is that the course of policy should be to provide whatever liquidity is required to allay the fears of the money market. An open discount window and the acceptance of sound collaterals are seen as the correct prescription. Moreover, funds should be offered at a penalty rate (higher than: $1\% + \pi^e$). Once the crisis is over, which generally is in a matter of days or weeks or months, the central bank must remove the excess liquidity and return to its inflation objective by increasing the federal funds rate.

The Federal Reserve followed this strategy after Y2K (the year 2000 problem, which is also known as the Y2K problem, the Millennium bug or the Y2K bug). When no financial crisis occurred, it promptly withdrew the massive infusion of liquidity it had provided. By contrast, after providing funds following the attacks of 9/11 and the technology bust of 2001 (dot-com bubble), it permitted the additional funds to remain in the money market once the threat of crisis was over. If the markets had not been infused with so much liquidity for so long, interest rates would not have been as low in recent years as they have been, the housing boom and financial market bubble might not have as expanded as much as they did and the global financial crisis might had been milder. This easy money policy helps only the stock market (the Wall Street), but hurts the "Main Street."

[37] A Phillips curve exist between inflation and unemployment, as follows: $\pi_t = \pi_t^e + \psi(u_{t-1} - u_t^N)$. See, Nicolini and Fitzgerald (2013).

A second challenge related to the first is for the central bank to keep abreast of financial innovations, which can derail financial stability. Innovations in the financial markets are a challenge to deal with, as they represent attempts to circumvent regulation as well as to reduce transactions costs and enhance leverage. The recent subprime crisis exemplifies the danger, as many problems were caused by derivatives created to package mortgages of dubious quality with sounder ones so the instruments could be unloaded off the balance sheets of commercial and investment banks. This strategy, designed to dissipate risk, may have backfired because of the opacity and lack of knowledge of the new instruments effect to the economy even by regulators.[38] The financial market has become inadmissibly risky.

A third challenge facing the Federal Reserve in particular is whether to adopt an explicit inflation targeting objective like the ECB, the Bank of England, the Bank of Canada, and other central banks. The advantages of doing so are that it simplifies policy and makes it more transparent, which eases communication with the public and enhances credibility. However, it might be difficult to combine an explicit target with the Fed's dual mandate of price stability and maximum employment, which is so far a proof of its inefficiency.

A fourth challenge for all central banks is to account for globalization, which is their ultimate objective, and other supply-side developments, oligopolies and monopolies or political instability and oil price and other suspicious shocks, which are outside of their direct control, but which may affect global and domestic prices and risk. Unfortunately, their views and their policies are global and not national, which makes their domestic policies ineffective.

Another fifth challenge might be whether implicit or explicit inflation targeting should be replaced with price-level targeting (because, $\rho_{M^s,P} = +0.950$ and $\rho_{m^s,p} = +0.992$), whereby inflation would be kept at zero percent. Research has shown that a price level may be the superior target, because it avoids the problem of base drift (where inflation is allowed to cumulate), and it also has less long-run price uncertainty. The disadvantage could be that recessionary shocks might cause a deflation, where the price level declines. This possibility should not be a problem if the nominal anchor is credible, because the public would realize that inflationary and deflationary episodes are transitory and prices will always revert to their mean, that is, toward stability.

[38] See, Kallianiotis (2015a).

Finally, Banking in the United States is regulated by both the federal and state governments. The five largest banks in the United States at December 31, 2011 were JPMorgan Chase,[39] Bank of America,[40] Citigroup,[41] Wells Fargo,[42] and Goldman Sachs.[43] In December 2011, the five largest banks' assets were equal to 56 percent of the U. S. economy, compared with 43 percent five years earlier.[44] The U. S. financial industry comprised only 10% of total non-farm business profits in 1947, but it grew to 50% by 2010. Over the same period, finance industry income as a proportion of GDP rose from 2.5% to 7.5%, and the finance industry's proportion of all corporate income rose from 10% to 20%. The mean earnings per employee hour in finance relative to all other sectors has closely mirrored the share of total U.S. income earned by the top 1% income earners since 1930. The mean salary in New York City's finance industry rose from $80,000 in 1981 to $360,000 in 2011,[45] while average New York City salaries rose from $40,000 to $70,000. In 1988, there were about 12,500 U. S. banks with less than $300 million in deposits, and about 900 with more deposits, but by 2012, there were only 4,200 banks with less than $300 million in deposits in the U. S., and over 1,800 with more. American banking is closely linked to the U. K.; in 2014, the biggest U. S. banks held almost 70 percent of their on- and off-balance sheet foreign assets there. Central banks' buying spree (to increase liquidity and credit) has cut the availability of government securities and intensified bidding wars among investors, sent yields to record lows (10-year Treasury bonds yield = 1.385%).[46] The Fed ought to do a lot of regulation and start some open market sales.

Otherwise, the U. S. Capitalism is taking over by Debtism. The bottom 90% of the U. S. citizens went from owning a big piece of the income gains (65%) in the 1960s to being squashed in the 2002-2007 period to 11%. This is

[39] See, JPMorgan Chase.
[40] See, Bank of America.
[41] See, Citigroup
[42] See, Wells Fargo.
[43] See, Goldman Sachs. *Lynch, David J. (April 19, 2012). "Big Banks: Now Even Too Bigger to Fail." Bloomberg Businessweek.*
[44] See, "The Federal Reserve Cartel: The Eight Families." http://www.globalresearch.ca/the-federal-reserve-cartel-the-eight-families/25080. "Gaddafi was planning to introduce a gold dinar. He was also planning to price Libyan oil sales in gold rather than dollars." Also, "Remember what happened to Saddam Hussein when he actually shifted Iraqi oil sales to euro pricing? The U.S. invaded, re-priced Iraqi oil in dollars, and promptly converted Iraqi reserves from euros back into dollars." See, Davidson (2015, p. 105).
[45] See also, Kallianiotis (2015a, pp. 57-60).
[46] See, *The Wall Street Journal*, July 7, 2016, pp. A1 and C3.

the current gilded economic system of inequality. [47] If we would have a deflation of 10%, a person with a stagnant wage become 10% richer, but the real cost of capital is going up by 10%. Inflation increases nominal profits (taxable income) and therefore increases tax receipts.[48]

V. CONCLUSION: MONETARY POLICY AND SOCIAL WELFARE

> "Τά γάρ κρυφῆ γινόμενα ὑπ' αὐτῶν αἰσχρόν ἐστι καί λέγειν,
> τά δέ πάντα ἐλεγχόμενα ὑπό τοῦ φωτός φανεροῦται,
> πᾶν γάρ τό φανερούμενον φῶς ἐστι." (Ἐφεσ. ε΄, 12-13)

Monetary policy is exercised by the central banks and rests on the relationship between the rates of interest (the price of the input capital) in an economy, that is, the price at which money can be borrowed, and it is negatively related with the total supply of money (liquidity effect). Monetary policy uses a variety of tools to control one (today, federal funds rate) or both of these intermediate targets (interest rate and non-borrowing reserves), to influence outcomes like economic growth, employment, inflation, exchange rates with other currencies and other objectives. Where currency is under a monopoly of issuance, or where there is a regulated system of issuing currency through banks, which are tied to a central bank, the monetary authority has the ability to alter the money supply and thus, influence the interest rate (to achieve policy goals). The beginning of monetary policy as such comes from the late 19th century, where it was used to maintain the gold standard.

The role of the central banks and money-lenders in history was once aptly termed by many acute observers as the "Hidden Hand." It is the power to create, lend and accumulate interest on "credit," and then re-lend that interest for further interest, in perpetuity, that creates pervasive, worldwide debt, from the individual, to the family, to the entire nation. The ability to operate a

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[47] The wealthiest 10% hold 76% of the wealth: The rich continue to pull away from the rest of the crowd. See, http://www.mybudget360.com/the-wealthiest-10-hold-76-of-the-wealth/#more-6800

[48] We have, $Y \uparrow = QP \uparrow \Rightarrow P \uparrow \Rightarrow Y \uparrow \Rightarrow T \uparrow$. The correlations are, $\rho_{M^s, DJIA} = +0.944$ and $\rho_{MB, DJIA} = +0.817$ and their causalities are, $M^s \Rightarrow (3.619^{**}) \Rightarrow DJIA$ and $MB \Rightarrow (4.453^{**}) \Rightarrow DJIA$.

fraudulent credit and loan system has long been known, and through all the slickness of a snake-oil salesman, the money-lenders[49] have persuaded governments that banking is best left to private interests. Many wars, revolutions, depressions, recessions, and other social upheavals, have been directly related to the determination of these money-lenders to retain and extend their power and profits. When any nation, individual or idea has threatened their scam, they have often responded with wars and revolutions.[50] The cultural and material progress of a civilization will often relate to the degree by which it is free from the influence of debt,[51] and the degradation that results when the money-lenders are permitted to regain power. Hence, Goodson shows that both World Wars, the Napoleonic wars, the American Revolution, the rise and fall of Julius Caesar, the overthrow of Gaddafi in Libya[52] and the revolution against Tsar Nicholas, among much else relate to this "Hidden Hand" in history, which is a "Long Dirty Hand," too. This is the key to understanding the past, present and future.[53]

Currently, the world faces two serious problems, weak governments (questionable democracies) from the one side and corrupted markets (powerful and unregulated) from the other and regulators (like, central banks, etc.); and in the middle of those two dilemmas are humans. As citizens of "democratic" nations and having the power of voting, we have to give more authority to our governments and to control completely the exploitations that the markets and the controlled media exercise on our society. The economic objective of

[49] The same types of people Jesus whipped from the Temple. "And Jesus entered the temple and drove out all those who were buying and selling in the temple, and overturned the tables of the money changers and the seats of those who were selling doves. And He said to them, "It is written, 'MY HOUSE SHALL BE CALLED A HOUSE OF PRAYER'; but you are making it a ROBBERS' DEN." [Matthew 21:12-13 (New American Standard Bible)].

[50] See, "Central Banks are the Real Target for West's Imperial Wars." http://www.activistpost.com/2012/09/state-owned-central-banks-are-real.html.

[51] Alexander the Great had a huge surplus of 5,851,832,119 Drs in his vast Empire. See, Kallianiotis (2016).

[52] See, http://www.ft.com/cms/s/0273c6ae-316a-11e6-bda0-04585c31b153,Authorised=false.html?siteedition=intl&iab=barrier-app&_i_location=http%3A%2F%2Fwww.ft.com%2Fcms%2Fs%2F0%2F0273c6ae-316a-11e6-bda0-04585c31b153.html%3Fsiteedition%3Dintl%26iab%3Dbarrier-app&_i_referer=&classification=conditional_standard&iab=barrier-app#axzz4BZXFwRoV . Also, http://www.nasdaq.com/article/libya-assails-goldman-sachs--wsj-20160614-00044. Further, http://www.nytimes.com/2016/06/14/business/dealbook/libyan-fund-claims-goldman-sachs-exploited-its-financial-naivete.html?_r=2.

[53] See, http://www.bloomberg.com/news/articles/2016-06-15/pay-attention-to-these-words-and-dots-fed-decision-day-guide. In addition, http://www.bloomberg.com/news/articles/2016-06-14/fed-kicks-off-busy-two-days-for-central-banks-what-to-watch. Further, http://www.bigmacktrucks.com/topic/45681-wary-fed-rethinks-pace-of-hikes/.

individuals is the optimization of their utility, which includes different goods, services, leisure, values, knowledge, improvements, accession, interactions, sociability, and other variables. The individual is assumed to be rational, informed,[54] knowledgeable, and wise. The objective of every well-governed, developed, ethical, uncorrupted, and sociable democratic independent nation is the optimization of its social welfare function (citizens' utilities). Of course, subject to many different constraints from the "friends," allies, enemies, and the markets (EU constraints, resources, endowments, technology, tastes, directives of EU, budget, etc.).

The goal of public policy is to pursue approaches, rules, and regulations, which should be evaluated from the point of view of the society's well-being and not from the profit maximization of multinational institutions, firms, risk-taking billionaires, or European Union's anti-democratic objectives. The total welfare of a country (given the growth of population, the factor endowments, the state of the economy, and its value system) must be improved continuously with the contribution of public policies (fiscal and monetary, the money creator).[55] General concerns about the state of the economy or anxiety about crime rate, high risk, restrictions from the government or from international institutions or the EU or job losses are negatively affecting the social welfare. Also, the measurement of social welfare requires some ethical and country-specific standards, which involve internal and eternal value judgments and not common to other nations. As a welfare criterion, can be the growth of the

[54] But, we live in *the Age of Deception* [Davidson (2015)] and our information is from the controlled media. Thus, "There is no such thing, at this date of the world's history, in America, as an independent press. You know it and I know it. There is not one of you who dares to write your honest opinions, and if you did, you know beforehand that it would never appear in print. I am paid weekly for keeping my honest opinion out of the paper I am connected with. Others of you are paid similar salaries for similar things, and any of you who would be so foolish as to write honest opinions would be out on the streets looking for another job. If I allowed my honest opinions to appear in one issue of my paper, before twenty-four hours my occupation would be gone. The business of the journalists is to destroy the truth, to lie outright, to pervert, to vilify, to fawn at the feet of mammon, and to sell his country and his race for his daily bread. You know it and I know it, and what folly is this toasting an independent press? We are the tools and vassals of rich men behind the scenes. We are the jumping jacks, they pull the strings and we dance. Our talents, our possibilities and our lives are all the property of other men. We are intellectual prostitutes." (John Swinton, as "the former Chief of Staff at the *New York Times*," before the New York Press Club in 1953).

[55] "Once a nation parts with the control of its currency and credit, it matters not who makes the nations laws. Usury, once in control, will wreck any nation. Until the control of the issue of currency and credit is restored to government and recognized as its most sacred responsibility, all talk of the sovereignty of parliament and of democracy is idle and futile." [William Lyon Mackenzie King, Canadian Prime Minister (1874-1950)]. See, http://quotes.liberty-tree.ca/quote_blog/William.Lyon.Mackenzie.King.Quote.F607

wealth of the society (nation's GDP), which increases employment (unemployment must be zero) and production (keeping prices stable). This implies that the income distribution will be ethical, fair, and just (not exactly equal). A high (out of control) growth can lead to reduction in social welfare, due to waste, pollution, large fluctuations of business cycles (uncertainty and high risk), bubbles, and negative mental, physical, and spiritual effects on humans. Efficiency (saving of recourses) is very important in social welfare (respect of the creation and individuals). Financial markets stability (normal return) and low risk to attract long-term investments and prevent speculators and opportunists through regulations improves the wealth of savers and investors and their utility. We (as social scientists) cannot accept an action, which increases some individuals' utilities (or nations' welfare), while others' utilities decrease as all individuals are equal (have the same "worthiness"). Thus, the criterion must be objectively measured and a Pareto-Optimal one, so the public policy objectives must maximize the social benefits, eq. (12), given the state of the economy.

The giant out-of-control private institutions and firms are concerned mainly about their profits, their executives' compensation, and the market value of their own financial assets (bonds and stocks) by ignoring their obligations towards the society, where they operate and exploit its pro-business mentality. Private businesses are producing, where marginal cost is equal to marginal revenue ($MC = MR$); actually, the uncontrolled private firm is becoming gradually a monopolist, producing the lowest output at higher prices, through risk-seeking processes. The official inflation is falling in the U.S. economy, but the prices are going up (*sic*). Then, there is a problem with the monetary policy and with the measurement of inflation rate. Businesses' first concern is the reduction of the labor cost, the increase in earnings, the determination of CEOs' pay by themselves, and the maximization of the market price of their stocks that the Fed with its policy is contributing to this stranger, artificial, unethical, anti-social, and risky goal. ECB objectives are a copy of the U.S. Fed, too.[56]

[56] European Union's suspicious objective is the power and prestige that its integration gives to the union through treaties, laws, institutions, EMU, ECB, common currency, citizens' policies, sectoral policies, external policies, and European constitution. Of course, subject to a global socio-political-economic stability; otherwise, it can be dissolved. We saw their hostile and anti-democratic reaction towards Greece referendum (with 62% NO) on July 5, 2015. (http://www.theatlantic.com/business/archive/2015/07/greek-referendum-decision/397616/) and against the British one (Brexit referendum, with 52% to leave) on June 23, 2016. (http://www.bbc.com/news/uk-politics-32810887).

When a nation with is public policies (monetary and fiscal) does not optimize its social welfare and experiences tremendous social cost (welfare losses), the social benefits (full employment, low risk, moderate interest rates, price stability, balanced growth, high saving and closed to zero debts and deficits, reasonable money supply, and stability in financial markets), due to sub-optimal public policy, might not exceed the social costs ($SB < SC$). This stems from the "independence" of the central bank, the deregulation, dependence, depravity, and huge gaps between the potential economic values and the actual ones. The social benefits and costs can be measured with a social loss function. The loss to society function (L)[57] can be expressed as a weighted average of deviations in the important macro-variables (social benefits) from their targets (optimal values), like unemployment from its target, risk, interest rates (short-term and long-term), inflation, output, saving, money supply, trade balance, national debt, and financial market from their potential levels.

Thus, the social objective must be the minimization of this social loss (L). When social losses are increasing the financial market is deteriorating, the results tend to be the economic movement towards recession. The opposite occurs when the social losses are declining or social benefits are improving; the value of this social loss could predict the forthcoming bear financial market and the creeping recession. Public policies (monetary, fiscal, trade) have to work towards these target values of the variables. Individuals must try to satisfy the social objective of higher savings (25% of the disposable income) and lower debt (zero if it is possible); the government has to become more efficient, more independent, more powerful, and to reduce its deficit and debt; the central bank must become a public institution; private enterprises (especially, financial institutions) have to be regulated for the benefits of the people. Through incentives, regulations, education, and a more social policy, the social loss can be minimized and the economy could be at its potential level (absolutely full employment). The Bureau of Labor Statistics (BLS) manipulates the unemployment statistics, which affect positively the stock market.[58] Of course, when people are concerned about the security of their income, they make choices (such as delaying purchases, hoarding cash, distrusting each other, especially the markets and institutions) that are acts of self-preservation, but that worsen an already bad situation. People's optimism and favorable expectations are necessary for our "full information"

[57] See, Kallianiotis (2015a).

[58] The "big lie" $\Rightarrow u \downarrow \Rightarrow DJIA \uparrow \Rightarrow \text{Re}al\ Wealth \downarrow$.

(misinformation, deception, and propaganda, which represent the "new age" political warfare) era. Governments have to regain their powers, controlling their central banks and the money creation of the country; and markets and institutions have to be controlled and their dynasty to be restricted to their absolute financial functions; otherwise, we do not need them and it will be beneficial for the society to be deserted. The real values in our world depend on humans and not on businesses.

Citizens' success is not independent of the success of the economy and of all the other social values of the country. The hallmarks of a successful country are whether real GDP growth is strong, the employment at the full level, and the income distribution is fair among all citizens in connection with many other human values "the air quality, leisure time, life expectancy, morality, ethics, safety, security, family, education, or happiness … all of which are not secondary." "Progressives" (neo-liberals) get sucked into this narrative and offer up "fairer" alternatives within, for example, the austerity debate, the tolerance ignorance, the political correctness, the redefine of "hatred" and "love," the controlled media, new perversions, disrespect of human life, etc. They take the current debates in the advanced nations and the new generations are completely lost; they do not know what is "right" and what is "wrong." None of the major ("progressive") political parties are challenging the austerity dogma. You will often read a "progressive" (controlled and instructed what to say) commentator writing something like, "we know the deficit is a problem and public debt has to be reduced, but we think this should be done for the economy to grow," which of course, has exactly the opposite results.

The current work shows that the latest unconventional monetary policies, the quantitative easing by the Fed and the confined liquidity by the ECB, could not improve employment at all, but they have a little effect on growth. Its effect is drastic on price level (inflation), but the official (not the true) inflation is very low. (*sic*). The question is now; do we have or not inflation in our economy or is it a creeping inflation that is coming? The authorities are worrying about deflation! (*sic*). The federal funds rate has a very high effect on prime rate (loans' rate) and a smaller one on 1-month CD rate (deposits' rate). The monetary policy is mostly ineffective. Reduction in taxes are reducing unemployment and increases in government spending are increasing real GDP. Fiscal policy is effective, but it is not used; Congress has different

view[59] in the U. S. and Troika has its own objective for the Euro-zone member-nations. These policies are completely suspicious as pro-markets and anti-humane. The contribution of this chapter is on the history of central bank, its monetary policy, and the testing of central banks' efficiency and the introduction of the interest rate floor on deposits and the interest rate ceiling on loans, by which the social welfare can be improved.

Unfortunately, a low interest rate environment will induce a search for higher yields, which force the saver to become, without his will, risk-taker. For example, a bidding up of the price of risky assets (stocks, housing, etc.); either asset-liability mismatches (where banks borrow short and lend long on a leveraged basis to capture a spread) or collateral swaps (where a bank pledges junk bonds to a counterparty in exchange for Treasury securities on an overnight basis, then uses those Treasury securities as collateral on a higher-yielding off-balance sheet derivative). Such transactions set a stage for a run on banks if the short-term asset providers suddenly want their securities back and the bank must dump other assets at fire-sale prices to pay up. This can increase the counterparty risk and cause a systemic risk. The central bank's policies must be more social than market oriented as they are now. This "independence" of the central banks around the world has caused serious problems to the nations' welfare. Countries need publicly-owned central banks so that bankers and financiers could not use the printing of money to control the affairs of the nations. Households have to spend their current income and not their uncertain future income; their saving has to be positive, but they need an incentive to save (a positive real deposit rate). The objective and priority of every nation must be the welfare and the interest of its citizens. Businesses and institutions have been established to contribute to the social welfare, otherwise we do not need them.[60]

The U. S. growth from 2007 up to the second quarter of 2016 is from -8.0% to +5% and the official unemployment rate from 10% to 4.9%. The growth for the first half of 2016 showed very little improvement; [61] then, the economy has not fully recovered so far. In Euro-zone the growth is closed to zero and unemployment up to 30% in some member-nations, which means that

[59] In the U.S., public policies are ineffective and in Euro-zone are catastrophic (anti-growth and have caused enormous unemployment, poverty, and suicides). The conclusion is obvious: The western economies have to change their public policies.

[60] The U.S. started in 2014 to put a "fee" (penalty) to individuals, who have no health coverage; instead of penalizing employers because they have no health insurance for their employees. What an anti-humane policy is and this one! See, https://www.healthcare.gov/fees-exemptions/fee-for-not-being-covered/

[61] The quarterly growth was: 2016 Q01: 0.83% and 2016 Q02: 1.22%. (*Economagic.com*).

the economies have not recovered yet and the monetary policies that have been used for the last eight years are not very effective; then, we might go back to a new and more severe recession. Even zero target rates cannot benefit the economies; they create new bubbles and discourage savings. An interest rate floor on deposits and an interest rate ceiling on loans are necessary to improve individuals' welfare. In general, regulations are necessary in every society. We hope, all these past mistakes to teach us one important lesson that "moderation is everything" and individuals and societies (nations) need an optimal tax (without austerities in the middle of recessions), financial markets and institutions need regulations, monetary policy does not work by itself (a mixed policy is required), banks must provide positive real rate of interest and safe (FDIC insured) investments (deposits) to small investors and low cost loans, and a value oriented system is important, which will maximize social welfare and make our economic system better. Then, the solution is "moderation and perfection."

But, free market (laissez-faire system)[62] does not understand what the consumer, the citizen, and the last person in the society needs because it is a value-free malevolent extreme system. It understand market prices, profitability, deregulation, lack of control, efficiency, easy money policy, zero taxes for businesses, outsourcing, competitive advantages, lobbying, and exploitation of labor[63] and the other resources. Uncertainty causes a serious social cost to our people, which can be reduced with government intervention. Central bank must accommodate the social policy. Government needs correct information and good advisers, who understand the economic, social, international, and future conditions of the nation. Markets cannot be trusted because they do not know (they do not care for) the social needs and obligations of a nation and its people.

Of course, savings, investment, domestic production, and trade (exports) rather than borrowing, consumption, debts, waste, globalization, and imports, are the best paths to growth and employment in the developed world (nations). Education, innovation, technology, and quality of products are the keys to a robust export sector. Protection of the domestic industries[64] and improvement of domestic employment, income, political stability, independent national

[62] See, https://www.britannica.com/topic/laissez-faire

[63] This system has been imposed to the economies of the west since 1870 and lately, it has been altered to globalization. See, O'Donnell (2015).

[64] See, Donald Trump's objectives for the country, as candidate for the U.S. presidency. http://blogs.wsj.com/washwire/2015/06/16/donald-trump-transcript-our-country-needs-a-truly-great-leader/

public policies, and citizens' welfare are the necessary ultimate national objectives. Countries need to correct their structural problems by themselves and gradually and not as the Troika forced these changes overnight according to its suspicious "objectives." The disappearing of the middle class will affect negatively the entire socio-economic structure of the nations and will threaten their existence. The fiscal deficits are unsustainable, the structural problems are enormous, and the labor market and the workers without any rights. The controlled Euro-zone does not allow even small budget deficits and requires only high primary surpluses. In 1836, under President Andrew Jackson watch, the U. S. national debt went to zero for the first and last time in the nation's history. But, this angered the international bankers (*sic*), whose primary objective is the maximization of their interest income, which is derived from interest payment on debts by putting a very high risk premium to debtors.[65] The U. S. and the world economy are suffering from insufficient aggregate demand. Monetary policy has been ineffective to improve aggregate demand, due to high unemployment, low income, and enormous inequalities among people.[66]

Lastly, the role of an elected democratic government (by the demos = citizens) is very important because it represents the entire population with its objectives, problems, policies, and future well-being of these people and of the nation. The market (a few foreign speculators) is not so important in a democratic and social environment because does not represent the people, but

[65] There are eight banking families that control the global financial system; like, Bank of America, JP Morgan and Chase, Citigroup, Wells Fargo, Deutsche Bank, BNP, Barclays, and Morgan Stanley. See, http://www.globalresearch.ca/the-federal-reserve-cartel-the-eight-families/25080. President Thomas Jefferson argued that the Unites States needed a publicly-owned central bank so that European monarchs and aristocrats could not use the printing of money to control the affairs of the nation. By 1861, the U.S. was $100 million in debt and President Lincoln snubbed the Euro-bankers, issuing Lincoln Greenbacks to pay Union Army bills. In 1863, the national Banking Act reinstated a private U.S. central bank and Chase's war bonds were issued. Lincoln vowing to repeal the act, but before he could act, he was assassinated (*sic*). President Woodrow Wilson signed the 1913 Federal Reserve Act, but a few years later he wrote: "I am a most unhappy man. I have unwittingly ruined my country. A great industrial nation is controlled by its system of credit. Our system of credit is concentrated. The growth of the nation, therefore, and all our activities are in the hands of a few men…" (*sic*). President John Kennedy, before his assassination, had authorized the issuance of more than $4 billion in U.S. Notes by his Treasury Department in an attempt to circumvent the high interest rate usury of the private Federal Reserve (*sic*). See, http://www.themoneymasters.com/the-money-masters/famous-quotations-on-banking/ and http://www.globalresearch.ca/the-federal-reserve-cartel-freemasons-and-the-house-of-rothschild/25179.

[66] The 75% of income and wealth in the U.S. is concentrated to the 10% of the population and the 1% of the people has 45% of the wealth. http://inequality.org/wealth-inequality/.

a few traders, investors, speculators and actually, strange people who ignore society, its problems, and its objectives. These people do not care for the society and the nation because of their limited knowledge on social, national, foreign, and long-term objectives of a nation and its people. They have to be regulated and controlled for their benefits and the benefits of the nation. Consequently, the most important policy is the fiscal policy that comes from the elected government (the citizens) and not the monetary policy that is pursued by the central bank, the Fed (the market). Of course, monetary policy is necessary, too, but second in priority after the fiscal policy. Central banks have to be public, state owned enterprises (SOEs). Lately, even some people inside the Fed have realized that a new thinking is needed for the Federal Reserve System.[67] Globalization has generated a lot of discontent[68] and there are more surprises coming soon, even to its supporters, because instead of lifting up all people' welfare and their value system, it lowers the developed nations to the same level and standards as the underdeveloped ones, so that the developed nations can become "competitive" with the developing nations. But we, as academics, have the obligation to expel the delusion from our world.

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[67] "Its models are unreliable, its policies erratic and its guidance confusing." See, Kevin Warsh, "The Federal Reserve Needs New Thinking," *The Wall Street Journal*, August 25, 2016, p. A11. Also, Eric Rosengren (president of the Boston Fed) said, "There are a lot of things that we thought we knew that haven't turned out quite as we expected. The economy and financial markets are not as stable as we previously assumed." See, Jon Hilsenrath, "Fed Stumbles Fueled Populism," *The Wall Street Journal*, August 26, 2016, pp. A1 and A6.

[68] See, Stiglitz (2002).

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Chapter 2

ASYMMETRIC MONETARY POLICY ACTION EFFECTS: EVIDENCE AND IMPLICATIONS REGARDING EUROPE

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ABSTRACT

This chapter investigates the impact of shocks of Monetary Policy Actions on the real economy and stock market performance. Using a Bayesian Panel VAR model, I assess the macroeconomic impact in the 19 EU countries over the period 1996-2015, by measuring the impact of monetary policy shocks on the real economic activity and the stock market performance conditions of 19 EU countries. We show that monetary policy contractions lead to a fall in real economic activity and tighten liquidity market conditions. The results provide evidence of asymmetric monetary policy action effects on the real economy and the financial markets across the 19 EU countries.

Keywords: monetary policy, real economic activity, stock market performance, Panel VAR

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1. INTRODUCTION

The recent financial crisis of 2007-2009 has been considered to be one of the most "*full-blown global crisis*[1] "events since the Great Depression. Having its roots in the mortgage market of the United States, the financial crisis rapidly spread across the world affecting both advanced and emerging economies with severe economic outcomes, driving forward governments and central banks to respond by applying vigorous and sound policies. Intending to soothe the severe economic outcomes, this particular financial crisis has been characterised by unparalleled monetary policy interventions by the central banks; subsequently, the assessment of such policy actions has been brought as a hot issue into the academic community's research arena and policy debates (see inter alia Drakos and Kouretas, 2015; Chen et al. 2015; Marek et al. 2015; Pronobis 2014; Lothian 2014; Piazzesi, 2014; Olmo and Sanso Navarro, 2015; Martin and Milas, 2013; Anagnostou and Papadamou, 2014, Anagnostou & Papadamou, 2016).

Further and more explicitly, the events surrounding the global financial crisis and its aftermath have brought into sharp focus the investigation of the interlinkage of monetary policy interventions with the financial markets (see for instance Gagnon and Gimet, 2013; Eser and Schwaab, 2016; Pennings et al. 2015; Hayford and Malliaris, 2011). An important financial market that has been further explored is the stock market. The empirical financial literature on the linkage between monetary policy and the stock market is quite extensive and well documented before[2] and after[3] the crisis, giving an extensive account, describing how monetary policy has affected the performance of stock markets in different countries or across countries.

Empirically, most of the above studies examine the effects of monetary policies in one country or across countries before and after the crisis by assessing its transmission mechanism at the aggregate level and evaluating its impact mainly on other parts of the economy, (i.e., real economic activity, stock market performance, production, employment, price levels etc.) More specifically, the measurement of the effect of monetary policy decisions has been addressed in a number of cross-country studies using large-scale

[1] Jawadi et al., 2016, pp 1.

[2] See inter alia Laopodis, 2013; Kurov, 2012; Bjornland and Leitemo, 2009; Conover et al., 1999; Fama and French, 1989; Gali and Gertler, 2007; Gertler and Gilchrist, 1993; Jensen and Johnson, 1995; Patelis, 1997; Thorbecke, 1997.

[3] Some indicative for instance studies are by Ricci 2015; Ruiz 2015; Haitsma et al., 2016; Gallo et al., 2016; Gospodinov and Jamali, 2015; Tang et al., 2013, Laopodis 2013; Chatziantoniou, et al. 2013; Zervou 2013.

simultaneous equation models or structural vector autoregressive (SVAR) models. This type of analysis predicates a homogeneous and undifferentiated effect at the national level, ignoring the fact of "*interdependencies among regions, countries and sectors*" (Canova and Ciccarelli, 2013, pp. 2).

According to Canova and Ciccarelli (2013), in the new global environment, where shocks are propagated across borders, substantial heterogeneities exist; hence, economies, regions or sectors can no longer be treated in isolation and spillovers are important. The factors driving the origin of heterogeneities, (i.e., income, initial conditions, geographical, trade and financial developments, institutions and culture), can cause differences in the growth path, in the dynamic responses to shocks, and further in the transmission across sectors, markets or countries, triggering asymmetries both in the pace and in the magnitude of the recovery from the recent recession across countries. Due to heterogeneities, monetary policy is unlikely to have a uniform impact on other parts of the economy across countries with different economic structures. For that reason, it will be impossible, both from an economic and econometric point of view, to treat all units similarly or to disregard the country specific idiosyncrasies in the policy transmission mechanisms analysis.

It is imperative therefore, under the existence of dynamic heterogeneities to: a) explore and study how shocks are transmitted across countries, b) study and analyse the cross sectional differences which cause these heterogeneities, c) analyze how past economic characteristics have produced the current circumstances and how one should expect the current situation to evolve in the future, and d) provide policymakers with facts over which one can build alternative scenarios and formulate policy decisions.

Against this background, in this chapter, I study in a comprehensive and consolidated way the effects of monetray policy actions in the Eurozone area. The purpose of this chapter is to cast another look at such dynamics within the context of a macroeconomic framework and across the 19 Eurozone countries. More specifically, we examine the dynamic linkage of the monetary policy interventions by measuring the heterogeneous effects of monetary policy on stock market performance and the real economic activity by employing a Bayesian Panel VAR model to assess the macroeconomic impact in 19 EU countries over the period 1996-2015. Panel VAR models are best suited in capturing both static and dynamic interdependencies, taking into account the cross sectional dynamic heterogeneities and treating the links across units in an unrestricted manner and incorporating time variation in the coefficients and in the variance of the shocks (Canova and Ciccarelli, 2013).

Explicitly, the following questions will be addressed in this chapter. First, has monetary policy affected the real economy and the performance of the stock market in 19 Eurozone countries or they have been indifferent to such movements? More explicitly, we examine the nature of the impact of monetary policy on main real economic variables, these being economic growth, (or alteratively real GDP) inflation rate and total employment, and three different indicators[4], which characterize the performance in the stock market, namely, market capitalization, and volume of stock traded[5]. Although the relationship between monetary policies and real economic variables or monetary policies with stock market performance have been extensively studied, they have not been considered in the same empirical model in assessing the monetary policy transmission mechanism.

The second question I address in this chapter is whether the effects of monetary policy on the real economic and stock market performance indicators have been assymmetric across the 19 countries. My aim is to analyse and present how successful the implementation of monetary policy actions have been by means of assessing how fast the effects of policy changes propagate to other parts of the economy and how large these effects are in a more extensive account in the Eurozone area.

This chapter proceeds as follows: the next section reviews briefly the empirical literature regarding the relation of monetary policy on stock market performance. Section 3 employs a Bayesian Panel VAR model to estimate the effects of monetary policy shocks on real economic activity and stock market performance indicators of 19 European countries and presents the empirical results by analysing the impulse response functions obtained from the estimated models. The results show that the national monetary policy shocks do generate asymmetric effects across the 19 countries in both the stock market performance indicators and the real economic activity variables. Section 4 presents the conclusions and policy implications of the results found.

[4] Stock market performance is a multi-dimentional concept. It is usually measured by stock market size, liquidity, volatility, concentration, integration with world capital markets, and legal rule (regulation and supervision) in the market. I use the above two mentioned measures in this study since, I believe that they are good proxies and indexes of stock market performance (see also Valeriano and Liu, 1999).

[5] The variables are extensively defined in Section 3.2.

2. LITERATURE REVIEW

As defined by Taylor (1995), the monetary policy transmission mechanism is the process through which monetary policy decisions are transmitted into changes in economic growth and inflation. In most empirical studies and using VAR methodologies, monetary policy decisions are modelled via changes in the short-term interest rates set by the central bank and their effects on the aggregate demand side through a large set of variables, including the real cost of capital, the real exchange rate, income, wealth, and credit availability (Arnold and Vrugt, 2002). Nonetheless, the recent financial crisis demonstrated the importance of financial markets in shaping the dynamics of the monetary transmission mechanism, and therefore, the impact of monetary policy actions on the stock market performance has drawn the attention of many researchers, both theoretically and empirically.

Several empirical studies have examined the monetary policy transmission mechanism on stock market performance. At the country level, Ruiz (2015) analyzed the effects of ECB monetary policy on the Spanish stock market returns employing a structural vector autoregressive (SVAR) model. The results showed that monetary policy shocks have a considerable effect on the Spanish stock market returns in the long run. Basistha and Kurov (2008) examined cyclical variation in the effect of Fed policy on the stock market, finding a much stronger response of stock returns to unexpected changes in the federal funds target rate in recession and in tight credit market conditions. Further, using firm-level data, they also showed that firms that face financial constraints are more affected by monetary shocks in tight credit conditions than the relatively unconstrained firms. Chatziantoniou, et al. (2013) employed a Structural VAR model to investigate the effects of monetary and fiscal policy shocks on stock market performance in Germany, UK and the US. Their results showed that both fiscal and monetary policies influence the stock market, via direct or indirect channels. More importantly, they found evidence that the interaction between the two policies is very important in explaining stock market developments.

Fernández-Amador, et al. (2013) with their study, shed light on the actual impact of monetary policy on stock liquidity. Their results suggested that an expansionary monetary policy of the European Central Bank leads to an increase of aggregate stock market liquidity in the German, French and Italian markets.

Pennings, et al. (2015), estimated the impact of monetary policy on exchange rates and stock prices of eight small open economies; Australia,

Canada, the Republic of Korea, New Zealand, the United Kingdom, Indonesia, Malaysia, and Thailand. They found little evidence of a change in the effect of monetary policy surprises during the recent financial crisis.

Chortareas and Noikokyris (2014) examined the implications of the Monetary Policy Committee (MPC) framework for the monetary policy–equity returns relationship in the UK. Using a standard event study methodology, we found a significant relationship between market-based policy surprises and equity returns. After controlling for joint response bias using Thornton's (in press) framework, they found that unexpected policy rate changes enter the stock prices discovery process. Afonso et al. (2016) empirically examined the role monetary and fiscal institutions have played in the stabilization of the Brazilian economy since the mid-1990s.

Furthermore, Vithessonthi and Techarongrojwong (2012) examined the effect of monetary policy on stock prices in Thailand. Contrary to the results of numerous studies, they found that at the market level, the expected change in the repurchase rate has a negative effect on stock returns and the unexpected change in the repurchase rate exhibits no effect on stock returns. However, the effect of the unexpected change in the repurchase rate on stock returns is evident at the firm level. They concluded that the stock market's response to the repurchase rate change is asymmetric.

An equally important question is whether monetary policies had asymmetric effects on the stock market? Bowman, et al. (2015), investigated the effects of U. S. unconventional monetary policies on sovereign yields, foreign exchange rates, and stock prices in emerging market economies (EMEs), and they analyzed how these effects depend on country-specific characteristics. They found that, although EME asset prices, mainly those of sovereign bonds, responded strongly to U. S. unconventional monetary policy announcements, these responses were not outsized with respect to a model that takes into account each country's currency regime and vulnerability to U. S. financial conditions. Jansen and Tsai (2010) examined the asymmetries in the impact of monetary policy surprises on stock returns between bull and bear markets in the period 1994 to 2005. They find that the impact of a surprise monetary policy in a bear market is large, negative, and statistically significant, and this holds across decile portfolios. The impact of a surprise policy action in a bear market for most industries is significantly greater than the impact of surprise monetary policy in a bull market. They concluded that the capacity for external finance is more important in a bear market, as it partially mitigates the larger impact of monetary policy in a bear market. Kholodilin et al. (2009) showed that the ECB's monetary policy has a

heterogeneous impact on the sectoral stock market indexes in the Euro Area. Using a Panel Vector Auto-Regressive (PVAR) model, we assess the macroeconomic impact of fiscal policy and monetary policy shocks for five key emerging market economies—Brazil, Russia, India, China and South Africa (BRICS). We show that monetary contractions lead to a fall in real economic activity and tighten liquidity market conditions, while government spending shocks have strong Keynesian effects. We also find evidence supporting the existence of an accommodative stance between fiscal policy and monetary policy, which is crucial for economic and political decision-making.

Furthermore, Gomes da Silva and Vieira (2016) evaluate the conduct of monetary and fiscal policies for a panel data of 113 advanced and emerging/developing economies, for the period prior to the beginning of the crisis (2001–2008) and for the period after the financial crisis (2009–2012). The results from the system GMM dynamic panel data models show that monetary policy seems to be countercyclical only for advanced economies in the period prior to the international financial crisis. Fiscal policy behaves in a procyclical way only in the pre-crisis period. The results also show that monetary policy shocks of the ECB monetary policy lead to a different long-term effect in the pre-crisis period and the post-crisis sample.

Ravn (2014), studied the effects of such a policy in a DSGE model, introducing a non-linearity into the model which captured the rise to expectations-driven booms in asset prices. They further investigate to what extent an asymmetric stock price reaction could be motivated by the desire of policymakers to correct for inherent asymmetries in the way stock price movements affect the macroeconomy.

Belke and Beckmann (2015) employed the Cointegrated Vector-Autoregressive (CVAR) model to analyze the long-run relationships and short-run dynamics between stock markets and monetary policy across five developed and three emerging economies. Their findings suggested different patterns and causalities for emerging and industrial economies with the stock markets of the former economies more frequently related to monetary aggregates and capital flows. A direct long-run impact from short-term interest rates on stock prices was only observed for 3 out of 8 economies.

Zare et al. (2013), examined the asymmetric response of stock market volatility to monetary policy over bull and bear market periods in ASEAN5 countries (Malaysia, Indonesia, Singapore, the Philippines and Thailand) using the pooled mean group (PMG) technique. The results showed that a contractionary monetary policy (interest rate increases) has a stronger long-run

effect on stock market volatility in bear markets than bulls consistent with the prediction of finance constraints models. Further, Ricci (2015) assesses the impact of ECB monetary policy announcements on the stock price of large European banks. Results show that banks were more sensitive to non-conventional measures than to interest rate decisions, and that the same type of intervention may have a different impact depending on the stage of the crisis. In addition, banks with weaker balance sheets and operating with high-risk were more sensitive to monetary policy interventions, while Afonso et al. (2016) empirically examined the role monetary and fiscal institutions have played in the stabilization of the Brazilian economy since the mid-1990s.

Finally, Abouwafia and Chambers (2015), employed a structural vector autoregressive model to investigate the impact of monetary policy and real exchange rate shocks on the stock market performance of Kuwait, Oman, Saudi Arabia, Egypt and Jordan. The results indicated heterogeneity reflecting the different monetary policy frameworks and stock market characteristics of these countries. They concluded that monetary policy and the real exchange rate shocks have a significant short run impact on the stock prices of the countries that apply a relatively more independent monetary policy and flexible exchange rates.

As it can be seen, most existing empirical studies use a standard Vector Auto Regression (VAR) methodology, and as a result, the literature lacks a panel data-based approach and gives conflicting results on the transmisstion of monetary policy across countries.

3. ESTIMATING THE EURO AREA – COUNTRY SPECIFIC EFFECTS OF MONETARY POLICY SHOCKS

3.1. The Empirical Model: A Bayesian Panel Var Approach

In order to carry out our analysis, we estimate a Panel VAR model developed by Canova and Ciccarelli (2004), which is based on the Bayesian shrinkage estimators and predictors proposed by Garcia Ferrer et al. (1987), Zellner and Hong (1989), Zellner et al. (1991).

In general, the model specification in the above studies is as follows:

$$y_{it} = A(L)y_{it-1} + \varepsilon_{it} \quad (1)$$

where y_{it} is $Gx1$ vector, $i = 1, \dots, N$; $A(L)$ is a matrix in the lag operator; $\varepsilon_{it} = \alpha_i + \delta_i + u_{it}$, where δ_t is a time effect; α_i is a unit specific effect; u_{it} a disturbance term. According to Canova and Ciccarelli (2004), two main restrictions characterize this specification. First, it assumes common slope coefficients. Second, it does not allow for interdependencies across units. With these restrictions, the interest is typically in estimating the average dynamics in response to shocks (the matrix $A(L)$). Canova and Marcet (1995), Pesaran and Smith (1997), instead, use a univariate dynamic model of the form:

$$y_{it} = \alpha_i + \rho_i y_{it-1} + x'_{it}\beta_i + v'_{it}\delta_i + \varepsilon_{it} \quad (2)$$

Where y_{it} is a scalar, x_{it} is a set of k exogenous unit specific regressors, v_{it} is a set of h exogenous regressors common to all units, while, ρ_i, β_i, and δ_i are unit specific vectors of coefficients. Canova and Ciccarelli (2004) relax the above two restrictions and study the issues of specification, estimation and forecasting in a macro-panel VAR model, taking into consideration the Bayesian view of VAR analysis. Such an approach has been widely used in the VAR literature since the works of Doan et al. (1984), Litterman (1986), and Sims and Zha (1998) and provides a convenient framework where one can allow for both interdependencies and meaningful time variations in the coefficients. We should note here that the above mentioned VAR approach allows us to address the endogeneity problem by allowing the endogenous interaction between the variables in the system. The model is specified as follow:

$$y_{it} = A_{it}(L)y_{it-1} + \varepsilon_{it} \quad (3)$$

Following Canova and Ciccarelli (2004), we adapt the so-called Minnesota prior to a panel VAR framework. The Minnesota prior, described in Litterman (1986), Doan et al. (1984), Ingram and Whiteman (1994), Ballabriga et al. (1998) among others, is a way to account for the near non-stationarity of many macroeconomic time series and, at the same time, to weakly reduce the dimensionality of a VAR model. Given that the intertemporal dependence of the variables is believed to be strong, the prior mean of the VAR coefficients on the first own lag is set equal to one and the mean of remaining coefficients is equal to zero. The covariance matrix of the coefficients is diagonal (so we have prior and posterior independence between equations) and the elements are specified in a way that coefficients of higher order lags are likely to be close to zero (the prior variance decreases when the

lag length increases). Moreover, since most of the variations in the VAR variables are accounted for by their own lags, coefficients of variables other than the dependent one are assigned a smaller relative variance. The prior on the constant term, other deterministic and exogenous variables, is diffuse. Finally, the variance–covariance matrix of the error term is assumed to be fixed and known.

3.2. Data, Country Specific Characterisics and Model Estimation

3.2.1. The Data

Our analysis focuses on 19 countries of the Eurozone area; Austria (AUT), Belgium (BEL), Cyprus (CYP), France (FRA), Germany (DEU), Greece (GRC), Hungary (HUN), Ireland (IRL), Italy (ITA), Luxenbourg (LUX), Malta (MLT), Netherlands (NLD), Poland (POL), Portugal (PRT), Romania (ROM), Slovakia (SVK), Slovenia (SVN), Spain (ESP), and United Kingdom (GBR). We have excluded from the EU28 the following countries; Bulgaria (BU), Czech Republic (CZE), Croatia (CR), Denmark (DK), Estonia (EST), Finland (FI), Latvia (LAT), Lithuania (LIT), and Sweden (SE) due to unavailability of data on stock market performance indicators for these countries. The sample spans the period 1996-2015, giving a panel of 380 observations, ensuring a sufficient number of observations for our anlaysis.

We use two groups of variables in our model; a) annual data of core macroeconomic variables describing the economic activity and b) different measures that capture the aspects of stock market trade performance. The data sets is derived from World Bank sources and more specifically the World Development Indicators (WDI). We should note here, that in all model estimations we have included a dummy variable in order to take into account any differences in our variables between the pre- and post-2008 crisis period.

Macroeconomic Variables

As it is well-established in the macroeconomics literature, we capture macroeconomic performance by the standard goals of GDP growth, low unemployment and price stability, hence, we retain the following variables in our empirical analysis, which are consistent with those adopted by the existing literature:

Real Gross Domestic Product (rgdp), which is used as a proxy to national economic activity and business cycle, calculated by deflating annual data on

nominal GDP for each country during the period 1996-2015 with the national CPI.

Real Gross Domestic Product Growth Rate (gdpgr), annual percentage growth rate of GDP at market prices based on constant local currency.

Inflation Rate (infl) is the measure commonly used in the literature (e.g., Bassanini et al. 2001) to mirror macroeconomic stability. High inflation can adversely affect financial market operations (Rousseau and Wachtel, 2002). As a consequence, it is advisable to pursue low-inflation targets to exploit the beneficial growth effect of financial development (Huang et al. 2010). The inflation rate is measured as a percentage change in the consumer price index for each country.

Employment (empl) is the total employment of the national economy measured in persons employed.

Consumer Price Index (cpI) is used to deflate nominal values of the variables.

Stock Market Performance Variables

Concerning stock market performance, we utilize three commonly used measures of stock market development; stock market capitalization, turnover ratio, and volume of traded stocks, since there is no single quantitative measure[6] to account for the many activities in the stock. We adopt the World Bank definition of all three variables and use the data published by the World Bank's World Development Indicators and we measure stock market performance by the following two indicators:

Stock Market Capitalization Ratio (smc). This variable is the ratio of the total value of listed shares (market capitalization) to GDP, both in real values.

Traded Stocks (st), measured as the total value of traded stocks (total value in current US$-billions).

Monetary Policy Measure

Finally and in line with previous literature, we approximate monetary policy by using the interest rate. We employ *short term real interest rates (RIR)* as an indicator of monetary policy.

[6] See for instance market Abu-Bader and Abu-Qarn, 2008; Naceur and Ghazouani, 2007; Beck & Levine, 2004; Rousseau and Wachtel, 1998; Levine & Zervos, 1998.

3.2.2. Stylized Facts of the 19 EU Countries (or the Dynamics of the Major Indicators in EU Area)

Before I proceed with our econometric analysis, it is important to summarize some important stylized facts about the 19 countries. In Table 1, I present the average values of the variables listed above for the 19 countries over the sample period 1996-2015, where in Table 2 I present the descriptive statistics. In Table 1 it is observed that all macroeconomic variables vary substantially across the economies considered. Some distinctive features are that the average real GDP per capita ranges from 7,003 in Romania to 96,355 in Luxembourg, while the average annual growth rate in GDP ranges from 0.49% in Italy to 4.92% in Ireland. Concerning the unemployment rate, it is been observed to range from 4.10% in Luxenbourg to 16.53% in Spain, while the inflation rate ranges from 1.43% in Germany to 24.09% in Romania.

Table 1. Sample means for each variable for every country over the period 1996-2015

Country/Variable Notation	rgdp	gdpgr	un	infl	mclc	st	rir	rlir
Austria (AUT)	365.20	1.77	5.03	1.83	85.55	35.85	0.90	2.37
Belgium (BEL)	447.80	1.76	8.04	1.88	253.44	90.98	0.81	2.45
France (FRA)	2504.19	1.55	9.72	1.43	1575.62	1229.08	1.06	2.48
Germany (DEU)	3287.97	1.33	8.05	1.43	1307.84	1546.48	1.36	2.57
Greece (GRC)	272.98	0.87	13.77	2.92	97.36	51.92	1.90	5.49
Hungary (HUN)	122.17	2.22	8.15	7.16	21.23	15.16	2.75	2.16
Ireland (IRL)	197.75	4.92	8.36	2.13	95.20	15.96	0.62	2.70
Italy (ITA)	2081.08	0.49	9.70	2.06	670.19	954.54	0.80	2.61
Luxembourg (LUX)	46.38	3.68	4.10	1.97	60.29	0.51	-0.10	1.25
Netherlands (NLD)	779.38	1.90	4.40	1.99	611.46	581.11	0.73	2.22
Malta (MLT)	7.41	2.67	6.56	2.20	3.15	0.08	0.54	1.92
Poland (POL)	405.99	4.02	12.64	5.01	98.88	37.79	4.34	3.39
Portugal (PRT)	224.14	1.16	8.54	2.23	68.20	44.50	0.35	2.94
Romania (ROM)	146.84	2.76	6.78	24.09	10.20	1.08	1.14	-1.44
Slovak Republic (SVK)	74.41	3.96	14.45	4.68	32.27	0.60	3.00	2.20
Slovenia (SVN)	42.83	2.57	7.07	4.45	7.87	0.81	1.14	1.88
Spain (ESP)	1289.87	2.11	16.53	2.38	997.92	1035.86	0.49	2.35
United Kingdom (GBR)	2281.16	2.14	6.21	2.02	2324.38	2031.37	1.51	2.01

Source: World Bank's World Development Indicators, 2016, Own Calculations.

Notes: *rgdp* is GDP at market prices (constant 2010 US$-billions); *gdpgr* is the GDP growth (annual %); *un* is the Unemployment, total (% of total labor force); *infl* is the Inflation, consumer prices; *mclc* is the market capitalization of listed domestic companies (current US$-billions); *stgdp* is the stocks traded, total value (% of GDP); *st* is the stocks traded, total value (current US$-billions); *rir* is the real short-term interest rate, deflator GDP; *rlir* is the real long-term interest rate, deflator GDP.

Relating the stock market performance variables, we also see substantial differences among the countries. The Market Capitalization of the listed domestic companies ranges from 3.15 billion in Malta to 2,324 billion in the United Kingdom. Finally, the total value of the stocks traded ranges from 0.08 in Malta to 2,031 in the United Kingdom.

Overall, the sheer size of the ranges and differences in Table 1 suggests that the impact and effectiveness of the monetary policy on the real economy and the stock market performance will be very diverse on each of the 19 economies due to these heterogeneities observed across them.

3.2.3. Model Estimation

I examine the dynamic relationship among monetary policy actions, the stock market performance, and the real economic activity, using a Panel VAR framework. In particular, I obtain estimates of the monetary policy transmission mechanism in the 19 countries using the Bayesian PVAR model (discussed in section 3.1) expressed as follows:

$$z_{it} = (y_t^n, infl_{it}^r, rir_{it}^r, empl_{it}^r, smpi_{it}^r) \quad (4)$$

Where $i = 1,2,3,\dots,N$ indexes regions and $t = 1,2,3,\dots,T$ indexes time. y_t^n the indicator of the national economic activity, hence is approximated by one of the following variables: is the national real output $rgdp_{it}^r$, (or the national real GDP growth rate ($gdpgr_{it}^r$)), $infl_{it}^r$ is the national level of inflation rate; rir_{it}^r is the monetary policy instrument defined by the real short-term "policy" interest rate and proxied by the real money market interest rate, $empl_{it}^r$ is the total employment of each economy, and $smpi_{it}^r$ is one of the two stock market performance indicators (i.e., $mclc_{it}^r$, st_{it}^r). In our multivariate VAR model, the speed and degree of adjustment of the national economic activity and stock market performance variables due to an interest rate or money supply shocks are investigated. The estimated model captures the dynamic feedback effects in a relatively unconstrained fashion, and is therefore a good approximation of the true data-generating process. Before getting into the analysis of impulse response functions, we have to mention that unit root tests on all variables of our models provide evidence for I(1) processes.[7] Following the fact that all of our VAR models estimated, involve variables admitting stationary linear

[7] The augmented Dickey–Fuller and Phillips–Perron tests have been applied. Moreover, the Elliott et al. (1996) test and the modified Z tests of Perron and Ng (1996) have been applied because they have superior power and size properties compared with the first two.

combinations[8], we estimate the Bayesian PVAR in levels rather than cointegrated VARs (arguments on this can be found in Sims et al. 1990)[9]. Additionally, VAR in the first differences provides no information on the relationship between the levels of the variables in the VAR, and it is this aspect on which economic theory is most informative. The model is estimated using routines in RATS software.

Table 2. Descriptive Statistics for all variables of the total sample over the period 1996-2015

	RGDP	GDPGR	INFL	EMPL	RSIR	ST	MCLC	UN
Mean	763.00	8.83	31,068	10,355.97	1.31	401.00	55.26	8.66
Median	261.00	7.70	29,587	4,551.91	0.97	27.20	36.67	7.50
Maximum	3,690.00	27.30	110,001	42,964.00	20.15	4,190.00	694.43	27.30
Minimum	5.62	0.00	3,750	146.40	-23.23	0.02	0.05	0.00
Std. Dev.	988.00	4.58	20,355	11,434.47	3.12	718.00	67.43	4.56
Observations	378	378	378	378	378	378	378	378

Source: World Bank's World Development Indicators, 2016, Own Calculations.

Notes: *rgdp* is GDP at market prices (constant 2010 US$-billions); *gdpgr* is the GDP growth (annual %); *un* is the Unemployment, total (% of total labor force); *infl* is the Inflation, consumer prices (annual %); *rgdppc* is the GDP per capita (constant 2010 US$); *mclc* is the market capitalization of listed domestic companies (current US$-billions); *empl* is the total employment of the national economy measured in persons employed; *st* is the stocks traded, total value (current US$-billions); *rir* is the real short-term interest rate, deflator GDP; *rlir* is the real long-term interest rate, deflator GDP.

3.3. Impulse Response Functions

As stated clearly in the previous section, the focus of my investigation is to examine the effects of monetary policy actions on the real economic activity and stock market performance of the 19 EU countries during the period 1996-2015. This can be done by generating impulse response functions from the PVAR model described in the previous section. Impulse responses (IRFs) give the dynamic responses of each variable to an innovation of this variable as

[8] Cointegration tests based on the Johansen procedure are not presented for economy of space. However, they are available upon request from the authors.

[9] Diagnostic tests (F-statistic versions of the Breusch–Godfrey test for autocorrelation and the ARCH test) on residuals from estimation of Eq. 1 do not indicate any problem concerning autocorrelation and heteroskedasticity issues.

well as of other variables included in the VAR system. In our case, IRFs are used to show the dynamic response of the above mentioned variables to a standard deviation monetary policy shock. If there are statistically significant differences among IRFs, monetary policy is generating asymmetric effects across the 19 economies. Once the model is estimated, I examine how a positive shock to the interest rate is transmitted to the national economic activity and to the stock market, by examining the impulse responses of the 19 countries' GDP, GDP growth rate, national employment, and inflation rate and three stock market performance indicators; Market Capitalization of Listed Companies ($mclc$), and Volume of Traded Stocks (st).

Figures 1 to 7 present the impulse responses of the nine above mentioned economic indicators to a positive interest rate shock under standard Choleski decompositions (responses to one S. D. innovations) for the 19 countries.

Monetary Policy Effects on Real Economic Activity Variables

I start by looking at the effects of monetary policy, i.e., a positive shock to the interest rate on the real economic activity variables. As can be seen, a tightening of monetary policy leads to a) a sharp contraction in real GDP, real GDP per capita and GDP growth rate, b) gradual fall in employment and c) a sharp fall in the inflation rate. Nonetheless, the magnitude of the responses defers across countries. More specifically, and as expected by the theory, a tightening monetary policy has a significant negative effect on aggregate gross domestic product (hence on the aggregate GDP per capita) and employment with a significant time lag. The effect on the latter seems to hold a little bit more than the former. By looking at the national GDP reaction to policy shocks (Figure 1), the impulse responses on average indicate that monetary policy shocks have their maximum impact on the countries' GDP at the third year in 19 out of 19 countries. Nevertheless, when analysis proceeds further, we observe that the effects are not uniform across the 19 countries. In the cases of Luxembourg, Romania, Malta, France and Germany, the bottom is reached faster than Spain, Cyprus, Slovenia, Slovakia, Polland and Greece. Generally speaking, a restrictive monetary policy shock seems to affect significantly in magnitude and time Spain, Cyprus, Slovenia and Slovakia, while recovery is much quicker for Slovenia and Slovakia than Spain and Cyprus. Similar outcomes I observe in real GDP per capita (Figure 2). In general, the maximum impact of the monetary policy shocks have their maximum impact on the countries' GDP at the third year in all 19 countries except Luxenbourg, where the maximum impact is observed in the second year. Again, the restrictive monetary policy shock seems to affect significantly

in magnitude and time Spain, Cyprus, Slovenia and Slovakia, while recovery is much quicker for Slovenia and Slovakia.

Concerning the IRFs of GDP growth rates (Figure 3), countries' reactions are rather homogeneous to monetary policy shocks. More specifically, it is observed that there exists a uniform and sharp decrease in the GDP growth rate, where the maximun impact occurs for all countries in the second year. The recovery from the shock is rather fast and indicated that positive growth rates occured after the third year for all countries.

As far as employment is concerned (Figure 4), all IRFs present as expected a statistical significant and long lasting negative reaction on increasing interest rate shocks. Looking at the time it takes the impulses to reach the maximum effect, in 15 out 19 countries the maximum impact is reached in the third year. Exceptions are Germany, Luxembourg, and Hungary, where the maximum impact occurs on the second year and Italy where the maximum impact occurs in the 4^{th} year. Romania is the country with the lowest impact on employment, while Poland and Italy have the highest. The time it takes for impulses to die out is longer in Italy and Greece, while for the rest of the countries, it is more or less the same.

Looking at the IRFs of inflation rates to interest rate shocks (Figure 5), in 16 out of 19 countries, there is a negative response to interest rate shocks. Slovenia, Slovakia and Romania are the only exceptions to where there was observed a positive reaction of inflation rate to an increase of interest rates. The magnitude of the responses are observed to be rather heterogeneous across the 18 countries, even though the maximum impact of an inflation rate decrease occurs in the second year in all of them. More specifically, the maximum negative impact of monetary policy shock occurs in Poland and Ireland, and the minimum negative impact occurs in Slovakia and Romania. The recovering time to reach the maximum positive rate is 6 years for 18 of the countries.

Monetary Policy Effects on Stock Market Performance Indicators

An interesting further investigation reveals the dynamics of the underlying parts of the countries' stock market performance indicator's responses to monetary policy in the 19 countries. Therefore, analysis has been further carried out on Market Capitalization of Listed Companies ($mclc$) and Volume of Traded Stocks (st). As far as Market Capitalization of Listed Companies is concerned, (Figure 6) all countries have homogeneous negative responses to monetary policy shocks, where the maximum impact for all countries occurs in the second year. The relationship suggested by the results between interest

rates and stock market capitalization is an indication that a decrease in interest rates will discourage investment which will shrink stock market activities and hence market capitalization.

A similar visual inspection can be drawn from Figure 7, which presents the stock trade response pattern to interest rate shocks. Conversely, all countries have homogeneous negative responses to monetary policy shocks, and there is a very sharp decrease in the stock market activity with Poland having the highest response of all countries. There are long-lasting effects that intensify much longer in Cyprus and Greece than the other countries. The maximum impact occurs in the second year for all countries except Romania, where the maximum impact is reached in the 3rd year.

I conclude this section by making two distinct points from the above empirical analysis: a) the monetary policy shocks do generate asymmetric effects across economic activity, and b) there is a pattern on the magnitude of the decline in regional economic activity. In the 1st year, the regional decline is greater than that of the national. The one exception is Greece. While in the third year, the regional decline is smaller than that of the national, with the exception of Portugal.

Impulse Response Functions of Real Economic Activity Variables to Interest Rate Shocks for the 19 Countries

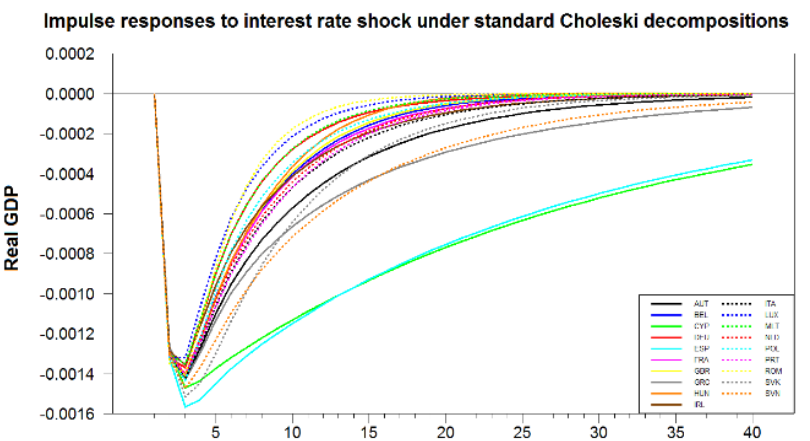

Figure 1. Impulse Response Functions of Real GDP to interest rate shocks for the 19 countries.

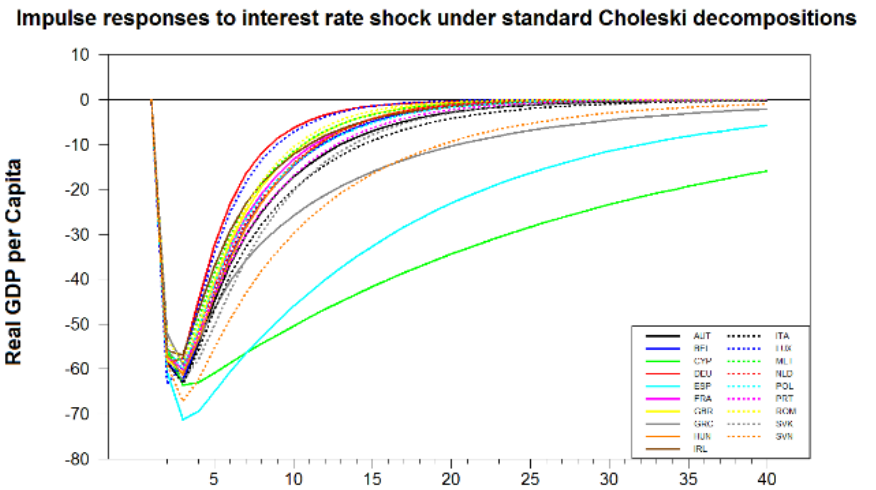

Figure 2. Impulse Response Functions of Real GDP per capita to interest rate shocks for the 19 countries.

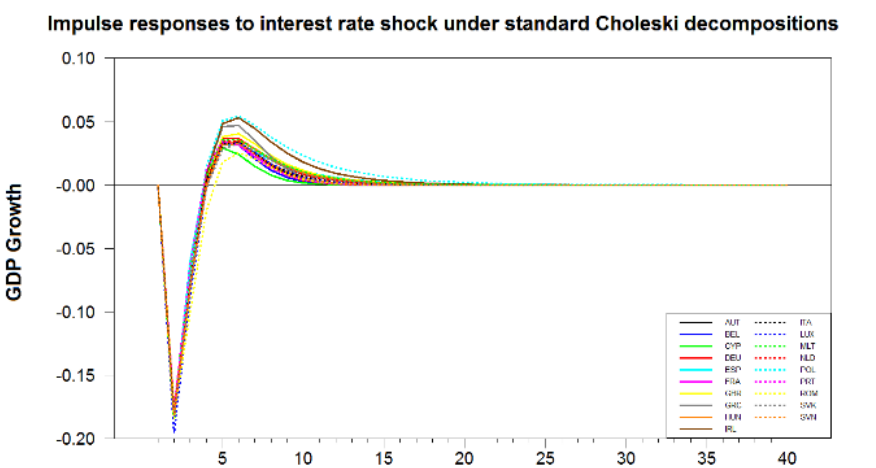

Figure 3. Impulse Response Functions of Real GDP growth to interest rate shocks for the 19 countries.

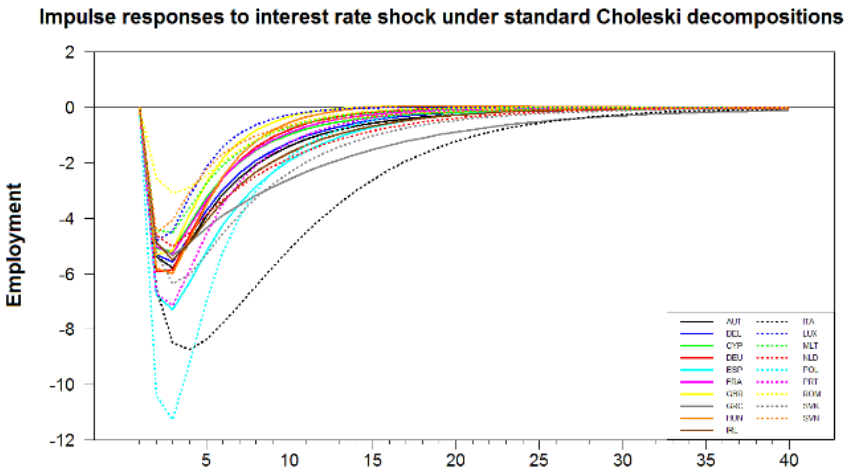

Figure 4. Impulse Response Functions of Employment to interest rate shocks for the 19 countries.

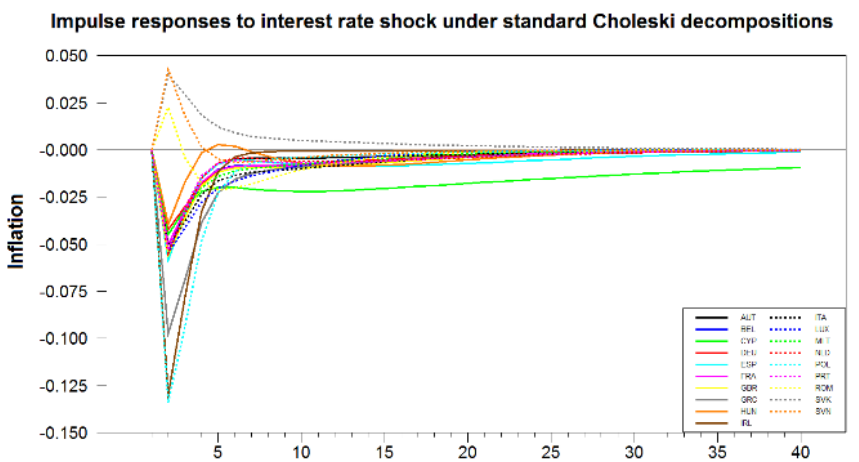

Figure 5. Impulse Response Functions of Inflation to interest rate shocks for the 19 countries.

Impulse Response Functions of Stock Market Performance Indicators to Interest Rates Shocks for the 19 Countries

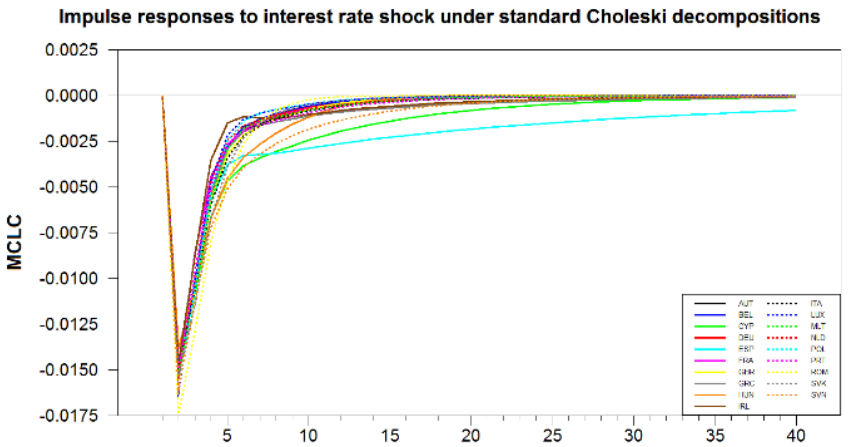

Figure 6. Impulse Response Functions of Stock Market Capitalization Ratio to interest rate shocks for the 19 countries.

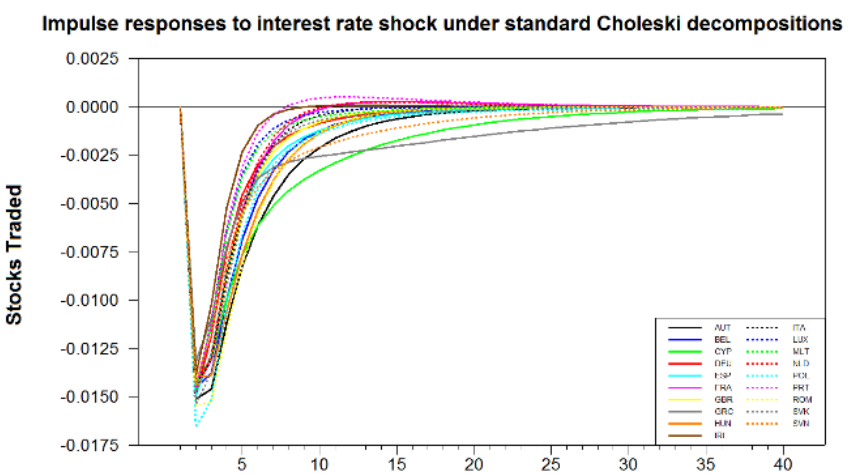

Figure 7. Impulse Response Functions of Stocks Traded to interest rate shocks for the 19 countries.

CONCLUSION

The purpose of this chapter was to examine the dynamic linkage between monetary policy and stock market performance indicators in the presence of three macroeconomic indicators; the GDP Growth (or GDP), the inflation rate, and the national level of employment. Since the concept of stock market performance is so broad, we used two different indicators to characterize stock market performance MCLC and ST.

A novel feaure of this study is the use of a PVAR model in order to assess a Bayesian Panel VAR model to assess the macroeconomic impact in 19 EU countries over the period 1996-2015. Panel VAR models are best suited in capturing both static and dynamic interdependencies, taking into account the cross sectional dynamic heterogeneities and treating the links across units in an unrestricted manner and incorporating time variation in the coefficients and in the variance of the shocks (Canova and Ciccarelli, 2013).

The empirical findings indicated that monetary policy contraction led to a) a fall in real economic activity, b) a decrease in the general employment level, c) a decrease in the inflation rate, and d) a deterioration in the stock market performance across the 19 countries.

Furthermore, the results showed that the monetary policy shocks do generate asymmetric effects across the 19 countries in both economic activity and stock market. Generally speaking, a restrictive monetary policy shock seems to significantly affect all countries. In trying to offer a broader assessment of differences in monetary policy transmission across 19 countries, some interesting remarks from the analysis are: a) It is apparent that there are cross-country differences in impulse response patterns, b) some countries exhibit a greater sensitivity than others. We can note here that the effectiveness of monetary policy declines as the financial system becomes more developed. (Ma and Lin 2016).

The factors driving the origin of these heterogeneities would be an interesting area of future research, unfortunately it is not in the scope of this study. It is imperative therefore, under the existence of the dynamic heterogeneities to study further and analyse factors driving the origin of these heterogeneities, and b) provide policymakers with facts over which one can build alternative scenarios and formulate policy decisions.

From a policy perspective, the current work suggests that the central banks can use their policies as important macroeconomic stabilization tools; nevertheless, they should consider the cross sectional dynamic heterogeneities in their policy coordination procedures. In fact, the economic decisions and

policymaking can benefit from the framework for the transmission of monetary policy shocks which features the dynamic heterogeneities of cross countries.

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Chapter 3

MONETARY POLICY UNDER EUROSATION: THE CASE OF SERBIA

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ABSTRACT

The chapter focuses on analysing monetary policy under high level of eurosation in Serbia. When it comes to the implementation of monetary policy, the key role of the National Bank of Serbia is to ensure monetary and financial stability. Monetary stability means a low, stable and predictable inflation and confidence in the currency, while financial stability means a sound financial system in which banks and other financial organizations function well and responsibly safeguard their clients' money. National Bank of Serbia chose inflation targeting, which sets price stability as the main objective of monetary policy. The inflation target, defined in terms of the annual percentage change in the consumer price index, is the only numerical guideline for the monetary policy implemented by the National Bank of Serbia. To implement monetary policy the National Bank of Serbia uses various instruments. The main monetary policy instrument of the National Bank of Serbia is the key policy rate, interest rate applied in its main open market operations (at the

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[1] The views expressed in the paper are those of the author and do not necessarily represent the official view of the National Bank of Serbia.

moment, reverse repo transactions – repo sale of securities, with one-week transaction maturity). Currently, in Serbia approximately 30% of dinar loans and deposits in total corporate and household lending and deposit activity are denominated in dinar. But this high level of euroisation limits the effect of monetary policy and its instruments. In these circumstances interest rate channel is not the most significant channel of the monetary policy transmission mechanism, but on the other hand exchange rate channel is. Consequently, there is a high impact of exchange rate movements on inflation rate through pass-through coefficient. The implementation of exchange rate policy is entrusted to the National Bank of Serbia, as the main regulator of the financial system. A mere use of managed floating exchange rate, as the chosen exchange rate regime, is an appropriate solution in the current economic circumstances and in accordance with the desired objective of monetary policy. But in order to maintain stable exchange rate National Bank of Serbia intervening in the interbank foreign exchange market to prevent excessive daily fluctuations of the dinar exchange rate against the euro. To support the process of dinarisation, the National Bank of Serbia and the Government of the Republic of Serbia signed the Memorandum on the Strategy of Dinarisation of the Serbian Financial System in April 2012. Only more extensive use of the dinar in the financial system and better currency matching of income and expenses of the non-bank sector will improve the country's financial stability, lessen the risk of exchange rate volatility in the most vulnerable sectors of the economy, and enhance the effectiveness of monetary policy. The paper will show the way of functioning of monetary policy and its instruments in Serbia, followed by their limitations in the application because of the high degree of euroisation, as well as measures that the National Bank of Serbia and the Government of the Republic of Serbia implemented in order to increase the use of dinars in the financial system.

Keywords: monetary policy and its instruments, eurosation, dinarisation, the exchange rate policy

JEL Classification: E42, E52, E58, E61 and F31

1. INTRODUCTION

The National Bank of Serbia is a public institution in charge of safeguarding the value and purchasing power of money. The core purpose of the National Bank of Serbia is to provide monetary and financial stability. Monetary stability means a low, stable and predictable inflation and

confidence in the currency. Financial stability means a sound financial system in which banks and other financial organizations function well and responsibly safeguard their clients' money. In pursuit of both purposes, the National Bank of Serbia implements appropriate monetary policy. When it comes to the functions of the National Bank the following are the most important: (1) The National Bank of Serbia manages money and interest rates so as to accomplish a low, stable and predictable inflation rate, which creates an environment conducive to sustainable economic development and employment growth; (2) By safeguarding the value of the national currency, the National Bank of Serbia contributes to the growth of citizens' living standard; (3) By managing money and loans, the National Bank of Serbia influences the strengthening and maintenance of public confidence in the dinar, facilitating business decision making and forward-looking planning for businessmen and citizens; (4) The National Bank of Serbia maintains financial stability, ensuring safety and efficiency of the payment system, as well as monitoring and supervising the activities of commercial banks and other financial organizations and (4) The National Bank of Serbia is the Government's banker and it manages the country's foreign exchange reserves. Constraint in the implementation of monetary policy in Serbia lies in the fact that it is present high level of euroisation, which limits the effect of monetary policy and its instruments. In order to cope with a high degree of euroisation the National Bank of Serbia implemented a strategy of dinarisation whose aim is greater use of dinar in the entire financial system.

2. MONETARY POLICY IN SERBIA

The primary objective of the National Bank of Serbia is to achieve and maintain price stability. In addition to its primary objective, the National Bank of Serbia will also pursue the objective of financial stability[2].

In December 2008, the Monetary Policy Committee of the National Bank of Serbia adopted a Memorandum on Inflation Targeting as Monetary Strategy, which defines formal implementation of the inflation targeting regime as of 1st January 2009[3]. The principles of this monetary policy regime

[2] Without prejudice to its primary objective, the National Bank of Serbia will support th economic policies of the Government which are conducive to sustainable economic growth.

[3] In its meeting held on 22nd December 2008, the Monetary Policy Committee of the National Bank of Serbia adopted the text of the memorandum on formal implementation of the inflation targeting regime as of 1st January 2009. This memorandum defines the main

have been gradually introduced into practice by the National Bank of Serbia pursuant to the Memorandum on the New Monetary Policy Framework, adopted in August 2006. The Memorandum on Inflation Targeting as Monetary Strategy has been prepared in compliance with the Agreement between the National Bank of Serbia and the Government of the Republic of Serbia on Inflation Targeting, adopted in the session of the Government of the Republic of Serbia of 19th December 2008.

The inflation target, defined in terms of the annual percentage change in the consumer price index, is the only numerical guideline for the monetary policy implemented by the National Bank of Serbia. The National Bank of Serbia has set the inflation targets for 2015 and 2016 at the level of 4% with a tolerance band of ±1.5 percentage points[4]. The National Bank of Serbia will also support the implementation of the economic policy of the Government if this does not threaten the achievement of the inflation target or the stability of the financial system. The National Bank of Serbia will achieve the inflation target by changing the interest rate applied in the conduct of its main monetary policy operations[5]. This interest rate will be its main monetary policy instrument. Other monetary policy instruments will have supporting roles, as they should contribute to a smooth transmission of the key policy rate to the market and balanced development of financial markets without threatening the stability of the financial system. The National Bank of Serbia will pursue a managed floating exchange rate regime, which means that the National Bank of Serbia will have the right to intervene in order to limit excessive daily oscillations in the foreign exchange market, contain threats to financial and price stability and safeguard an adequate level of foreign exchange reserves. The National Bank of Serbia will continue enhancing the transparency of its monetary policy and upgrading efficient communication with the public. The Executive Board will take decisions on the monetary policy on pre-announced

principles and workings of the new monetary policy regime of the National Bank of Serbia. This memorandum is consistent with the Agreement between the National Bank of Serbia and the Republic of Serbia on Inflation Targeting, adopted in the session of the Government of the Republic of Serbia held on 19th December 2008.

[4] The trajectory of targeted inflation reflects the intention to achieve price stability without causing any disruptions to macroeconomic processes. The inflation targets for 2015 and 2016 are set above the quantitative definition of price stability and the inflation targets of advanced economies (2.0% or 2.5%) due to the assessment that the process of structural reforms and the liberalisation of prices, i.e., nominal, real and structural convergence to the European Union, will not be completed by 2016.

[5] Currently, reverse repo transactions – repo sale of securities, with one-week transaction maturity.

dates and will regularly inform the public about the achievement of the set inflation targets and measures taken in order to meet these targets in the future.

Operational guidelines for inflation targeting are:

1. Setting inflation targets
2. Achieving inflation targets
3. Communicating the Achievement of Inflation Targets: Monetary Policy Transparency and Accountability and
4. Coordination of monetary, fiscal and wage policies.

3. MONETARY POLICY INSTRUMENTS IN SERBIA

The main monetary policy instrument of the National Bank of Serbia is the key policy rate which is interest rate applied in its main open market operations. Other monetary policy instruments of the National Bank of Serbia have a supporting role, facilitating unhindered transmission of the key policy rate effects to the market, as well as the development of the financial market. These instruments include:

1. *Open market operations*
   - The National Bank of Serbia conducts open market operations in order to regulate banking sector liquidity, influence short-term interest rate movements and signal its monetary policy stance. Depending on their objectives, dynamics and implementation, these operations are categorized as:
     – main operations
     – longer-term operations
     – fine-tuning operations
   - The National Bank of Serbia implements open market operations through repo or outright purchase and sale of securities[6].
2. *Required reserves*

[6] *A repo transaction* in securities means such purchase and sale of securities where parties to the agreement have agreed that the seller will sell securities to the buyer on the purchase date, and the buyer will pay the purchase price for such securities to the seller, assuming at the same time the obligation to sell the same securities to the seller on the agreed repurchase date, when the seller will pay the agreed repurchase price. *An outright transaction* in securities means the purchase and sale of securities which does not involve the obligation to resell or repurchase such securities.

- Required reserves are the amount of funds that banks are required to keep on deposit in accounts with the central bank.
- Required reserves are calculated by applying the required reserve ratio to the reserving base. Required reserve base may be composed of all funding sources (deposits, loans and securities) or a part of them (e.g., deposits only). It may be uniform or differentiated, according to maturity and/or currency structure of the funding sources.
- By changing the reserve ratios, the central bank induces a reduction or expansion of commercial banks' lending potential, and/or creation of additional liquidity. In market economies, required reserve ratio is used as an instrument for regulating bank credit potential rather than bank liquidity.
- The National Bank of Serbia uses reserve requirements only as a supportive instrument when the effects of all other market-based measures of monetary regulation are exhausted.

3. *Lending and deposit facilities (standing facilities)*
   - Central bank's standing facilities include lending and deposit facilities available to banks on an ongoing basis. Overnight in maturity, these operations are initiated by commercial banks. Lending facilities include loans for maintaining daily liquidity, collateralised by eligible securities. Deposit facilities include excess liquidity deposits with the National Bank of Serbia.
   - Interest rates on standing facilities constitute the ceiling and floor of the corridor of interest rates in the interbank market. As an important control factor in managing banking sector liquidity, they ease the fluctuations of short-term interest rates in the interbank market which would be more pronounced without such facilities.
   - Interest rates on standing overnight facilities, i.e., the corridor for overnight interest rate in the interbank money market, is determined with reference to the key policy rate:
     – rate on lending facilities: key policy rate +1.50 pp,
     – rate on deposit facilities: key policy rate –1.50 pp.
4. *Interventions in the foreign exchange market*
   - In inflation targeting regime, foreign exchange interventions are an infrequently used secondary instrument which contributes to

the achievement of the targeted inflation rate after the effective impact of the key policy rate has been exhausted.

- The National Bank of Serbia applies foreign exchange interventions in exceptional circumstances, seeking to:
  - mitigate excessive daily oscillations of the dinar exchange rate,
  - ensure financial stability and
  - maintain adequate level of foreign exchange reserves.

Monetary policy instruments do not have a direct impact on monetary policy objectives. As there can be a several months' lag in the effect of monetary policy, the National Bank of Serbia focuses on the achievement of operating and intermediate targets. Operating targets are easy to control, but are remote from the ultimate objective, while intermediate targets are hard to control, but closer to the ultimate objective.

As in the case of more developed market economies, and particularly those pursuing inflation targeting regime, the National Bank of Serbia's operating target are interest rates in the interbank money market, and its intermediate target is the inflation projection.

4. STRATEGY OF DINARISATION IN SERBIA

Recognising the need to increase the use of the dinar in the financial system in order to strengthen the country's financial stability, lessen the risk of currency changes to the most vulnerable sectors of the economy, reinforce the efficiency of monetary policy and by extension, create preconditions for strong and durable economic growth, the Government of the Republic of Serbia and the National Bank of Serbia have made Memorandum on the Strategy of Dinarisation of the Serbian Financial System. The Memorandum on the Strategy of Dinarisation of the Serbian Financial System defines the objectives, measures and activities to be taken with a view to strengthening confidence in the national currency and promoting its use in the financial system.

The National Bank and the Government agree to jointly determine and implement the dinarisation strategy. The aim of the dinarisation strategy and process is the achievement of a satisfactory level of use of the dinar in the financial system without threatening the country's financial and

macroeconomic stability. The National Bank and the Government will regularly monitor and analyse the level of dinarisation based on the technical guidelines set out in the Annex to the Memorandum. The National Bank and the Government agree to classify the activities related to the implementation of dinarisation strategy into three groups, in accordance with the different objectives of the process. *The first group* comprises monetary and fiscal policy measures geared at strengthening the macroeconomic environment by delivering low and stable inflation through a managed floating exchange rate, alongside durable economic growth. *The second group* comprises activities to promote the development of the market of dinar securities and create conditions for the introduction of new dinar instruments. *The third group* comprises activities to promote the development of foreign exchange hedging instruments.

4.1. Indicators of Dinarisation in Serbia

The National Bank of Serbia using the following indicators to measure the degree of dinarisation:

- share of dinar lending in total corporate and household lending
- share of dinar loans in total newly granted loans
- share of dinar deposits in total corporate and household deposits
- proportion between share of Dinar and FX savings in total household savings
- share of dinar debt in total public debt, with special emphasis on the currency and maturity structure of government securities

4.1.1. Share of Dinar Lending in Total Corporate and Household Lending

2011. - The level of dinarisation, measured as the share of dinar lending in total corporate and household lending, rose from 30.5% at end-December 2010 to 31.8% at end-March 2011. Total corporate and household lending increased from RSD 1,600.0 bln at end-December 2010 to RSD 1,602.1 bln at end-March 2011. Broken down by sector, the level of dinarisation is somewhat higher in the corporate (33.1%) than in the household sector (29.4%). The level of dinarisation, came at 31.4% at end-June, down by 0.4 pp q-o-q, but up by 4.7% y-o-y. Total corporate and household lending increased to RSD 1,639.4 bln at end-June 2011. Of the RSD 37.3 bln increase, RSD 4.7 bln was

attributable to the growth in dinar lending. In Q2, the level of dinarisation was somewhat higher in the corporate (31.9%) than in the household sector (30.5%). The degree of dinarisation came at 30.2% at end-September, down by 1.2 pp q-o-q, but up 1.1 pp y-o-y. The degree of dinarisation contracted in Q3 as a result of lower dinar lending (RSD 16.6 bln) and higher FX and FX-indexed lending (RSD 25.8 bln). By end-Q3, total corporate and household lending amounted to RSD 1,648.6 bln. The degree of dinarisation came at 29.3% at end-December 2011, down by 0.9 pp q-o-q. The degree of dinarisation declined in Q4 as a result of lower dinar lending (RSD 3.6 bln) and higher FX and FX indexed lending (RSD 60.2 bln). By end-2011, total corporate and household lending amounted to RSD 1,712.3 bln. In Q4, the degree of dinarisation rose by 0.4 pp to 32.6% in the household sector[7] and declined by 1.6 pp to 27.5% in the corporate sector.

2012. - The degree of dinarisation came at 27.9% at end-March 2012, down by 1.4 pp from end-2011. The degree of dinarisation declined in Q1 as the growth in FX and FX-indexed lending outpaced the growth in dinar lending. At end-March, total corporate and household lending amounted to RSD 1,821.3 bln. Measured as the share of dinar lending in total corporate and household lending, the degree of dinarisation came at 27.8% at end-June 2012, down by 0.1 pp from end-March. Rising by RSD 33.3 bln on the previous quarter, total corporate and household lending came at RSD 1,854.6 bln. The degree of dinarisation declined in Q2 as the growth in FX and FX-indexed lending outpaced the growth in dinar lending (RSD 25.6 bln vs. RSD 7.7 bln). Broken down by sector, the degree of dinarisation increased by 1.3 pp to 33.5% in the household and decreased by 0.9 pp to 24.8% in the corporate sector[8]. The degree of dinarisation of the Serbian financial system reached 28.2% by end-September 2012, up by 0.4 pp on end-June 2012. Total corporate and household bank loans amounted to RSD 1,915.4 bln by end-September, up by nominal RSD 60.8 bln on end-June. FX corporate and household loans were up by RSD 36.6 bln. Dinar loans rose by RSD 24.2 bln, which is the largest quarterly increase since 2011. Broken down by sector, the

[7] A rise in dinar household loans was also prompted by the National Bank of Serbia measures stipulating mandatory minimum downpayment for FX and FX-indexed household loans. Contraction in the degree of dinarisation in the corporate sector was driven not only by the absence of subsidised dinar liquidity loans, but also a rise in FX and FX-indexed lending (notably in December).

[8] Increased dinarisation in the household sector is attributable to stronger growth in other dinar loans (mostly cash loans) relative to FX-indexed housing loans. The corporate sector, on the other hand, witnessed a stronger growth in FX-indexed lending, driven primarily by loans for current assets and other loans (in most cases, liquidity loans). Growth in corporate dinar lending was also spurred by loans for the same purposes.

degree of dinarisation rose by 1.3 pp to 34.8% in the household, while remaining broadly flat at 24.7% in the corporate sector. Dinar household loans added RSD 10.6 bln on end-June, most of the increase relating to cash loans. In contrast, FX-indexed household loans contracted by RSD 6.2 bln. Dinar corporate loans picked up by RSD 13.6 bln, thanks to current assets loans. FX-indexed corporate loans were up RSD 42.8 bln, reflecting a rise in subsidised liquidity, current assets and export loans. The degree of dinarisation of the Serbian financial system reached 28.0% by end-Q4 2012, down by 0.2 pp from a quarter earlier. Total bank lending to corporates and households amounted to RSD 1,879.6 bln at end-Q4 2012, down by 1.9% from Q3. Bank lending shrunk through a reduction in both dinar (2.7%) and FX indexed component (1.5%).

2013. - The degree of dinarisation of the Serbian financial system reached 28.2% by end-Q1, up by 0.2 pp from a quarter earlier. Total bank lending to corporates and households amounted to RSD 1,853.7 bln at end-Q1, down by 1.3% from Q4 2012. Bank lending shrank through a reduction in both dinar (0.5%) and FX and FX-indexed component (1.6%), most notably in terms of corporate loans. The drop in corporate lending was triggered by the repayment of tranches of earlier loans. As the FX and FX-indexed component fell relatively more than the dinar component, the degree of dinarisation recorded an uptick of 0.2 pp, to 28.2%. The degree of dinarisation of the Serbian financial system, measured by the share of dinar loans in total corporate and household loans, reached 27.4% by end-Q2. Relative to end-Q1 2013, this indicator declined by 0.8 pp. Total bank lending to corporates and households amounted to RSD 1,844.7 bln at end-Q2, down by 0.5% from Q1. Bank lending declined on account of a reduction in the dinar component (by 3.3%), primarily in terms of corporate loans, whereas dinar lending to households increased. On the other hand, the FX and FX-indexed component went up (by 0.6%). The degree of dinarisation of the Serbian financial system reached 27.3% by end-Q3. Relative to end-Q2, this indicator dipped by 0.1 pp. In terms of constant exchange rate, the degree of dinarisation dropped by 0.1 pp to 27.4%. Total bank lending to corporates and households amounted to RSD 1,826.8 bln at end-Q3, down by 1.0% from Q2. Lending declined on account of the reduction of both dinar and FX and FX-indexed components (by 0.5 pp each). The degree of dinarisation of the Serbian financial system equalled 26.8% at end-Q4 2013. Relative to end-Q3, the indicator dipped by 0.5 pp. Total bank lending to corporates and households amounted to RSD 1,784.8 bln in Q4 2013, down by 2.3% from a quarter earlier. Lending declined on account

of the reduction of both dinar and FX and FX-indexed components (from 1.1 and 1.2 pp, respectively).

Table 1. Share of dinar lending in total corporate and household lending

Year	Quarter	Share of dinar lending in total corporate and household lending	Lending by sector	
			Corporate	Household
2011.	Q1	31.8%	33.1%	29.4%
	Q2	31.4%	31.9%	30.5%
	Q3	30.2%	29.1%	32.2%
	Q4	29.3%	27.5%	32.6%
2012.	Q1	27.9%	25.7%	32.2%
	Q2	27.8%	24.8%	33.5%
	Q3	28.2%	24.7%	34.8%
	Q4	28.0%	24.2%	35.1%
2013.	Q1	28.2%	24.0%	36.0%
	Q2	27.4%	22.3%	36.4%
	Q3	27.3%	21.3%	37.4%
	Q4	26.8%	20.0%	37.9%
2014.	Q1	26.6%	19.1%	38.3%
	Q2	28.3%	21.2%	39.5%
	Q3	30.4%	23.7%	40.6%
	Q4	31.3%	25.0%	41.0%
2015.	Q1	30.3%	23.4%	40.8%
	Q2	29.6%	21.7%	41.5%
	Q3	28.8%	19.6%	42.6%
	Q4	28.6%	19.3%	42.8%

Source: National Bank of Serbia.

2014. - The degree of dinarisation of the Serbian financial system, measured by the share of dinar loans in total corporate and household lending, equalled 26.6% at end-Q1 2014. Relative to end-2013, the indicator dipped by 0.2 pp. Total bank lending to corporates and households contracted for the sixth quarter in a row. At end-March 2014, it amounted to RSD 1,733.5 bln, down by 2.9% from end-2013. Both dinar and FX and FX-indexed components contributed to the drop in lending (1.0 and 1.9 pp, respectively). Corporate lending declined by 4.9% from a quarter earlier, in response to a tightening in bank credit standards for corporates in Q1 and lower credit

demand in the absence of major capital investments[9]. At the same time, some of the subsidised loans extended partly in dinars in the prior period fell due for payment and a portion of due receivables was assigned to persons outside the financial sector. As a result, the share of dinar loans in total corporate loans shrank by 0.9 pp, to 19.1%. Unlike the previous quarter, Q1 saw a rise in household lending (0.4% q-o-q). The degree of dinarisation of the Serbian financial system 28.3% at end-Q2 2014. Relative to end-Q1, the indicator upped 1.7 pp. At end-June, they stood at RSD 1,762.0 bln, up RSD 28.5 bln on end-Q1. The degree of dinarisation of the Serbian financial system equaled 30.4% at end-Q3 2014. Corporate and household lending continued to grow into Q3. At end-September it stood at RSD 1,812.0 bln, up by RSD 50.0 bln on end-Q2. The degree of dinarisation of the Serbian financial system equalled 31.3% at end-Q4 2014. Relative to end-Q3, this indicator rose by 0.9 pp. Corporate and household lending continued to increase in Q4. At end-December, it stood at RSD 1,860.2 bln, up by RSD 48.2 bln on end-Q3.

2015. - Measured by the share of dinar loans in total corporate and household lending, the degree of dinarisation of Serbia's financia system equalled 30.3% at end-Q1 2015. Relative to end-Q4 2014, this indicator fell by 1 pp. Corporate and household lending went down in Q1. At end-March, it stood at RSD 1,859.6 bln. Measured by the share of dinar loans in total corporate and household lending, the degree of dinarisation of Serbia's financia system equalled 29.6% at end-Q2 2015, down by 0.7 pp relative to the previous quarter. Corporate and household lending contracted in Q2 2015. At end-June, it stood at RSD 1,858.0 bln, down by RSD 1.6 bln compared to end-Q1. Measured by the share of dinar loans in total corporate and household ending, the degree of dinarisation of Serbia's financial system equalled 28.8% at end-Q3, having shrunk 0.8 pp from a quarter earlier. After declining for two quarters, corporate and household lending rose RSD 10.8 bln in Q3, and amounted to RSD 1,868.8 bln at end-September. The sharpest increase was recorded for corporate loans (by RSD 10.5 bln), driven largely by investment loans that are typically approved in foreign currency and at longer maturities. Measured by the share of dinar loans in total corporate and household lending, the degree of dinarisation of Serbia's financial system contracted slightly in Q4 2015, by 0.2% from a quarter earlier to 28.6% at year-end.

[9] Results of the April Bank Lending Survey.

4.1.2. Share of Dinar Loans in Total Newly Granted Corporate and Household Loans

2011. - After rising in January, the share of dinar loans in total newly granted loans headed down in February, reflecting mainly the absence of subsidised lending during that period. Already in March, the share of dinar loans in total newly granted loans (46.3%) rebounded, again primarily as a result of subsidised loans, extended predominantly in dinars (over 70%). As in Q1, the share of dinar loans in total newly granted loans displayed significant monthly oscilations during Q2. It plunged by 15 pp from end-March to 31.3% at end-June, largely as a result of a decrease in the newly granted corporate dinar loans, attributable to the June stalemate in the subsidised segment of the dinar market. The share of dinar in total newly granted loans continued to oscillate significantly throughout Q3 – it increased by 9.3 pp q-o-q to 40.6% at end-Q3. Down by 9.5 pp on end-September, the share of these loans was 31.1% at end-December. A decline in the share of dinar lending resulted primarily from the increase in fresh FX and FX-indexed loans. A rise in the volume of these loans in the household segment reflected, among other factors, the conclusion of annexes to housing loan agreements for the purpose of their harmonisation with the Law on the Protection of Financial Services Consumers and the classification of housing loans as 'new business.'

Table 2. Share of dinar loans in total newly granted corporate and household loans

Year	Quarter	Share of dinar loans in newly granted corporate and household loans	Year	Quarter	Share of dinar loans in newly granted corporate and household loans
2011.	Q1	46.3%	2012.	Q1	37.9%
	Q2	31.3%		Q2	46.2%
	Q3	40.6%		Q3	30.6%
	Q4	31.1%		Q4	37.3%
2013.	Q1	37.6%	2014.	Q1	31.3%
	Q2	38.2%		Q2	42.6%
	Q3	32.3%		Q3	57.0%
	Q4	31.4%		Q4	35.9%
2015.	Q1	30.0%			
	Q2	26.3%			
	Q3	28.4%			
	Q4	35.9%			

Source: National Bank of Serbia.

2012. - Up by 6.8 pp on end-2011, the share share of dinar in total newly granted loans came at 37.9% at end-March. A rise in the share of dinar in total newly granted loans resulted from the decrease in new FX and FX-indexed loans (by RSD 17.5 bln) rather than from the increase in dinar loans (RSD 0.7 bln). The decrease in FX and FX-indexed corporate loans relative to end-2011 was registered mainly for investment loans and loans for current assets. In the household sector, the decrease in FX and FX-indexed loans was for its major part due to housing loans[10]. By contrast to significant monthly volatility in the prior period, the share of dinar in total newly granted loans was relatively stable in Q2. It steadily increased to 46.2% by end-June. The share of dinar in total newly granted loans expanded as a result of a decrease in new FX and FX-indexed loans (by RSD 13.1 bln) and a concomitant increase in dinar loans (RSD 3.1 bln). The share of dinar loans in total newly granted loans was on a constant monthly decline throughout Q3 and reached 30.6% at end-September. The relatively low share of dinar loans in total newly granted loans at end-September reflects the extensive approval of FX indexed loans in September (RSD 74.5 bln), mostly corporate (RSD 68.2 bln). In Q4, banks approved RSD 267.5 bln in new corporate and household loans, 10.8% more than in the previous quarter. Pure dinar loans accounted for 37.3%, a fall of 6.7 pp from Q3. Lower share of dinar in total bank new lending in Q4 was a consequence of strong growth of FX-linked loans (17.8%), mostly corporate. Corporates mainly used them for liquidity maintenance and current assets and exports financing, as envisaged under the government's subisdised lending programme.

2013. - On average, the share of dinar loans in total newly granted loans increased q-o-q, while the monthly indicator declined. In Q1, banks approved RSD 197.8 bln in new corporate and household loans, 26.1% less than in Q4 2012. Pure dinar loans accounted for 37.6%, up by 0.3 pp from a quarter earlier. The decline in newly approved loans in Q1 relative to Q4 was mostly attributable to a drop in new loans extended to corporates (by 31%), which was partly in response to dampened borrowing in the subsidised segment of the market. The share of dinar loans in total newly granted loans rose month-on-month throughout Q2. In Q2, banks extended RSD 204.4 bln in new corporate and household loans, 3.3% more than in Q1. Pure dinar loans accounted for 38.2%, up by 0.6 pp from a quarter earlier. The share of dinar loans in total newly granted loans to corporates and households declined by

[10] Robust growth in these loans in late 2011 reflected the conclusion of annexes to the initial housing loan agreements for the purposes of their harmonisation with the Law on the Protection of Financial Services Consumers.

5.9 pp to 32.3% in Q3, mostly in response to a strong contraction of newly approved loans to corporates. In Q3, banks extended RSD 189.6 bln in new loans to corporates and households, down by 7.2% q-o-q. The share of dinar loans in total new loans to corporates and households fell by 0.9 pp to 31.4% in Q4, mostly in response to contracted dinar lending to households. In Q4 2013, banks extended RSD 185.3 bln in new loans to corporates and households, down by 2.3% from a quarter earlier. During Q4, banks extended much fewer new dinar loans (5.2%) than in Q3, while FX and FX-indexed loans recorded a modest decline (0.9%).

2014. - The share of dinar loans in total newly granted loans inched down by 0.1 pp in Q1, to 31.1%. In Q1, banks granted RSD 136.8 bln in new loans to corporates and households, which is 26.2% less than in the quarter before. As the decline in dinar was steeper than in FX and FX-indexed loans (26.7% vs. 26.0%), the share of dinar loans contracted by 0.1 pp, to 31.3%. Newly granted household loans also declined from a quarter earlier (5.3%), driven in part by the fall in FX loans (11.9%), notably housing loans. The share of dinar loans in total fresh corporate and household loans increased 11.3 pp to 42.6% in Q2. In Q2, banks extended to the corporate and household sectors fresh loans worth RSD 210.4 bln, up by RSD 73.6 bln from the quarter before. FX-indexed and FX loans (57.2%) remained dominant, though their share declined significantly q-o-q (by 11.6 pp). These trends were largely due to elevated dinar corporate lending (RSD 48.3 bln), consistent with the government subsidised corporate lending programme launched in May. In Q3, banks extended to the corporate and household sectors fresh loans worth RSD 193.5 bln, down by RSD 16.9 bln from the quarter before. Compared to Q2, new FX lending shrunk significantly (by 30.8%), while dinar lending increased (by 22.6%) taking the lead for the first time in quite a while (57.0%). The decline in total new loans in Q3 was largely due to a contraction in FX corporate lending (RSD 34.2 bln). During Q4, banks approved household loans worth RSD 68.5 bln, which is an increase of RSD 9.0 bln relative to the quarter before.

2015. - After the programme of subsidised corporate dinar lending was ended in December last year, in Q1 banks granted significantly fewer dinar loans and somewhat more FX and FX-indexed loans compared to the quarter before. The share of dinar in total new corporate and household loans fell by 5.9 pp to 30.0%. The contraction in lending activity concerns primarily dinar corporate loans (RSD 33.7 bln), with FX corporate loans recording a much milder decline (RSD 1.0 bln). In Q2 banks granted a larger amount of new corporate and household loans relative to a quarter earlier, both in dinars and

in foreign currency. The share of dinar loans in total new corporate and household loans fell by 3.7 pp to 26.3% due to stronger FX and FX-indexed lending. In Q2, corporate and household lending came at RSD 268.9 bln, the highest quarterly amount since Q4 2010. Approximately two thirds (64.6%) of new household loans were granted in dinars, which is slightly more than in the previous quarter (63.6%). Similar to the preceding period, around a half of new loans were cash loans, which are extended predominantly in dinars. Housing loans almost doubled, amounting to RSD 16.0 bln, partly as a result of the modified repayment terms of Swiss franc-indexed housing loans, in accordance with the National Bank of Serbia Decision on Measures for Preserving Stability of the Financial System in the Context of Foreign Currency-Indexed Loans. Compared to a quarter earlier, banks extended more dinar and fewer FX and FX-indexed loans in Q3. Consequently, the share of dinar loans in total new corporate and household loans jutted up by 2.1 pp to 28.4%. In Q3, banks extended RSD 269.5 bln worth of corporate and household loans. In Q4, banks extended RSD 296.0 bln worth of corporate and household loans, RSD 26.5 bln more than in the quarter before. The amount of newly approved dinar loans rose by RSD 29.6 bln from Q3, as a result of monetary policy easing and the consequent drop in interest rates on dinar loans. In Q4, banks extended higher amount in corporate loans than in the previous quarter. The share of dinar loans in total newly extended corporate loans remains modest (35.9%), yet higher than in the previous quarter (by 7.5 pp), owing to higher dinar lending to corporates primarily for the purpose of financing current assets.

4.1.3. Share of Dinar Deposits in Total Corporate and Household Deposits

2011. - The share of dinar deposits in total corporate and household deposits fell from 19.8% at end December 2010 to 19.0% at end-March 2011. The decline was occasioned more by a rise in FX deposits than by a drop in those denominated in the domestic currency. Though corporate dinar deposits recorded a sharper fall than household deposits (RSD 12.0 bln vs. RSD 2.1 bln), the share of corporate dinar deposits in total deposits stayed much higher than that of household deposits (44.2% vs. 8.3%). The share of dinar deposits in total corporate and household deposits rose from 19.0% at end-March to 19.9% at end-June 2011. The rise was occasioned by a stronger growth in dinar relative to FX deposits (RSD 15.3 bln vs. RSD 10.3 bln). The degree of dinarisation measured by the share of dinar in total corporate and household deposits was 20.5% at end-Q3. A rise was recorded both for dinar (RSD 17.4

bln) and FX and FX-indexed deposits (RSD 34.2 bln). Dinar deposits rose both in the corporate (RSD 9 bln) and household sectors (RSD 8.4 bln). The degree of dinarisation measured by the share of dinar in total corporate and household deposits was 21.5% at end-December, up by 1.0 pp q-o-q. A rise was recorded both for dinar (RSD 28.2 bln) and FX and FX-indexes deposits (RSD 42.3 bln). Dinar deposts rose both the corporate (RSD 16.2 bln) and household (RSD 12.0 bln) sector. The share of dinar in total deposits remained significantly higher in the corporate (45.1%) relative to the household sector (10.1%).

2012. - The degree of dinarisation measured by the share of dinar in total corporate and household deposits was 19.2% at end March, down by 2.3 pp q-o-q. Such movements resulted from the fall in dinar deposits (RSD 29.5 bln) and a rise in FX and FX-indexed deposits (RSD 31.6 bln). As in the case of lending, lower dinarisation of deposits in Q1 is in great part attributable to the effect of exchange rate changes. The degree of dinarisation measured by the share of dinar in total corporate and household deposits was 17.8% at end June, down by 1.4 pp from end-March. Rising by RSD 90.4 bln q-o-q, total corporate and household deposits came at RSD 1,382.8 bln. The degree of deposit dinarisation decreased in response to a RSD 92.1 bln rise in FX and FX-indexed deposits and a RSD 1.7 bln fall in dinar deposits. The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, reached 18.8% by end-September, up by 1.0 pp on end-June. Total corporate and household deposits rose by RSD 10.2 bln at end-June to RSD 1,393.0 bln at end-September. This was due to a RSD 15.7 bln increase in dinar deposits and a RSD 5.5 bln decline in FX and FX-indexed deposits (resulting from changes in the dinar exchange rate). The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, reached 19.3% at end-Q4, up by 0.5 pp on end-Q3. Total corporate and household deposits stood at RSD 1,433.3 bln in Q4, up by 2.9% q-o-q. This was primarily due to an increase in FX deposits (2.3%), most notably household deposits in November during the savings week.

2013. - The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, reached 19.7% at the end of Q1, up by 0.4 pp on end-Q4. Total corporate and household deposits stood at RSD 1.415,9 bln in Q1, down by 1.2% q-o-q. The slight decline was primarily due to a decrease in FX and FX-indexed dinar deposits (1.7%), partly in response to the seasonal drop in corporate deposits typical for the start of the year. In addition to corporate deposits, household FX deposits also contracted. The degree of dinarisation, measured by the share of dinar deposits in total

corporate and household deposits, edged up to 20.2% at the end of Q2, rising by 0.5 pp on end-Q1. Total corporate and household deposits stood at RSD 1,449.8 bln in Q2, up by 2.4% q-o-q. The rise, primarily in dinar deposits, was recorded for both corporate and household sectors, and can be attributed to the government's efforts to create liquidity. The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, equalled 21.1% at end-Q3, rising by 0.9 pp on end-Q2. Total corporate and household deposits amounted to RSD 1,481.5 bln at end-Q3, up by 2.2% q-o-q. The rise, primarily in dinar deposits, was recorded for both corporate and household sectors. The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, equalled 23.3% at end-Q4, rising by 2.2 pp on end-Q3. Total corporate and household deposits amounted to RSD 1,485.1 bln in Q4, up by 0.2% from the previous quarter. The rise in total deposits in Q4 is entirely attributable to growth in dinar deposits (10.4%) – notably transaction deposits, in both household and corporate sectors.

2014. - The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, reached 22.0% at end-Q1, down by 1.3 pp from the quarter before. Corporate and household deposits amounted to RSD 1,472.0 bln at end-Q1, down by RSD 13.1 bln from Q4 2013. The fall in total deposits reflected to a significant degree the decrease in corporate dinar deposits (by RSD 16.6 bln), notably deposits of enterprises operating in the manufacturing industry, mining, construction, trade and water supply and waste management (RSD 20.3 bln). The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, equalled 23.3% at end-Q2, rising 1.3 pp on end-Q1. Total corporate and household deposits amounted to RSD 1,510.4 bln in late Q2, up by RSD 38.4 bln from the previous quarter. The rise in total deposits in Q3 is largely attributable to growth in dinar deposits (RSD 28.3 bln). The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits, equalled 23.8% at end Q3, rising 0.5 pp on end-Q2. Corporate and household deposits stood at RSD 1,589.1 bln at end Q3, up by RSD 78.7 bln on end-Q2. The rise in total deposits in Q3 is largely attributable to growth in FX deposits (RSD 52.4 bln), while dinar deposits rose moderately (RSD 26.3 bln). The degree of dinarisation, measured by the share of dinar deposits in total corporate and household deposits equalled 24.6% at end Q4, rising 0.8 pp from end-Q3. Corporate and household deposits stood at RSD 1,626.7 bln at end Q4, up by RSD 37.6 bln from end-Q3. The rise in total deposits is primarily attributable to growth in dinar deposits (RSD 20.8 bln), while FX deposits rose to a lesser extent (RSD 16.7 bln).

Table 3. Share of dinar deposits in total corporate and household deposits

Year	Quarter	Share of dinar in total corporate and household deposits	Deposits by sector	
			Corporate	Household
2011.	Q1	19.0%	44.2%	8.3%
	Q2	19.9%	46.6%	8.3%
	Q3	20.5%	44.0%	9.2%
	Q4	21.5%	45.1%	10.1%
2012.	Q1	19.2%	44.1%	9.2%
	Q2	17.8%	40.5%	8.3%
	Q3	18.8%	42.8%	8.7%
	Q4	19.3%	43.9%	8.7%
2013.	Q1	19.7%	46.1%	8.6%
	Q2	20.2%	46.8%	9.0%
	Q3	21.1%	47.7%	9.8%
	Q4	23.3%	52.7%	11.5%
2014.	Q1	22.0%	50.0%	11.3%
	Q2	23.3%	52.5%	11.9%
	Q3	23.8%	52.1%	11.9%
	Q4	24.6%	53.8%	12.3%
2015.	Q1	23.0%	51.1%	11.3%
	Q2	23.5%	51.1%	12.0%
	Q3	25.0%	52.7%	12.9%
	Q4	27.2%	55.6%	13.9%

Source: National Bank of Serbia.

2015. – Measured by the share of dinar in total corporate and household deposits, the degree of dinarisation was 23.0% at end-Q1, down by 1.6 pp compared to late 2014. At end-Q1, corporate and household deposits amounted to RSD 1,611.0 bln, down by RSD 15.7 bln compared to end-Q4 2014. The decline was driven by a reduction in dinar deposits (RSD 29.7 bln), reflecting mainly the contraction in lending activity and the repayment of loans due. In the same period, the stock of FX deposits went up (RSD 12.8 bln), which is why their share in total corporate and household deposits increased in Q1. Measured by the share of dinar in total corporate and household deposits, the degree of dinarisation was 23.5% at end-Q2, up by 0.5 pp compared to end-Q1. At end-Q2, corporate and household deposits amounted to RSD 1,635.2 bln, up by RSD 24.2 bln compared to end-Q1. Measured by the share of dinar in total corporate and household deposits, the degree of dinarisation equalled 27.2% at end-Q4, up by 2.2 pp from end-Q3. During Q4, corporate and household deposits rose RSD 89.8 bln, arriving at RSD 1,741.7 bln at end-December.

Table 4. Proportion between share of Dinar and FX savings in total housedold savings

Year	Quar-ter	Maturity structure of dinar savings		Maturity structure of FX savings		Participation in total savings	
		Short-term	Long-term	Short-term	Long-term	Dinar savings	FX savings
2011.	Q1	72.60%	27.40%	84.00%	16.00%	1.80%	98.20%
	Q2	73.60%	26.40%	83.50%	16.50%	1.80%	98.20%
	Q3	76.60%	23.40%	83.10%	16.90%	2.00%	98.00%
	Q4	84.50%	15.50%	73.60%	26.40%	2.40%	97.60%
2012.	Q1	89.20%	10.80%	74.30%	25.70%	2.40%	97.60%
	Q2	89.10%	10.90%	75.60%	24.40%	1.90%	98.10%
	Q3	90.20%	9.80%	76.70%	23.30%	2.00%	98.00%
	Q4	92.20%	7.80%	80.40%	19.60%	1.90%	98.10%
2013.	Q1	93.30%	6.70%	81.20%	18.80%	2.00%	98.00%
	Q2	93.50%	6.50%	81.40%	18.60%	2.20%	97.80%
	Q3	93.80%	6.20%	81.40%	18.60%	2.40%	97.60%
	Q4	91.70%	8.30%	79.30%	20.70%	3.50%	96.50%
2014.	Q1	91.20%	8.80%	80.30%	19.70%	3.70%	96.30%
	Q2	91.10%	8.90%	80.10%	19.90%	4.00%	96.00%
	Q3	90.60%	9.40%	79.90%	20.10%	3.90%	96.10%
	Q4	90.50%	9.50%	77.90%	22.10%	3.70%	96.30%
2015.	Q1	89.20%	10.80%	77.50%	22.50%	3.50%	96.50%
	Q2	84.40%	15.60%	76.10%	23.90%	3.80%	96.20%
	Q3	82.00%	18.00%	74.50%	25.50%	4.10%	95.90%
	Q4	76.10%	23.90%	69.10%	30.90%	4.30%	95.71%

Source: National Bank of Serbia.

4.1.4. Proportion between Share of Dinar and FX Savings in Total Housedold Savings

2011. - Both dinar and FX savings increased relative to the last quarter of 2010. Despite stronger growth in dinar relative to FX savings (2.6% vs.1.8%), dinar savings remain rather modest compared to those denominated in FX. Most of dinar and FX savings are short-term. The largest share of dinar savings is that of one to two-year deposits, which rallied in November 2010 (during the Savings Week). FX savings deposits are for their major part (47.7%) termed for the period of six months to one year. At end-Q1, only 5.1% of total FX deposits were termed for the period over two years. Dinar savings fell by 0.9% relative to the previous quarter, while FX savings went up by 2.7%. At end-Q2, a major portion of FX savings was termed for six months

up to one year (43.0%). The share of deposits termed for six months up to one year contracted by 4.7 pp from end-Q1, while the share of deposits termed for the period of three to six months expanded by 3.5 pp. At end-Q2, deposits over two years accounted for 4.9% of total FX deposits. At end-Q3, At end-September, dinar savings rose 14.2% and FX savings 1.5% from end-June. At end-Q3, most of FX savings were fixed-term from 6 months to 1 year (41.1%), their share in total FX savings contracting by 1.9 pp from end-Q2. At end-December, dinar savings rose 24.8% and FX savings 4.2% from September. The maturity structire of overall housеhols savings remained unfavourable as short-term deposits were dominant both in dinar and FX savings. Deposits up to 3 months contunued to prevail in dinar savings (45.1%), demand deposits included.

2012. - At end-March, dinar savings showed an increase of 6.6% and FX savings of 1.1% from the end of the previous year. As in the prior period, the maturity structure of overall savings showed prevalence of term deposits up to 1 year. Deposits up to 3 months (demand deposits included) continued to dominate dinar savings (47.7%). At end-Q1, a decrease was registered in the share of 3–6 month deposits (1.7 pp) and deposits over 1 year (4.9 pp), while deposits up to 3 months and deposits of 6 months to 1 year increased their respective shares by 2.6 pp and 4.0 pp. The strongest share increase in Q2 was recorded for 3–6 month deposits (by 2.2 pp), followed by deposits up to 3 months (0.7 pp). At the same time, the share of 1–2 year deposits shrank by 1.0 pp. and the share of deposits over 2 years by 0.3 pp. At end-September 2012, dinar savings amounted to RSD 17.9 bln, up by RSD 0.6 bln on end-June. FX savings were up by EUR 73.5 mln, which is a slowdown relative to Q2 (EUR 179.1 mln). Dinar savings at end-December 2012 amounted to RSD 17.6 bln, down by RSD 0.2 bln on end-September. During the same period, FX savings increased by EUR 257.7 mln with most of the increase recorded during the month of November. Though banks did not offer any stimulating interest rates to mark World Savings Day as they did in previous years, FX savings recorded a higher growth in Q4 than in any of the first three quarters of 2012. Household savings rose by 2.1% in Q4 on the back of higher FX savings typical for the fourth quarter. At year-end, dinar savings stood at RSD 17.6 bln, down 1.3% on end-Q3. In December, the average remaining maturity of dinar savings was five months, an increase on September's four months.

2013. - At the end of Q1 2013, dinar savings amounted to RSD 18.7 bln, up by RSD 1.1 bln on end-December 2012. During the same period, FX savings increased by EUR 103.0 mln, with most of the increase recorded during January and February. At end-Q2, dinar savings amounted to RSD 20.7

bln, up by RSD 2.0 bln on end-Q1. In the same period, FX savings fell by EUR 4.8 mln, most notably in April and June. The bulk of growth in dinar household savings was recorded for three to six-month maturity – the share of this maturity rose by 7.2 pp to 16.8%. Savings termed over six months to one year also increased in Q2, by 0.2 pp to 33.0%. Dinar savings rose further in Q3, at the fastest pace in the last seven consecutive quarters. At end-Q3, they reached RSD 23.3 bln, up by 11.2% q-o-q. FX savings gained 0.5% to EUR 8,143 mln in late September, this being the smallest increase during the last four years, following the Q2 contraction. Despite such trends, the share of dinar in total savings remained modest (2.4%). Q4 saw a strong boost in dinar savings, while FX savings edged up modestly again, prompting a continued rise in the share of dinar in total savings. At the end of Q4, dinar savings equalled RSD 33.7 bln, up by RSD 10.4 bln (30.9%) from Q3. Having recorded robust growth, dinar savings increased their share in total savings by 1.1 pp, though it still remains modest (3.5%).

2014. - Dinar savings continued to rise in Q1, while FX savings recorded a moderate decrease relative to the previous quarter. As a result, the share of dinar in total savings went further up. Dinar savings continued up for the fifth straight quarter, gaining RSD 2.7 bln (7.4%) from Q4 and reaching RSD 36.4 bln. The share of dinar in total savings mirrored the trend – it expanded by 0.2 pp, though staying modest at 3.7%. Dinar savings continued to rise in Q2, increasing their share in total savings. Household savings rose by 1.5% to RSD 988.8 bln in Q2, driven primarily by the increase in FX savings (1.2%), even though dinar savings grew at a much faster pace (8.2%). As a result of continuing vibrant growth, dinar savings increased their share in total savings by 0.3 pp, to the still modest 4.0%. Household savings rose by 2.8%, to RSD 1,016.7 bln in Q3, driven primarily by an increase in FX savings (2.9%), while dinar savings grew moderately (1.2%), slowing down from the quarter before (by 7.0 pp). After six consequtive quarters of growth of dinar savings its share in total savings went down by 0.1 pp, reaching 3.9%. Following seven consecutive quarters of growth, dinar savings recorded a fall in Q4. On the other hand, FX savings were on the rise, reducing the share of dinar savings in total savings by 0.2 pp to 3.7% relative to Q3. For the first time in the last seven quarters, dinar savings fell in Q4 (by RSD 1.8 bln), down to RSD 38.1 bln at end-2014. The decline was particularly prominent for shorter-maturity savings (RSD 1.7 bln) – primarily for maturities up to one month and between six months and one year.

2015. - In Q1, dinar savings continued down for the second consecutive quarter, whilst FX savings edged up. Thus, the share of dinar in total savings

deposits fell by 0.2 pp to 3.5% compared to Q4 last year. At end-March, dinar savings stood at RSD 36.5 bln, down by RSD 1.6 bln relative to end-2014. At end-June, dinar savings amounted to RSD 40.0 bln, up by RSD 3.5 bln from end-March. The increase is particularly significant with regard to savings with over one-year maturity (RSD 2.3 bln), mostly one to two-year maturities (RSD 2.0 bln). Dinar savings with up to one-year maturity also increased (by RSD 1.2 bln), with the maturity of three- to six- months rising the most (RSD 1.6 bln). During Q3, dinar savings went further up with every coming month, while FX savings treaded in the opposite direction. As a result, the share of dinar in total savings rose by 0.2 pp to 4.1%. At end-September, dinar savings measured RSD 42.0 bln, up by RSD 2.0 bln from end-June. The rise in dinar savings is of particular importance in case of savings with over one-year maturity (RSD 1.3 bln). During Q4, dinar savings went further up with each coming month, while FX savings stayed almost unchanged from the previous quarter. As a result, the share of dinar in total savings rose by 0.2 pp to 4.3%. The long period of low and stable inflation and relative stability of the exchange rate, higher interest rates and a more favourable tax treatment than in case of FX savings helped dinar savings go further up in Q4. At end-December, dinar savings equalled RSD 45.4 bln, up by RSD 3.4 bln i.e., 7.5% from end-September.

4.1.5. Share of Dinar Debt in Total Public Debt, with Special Emphasis on the Currency Structure

2011. - In addition to subsidised lending, the government gave a positive contribution to the process of dinarisation through somewhat higher borrowing in the domestic currency. Though public debt is still for its major part denominatd in foreign currency, notably the euro (59.7%), there has been an evident increase in the share of dinar-denominated debt since the beginning of the year. The share of dinar in total public debt rose from 13.0% at end-December 2010 to 15.8% at end-March 2011. The stock of government securities increased by RSD 72.8 bln (nominally) in Q1 – dinar securities accounted for RSD 42.0 bln and FX securities for RSD 30.8 bln (EUR 297.4 mln). The share of dinar in total public debt continued to rise, reaching 18.5% at end-Q2. Though public debt is still for its major part denominated in foreign currency, notably the euro (58.4%), the share of dinar-denominated debt has been on a steady rise since the beginning of the year. The share of dinar component went up by 2.7 pp relative to the previous quarter or by 5.5 pp relative to end-2010. The stock of government securities increased nominally by RSD 54.5 bln in Q2. The increase is attributable primarily to the RSD 44.0

bln growth in the stock of dinar securities that exceeded the growth in the stock of FX securities in Q2 by four times (RSD 10.5 bln). At end-September, dinar debt accounted for 17.4% of the total. Though the stock of dinar debt increased by RSD 7.6 bln on end-Q2, its share in total public debt declined by 1.1 pp due to a sharper rise in FX debt (by RSD 122.8 bln). Rise in FX debt, above all, is the result of the successful sale of the Republic of Serbia dollar eurobond in the international financial market. Relative to end-2010, the share of dinar debt was up 4.4 pp. Down by 3 pp on end-Q3, dinar debt accounted for 14.4% of the total at end-December. The decline was due to a reduction in dinar debt and an increase in FX debt. Dinar debt also contracted on account of a change in the methodology of public debt recording of securities – instead at nominal, securities are now recorded at the discounted values.

2012. - Up by 1.8 pp q-o-q, dinar debt accounted for 16.2%[11] of the total at end-March. The increase in the share of dinar debt reflected stronger growth in the dinar relative to FX debt component, while the rise in the dinar equivalent of FX debt was due to the depreciation of the dinar. The bulk of the outstanding public debt remained euro-denominated. Relative to the previous quarter, its share decreased by 0.6 pp to 57.1%. The dollar component declined as well – by 0.8 pp to 18.0%. At end-Q2, dinar debt accounted for 17.1% of total public debt, up by 0.9 pp from a quarter earlier. The bulk of public debt remained in euros. Relative to the previous quarter, its share decreased by 1.1 pp to 56.0%. The dollar component edged up slightly (by 0.1 pp to 18.1%), while the share of debt in other currencies stayed broadly unchanged. The share of dinar debt in total public debt came at 19.5% in September, up by 2.4 pp on end-Q2. The rise was due to higher dinar debt (by RSD 8.4 bln) and real appreciation of the dinar. An upturn in the dinar stock of public debt was prompted by the rising stock of dinar government securities. Euro-denominated debt remained dominant in the currency structure of public debt. Its share fell by 1.3 pp from Q2 to 54.7% in Q3. The share of dollar-denominated debt fell by 0.8 pp to 17.3% at end-September. In Q4, the share of dinar debt in total public debt shrank from 19.5% to 18.9%, primarily due to the reopening of Eurobond Serbia 2021 issue with USD 1.0 bln and Eurobond Serbia 2017 issue with USD 750.0 mln. Euro- and dollar-denominated debts remained dominant in the currency structure of public debt in Q4 (50.9% and 22.8% respectively). Owing to the above Eurobond issues, the share of euro-

[11] Beginning from November 2011, i.e., the start of application of the new methodology of the Ministry of Finance, data on public debt in respect of securities are calculated at the discounted value.

denominated debt in public debt decreased from the end of Q3 (3.8 pp), while the share of dollar-denominated debt rose (5.5 pp).

Table 5. Currency structure of Republic of Serbia public debt

Year	Quarter	Currency structure of Republic of Serbia public debt						
		EUR	RSD	USD	CHF	SDR	Euro-indexed	Other currencies*
2011.	Q1	59.7%	15.8%	13.2%	1.5%	7.3%	1.6%	0.9%
	Q2	58.4%	18.5%	12.2%	1.5%	6.9%	1.6%	0.9%
	Q3	56.9%	17.4%	17.0%	1.3%	6.6%	0.0%	0.8%
	Q4	57.7%	14.4%	18.8%	1.4%	6.9%	0.0%	0.8%
2012.	Q1	57.1%	16.2%	18.0%	1.3%	6.7%	0.0%	0.7%
	Q2	56.0%	17.1%	18.1%	1.3%	6.7%	0.0%	0.8%
	Q3	54.7%	19.5%	17.3%	1.3%	6.4%	0.0%	0.8%
	Q4	50.9%	18.9%	22.8%	1.2%	5.6%	0.0%	0.6%
2013.	Q1	47.5%	18.5%	27.4%	1.0%	5.1%	0.0%	0.5%
	Q2	48.7%	18.8%	25.9%	1.0%	5.1%	0.0%	0.5%
	Q3	48.6%	18.9%	26.0%	1.0%	5.0%	0.0%	0.5%
	Q4	45.9%	20.3%	27.7%	0.9%	4.6%	0.0%	0.6%
2014.	Q1	45.8%	20.9%	27.4%	0.9%	4.5%	0.0%	0.5%
	Q2	44.8%	22.3%	26.9%	0.9%	4.5%	0.0%	0.6%
	Q3	42.0%	21.7%	30.7%	0.8%	4.3%	0.0%	0.5%
	Q4	41.7%	21.4%	31.5%	0.7%	4.2%	0.0%	0.5%
2015.	Q1	39.7%	21.4%	33.4%	0.8%	4.2%	0.0%	0.5%
	Q2	40.0%	21.5%	33.1%	0.8%	4.1%	0.0%	0.5%
	Q3	40.2%	22.0%	32.6%	0.7%	4.0%	0.0%	0.5%
	Q4	39.8%	22.2%	32.9%	0.6%	3.9%	0.0%	0.6%

* GBP, JPY, DKK, SEK, NOK.
Source: National Bank of Serbia.

2013. - Q1 saw the share of dinar debt in total public debt edging down from 18.9% to 18.5%, primarily due to the sale of Eurobond Serbia with a seven-year maturity, in the amount of USD 1.5 bln. Euro-, dollar- and dinar-denominated debts were dominant in the currency structure of public debt in Q1 (47.5%, 27.4% and 18.5% respectively). Owing to the USD 1.5 bln Eurobond sale in February, the share of dollar-denominated debt in total public debt rose by 4.6 pp from end-Q4, while the share of euro- and dinar-denominated debt contracted by 3.4 and 0.4 pp respectively. The share of dinar debt in total public debt increased from 18.5% to 18.8% in Q2, mainly owing to a reduction in dollar debt on account of early repayment of a portion of debt to the London Club creditors. As a result of early debt repayment to the

London Club creditors, worth USD 436 mln, the share of dollar debt in total public debt declined by 1.5 pp from Q1 to 25.9% in Q2. The share of dinar in total public debt in Q3 rose from 18.8% to 18.9%, primarily as a result of government borrowing in the market of government dinar securities. Uncertainties regarding the start of FED's tapering of quantitative easing, the public finance crisis in the US and Serbia's fiscal risks, impacted on elevated risk aversion of foreign investors in regard to Serbia's government securities. As a result, the share of dinar in total public debt rose by 0.1 pp to 18.9%. The share of dinar debt in total public debt came at 20.3% in Q4, up by 18.9% on end-Q3. The dollar debt increased in response to the issue of five-year dollar-denominated eurobonds in the international market (USD 1 bln). This led to a 1.7 pp rise in the share of dollar in total public debt – to 27.7%.

2014. - The share of dinar in total public debt increased in Q1 from 20.3% to 20.9% amid faster growth in dinar relative to foreign currency debt. In Q1 2014, public debt increased by RSD 57.2 bln to RSD 2,366.2 bln. In Q2, government financing remained for its major part dinar-denominated. The share of debt in FX shrank, while that in dinars increased from 20.9% to 22.3%. In Q2 2014, public debt increased by RSD 26.0 bln to RSD 2,392.2 bln. The increase was driven mainly by dinar debt (up by RSD 39.3 bln), notably internal, as the amount of dinar government bonds sold in the domestic market exceeded the value of bonds due. Against the background of rising dinar debt, the share of euro-denominated debt in total public debt receded by 1.0 pp to 44.8%, while the share of dollar-denominated debt inched down by 0.5 pp to 26.9%. In Q3, the share of dinar in total public debt declined from 22.3% to 21.7%. The government continued to borrow in the domestic market, mainly through dinar securities. In October, the government issued its first ten-year dinar bond. Public debt increased by RSD 236.2 bln to RSD 2,628.4 bln, reflecting primarily external borrowing in foreign currencies (RSD 176.3 bln), notably in US dollars in respect of the UAE loan (USD 1.0 bln). As a result and owing to euro's depreciation against the dollar and dinar's weakening vis-â-vis the euro, the USD share in public debt rose by 3.8 pp to 30.7%. Conversely, the euro share fell by 2.8 pp to 42.0%, and the dinar share by 0.6 pp to 21.7%. Public debt in Q4 rose by RSD 124.3 bln to RSD 2,752.7 bln, reflecting primarily borrowing in foreign currencies (RSD 106.8 bln), both in the domestic financial market – by issuing euro securities, and from foreign creditors. The bulk of the euro-denominated public debt derives from the issuance of euro securities in the domestic market (EUR 254.2 mln) and increased borrowing from foreign creditors – such as the International Bank for Reconstruction and Development (EUR 107.3 mln). As a consequence of

these movements and due to cross-currency changes (euro's depreciation against the dollar and dinar's weakening), the USD share in total public debt rose by 0.8 pp to 31.5%, while the euro share fell by 0.3 pp to 41.7% and the dinar share by 0.3 pp to 21.4%.

2015. - As dinar and FX public debt increased in Q1 to a largely same degree (by 5.7% and 5.6% respectively), the share of dinar in total public debt remained unchanged relative to end-2014 (21.4%). In Q1, public debt increased by RSD 155.1 bln to RSD 2,907.8 bln. The increase was due mainly to a rise in FX debt (RSD 121.7 bln), reflecting primarily a higher value of dollar debt due to crosscurrency changes (appreciation of the dollar). Dinar debt increased to a relatively smaller extent (RSD 33.4 bln), mainly on account of the issue of dinar securities in the domestic market. However, due to the dollar's strengthening against the euro, the share of dollar in total public debt increased significantly (by 1.9 pp to 33.4%), while euro debt went down (by 2.0 pp to 39.7%). In Q2, public debt declined by RSD 40.9 bln to RSD 2,866.9 bln. The dollar's weakening against both the dinar and the euro drove down the share of dollar debt in total public debt (from 33.4% to 33.1%), and pushed up the share of dinar and euro debt (from 21.4% to 21.5%, and from 39.7% to 40.0%, respectively) relative to a quarter earlier. At end-Q3, public debt amounted to RSD 2,881.0 bln, up by RSD 14.1 bln from a quarter earlier. The share of dinar in total public debt consequently rose q-o-q to 22.0%. The rise in public debt stems from an increase in the dinar share of public debt (RSD 18.4 bln), driven primarily by the sale of dinar government securities (RSD 19.5 bln). At end-Q4, public debt amounted to RSD 3,017.0 bln, up by RSD 136.0 bln from the quarter before. The rise in public debt stems from an increase in both its dinar and FX share (RSD 35.3 bln and RSD 100.7 bln). The increase in the dinar portion of the public debt was brought about mainly by government borrowing in the domestic capital market, through sale of long-term securities (RSD 13.3 bln).

4.2. Measures and Activites of the National Bank of Serbia

The selection and use of instruments and measures of monetary policies that give support to the process dinarisation is done on the basis of an analysis of the current financial and overall macroeconomic developments. The National Bank of Serbia supporting process of dinarisation by using monetary policy instruments (reserve requirements, liquidity loans, FX swap auctions),

prudential measures (liquid bank claims) and promotion and educational activities (conferences on the topic of hedging).

The National Bank of Serbia has used and uses different *instruments of monetary policy* to support the process dinarisation, primarily an instrument of required reserves. Current required reserve ratios in dinars for funds up to two years matury is 5% and for maturity over two years is 0%. In this sence the National Bank of Serbia gives banks an incentive for holding a larger share of funds over two years maturity and thus reducing dinar part of the reserve requirement. In addition to the benefits of the rate of dinar reserve requirements on funds over two years, the National Bank of Serbia has the ability to exempt some categories of calculating required reserve. Thus, in 2011 the National Bank of Serbia gave support to the program of measures to mitigate the negative effects of the global economic crisis in Serbia by allowed banks reduction of the obligatory reserve to 25% of the increase of subsidized loans granted to maintain liquidity and finance permanent working capital, export operations and investment.

Next measure taken by the National Bank of Serbia is providing dinars in case of a *structural deficit of dinar liquidity*, with the benchmark interest rate that ensures the achievement of the inflation target. In application of these measures the National Bank of Serbia have at their disposal the following monetary policy instruments:

- open market operations and use of repo transactions of purchase of securities, i.e., providing dinar liquidity of the banking system. These operations the National Bank of Serbia is applied in the period from 18th July to 19th December 2012, when it was due to decline in the dinar liquidity of banks because of interventions in the interbank foreign exchange market and amendments to regulations on mandatory reserve.
- standing facilities, particularly credit facilities. Credit facilities include the use of loans for maintaining daily liquidity of banks against collateral of eligible securities. In addition to the credit facility, commercial banks can get loans based on daily liquidity of banks against the collateral of securities. In the first quarter of 2011, the National Bank of Serbia has revised the conditions for granting loans for maintaining daily liquidity of banks. Foreign currency securities of the Republic of Serbia are excluded from the collateral, while the collateral dinar securities expanded, which is the sole priority data dinar government securities. Since March 2011, the

banks can advocate with the National Bank of Serbia all discount dinar government securities whose maturity is not more than three years (two years before the changes to the decision) and any coupon dinar government securities regardless of their remaining maturity. On the basis of the same quantity of stocks of securities banks can now get a larger amount of dinar loans for maintenance of daily liquidity, given that the amendments in March 2011 reduced nominal value of the longer maturities securities[12]. Revised the conditions for granting short-term liquidity loans with maturity up to one year by the foreign government securities excluded as collateral, a minimum maturity of dinar securities has been shortened from six months to three months. This amendments expanded portfolio of local currency securities that can be used as collateral for the approval of these loans.

- foreign exchange swap auctions EURRSD - to encourage the development of the interbank swap market the National Bank of Serbia, in accordance with the calendar of ordinary foreign exchange swap auctions, organize auctions of swap sales of foreign currency - euros for dinars, which provides additional euro liquidity-swap auctions and purchases foreign currency - euros for dinars, which provides additional dinar liquidity.

In the context of *prudential measures* in the first quarter of 2011 the National Bank of Serbia under Decision on risk management of the Bank (and other decision)[13] decided that in a liquid receivables of first order included 90% of the fair value of local currency securities issued by the Republic of Serbia. This amendment applies to state bonds whose minimum maturity is three months and the bank has classified there securities as traded or available for sale. This change is important because it expanded the list of items which make up liquid receivables of first order, and thus there is a possibility of

[12] For discount long-term securities with remaining maturities of 365 days the percentage reduction of the nominal value of the shares was reduced from 40% to 20%, while the discount for long-term securities remaining maturity of 366 days to 730 days the percentage reduction of the nominal value of the shares was reduced from 40% to 30%. For coupon long-term securities with maturity up to 730 days the percentage reduction of the nominal value of the shares was reduced from 40% to 20%.

[13] Decision on Risk Management by Banks (RS Official Gazette, No. 45/2011, 94/2011, 119/2012, 123/2012, 23/2013 – other decision, 43/2013, 92/2013, 33/2015 and 61/2015). The other decision relates to the Decision on minimum standards for information system financial institutions (RS Official Gazette, No. 23/2013 and 113/2013).

improving liquidity indicators[14]. In May 2011, the National Bank of Serbia adopted Decision on Measures for Safeguarding and Strengthening Stability of the Financial System[15], with aim to reduce the risk stemming from the high share of FX-denominated and indexed loans, and to encourage citizens to borrow in dinars. The decision entered into force on 30th June, introducing a set of measures regarding FX-denominated and -indexed lending to natural persons:

- FX-denominated and -indexed loans may be approved only subject to a down payment or placement of deposit of no less than 30% of the loan amount. This does not apply to housing loans, loans in dinars that are not FX-indexed, and credit cards;
- The amount of mortgage FX-denominated and -indexed loans was limited to a maximum 80% of the value of the property mortgaged, less the amount of other receivables secured by the first rank lien over

[14] The level of the bank's liquidity shall be expressed by liquidity ratio and the narrow liquidity ratio. *Liquidity ratio* of a bank is a ratio between the sum of bank's liquid first- and second-degree receivables, on the one hand, and the sum of the bank's sight liabilities or liabilities without determined maturity and the bank's liabilities with maturity within one month from the date of liquidity ratio calculation, on the other hand. *Narrow liquidity ratio* is the ratio between the sum of bank's liquid first-degree receivables, on the one hand, and the sum of the bank's sight liabilities or liabilities without determined maturity and the bank's liabilities with maturity within one month from the date of liquidity ratio calculation, on the other hand. A bank shall maintain its liquidity level in a way that: 1) liquidity ratio:

(a) equals at least 1.0 when calculated as an average of liquidity ratios for all business days in a month; (b) is not lower than 0.9 for more than three consecutive business days and (c) equals at least 0.8 when calculated for a single business day; 2) narrow liquidity ratio: (a) equals at least 0.7 when calculated as an average of liquidity ratios for all business days in a month; (b) is not lower than 0.6 for more than three consecutive business days and (c) equals at least 0.5 when calculated for a single business day.

The bank's *first-degree liquid receivables* shall include cash and receivables where the agreed maturity falls within one month from the date of calculation of liquidity ratio, as follows: (a) vault cash, gyro-account balances, gold and other precious metals; (b) funds in the accounts with banks with available credit rating of the chosen credit rating agency equivalent to credit quality 3 or better, determined in accordance with the decision on capital adequacy of banks (investment rank); (c) deposits with the National Bank of Serbia; (d) cheques and other monetary receivables in the process of execution; (e) irrevocable credit facilities approved to the bank and (f) shares and debt securities quoted on the stock exchange.

Bank's *second-degree liquid receivables* shall include other bank receivables falling due within one month from the date of calculation of liquidity ratio.

Bank's *sight liabilities or liabilities without agreed maturity* shall constitute a part of its liabilities as follows: (a) 40% of sight deposits of banks; (b) 20% of sight deposits of other depositors; (c) 10% of savings deposits; (d) 5% of guarantees and other sureties and (e) 20% of unfunded committed irrevocable credit lines.

[15] Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, No 34/2011).

the same property. The loan-to-value ratio does not apply to loans in dinars that are not FX-indexed and

- Loans may be indexed only to the euro, i.e., as of the effectiveness of the Decision, banks may no longer grant loans indexed to the Swiss franc.

Law on the Protection of Financial Services Consumers[16], which entered into force at the beginning of June and with beginning of the application in December 2011, stipulates that the bank and the lessor shall offer the service to the consumer in dinars, unless the consumer requests the service to be offered in the dinar equivalent value of a foreign currency and/or in a foreign currency. The bank and the lessor shall indicate to the consumer in writing the risks he assumes when the service is provided in the dinar equivalent value of a foreign currency and/or in a foreign currency.

The Executive Board of the National Bank of Serbia, at the November session in 2013 adopted the Decision on Terms and Conditions of Performing Foreign Credit Transactions in Dinars[17], which create stimulating conditions under which international financial institutions and development bank or financial institution established by foreign state may grant dinar loans to domestic banks, legal entities and entrepreneurs, as well as the conditions under which local bank may approve dinar loans to non-residents. Loans from international financial organizations can be financed from funds obtained through the sale of a primary long-term dinar securities in the domestic primary market, so it is expected that the issuance of these securities have a positive influence on the further development of the local currency securities market[18].

In Decision on Capital Adequacy of Banks[19] National Bank of Serbia define indicator of foreign exchange risk which represents ratio between the

[16] Law on the Protection of Financial Service Consumers (RS Official Gazette, No. 36/2011 and 139/2014).

[17] Decision on Terms and Conditions of Performing Foreign Credit Transactions in Dinars (RS Official Gazette, No 98/2013).

[18] Dinar securities without foreign currency clause that are issued by international financial organizations with the highest credit ratings included in a portfolio of securities that are the subject of open market operations of the National Bank of Serbia and are eligible collateral when the National Bank of Serbia loans for daily liquidity and short-term loans based on collateral of securities. In this way, banks are further encouraged to hold in their portfolios dinar securities that were issued by international financial organizations to finance loans, which further contributes to the development of capital markets.

[19] Decision on Capital Adequacy of Banks (RS Official Gazette, No. 46/2011, 6/2013 and 51/2014).

total net open foreign exchange position (including the absolute value of the net open position in gold) and the bank's capital[20]. The bank shall maintain the foreign currency risk indicator at no more than 20% at the end of each business day. If foreign currency risk indicator on two consecutive business days exceeds 20%, the bank shall notify the National Bank of Serbia the next business day at latest. Also, the National Bank of Serbia in Decision on the Classification of Bank Balance Sheet Assets and Off-balance Sheet Items[21]

[20] The capital of the bank shall be the sum of its core capital and supplementary capital less deductibles from capital. The *core capital* of the bank shall consist of the following elements: 1) paid-in share capital, excluding cumulative preferential shares; 2) reserves from profit and 3) profit of the bank. A bank shall include in its core capital the share capital subscribed and paid in against issued ordinary and preferential shares, excluding cumulative preferential shares, in the amount of: 1) par value of paid-in ordinary and preferential shares and 2) relevant share premium, i.e., amount paid above par value of subscribed ordinary and preferential shares. Reserves from profit which the bank includes in core capital shall include all types of bank reserves established on the basis of the decision of the banks general meeting and debited to the profit after taxation. Profit of the bank included in core capital shall be made up of: 1) retained earnings from previous years free of any future liabilities and 2) profit of the current year if the National Bank of Serbia, on the basis of submitted documentation, is satisfied that the following conditions are met: (a) the amount of profit is confirmed by an external auditor authorized for auditing the banks financial statements; (b) the amount of profit is reduced by accrued income tax and all other liabilities payable from profit (liabilities for dividends, other participations in profit distribution, etc.) and (c) the general meeting of the bank decided to allocate profit in core capital and the amount of bank's current year profit that is included in core capital does not exceed the amount determined on the basis of that decision.

The *supplementary capital* of the bank shall consist of the following elements: 1) paid-in share capital against cumulative preferential shares of the bank; 2) part of positive revaluation reserves of the bank; 3) hybrid capital instruments; 4) subordinated liabilities and 5) over allocation of impairment allowances, provisions and required reserves relative to expected losses.

Deductibles from the bank capital shall be: 1) direct or indirect investment in banks and other financial sector entities that exceed 10% of the capital of such banks and/or other financial sector entities; 2) investment in hybrid instruments and subordinated liabilities of other banks and financial sector entities in which the bank has direct or indirect investment that exceeds 10% of the capital of such entities; 3) total amount of direct and indirect investment in banks and other financial sector entities in the amount of up to 10% of their capital, as well as investment in their hybrid instruments and subordinated liabilities that exceeds 10% of the sum of core and supplementary capital of the bank for which the calculation of capital is made; 4) the amount by which qualified participation in non-financial sector entities has been exceeded; 5) under allocation of impairment allowances, provisions and required reserves relative to expected; 6) the amount of exposure to free deliveries if the counterparty failed to fulfill its obligation within four working days and 7) receivables and potential liabilities toward persons related to a bank or employees in the bank which the bank has negotiated under the terms that are more favourable than the terms negotiated with other parties that are not related to the bank and are not employees of the bank.

[21] Decision on the Classification of Bank Balance Sheet Assets and Off-balance Sheet Items (RS Official Gazette, No. 94/2011, 57/2012, 123/2012, 43/2013, 113/2013, 135/2014, 25/2015 and 38/2015).

prescribed to assess the financial condition and creditworthiness of the debtor. A bank shall make an assessment of the financial position of a legal person borrower based in particular on the analysis of: (1) profitability indicators; (2) adequacy of the maturity structure of certain components of assets and liabilities; (3) adequacy of cash flows from the aspect of debt servicing; (4) financial structure indicators, notably the level of indebtedness; (5) borrower's exposure to the foreign exchange-induced credit risk and (6) business sector in which the borrower operates, the borrower's market position, borrower-specific features and other relevant indicators. Assessment of the creditworthiness of a natural person borrower (other than farmer or entrepreneur) shall be performed based in particular on the analysis of: (1) debt-to-income ratio, determined as the ratio of total monthly credit obligations and regular net monthly income, which ratio the bank shall determine when approving the loan act and (2) the currency structure of the borrower's total monthly credit obligations[22], particularly taking into account higher risk exposure of a borrower whose obligations are contracted in foreign currency or in dinars with a foreign currency clause.

The National Bank of Serbia regulatory efforts in this domain are aimed at enhancement and simplification of laws and regulations governing operations with FX hedging instruments. To this aim, the new Decision on Performance of Financial Derivative Transactions[23] is applied from early December 2011 to enable foreign currency payments and collections under deliverable financial derivatives as a protection against the FX risk and other market risks.

Promotional and educational activities include conferences on FX hedging with representatives of businesses and banks in Serbia, distribution of publications and brochures and ongoing media campaign with a view to enhancing the use of instruments for protection against FX risk. These conferences cast light on incentives and limitations to the development of the hedging market and provide a forum for sharing experiences on the use of FX hedging instruments. The National Bank of Serbia has to date organized conferences and meetings on this topic in Belgrade, Novi Sad, Užice, Niš and Kragujevac. The National Bank of Serbia has also created a web page on its website dedicated to FX hedging. In addition to the description of the main FX hedging instruments, the "FX hedging" link also contains a list of banks

[22] Total monthly credit obligations shall be the sum total of obligations under loans and credit cards (monthly payments due), obligations in respect of loan warranties called and obligations under financial lease contracts.

[23] Decision on Performance of Financial Derivative Transactions (RS Official Gazette, No. 85/2011 and 62/2013).

offering these instruments[24]. The page features two financial calculators – the first displays the basic model of forward price calculation in forward purchase/sale of foreign currency, and the second one compares forward contract terms currently on offer.

National Bank of Serbia, in addition to the aforementioned activities in the process of increasing the level dinarisation, is working intensively on the creation of an institutional and regulatory environment that will contribute to improving primary and secondary market securities denominated in dinars. At the beginning of May 2012, successfully issued the first three-year bank dinar bond in Serbia. Bond was issued by Societe Generale bank, in the form of public offering pre-selected qualified investors[25]. The first three years dinar bank bonds represent an important step towards further development of the dinar financial markets. A larger share of long-term local currency financing sources of banks should contribute to a greater degree of long-term lending in dinars, i.e., greater degree of financial system dinarisation in Serbia.

4.3. Measures and Activites of the Government of the Republic of Serbia

The Government of the Republic of Serbia can contribute to increasing the level dinarisation through growthing dinar portion of debt into public debt. In this sence Public Debt Agency issued two Public Debt Management Strategy, first for the period 2015 to 2017 and second for the period 2016 to 2018[26]. For

[24] http://www.nbs.rs/internet/english/33/33_3/kotacije.html.

[25] Bonds issued by Societe Generale bank in the amount of RSD 1.7 bln at a fixed premium of 5.25% above the benchmark interest rate of the National Bank of Serbia, purchased by domestic investors from the insurance sector and pension funds (eight of them bought 15% of total emissions) and banking sector (three banks bought 85% of total emissions). The demand for dinar securities issued by this bank was RSD 1.1 bln higher than the supply, which indicates that there is demand in domestic market for longer-term dinar-denominated debt instruments. Dinar bonds Societe Generale bank are listed on the Belgrade Stock Exchange, which will enable investors to secondary trading in these securities. Successful implementation of the first issue of dinar bank bonds is certainly a positive signal to other banks, companies and international financial institutions, to use this method of dinar long-term financing.

[26] Public Debt Management Strategy For the Period 2015 to 2017, Available from: *http://www.javnidug.gov.rs/upload/Strategija/Strategija%20cir/2015-2017/Public%20Debt%20Management%20Strategy%20for%20the%20Period%202015%20to%202017.pdf* and Public Debt Management Strategy For the Period 2016 to 2018, Available from: *http://www.javnidug.gov.rs/upload/Strategija/2016/Public%20Debt%20Management%20Strategy%20for%20the%20Period%202016%20to%202018.pdf.*

both strategies long-term strategic framework of public debt management include the following:

- The share of dinar-denominated debt should be about 20-25% of the overall public debt in the medium-term period;
- The share of euro-denominated debt in the public debt should be at least 60% of the foreign currency debt, including the future borrowings and transactions;
- The share of floating interest rate should drop to below 20% in the mid-term period[27];
- Average time to refixing (ATR) should remain at a level of at least 4.5 years, in accordance with the above mentioned measure of gradual decrease of floating interest rate debt share;
- Weighted average interest rate (WAIR) for internal public debt shall not exceed 10% in short-term and mid-term debts;
- The share of the short-term debt (whose maturity is up to a year) shall be up to 15% of the overall public debt;
- The average maturity time (ATM) of internal debt shall be at a level of at least 4 years in midterm;
- The average maturity time (ATM) of external debt shall remain at a level of from 6 ± 0.5 years in the same time framework.

Next Government activity is granting subsidized loans, which are mostly approved in RSD. The government had subsidized loans in following programs:

- In 2011 a program of measures to mitigate the negative effects of the crisis. For that year from the budget of the Ministry of Economy and Regional Development is provided RSD 7 bln. The program included the stimulation of specific industry sectors (production of tractors, buses, trucks, construction machinery, etc.) As well as the continuation of subsidized loans to businesses and citizens through

[27] According to data of Public Debt Management Strategy. For the Period 2016 to 2018. among the floating interest rates, the highest share hold Euribor and Libor interest rates in EUR, which in total make 63.7% of the total public debt tied to floating interest rates, whereas 12.1% refers to the liabilities tied to the reference interest rate of the National Bank of Serbia, 11.5% to the Libor interest rates in USD, and the rest of the liabilities tied to other types of floating interest rates have the share of 12.6% (mainly the floating interest rate for special drawings rights).

loans for liquidity and permanent working capital, investments, certain consumer goods and the purchase of newly built apartments.

- At the end of August 2012, the Government adopted the Regulation on conditions for subsidizing interest rates for loans to maintain liquidity and finance permanent working capital and export operations for the year 2012. For this purpose the Government has allocated RSD 300 mio.
- In 2013 the Government adopted the Regulation on conditions for subsidizing interest rates for loans to maintain liquidity and finance permanent working capital in 2013. This regulation governs the conditions for subsidizing interest rates for loans to maintain liquidity and working capital financing in 2013 for entrepreneurs, small and medium-sized companies. For this purpose the Government has allocated RSD 600 mio.
- In 2014 the Government adopted the Regulation on the conditions for subsidizing interest rates for loans to maintain liquidity and finance permanent working capital in 2014. This regulation governs the conditions for subsidizing interest rates for loans to maintain liquidity and finance permanent working capital in 2014 entrepreneurs, legal entities of micro, small, medium and large legal entities. According to this regulation Republic of Serbia was not necessary to allocate funds in the budget for 2014, while the budget of the Republic of Serbia for 2015 allocated funds amounting to RSD 3 bln and for the budget for 2016 funds amounting to RSD 3.9 bln.

Also, stimulating tax policy the Government will continue to support the dinar savings. Namely, the Individual Income Tax Law[28] in Article 65 states that the tax on the yield on capital shall not be payable on the interest accrued from the following: 1) Dinar savings and other deposits (term or sight) and 2) On the basis of debentures, pursuant to the regulation dealing with the securities and other financial instruments market, issued by the Republic, an autonomous province, a local selfgovernment unit or the National Bank of Serbia. The tax rate on income from interest on foreign currency savings currently stands at 15%[29]. Given the fact that the income from interest on dinar

[28] Individual Income Tax Law (RS Official Gazette No. 24/01, 80/02, 135/04, 62/06, 65/06, 33/09, 44/09, 18/10).

[29] The tax rate on capital gains on income from interest on foreign currency savings increased in October 2012 from 10% to 15%. Previously, the tax on foreign-currency savings till 26th March 2010 was 20% and has been temporarily suspended in 2009, due to the global

savings do not pay taxes, dinar savings now has more favorable tax treatment in relation to foreign exchange savings[30]. This is supported by the study "*Analysis of profitability of dinar and FX saving*" by the National Bank of Serbia announced for 2010, 2011, and 2013[31]. In the first two studies, the analysis is based on a comparison of profitability of dinar in relation to the foreign currency savings have been deposited after the expiration of a period of one year and three months, while in the study for 2013 analysis based only on a comparison of profitability of dinar in relation to the foreign currency savings upon expiry depositing period of one year. The main conclusions of these studies are following:

- From 2001 to 2010 one-year time savings in dinars were more profitable than savings in FX for a larger number of periods. When comparing one-year time savings in dinars with the same maturity FX savings with a per annum interest of 5.0%, dinar savings are more profitable in 67 out of 108 periods. Three-month time deposits in dinars were more profitable in a larger number of periods than those in FX. At a 5.0% p.a. interest on three-month FX deposits, savings in dinars proved more profitable in 63 periods and savings in FX in 45 periods. At an interest rate of 7.0%, dinar savings continue to be more profitable in 59 periods. The outcome is similar even at a 7.5% interest, in which case savings in dinars are more profitable in 58 and savings in FX in 50 periods.
- For analysis of profitability of dinar and foreign currency savings for 2011 was used the analysis period from January 2001 to October 2011 and a total of 118 observed periods. When comparing one-year time savings in dinars against the same maturity FX savings with a per annum interest of 5.0%, dinar savings turn out to be more profitable in 77 out of 118 periods. Saving in dinars paid off more in a larger number of periods even at 7.0% and 7.5% interest - in 70 periods in case of the former and in 68 periods in case of the latter.

financial crisis,. From 27th March 2010 until October 2012, the tax on capital gains on foreign currency savings amounted to 10%. For the period from 1st January 1999 until the effective date of the Individual Income Tax Law, i.e., by 1st July 2001, the interest on foreign currency savings converted, without the consent of investors in term deposits with authorized banks, which represents the public debt of the state, did not pay taxes on income from capital.

[30] The tax is paid on income from interest on dinar savings by 2005 and amounted 20%.

[31] Studies "Analysis of profitability of dinar and FX saving" can be found at the following web address: *http://www.nbs.rs/internet/english/90/dinarizacija/index.html.*

- For analysis of profitability of dinar and foreign currency savings for 2013 was used the analysis period from January 2001 to October 2013 and a total of 142 observed periods. When comparing one-year savings in dinars against FX savings of the same maturity at a per annum interest of 5.0%, dinar savings turn out to be more profitable in a greater number of sub-periods from 2001 to 2013 (92 periods in dinars and 50 periods in FX). Saving in dinars paid off more in a larger number of periods even at 7.0% interest (85 periods).

In addition to the previously mentioned activities, the Government has worked intensively to create an institutional and regulatory environment that will contribute to improving primary and secondary markets of purely dinar securities, simplifying procedures and reducing the cost of secondary trading of government securities, with the aim of increased indebtedness in local currency in relation to the FX. The Republic of Serbia has started issuing government securities in 2003. At beginning government issues only short-term bills in the period 2003 - 2006, and after a period of stagnation of the market development of dinar government securities started reissuing of government securities since February 2009. In 2012, the Government introduced new dinar instruments such as inflation-indexed bonds and two-year amortization bonds with variable coupon and the five-year dinar bonds[32]. 2013 is characterized by significant changes in the development of the market for government securities, both primary and secondary, as well as the development of financing instruments in the domestic financial market. At that time eighteen and twenty four month bills were replaced by the two-year government bonds. In addition to changing the structure of the instruments, the Republic of Serbia for the first time issued a seven-year government dinar bonds in March 2013. The trend of extending the maturity and growth of the share of local currency government securities in the total portfolio of government securities issued in the domestic market continued in 2014. Thus, on 21st October 2014 for the first time government issued the ten-year dinar bonds. Issuance of ten-year bonds has been one of the strategic goals of development of local currency yield curve of government securities. From the

[32] In 2012, in order to extend the maturity of government securities and increasing the participation of dinar public debt, government continued with the introduction of new long-term instruments in dinars. The five-year dinar bonds with a coupon of 10% was first issued on 24th January 2012. In order to diversify the debt on 1st August 2012. Government issued two years amortization bonds with a coupon linked to the reference interest rate of the National Bank of Serbia.

point of dinarisation, of particular importance is the inclusion of long-term government securities to trading on the Belgrade Stock Exchange since November 2015. In this way, investor base in government securities enlarged, which contributes to the liquidity of the secondary market for government securities, as well as the development of other financial instruments in the capital market. The growth of the domestic market for government securities will be by the Republic of Serbia supported by the following measures[33]:

- In the next period will be considered increase in the volume of emissions benchmarking;
- The inclusion of government securities denominated in local currency in some of the Local Currency Emerging Market Government Bond Index. The inclusion of bonds of the Republic of Serbia in some of the important global indices would increase investors base and accelerate the secondary trading, which would further reduce borrowing costs by issuing government securities;
- In order to create larger investor base and to further developing secondary market of securities issued in the domestic market, in the coming period both the National Bank of Serbia and Government will strive to remove all barriers to the free flow of capital. There is a noticeable trend of increased participation of foreign investors and changes in the investor base and is expected to maintain the current structure of the investors, which could contribute to the development of the secondary market;
- In the forthcoming period will be considered the possibility that the clearing and settlement of transactions with domestic securities is done through international clearing system;
- In the forthcoming period will be considered to introduce a system of primary dealers;
- In order to increase investment by domestic natural persons both the National Bank of Serbia and Government will make additional efforts in the field of education of the population of the Republic of Serbia and consider issuing retail bonds;

[33] Fiscal strategy for 2016 with projection for 2017 and 2018. Available only in Serbian, from: *http://www.mfin.gov.rs/UserFiles/File/dokumenti/2015/Fiskalna%20strategija%20za%202016_%20godinu%20sa%20projekcijama%20za%202017_%20i%202018_%20godinu.pdf.*

- The Ministry of Finance will in future modify auction platform made on the basis of the proposal of investors and in acceptable manner so the both sides were satisfied.

CONCLUSION

To achieve greater efficiency in the implementation of monetary policy it is necessary to reduce the level of euroisation (increase the level of dinarisation) in Serbia. This approach will increase transmission mechanism and main channel will become a channel of interest rates, and not like it is the current case the exchange rate channel. At the same time the reference interest rate will have greater impact, through the rise of local currency lending and funding sources. Also through a currency adjustment between revenue and expenditure, all economic agents will eliminate effect of foreign exchange risk. In order to achieve this it is necessary to continue to encourage dinar savings and strive to extend its maturity in a way to create conditions for the growth of local currency loans. More than 70% of both assets and liabilities in the Serbian banking system are either held in a foreign currency or indexed to it. The high level of euroization in Serbia reflects a history of macroeconomic instability (hence a dearth of local currency deposits), as well as abundant availability of foreign currency funding pre-crisis, and underdeveloped financial markets. All aforementioned measures of the National Bank of Serbia and the Government of Republic of Serbia gave their result in reducing the degree of euroisation. But it also should be noted that the increase in the degree of euroisation process was time consuming and the process of its decresing should be based on the measures that will permanently reduce the level of eurosation on a sustainable basis. In this sence representatives of the National Bank of Serbia and the Government of Republic of Serbia should continue to develop debt market in local currency (further development of the primary and improvement of the secondary market of government securities, broadening the circle of issuers and the investor base of debt securities, and stronger development of dinar debt instruments), solving problem of non-performing loans (identify and remove obstacles to substantially address the issue of the debt, strengthen the incentives for debtors and creditors to participate in substantial restructuring, ensure timely recognition of losses and prevent further accumulation of non-perfoming loans in the Serbian banking system) and further encourage dinar savings (strive to improve the maturity

structures of dinar savings and continue the implementation of a more favorable tax treatment of the dinar in with comparison FX savings).

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