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Fed and ECB with Dollar and Euro as International Currency Reserves: Some Socio-Politico-Economic Considerations

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Abstract: A reserve currency or anchor currency is a currency that is held in significant quantities by many governments, central banks, and institutions as part of their foreign exchange reserves. This permits the issuing country to purchase the commodities at a marginally lower rate than other nations, which must exchange their currencies with each purchase and pay a transaction cost or more units, in case of depreciation of their currencies with respect the dollar. For major currencies, this transaction cost is negligible with respect to the price of the commodity. A currency, in the most specific use of the word, refers to money in any form when in actual use or circulation, as a medium of exchange. This use is synonymous with banknotes or with banknotes plus coins, meaning the physical tokens used for money by a government of a sovereign nation. A definition of intermediate generality is that a currency is a system of money (monetary units) in common use, especially in a nation. Under this definition U.S. dollars and European Euros are different types of currencies. Fed and ECB are very important central banks not only for their economies, but for the rest of the world. Their policies are affecting the lives of 820 million people in U.S. and EU. But their independence from the governments makes their monetary policies less than socially optimal. These two currencies, as stores of value are subject to trading between nations in foreign exchange markets, where international transactions, speculations, and expectations determine the relative values of all the different currencies.

Key words: foreign exchange; international policy coordination; portfolio choice; monetary policy; fiscal policy

JEL codes: F31, F42, G11, E52, E62

1. Introduction

Economists are saying that reserve currencies come and go. "International currencies in the past have included the Chinese Liang and Greek drachma, coined in the fifth century B.C., the silver punch-marked coins of fourth century India, the Roman denarius, the Byzantine solidus and Islamic dinar of the middle-ages, the Venetian ducat of the Renaissance,[1] the seventeenth century Dutch guilder and of course, more recently, sterling

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[1] The Byzantines minted their own version of the Venetian silver ducat, called the basilikon. The *basilikon* (Greek: βασιλικόν [νόμισμα], "imperial [coin]") was introduced shortly before 1304 A.D. by Emperor Andronikos II Palaiologos (r. 1282-1328), in direct imitation of the Venetian silver ducat or grosso, chiefly to pay the mercenaries of the Catalan Company. The Byzantine coin closely followed the iconography of the Venetian model, with a seated Christ on the obverse and the two standing figures of

and the dollar."[2] But, a little less than ten years ago a new currency, like the "common of Athens" or the "common of Euboea"[3] of the old times, appeared in Europe as the "common of Europe", the Euro.

Before 1944, the world reference currency was the pound sterling (£). After World War II, the international financial system was governed by a formal arrangement, the Bretton Woods Agreement. Under this new system the United States dollar ($) was placed deliberately as the anchor of the system, with the U.S. government guaranteeing other central banks that they could sell their U.S. dollar reserves at a fixed rate for gold ($35/1 ounce of gold). European countries and Japan methodically devalued their currencies against the dollar in order to boost exports and development. In the late 1960s and early 1970s the system suffered setbacks due to problems pointed out by the Triffin dilemma,[4] a general problem with any fiat currency under a fixed exchange rate regime, as the dollar was in the Bretton Woods system.

The U.S. dollar is the most widely held currency in the Allocated Reserves today. Throughout the last decade, an average of two thirds (61.2% in 2013) of the total allocated foreign exchange reserves of countries have been in U.S. dollars. For this reason, the U.S. dollar is said to have "reserve-currency status", making it somewhat easier for the United States to run higher trade deficits with greatly postponed economic impact or even postponing a currency crisis. Central bank reserves held in dollar-denominated debt, however, are small compared to private holdings of such debt. In the event that non-United States holders of dollar-denominated assets decided to shift holdings to assets denominated in other currencies, there could be serious consequences for the U.S. economy. Changes of this kind are rare, and typically change takes place gradually over time; the markets involved adjust accordingly. However, the dollar remains until recently the favorite reserve currency because it has stability along with financial assets that it uses to back it up, such as U.S. Treasury securities that have both scale and liquidity and the country is also a superpower. The U.S. dollar dominant position in global reserves is very much challenged currently, because of the growing share of unallocated reserves,[5] and because of the doubt regarding dollar stability in the long term.

Andronikos II and his son and co-emperor Michael IX Palaiologos (r. 1294-1320) replacing St. Mark and the Doge of Venice on the reverse. The similarity was reinforced by the name of the new coin: the *ducato*, the "coin of the doge", became the *basilikon*, the "coin of the basileus", although the contemporary Greek sources usually call both *doukaton*. The *basilikon* was of high-grade silver (0.920), flat and not concave (scyphate = concave or cup-shaped) as other Byzantine coins, weighing 2.2 grams and officially traded at a rate of 1 to 12 with the gold hyperpyron (= νόμισμαὑπέρπυρον) [was a Byzantine coin in use during the late Middle Ages, replacing the solidus as the Byzantine Empire's gold coinage] or two keratia, the traditional rate for Byzantine silver coinage since the days of the hexagram (ἑξάγραμμα, *hexagramma*) [was a large silver coin of the Byzantine Empire issued primarily during the 7th century A.D.] and the miliaresion (= μιλιαρήσιον, from Latin: *miliarensis*), [was a name used for a number of Byzantine silver coins; in its most specific sense, it refers to a type of silver coin struck in the 8th-11th centuries]. The actual rate, however, was usually lower, and fluctuated depending on the changing price of silver: contemporary sources indicate actual rates of 12.5, 13, or 15 *basilika* to the *hyperpyron*. Examples of half-*basilika* are also known to have been minted. In the 1330s and 1340s, however, the *basilikon'*s weight was much reduced, as a result of a silver shortage affecting all of Europe and the Mediterranean, falling to 1.25 grams by the late 1340s. It ceased to be struck in the 1350s, and was replaced circa 1367 with the new, heavier *stavraton*. The *stavraton* or *stauraton* (σταυράτον) was a type of silver coin used during the last century of the Byzantine Empire.

[2] See, Helmut Reisen. "Shifting wealth: Is the US dollar empire falling?", voxeu.org, June 20, 2009.

[3] See, "Euboea", available online at: http://snible.org/coins/hn/euboea.html and "Numismatics", Swiss School of Archeology in Greece, available online at: http://www.unil.ch/esag/page26203.html.

[4] The *Triffin dilemma* (or the *Triffin paradox*) can occur when a national currency also serves as an international reserve currency, in which case a conflict can arise between short-term domestic and long-term international economic objectives. The resulting dilemma is thus to choose between these objectives, and was first identified in the 1960s by Belgian-American economist Robert Triffin, who pointed out that the country whose currency foreign nations wish to hold (the global reserve currency) must be willing to supply the world with an extra supply of its currency to fulfill world demand for this "reserve" currency (foreign exchange reserves) and thus cause a trade deficit. See, Kallianiotis (2013a).

[5] The monetary base from $183.203 billion (February 15, 1984) has reached $3,927.327 billion (April 30, 2014). This is an enormous growth of 2,043.70% in 30 years or 68.12% per annum. The world is over flooded with dollars, available online at: http://research.stlouisfed.org/fred2/graph/?s[1][id]=BASE.

In 1999, European Union introduced its common currency, the euro (€), in electronic form and on January 1, 2002 in bank notes and coins. The euro is currently the second most commonly held reserve currency, comprising approximately a quarter of allocated holdings (24.4% in 2013). After World War II and the rebuilding of the German economy, the German Deutsche mark (DM) gained the status of the second most important reserve currency after the U.S. dollar. When the euro was launched on January 1, 1999, replacing the Mark, French Franc and ten other European currencies, it inherited the status of a major reserve currency from the Mark (euro holdings was 17.9% in 1999). Since then, its contribution to official reserves has risen continually as banks seek to diversify their reserves and trade in the Euro-zone continues to expand until 2009; when the Euro-zone debt crisis struck this artificial market, currency, and union started to decline.

Even the former U.S. Federal Reserve Chairman, Alan Greenspan, said in September 2007 that the euro could replace the U.S. dollar as the world's primary reserve currency. It is "absolutely conceivable that the euro will replace the U.S. dollar as reserve currency, or will be traded as an equally important reserve currency".[6] Econometric analysis by Jeffery Frankel and Menzie Chinn in 2006 suggests the euro may replace the U.S. dollar as the major reserve currency by 2020 if (1) the remaining EU members, including the U.K. and Denmark, adopt the euro by 2020 or (2) the recent depreciation trend of the dollar persists into the future.[7] In recent years, as it was mentioned above, the euro's increase in the share of the worldwide currency reserve basket has continued—albeit at a slower rate than prior to the beginning of the worldwide financial crisis related recession and the European sovereign debt crisis, which adversely impacted the euro and slowed its adoption by other EU member-nations.

Of course, inflation, through this U.S. monetary expansion, could raise aggregate U.S. debt and prices further. With the current enormous money supply and zero interest rate, we reached a liquidity trap and this policy has not so far and might fail to promote growth in the near future. Europe is in trouble; due to lack of liquidity (the ECB's overnight deposit rate was 1%, became 0.75%, then 0.50%, and only recently 0.25%), which leads businesses to bankruptcy. Lending has declined drastically in the U.S. and even more in Europe. But, the problem is lack of demand; and only the aggregate demand, not the budget surplus, creates the aggregate supply (production and employment). The question is now: from where will the expected stimulus come? Troika believes that austerity generates growth (sic). This is the "new age" economic theory that is imposed (forcefully) on nations. Of course, if this U.S. monetary expansion had been used by the economy, we could have experienced hyperinflation in the U.S. Thus, it is safe for the economy, at the moment, because the high risk, the low income, and the high unemployment have made banks reluctant to lend and people unwilling to borrow. The U.S. has experienced high rates of inflation[8] in the past, even though that the number one objective of the Fed is "price stability" ($\pi^e \cong 0$). The dual mandate, it is not "full employment and price stability", but "maximum employment and price stability". In ECB, the mandate is price stability only. The monetary expansion, the last six years, has far exceeded any previous ones[9] and the Fed was buying $85 billion securities per month to "improve" the economy.[10] Then, what

[6] See, "Reuters", *Euro could replace dollar as top currency—Green span*, September 17, 2007.

[7] See, Menzie, Chinn and Jeffery Frankel (2006). "Will the Euro eventually surpass the dollar as leading international reserve currency?" (PDF). *NBER*, January, retrieved 2007-10-11. Also, Aristovnik, Aleksander & Čeč, Tanja, 2010. "Compositional analysis of foreign currency reserves in the 1999-2007 period: The Euro vs. the Dollar as leading reserve currency", *Journal for Economic Forecasting*, Vol. 13, No. 1, pp. 165-181". Institute for Economic Forecasting. 2010-07-19. Retrieved 2010-07-05.

[8] From 1926-2008, the $\overline{\pi} = 3.1\%$ and σ_π =±4.2%. Source: Modified from Stocks, Bills, and Inflation: 2009 Yearbook, annual updates work by Roger G. Ibbotson and Rex A. Sinquefield (Chicago: Morningstar).

[9] The Monetary Base (seasonally adjusted) in billions of dollars was: 2000: $613.869, 2001: $668.020, 2002: $716.722, 2003: $754.871, 2004: $789.177, 2005: $814.831, 2006: $836.193, 2007: $846.212, 2008: $1,690.796, 2009: $1,994.401, 2010: $1,982.737,

follows, when the unemployment will fall, it will be a high inflation. This liquidity and uncertainty in the financial market (Figure 1) has increased the price of gold and silver, even the stock prices; another big bubble in precious metals (Figure 2) and a depreciation of the dollar,[11] as Figures 3, 4, and 5 show.

Furthermore, the depreciation of the dollar, during the last decade, helps partially the U.S., but not the creditors of the country because their return is falling from their U.S. investments (translation exposure) and has become even negative.[12] China has linked its currency to the U.S. dollar, so with any depreciation of the dollar, the yuan is also declining in value and China becomes the major beneficiary by increasing its exports.[13] Thus, the peg of the Chinese yuan to the U.S. dollar prevents the U.S. from altering its trade deficit by currency devaluation, but it helps the U.S. relative to the other countries (i.e., Euro-zone), where their currencies are appreciated.

Unfortunately, lately, spreads on sovereign debt in Euro-zone nations are rising and credit default swaps (CDS) reflect the higher premiums being charged to protect against default. Investors compare risk (σ_D) to reward [$E(R_D)$] and try to maximize the reward to variability (RV) ratio of their bonds' investments ($RV = \frac{[E(R_D) - R_{RF}]}{\sigma_D}$) in regards to debt; when the reward is believed to compensate for the risk (max RV), the bond is bought and the bet is placed. Some countries in Euro-zone were paying 40% interest rate, due to high austerity measures that have increased the probability of bankruptcy, as it happened, lately, with Greece and other Euro-zone countries (PIIGS nations), where their unemployment has become double digits (Figure 6). We hope that this will not take place (will be prevented) in the most heavily indebted U.S.A.

2. The Current Economic Strife: Recommended Target Rates and Budget Deficit

Today, the international financial and monetary system (and the exchange rate) is very different from what it was 40 years ago. It is, now, in the process of evolving into a new stage through globalization, which its first effect became visible globally in August 2007 and continues to threaten our socio-politico-economic structure, tradition, and value system. The one constant innovation of this free-market system was and still is to maximize the market value of the financial assets by avoiding any socially imposed constraints, which is a market subjective objective and very costly for our society (anti-social). Financial institutions play a critical, but very delicate role,

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2011:M07: $2,725.301, 2011:M09: $2,684.784, 2012:M02: $2,753, 2013:M06: $3,245.245, 2013:M09: $3,465.642, and 2014:04: 3,927.327 billion. *Source:* Federal Reserve Bank of St. Louis, available online at: http://research.stlouisfed.org/fred2/data/BASE.txt.

[10] Bernanke said that the Fed could start winding down its bond buying later in 2013 and end it by mid-2014 if the economy improves, as the central bank's officials expect. This announcement caused the DJIA to fall 206.04 points (-1.35%), the 10-year Treasury notes to jump to 2.308%, and the dollar to strengthen. (See, *The Wall Street Journal*, June 20, 2013, pp. A1 and A4). Next day, on June 20, 2013, the DJIA fell 353.87 points (-2.3%) for the same reason. (See, *The Wall Street Journal*, June 21, 2013, pp. A1 and A8).

[11] The price of gold was; 2000:$280.10/1 oz Gold, 2001: $272.22, 2002: $311.33, 2003: $364.80, 2004: $410.52, 2005: $446.00, 2006: $647.10, 2007: $842.80, 2008: $841.70, 2009: 1,084.70, 2010: $1,405.60, 8/22/2011: $1,892.60, 4/25/2012: $1,638.40, 5/15/2013: $1,396.80, 9/9/2013: $1,385.00, and 5/13/2014: $1,296.20 per ounce of gold. (*Bloomberg.com*). The DJIA from 6,547.00 (2009:03) had reached 15,658.36 (8/2/2013); it fell to 14,776.13 (8/27/2013) after the announcement by Obama that the U.S. will bomb Syria. On May 12, 2014, it was 16,695.47 (a new enormous bubble). But the real DJIA is at the same level as it was in 1999. See, *Yahoo, Finance.*

[12] The effective rate of return (R^{*eff}) for a foreign investor investing in the U.S. is: $R^{*eff} = (1+R)(1-fd_{\$})-1$, where R = the nominal rate of return in the U.S. and $fd_{\$}$ = the forward discount (depreciation) of the dollar. For example, a European investing in 2012 (from January 1, 2012 to December 31, 2012), in one year maturity U.S. financial asset, 1-year Treasury Constant Maturity ($R = 0.12\%$) and the dollar depreciated by ($fd_{\$} = 1.6\%$); his effective return was ($R^{*eff} = -0.9328\%$).

[13] U.S. imports rose 1.6% in July 2013 from June on demand for industrial supplies and consumer products. (See, *The Wall Street Journal*, September 5, 2013, pp. A1 and A2.)

since they are themselves value maximizing enterprises, creators of money from "thin air", and innovators of any kind of new instruments (even "toxic" ones). Our economy is ultimately dependent on the viability of its financial institutions and markets, all of which are unregulated, owned by institutional investors (hedge funds, insurance companies, pension funds, etc.), and are not controlled by any regulatory agency or government. Thus, the focus of most of the economic analysis is on financial markets and businesses, which are legal entities, and not on households and people, who are the base (the foundation) and the apex of our society. These market prices (values) have caused serious instability, anxiety, risk, unemployment, loss of wealth, enormous psychological problems, suicides, and destruction of entire nations. Lately, these markets had difficulties satisfying their objectives, which were investments and transferring of capital between savers (suppliers of funds) and investors (demanders of funds) because they ignore the social objective.

This modern capitalism involves the acquisition of expensive assets (real and financial) by borrowing (mortgages, car loans, etc. and buying securities with only 50% cash, margin requirements; the remaining 50% is purchased with call money loans), which is a very risky (for the society) process. The entire economy is based on financial leverage and by paying higher risk premium everyone can borrow money. The interest rate determines who gets credit.[14] Over an extended period of boom, high growth, and enormous liquidity, economies tend to move from a financial structure dominated by hedge financing to a structure with increasing speculative financing. The shift towards speculative positions occurs intentionally and more or less inevitably because of innovations and overoptimistic expectations ("irrational exuberance"). The shift from speculative toward ponzi finance occurs because of lack of regulations, corruption, unethical business practices, immoral way of living, and everything else that led the world, where we are today, to a global chaos.[15]

Conventional wisdom argues that the economy is naturally stable, if people (all participants and institutions) are moral, ethical, and value (fear) the true "invisible had", which leads the economy to equilibrium and humans to perfection. Institutions, without regulations, are contributing to instability because their objective is the narrow and wrong one, the self-interest, which acts against the social interest and at the end against institutions' interest and leads them and entire nations to financial distress, bankruptcy, bail outs, unemployment, recession, the destruction of the social web, and the collapse of democracy. Interventions by government and regulators can thwart the instability of the financial market. Financial innovations through trial and error tried to satisfy the greediness of the institutional market participants. Thus, stability was very limited because they cause inefficiencies and disequilibria in the markets. As the result of these, a financial crisis started and led to asset prices deflation, debtors' repudiation, and interest rates ascension, which was very difficult to stop and generated tremendous losses in financial wealth to the creditors, as well as in real wealth to assets holders (housing), and in the entire economy.

Governments and central banks intervened in these markets and monetary, but less fiscal policies (countercyclical) were used to offset the losses of the private sector. A large government investment and spending (G) could affect the aggregate demand (AD) and reduce the business cycles. Government deficits and debts have

[14] Minsky defines three financial positions: Hedge Finance: Income flows are expected to meet financial obligations in every period. Speculative Finance: The debt must be rolled over because income flows are expected to cover only interest costs. Ponzi Finance: Income flows will never even cover interest cost, so the debtor must continue to borrow more and more or to sell off assets (privatization for nations) simply to service its debt. See, Demitri B. Papadimitriou and L. Randall Wray, "Minsky's analysis of financial capitalism", Working Paper No. 275, *Jerome Levy Economics Institute*, July 1999. This Ponzi Finance is imposed to Greece, today, by the malevolent Troika. See, Kallianiotis (2013b).

[15] See, Eiteman, Stonehill, and Moffett (2010, pp. 106-134), Kallianiotis (2011), and Atkinson, Luttrell, and Rosenblum (2013).

caused problems, especially in Euro-zone, but this crisis was made by the controlled and corrupted European politicians, who can be stopped by European voters in every nation, but it is difficult because they cannot be organized. Countries and economies must be independent and uncorrelated (almost in an autarky state). The large scale of this global financial crisis is due to globalization (high positive correlation among economies and humans' behavior). Central banks have to be independent from the commercial banks and from the financial markets, serving only the welfare of the citizens (then, they must be dependent to democratic governments). So far, nations (simple citizens) have to pay for their leaders' mistakes and they are paying for six years. Social Justice demands justification!

After World War II, England lost its abusive superiority and Germany was ruined with its fallacious decision to impose its will on Europeans militarily.[16] Since the Korean War (June, 25 1950-July 27, 1953) and the cold war[17] until 2007, the U.S.A. was concurrently the biggest economic, military, and monetary power in the world, with its currency, the dollar, to be the number one reserve currency of the world, with which all the basic commodities are priced and with this currency all transactions in the international commodities exchanges take place. The global dominium (dominance) of dollar made the new greater (but completely different from the western economies) economy of the world, China, to peg its currency, the yuan, to the dollar and following a policy, which is a monetary war between the two nations and is increasing daily by taking other forms, too (i.e., cyber war).[18] China has become the most severe competitor of the U.S.[19] and by buying the privatizing SOEs in EU, it will control the European economy, too. Thus, the U.S. depreciated the dollar to improve its trade, but the pegged yuan reduced U.S. competitiveness and made China very competitive because of the low cost of production and the undervalued yuan. But, the U.S. and EU are very happy because their system, free trade and market oriented economy are applied (*sic*). Now, a new free trade agreement is in process between the EU and the U.S.A.[20] and a new cold war against their common "enemy", Russia.

The U.S. was impelling the depreciation of the dollar towards the other non-pegged with the dollar currencies and this can be seen by looking at its value with respect the gold (Figure 3).[21] With this decline of the value of the dollar, the U.S. increases its competitiveness and decreases the competitiveness of the Euro-zone (Figure 4) and of the other developed countries. The Euro-zone countries blame the U.S. for this dollar's depreciation. With more than 80% depreciation of the dollar,[22] the U.S. has become more competitive during the decade of 2000s, where the European nations, due to the common currency have lost completely their competitiveness. The economies of the Euro-zone peripheral nations (Figure 6) have no future except if these nations leave the euro and go back to

[16] Now, it imposes its will financially and economically without any war or resistance from the other Euro-zone nations. This is an indication of the downfall of Europeans and especially of France as a big, but carrying all the socialist obsessions, nation.

[17] The cold war continues even today. See, "Germany Asks U.S. to Explain Alleged Surveillance of Europeans", *Bllomber.com*, July 1, 2013. http://www.bloomberg.com/news/2013-07-01/germany-asks-u-s-to-explain-alleged-surveillance-of-europeans.html. The most of the spying was towards the ECB and other EU institutions. But, European officials said they would start trade talks with the U.S., despite concerns of U.S. spying on European institutions. See, *The Wall Street Journal*, July 5, 2013, pp. A1 and A5. Another proof of the continuation of the cold war is the recent crisis in Ukraine.

[18] See, "With troops and techies, U.S. prepares for cyber warfare", *Reuters*, June 7, 2013, available online at: http://www.reuters.com/article/2013/06/07/us-usa-cyberwar-idUSBRE95608D20130607.

[19] In 2011, their economic growth and the growth in their stock markets were: In U.S. (1.8% and -0.9%) and in China (9.0% and -22.2%) (*The Wall Street Journal*, December 5, 2011, p. C5).

[20] See, http://europa.eu/rapid/press-release_MEMO-13-576_en.htm and http://www.dw.de/opinion-not-everyone-wins-with-eu-us-free-trade/a-16892973.

[21] The U.S. dollar from $35/1 oz of gold in 1971 had reached (September 9, 2011) $1,896.50/1 oz of gold. A depreciation of 5,318.57% in 40 years or 132.96% per annum. (*Bloomber.com*).

[22] The U.S. was 0.8500 $/€ (2001:06) and reached (April 22, 2008) the value of 1.6001 $/€; a depreciation of the dollar by 88.25%.

their national currencies. But, China by pegging the yuan with the dollar, enjoys the same benefits as the U.S. plus some extras, due to the enormous low cost of production.[23] Then, these two countries are technically making discounts to their own products and overvaluing the ones of the other nations. These are the famous "beggar-thy-neighbour" policies of the old mercantilism (modern globalization).[24]

The rest of the nations can sell their currencies and buy dollars and yuans in the foreign exchange market to increase their values (due to an artificial excess demand), but this is impossible (and costly, high transaction cost), because of the size of these two large economies. Then, the only means to improve their trade is through tariffs and import taxes, and other quantitative and qualitative restrictions.[25] The euro caused serious problems to the countries, which were forced to accept it and abandon their domestic national currencies. These countries with high debts and deficits became less and less competitive. Before, they were surviving by devaluating their currencies. Now, with the euro, the countries of the Euro-area lost their contingency to control their monetary, fiscal, and consequently their trade policies. By losing your public policies, as a nation, you lose your national sovereignty. This new monetary conditions brought the countries-members (except Germany)[26] to a very disadvantageous position. Greece, Portugal, Spain, Ireland, Italy, Cyprus, and Slovakia, so far, were destroyed with the overvaluation of the euro[27] and the austerities from Troika. The Euro became the most expensive currency globally. Europeans cannot compete with the adoption of euro; they can acquire their former public policies only if they would go back to their previous national currencies (at an initial exchange rate of 1 unit of their domestic currency per euro; i.e., 1 Dr/€).

The paradox is the appreciation of the euro with respect to the U.S. dollar, at the time that the European economies are in deep recession. The Euro-zone debt and recession crises continue and many economists are creating scenaria of dissolution of the Euro-zone;[28] but, there are powers that do not allow this to happen. Their objective is the global integration and not the division (disintegration) of EU. The ex-president of France, Valery Giscard d'Estaing, said that Greece must examine the possibility of her exit from the euro for the citizens to avoid the pain of the austerities.[29] If Greece had remained with her drachma, by now, it would have depreciated by

[23] In China, 1.34 billion people are working like ants and keep the wages to the lowest level compared with the other nations, especially the U.S. and the EU. The average per capita income in China was $6,076, in the U.S. was $49,922, and in EU was $32,518 for the year 2012 (Source, *IMF*). See, http://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal)_per_capita. This is an indication of the labor cost in these three economies. In U.S. the cost is 8.22 times the Chinese cost (income) and in EU, it is 5.35 times the Chinese cost. Then, there is no way the west to compete with China, except to protect its economies (production) and its citizens (employment) from the unfair Chinese competition.

[24] See, Kallianiotis, 2013a.

[25] These can be trade barriers, which are government-induced restrictions on international trade. The barriers can take many forms, including the following: Tariffs, Non-tariff barriers to trade, Import licenses, Export licenses, Import quotas, Subsidies, Voluntary Export Restraints, Local content requirements, Embargo, Currency devaluation. Most trade barriers work on the same principle: the imposition of some sort of cost on trade that raises the price of the traded products. If two or more nations repeatedly use trade barriers against each other, then a trade war results. But, the ultimate objective of a nation must be the maximization of the social welfare of its citizens and not to contribute to the global welfare by increasing the world trade. These are theories (intellectual exercises) for introductory international trade courses with unrealistic and heroic assumptions.

[26] The DM was appreciated much more compared to the euro with respect to the U.S. dollar. Then, Germany is better off with the euro instead of its own currency, the DM.

[27] Lately, we saw problems in the Netherlands, too. See, *The Wall Street Journal*, April 25, 2012, pp. A1 and A8. Also, poverty and suicides are increasing daily in France, U.K., and all over Europe. See, http://poultonblog.dailymail.co.uk/2012/03/people-are-choosing-suicide-to-escape-poverty-is-this-the-states-final-solution.html.

[28] The Japanese bank Nomura said that some Euro-zone nations will go back to their previous national currencies, which will depreciate drastically, due to their lack of competitiveness, wrong valuations, and inflationary shocks. The Greek drachma must be depreciated by 57.6%, the Portuguese escudo by 47.2%, the Spanish peseta by 35.5%, the Irish pound by 28.6%, and the Italian lira by 27.3%. See, *dailynews24.gr*, December 7, 2011.

[29] See also a variety of articles by I. N. Kallianiotis on these issues:

40-50%.[30] Euro had appreciated with respect the U.S. dollar[31] by 88.24% and the poor Europeans have to reduce their cost of production (internal devaluation) by 88%, which had enormous social (impetuous poverty) and political (parliamentary dictatorship) cost. The adoption of the euro by the peripheral countries of EU (Figure 6) was a tremendous socio-economic mistake and the responsible (who signed the memoranda) politicians must be voted down for the prevalence of social justice. Bonitsis (2011) examined the stylized path of the competitiveness of the PIIGS[32] nations and France's and Germany's by using the Harmonized Competitiveness Indicator (HCI). He showed that Germany and France were at a competitive disadvantage and Portugal, Italy, Ireland, Greece, and Spain at a competitive advantage until 2000 and then, with the introduction of the euro, Germany became the dominant competitive country, followed by France. The PIIGS lost their competitiveness and now have to follow in the middle of a recession all these anti-growth fiscal austerity measures imposed by the Troika. British Prime Minister, David Cameron, decided to veto EU (Lisbon) Treaty changes on its summit in Brussels on December 11, 2011. During the G-8 summit in the "occupied" Northern Ireland (June 17-18, 2013), the discussion was about a broader trade agreement between U.S. and EU.[33] Also, Sweden, Czech Republic, and Hungary decided to bring

(1) "Greece's Interdependence with the European Union and her Loss to Society Function", *Journal of European Research Studies*, Volume XIII, Issue 4, 2010, pp. 57-84.
(2) "Greece must Leave Euro for its People", *Politico.com*, February 13, 2012, available online at: http://www.politico.com/news/stories/0212/72812.html.
(3) "Greece Should Leave the Euro-zone", *The Washington Times*, February 21, 2012, available online at: http://www. washingtontimes. com/news/2012/feb/21/greece-should-leave-the-eurozone/.
(4) "If Greece stays in the Euro-zone, It has no future", *U.S. News & World Report*, Debate Club, May 16, 2012, pp. 1-2, available online at: http://www.usnews.com/debate-club/should-greece-leave-the-eurozone/if-greece-stays-in-the-eurozone-it-has-no-future.
(5) "Global financial crisis and Euro-zone's debt problems: The case of Greece", *International Journal of Applied Business and Economic Research*, Vol. 10, No. 1, June 2012, pp. 131-162.
(6) "The Return of the Drachma", *Politico.com*, June 25, 2012, available online at: http://www.politico.com/news/stories/0612/77810.html.

[30] See, *Hellas on the Web*, December 7, 2011.

[31] The exchange rate between dollar and euro was, in October 2000, S = 0.8500 $/€ and reached in April 2008, S = 1.6001 $/€; an appreciation 88.24%. On September 9, 2013, where the Euro-zone was under dissolution, it is 1.3265 $/€ (56.06% appreciation). Today (5/13/2014), it is 1.3724 $/€. Then, the markets might know something for the U.S. economy that the rating firms, the politicians, the central bankers, and the economists do not know or they do not want to reveal.

[32] Euro became the modern Circe that turned theses European nations from dignified sovereign nations to pigs. In Greek mythology, *Circe* (Κίρκη*Kírkē* pronounced [kirkee]) is a minor goddess of magic (or sometimes a nymph, witch, enchantress or sorceress). Having murdered her husband, the prince of Colchis, she was expelled by her subjects and placed by her father on the solitary island of Aeaea (Αι΄αι΄α). In Homer's Odyssey, Circe is described as living in a mansion that stands in the middle of a clearing in a dense wood. She invited Odysseus' crew to a feast of familiar food, a pottage of cheese and meal, sweetened with honey and laced with wine, but also laced with one of her magical potions, and she turned them all into swine (pigs) with a wand after they gorged themselves on it. Only Eurylochus (Ευ΄ρυ΄λοχος), suspecting treachery from the outset; he escaped to warn Odysseus and the others who had stayed behind at the ships. Odysseus set out to rescue his men, but was intercepted by the messenger god, Hermes, who had been sent by Athena. Hermes told Odysseus to use the holy herb moly to protect himself from Circe's potion and, having resisted it, to draw his sword and act as if he were to attack Circe. Unfortunately, there is no more Odysseus even in the Greek governments anymore and Euro-zone member nations were deceived and are trapped for ever; recently they were transformed to pigs, too.

[33] The 39th G-8 summit was held on June 17-18, 2013 at the Lough Erne Resort, a five-star hotel and golf resort on the shore of Lough Emein County Fermanagh, Northern Ireland (with Cameron as the host). It was the sixth G-8 summit to be held in the U.K. (sic). The earlier G-8 summits hosted by the United Kingdom were held at London (1977, 1984, 1991), Birmingham (1998) and Gleneagles (2005). The official theme of the summit was tax evasion and transparency. However, the Syrian "civil" war dominated the discussions. A seven-point plan on Syria was agreed to after much debate between the seven European leaders and Barack Obama and the "enemy" of the west, Vladimir Putin. These leaders live still within the illusion of the "cold war". Other agreements included a way to automate the sharing of tax information, new rules for mining companies, and a pledge to end payments for kidnap victim releases. The United States and the European Union agreed to begin talks towards a broad trade agreement. See, "Obama and Putin Go Head-to-Head Over Syria at G-8 Meeting", *The Wall Street Journal*, June 18-2013, pp. A1 and A12 and June 19, 2013, pp. A1 and A8. But, at the G-20 meeting in Saint Petersburg, Russia, on September 5, 2013, Obama and Putin disagreed on the decision of the U.S. to bomb Syria without evidence that Assad has chemical weapons. Also, the global economy's recovery is "too weak" and may worsen with the war in Syria, G-20 leaders said. See, http://www.dailymail.co.uk/news/article-2412063/America-Russia-secret-

this issue to their parliaments for ratifications.[34] Thus, economic fundamentals do not play a major role in the value of the currencies, today.

Further, Amstad and Martin (2011, p. 6, Chart 4) show that the central banks (Fed, ECB, Bank of England, and Swiss National Bank) assets were very closed until 2008 (before the financial crisis) and then, there is a tremendous increase of the assets of the three central banks, but not of the ECB to provide the liquidity (reserves) and help the Euro-zone economies facing the recession.[35] The ECB's increase of reserves supplying to the financial institutions was very small, which might has caused the continuation of the overvaluation of the euro (depreciation of the dollar) at the time that the debt crisis is keeping Euro-zone to a deep recession. Why is this happening? Who is dictating this anti-European policy? The common currency and the common monetary policy in Euro-zone have caused serious problems in the member-nations because they have different inflation rates, different interest rates, different indebtedness, and their economic growth and unemployment rates vary significantly, as well as their competitiveness in trade and foreign investments. Nechio (2011) says that the target rate of the ECB does not fill all the Euro-zone members. The Taylor rule suggests lower target rates for the peripheral countries (like, Greece, Spain, Portugal, Ireland, Cyprus, Belgium, Slovakia, Italy, and even France) that have been caught in the sovereign debt crisis. The current monetary rule is in line with Taylor rule recommendation in the core group (mostly in Germany, Austria, Finland, Estonia, Luxembourg, and Netherlands). This is another disadvantage of the common monetary policy for distinctive and different nations. The problem of the U.S. economy is the high unemployment, which cannot be improved with monetary policy (zero interest rate), but it requires some fiscal policy ("large program of public works spending").[36]

Fiscal policy is also necessary for improving the economy. In periods of recession, an expansionary fiscal policy (low taxes and high government spending) will stimulate growth, production, and employment.[37] Then, more budget deficit is acceptable. The opposite policy is needed during periods of boom (overheating economy), a contractionary fiscal policy (high taxes and low government spending) will reduce aggregate demand, prices, and

Syria-talks-Moscow-warns-nuclear-catastrophe.html and *The Wall Street Journal*, September 7-8, 2013, pp. A1 and A7.

[34] See also, David Cameron addressed MPs on the reasons behind his EU veto, Deputy PM Nick Clegg says the decision was "bad for Britain", and Labour say Mr. Cameron mishandled the negotiations and has left Britain isolated, available online at: http://www.bbc.co.uk/news/uk-politics-16136672.

[35] The paradox is that the governors in many central banks around the world are coming from MIT and were students of Stanley Fischer. They are: (1) Stanley Fischer (governor Bank of Israel), (2) Ben S. Bernanke(governor U.S. Fed), (3) Mario Draghi (governor ECB), (4) Mervyn King (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 (governor Bank of Cyprus), (7) Duwuri Subbarao (governor Reserve Bank of India), (8) Jose De Gregorio (Central Bank of Chile), (9) Charles Bean (King's deputy in Bank of England), and (10) Oliver Blanchard (IMF). Stanley Fischer was from January 1988 to August 1990 Vice President, Development Economics and Chief Economist at the World Bank. He then became the First Deputy Managing Director of the International Monetary Fund (IMF), from September 1994 until the end of August 2001. By the end of 2001, Fischer had joined the influential Washington-based financial advisory body, the Group of Thirty. After leaving the IMF, he served as Vice Chairman of Citigroup, President of Citigroup International, and Head of the Public Sector Client Group. Fischer worked at Citigroup from February, 2002 to April, 2005. He became Governor of the Bank of Israel on May 1, 2005, replacing David Klein, who ended his term on January 16, 2005. Fischer became an Israeli citizen, the aforementioned action being a prerequisite to this appointment. He has been involved in the past with the Bank of Israel, having served as an American government adviser to Israel's economic stabilization program in 1985. On May 2, 2010, Fischer was sworn in for a second term. Under his management, in 2010, The Bank of Israel was ranked first among central banks for its efficient functioning, according to IMD's World Competitiveness Yearbook. Available online at: http://www.bloomberg.com/news/2012-01-12/rescuing-europe-from-debt-crisis-begins-with-men-of-mit-as-matter-of-trust.html.

[36] See, Krugman (2012).

[37] Exactly the opposite of what the Troika is imposing on Euro-zone member-nations. Then, it is obvious by now that Troika has specific hidden objective and not the improvement of the state of the economy in these poor and without leadership European nations.

lower the inflation for the country and decrease the budget deficit (even can create a budget surplus).[38] Thus, every country will have its own budget deficit depending on the state of the economy that prevail in the specific nation.

We are making the following three hypotheses, here that will be tested empirically, too.

Hypothesis 1: Common monetary policy (the same overnight rate) cannot apply to eighteen (18) different economies in the Euro-zone.

Hypothesis 2: There is an optimal (at least acceptable) budget deficit for each country depending on the state of the economy of the specific country (current inflation and unemployment in the country).

Hypothesis 3: Fed's policy is not effective; consequently, by itself, it is not sufficient and optimal public policy (fiscal policy is needed, too). A policy mix is necessary.

According to Taylor's original version of the rule,[39] the nominal interest rate should respond to divergences of actual inflation rates from *target* inflation rates and of actual Gross Domestic Product (GDP) from *potential* GDP:

$$i_t = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) + \alpha_y(y_t - \bar{y}_t) \quad (1)$$

where, i_t is the target short-term nominal interest rate (e.g., the federal funds rate in the U.S. or the ECB key interest rate, OND), π_t is the rate of inflation as measured by the GDP deflator, π_t^* is the desired rate of inflation, r_t^* is the assumed equilibrium real interest rate, y_t is the logarithm of real GDP or the unemployment rate (u_t), and $\bar{y}_t$ is the logarithm of potential output, as determined by a linear trend or the natural level of unemployment (u_t^N).

In this equation, both a_π and a_y should be positive (as a rough rule of thumb, Taylor's 1993 paper proposed setting $a_\pi = a_y = 0.5$). That is, the rule "recommends" a relatively high interest rate (a "tight" monetary policy) when inflation is above its target or when output is above its full-employment level, in order to reduce inflationary pressure. It recommends a relatively low interest rate ("easy" monetary policy) in the opposite situation, to stimulate output. Sometimes monetary policy goals may conflict, as in the case of stagflation, when inflation is above its target while output is below full employment. In such a situation, a Taylor rule specifies the relative weights given to reducing inflation versus increasing output. A simple version of the Taylor rule is the following:

$$i_{OND_t}^{ECB} = 1 + 1.5\pi_t - 1(u_t - u_t^N) \quad (2)$$

where, $i_{OND_t}^{ECB}$ is the overnight deposit rate of the ECB or the federal funds rate for the U.S. ($i_{FF_t}^{Fed}$).

According to Equation (2), the target rates for the ECB is high (except for Germany that it is low) and the Fed's target rate is too low for the American economy.[40] The ECB key interest rate was 1.25% during the two years of 2010 and 2011 and on December 8, 2011, it was cut to 1%. Then, on July 3, 2012, it was reduced to 0.75%, on May 2, 2013 to 0.5%, and on November 13, 2013 to 0.25%. These results (with November 2011) show that this common policy rule in Euro-zone was only in favor of Germany; for the other countries the overnight

[38] A healthy and democratic nation during periods of recessions accumulates deficits and debts and during periods of growth and expansion, reduces the deficits and generates surpluses waiting for the next business cycle. All the rest are alchemy of the Troika and its controlled leadership.

[39] There are many other interesting models trying to determine the optimal interest rate rule, available online at: http://www.nber.org/papers/w15986.pdf?new_window=1.

[40] The target rates with November 2011 data must have been:
(1) In Euro-zone: 0.2% = 1+1.5(3%)-1(10.3%-5%), but it was 1.25% (high)
(2) In Germany: 1.7% = 1+1.5(2.4%)-1(6.9%-4%), but it was 1.25% (low)
(3) In Greece: -7.75% = 1+1.5(3.1%)-1(18.4%-5%), but it was 1.25% (very high)
(4) In Spain: -11.15% = 1+1.5(2.9%)-1(21.5%-5%), but it was 1.25% (very high)
And (5) in U.S.: 1.65% = 1+1.5(3.5%)-1(8.6%-4%), but it was 0.25% (very low).

rate was very high (ineffective policy tool). The U.S. federal funds rate is 0.25% since December 2008, which is very low according to Taylor's rule. Tables 1 and 2 show the target rates in Euro-zone nations at the end of 2012 and in April 2013. Then, hypothesis 1 cannot be rejected (common policy is not applicable).

When the gap between the actual output and the potential is high, the government has to stimulate the economy with an expansionary fiscal policy ($T \downarrow and\ G \uparrow$); then, the budget deficit ($BD = T - G$) will increase.

$$y_t - y_t^N = \beta(t_t - g_t) = \beta(bd_t) \tag{3}$$

where, y_t = the ln of the real GDP, y_t^N = the ln of the potential GDP, t_t = the ln of the tax revenue, g_t = the ln of the government spending, bd_t = the ln of the budget deficit, and β = a coefficient.

Substituting unemployment for real GDP, Equation (3) can be also written as follows:

$$u_t - u_t^N = -\gamma(bd_t) \tag{4}$$

where, u_t = the unemployment rate, u_t^N = the natural level of unemployment, and γ = a coefficient.

By taking, now, a similar to Taylor's rule for fiscal policy, we can write the budget deficit as a percentage of the GDP in the following form:

$$bd_t = \pi_t + r_t^* - \gamma_\pi(\pi_t - \pi_t^*) + \gamma_u(u_t - u_t^N) \tag{5}$$

where, bd_t = budget deficit as a percentage of the GDP, π_t = the rate of inflation, r_t^* = the assumed equilibrium real rate of interest, π_t^* = the desired inflation rate, u_t = the unemployment rate, u_t^N = the natural level of unemployment, and γ_s = coefficients.

By taking, π_t^* = 0%, u_t^N = 4% (the socially correct number, here, should be zero), r_t^* = 1%, γ_π = 0.72, and γ_u = 0.75, we receive a simple version of Equation (5), which is:

$$bd_t = 1 - 0.72\pi_t + 0.75(u_t - u_t^N) \tag{6}$$

Now, by using data from the end of 2012 and with April of 2013, we evaluate the public policies in EU and the U.S.; these results are shown in Tables 1 and 2. There is no country that the overnight rate is optimal. The 0.75% ECB rate was high as it was the previous 0.50% and cannot improve (stimulate) the economies of Belgium, Cyprus, France, Greece, Ireland, Italy, Portugal, Slovakia, Slovenia, Spain, and Euro-zone on the average (Table 2). But, there are countries that the policy rate is too small and they are Austria, Estonia, Finland, Germany, Luxembourg, Malta, and Netherlands. The 0.25% Fed rate is also too high for the U.S. economy with a 7.5% unemployment rate (and u = 7.6% in March 2013). Hypotheses 1 and 3 cannot be rejected. Then, countries need a mixed policy; a monetary and a fiscal one to correct the high unemployment. Of course, a common policy in Europe does not work for any country, there.

Lastly, we use Equation (6) to measure the recommended budget deficit for the countries based on their inflation rate and unemployment rate. The results are shown in Tables 1 and 2. Due to their recessions, the following countries "needed" more deficits in 2012 (expansionary fiscal policy): Italy, Spain, Sweden, Greece, Portugal, Slovakia, Bulgaria, Lithuania, Latvia, and Estonia. For April 2013, the results appear in Table 2 and countries like, Greece, Portugal, and Spain need enormous reductions in taxes and increases in government spending. Also, expansionary fiscal policy is needed for Belgium, Cyprus, Finland, France, Ireland, Italy, Luxembourg, Malta, Netherlands, Slovakia, Slovenia, even Germany and also for the average Euro-zone nation. The austerities and reductions in budget deficits is non-optimal common policy for EU member-nations. Hypothesis 2 cannot be rejected, too. Even the U.S. needs an expansionary fiscal policy.

In addition, Figure 6 plots the EU countries and the U.S. according to their unemployment and inflation rates. The peripheral countries are with high unemployment, like Spain, Greece, Portugal, Latvia, Ireland, Slovakia,

Lithuania, Bulgaria, and Cyprus. Countries with high inflation are: Hungary, Estonia, Slovakia, Poland, Czech Rep, Romania, Italy, Finland, Lithuania, Malta, and Cyprus. Figure 7 shows the recommended optimal interest rates and budget deficits for the countries. The target rates and the budget deficits are not optimal except in Slovenia and in Poland.

3. Socio-Politico-Economic Considerations of the U.S. Dollar as the World's Reserve Currency

The U.S. has been able to get away with massive debts and unsustainable deficits for one simple reason, but this artificial state of the economy cannot continue forever. The reason is that the U.S. dollar is still the world's reserve currency, as it has been effectively since World War II and literally since the early 1970s. This does not hold for the member-nations of the Euro-zone; their debt must be minimum (zero, during periods of growth), there. All governments and banks in the world accept and hold U.S. dollars as the comfortable majority of their reserves; thus, the U.S. is able to simply print more money (a liability of the central bank backed by U.S. government debt),[41] whenever it cannot afford to pay for things that it needs.[42] Besides this, the country can borrow money in its own currency at incredibly low interest rates that have been approached closed to zero, in nominal terms.[43] This benefits the American citizens, since the national government is able to provide numerous social services (if Republicans allow them) that most other EU countries simply cannot afford (but, they used to offer more than the U.S. before the financial crisis of 2007). Mostly, the real rate of return for depositors has become negative (they pay the bank for accepting their deposits). With the U.S. dollar as the reserve currency of the planet, oil and all commodities are all priced in dollars. This causes oil and the byproduct of gasoline to be incredibly cheap to Americans.[44] The United States has become the wealthiest country in the world as a result of the dollar as reserve currency. Imports can all be paid for in dollars. This is only true in the United States. Other countries have to first change their currency into dollars to settle their balance of payments on imports and exports. With oil and other commodities cheaply priced in U.S. dollars, you see an enormous range of inexpensive goods available. Food items and other items that use oil and gas as input are extremely cheap. This makes restaurants and similar outings affordable in America. The level of nominal wealth and all these excesses (of course, they follow a business cycle) seen in the U.S. are simply unprecedented, and most of these result from the benefits of the dollar as universal reserve currency and its enormous supply.

Until the early 1970s, the U.S. was the world's largest creditor. This meant that the country loaned out more money to other countries than any other nation on earth. By the 1980s the country had begun to reverse this trend,

[41] Which makes: ($liability \; x \; liability = liability^2$). This is exactly what the money is today.

[42] The Monetary Base (MB) was $875 billion in 2008 and reached $2,725 billion in 2011. On September 4, 2013, it was $3,465.642 billion and today (5/13/2014), it is $3,927.327 billion; a growth of 348.837% (63.42% per annum), available online at: http://research.stlouisfed.org/fred2/series/BASE.

[43] Treasury Bills rates were: i_{3M} = 0.080% and i_{6M} = 0.130% (April 25, 2012). In December 2011, the rate was 0.000%. (*Economagic.com*). On September 6, 2013, it was i_{3M} = 0.030%and i_{6M} = 0.055%. (*The Wall Street Journal*, September 9, 2013, p. C6). Now (5/12/204), it is i_{3M} = 0.025% and i_{6M} = 0.050%. (*The Wall Street Journal*, May 13, 2014, p. C7).

[44] Just compare how much other members of the richest nations, whose currencies are not the reserve currency pay for their gasoline. While the U.S. average price of gas was coming in at $2.72 per gallon, in Germany it was $6.82 per gallon, in Great Britain it was $6.60 a gallon, in Italy it was $6.40 every gallon, in France it was $6.04 a gallon, and in Japan it was $5.40 for every gallon (data are from January 2011). In April 2012, the price of gas has reached in the U.S. the $4.25 per gallon (a 56% increase in one year). In September 2013, the price of gas was about $3.80 per gallon (oil price $110.53 per barrel). Now (5/13/2014), it is $4.25 per gallon (oil price $101.09 per barrel).

becoming a debtor nation (with an unsustainable debt, as the time is passing). It only took another decade to the 1990s to see the U.S. evolve into the world's largest debtor. The transformation has been dramatic, as the amount of debt that the country has taken on in the wake of the financial crisis and economic collapse, is closed to seventeen and a half trillion dollars (109.62% of the GDP).[45] The only reason that this has been possible is because other countries continuously loan America money at impossibly low interest rates. This is not the only way that the country "abuses" the status of owning the reserve currency. The United States also has printed money electronically since 2007 in increasingly larger amounts. The shocking truth is that America has about quadrupled the amount of dollars ($MB = C + R$)[46] in existence in the world in only five years. So far, other countries, in the grips of the devastating financial crisis, have grudgingly accepted this practice, although they have complained loudly over it. There is a high probability that they will no longer tolerate this unfair advantage, especially in the future and the U.S. cannot continue this disequilibrium in its domestic economy.

The soft dollar policy has improved a little manufacturing competitiveness, has attracted more foreign tourists, and has saved employment to become double digits, as it is in Europe (60% unemployment in some regions). But this oversupply of dollars has increased salaries and wages (cost of production) and American firms moved to India and China (have become foreign firms because their work force and investors are foreigners). Also, the depreciation of the dollar reduced the capital inflows, which will increase the cost of capital and affect negatively the housing market (falling house prices). China and Japan do not want their currencies to appreciate; for this reason, they expanded their dollars reserves (to appreciate the dollar, due to this artificial excess demand for dollars) by selling their own currencies (to depreciate them) and with their actions they fund the U.S. deficits. Actually, there is a global "trade war" by a "beggar-thy-neighbor" policy[47] among almost all nations (except the poor Euro-zone member-nations). Countries to keep their exports competitive are increasingly intervening in the foreign exchange market.

In 2011, the U.S. Treasury Secretary, Timothy Geithner, warned Congress that they had to increase the debt ceiling;[48] otherwise the U.S. government could default, which would have catastrophic global economic consequences. Many foreign creditors, especially China (the world's largest creditor)[49] are increasingly worried for the U.S. (the world's largest debtor) because it may not be able to meet its obligations. Unfortunately, the U.S. has become increasingly dependent on China to raise money to cover its every-day spending (including its bailout programs) because its aggregate spending exceeds its national product (AD > GDP). Thus, instead of borrowing, it will be better for the U.S., to start producing and reduce its imports and unemployment. The current policy (domestic and foreign) does not lead the country anywhere. The same holds for the EU countries; they must be

[45] Thus, the U.S. does not satisfy the Maastricht criteria (national debt 60% of the GDP) and at the moment cannot join the Euro-zone.

[46] Where, MB = monetary base, C = currency in circulation outside Federal Reserve Banks and the U.S. Treasury, and R = reserves (deposits) of depository financial institutions at Federal Reserve Banks.

[47] A beggar-thy-neighbor policy is an economic policy through which one country attempts to remedy its economic problems by means that tend to worsen the economic problems of other countries. The term was originally devised to characterize policies of trying to cure domestic depression and high unemployment by shifting effective demand away from imports onto domestically produced goods, either through tariffs and quotas on imports, or by competitive devaluation. The policy can be associated with mercantilism. "Beggar thy neighbor" strategies of this kind do not apply only to countries: overgrazing provides another example, where the pursuit by individuals or groups of their own interests leads to problems. This dynamic has been called the "tragedy of the commons", though it appears as early as the works of Plato and Aristotle.

[48] See, "Debt ceiling increase allowed by Senate", available online at: http://www.politico.com/news/stories/0112/72027.html.

[49] On March 24, 2009 and on June 26, 2009, the People's Bank of China (central bank) called for the creation of a new international reserve currency ("a super-sovereign reserve currency") to replace the dollar, which was devaluated and was reducing the value of the Chinese investments in U.S.-denominated assets. See, Sharma (2011).

self-sufficient (in autarky).

Lately, China encourages importers and exporters to place their orders with approved Chinese companies and settle payments in renminbi yuan. Hong Kong banks are allowed to issue yuan-denominated bonds, a step towards building an offshore yuan market and foreign banks are allowed to buy or borrow yuan from mainland lenders to finance such trade. Also, China struck a deal with Britain's central bank to give the two countries greater ability to swap currencies [a three-year swap line with a maximum value of 200 billion yuan ($32.6 billion)]; another major step toward giving to yuan a global presence.[50] Of course, to prevent appreciation of the yuan and avoid loss of export competitiveness, the People's Bank has been forced to aggressively buy dollar and sell yuans ("currency wars"). But, the dollar is still the international currency reserve; it is used for international trade, in pricing globally traded commodities (i.e., oil, grain, coffee, etc.), and foreign banks hold portfolia of dollar assets and liabilities. These Chinese actions cannot appreciate the dollar because the Fed continues to supply more dollars.[51]

Now, that the U.S. interest rate is closed to zero, foreigners are still investing in U.S. Treasury securities, which means that the U.S. government is the safest place in the world; especially, after the debt crisis in Europe. On the contrary, Europe has become the risker continent on earth. The U.S. has been accused by foreigners that it artificially depresses the dollar exchange rate by printing money ("quantitative easing") to increase exports. When a currency is depreciated the other currency is appreciated, which is similar to the old "beggar-thy-neighbor" policy, but the U.S. has a remarkable answer; "we have to stimulate our economy and get off from the recession", which is reasonable, but not very effective. Imports are increasing and the growth[52] was so insignificant (2.5% in 2013:Q2) that kept unemployment over 7.3%. In 2013, the growth was 2.63% and in 2014:Q1, it was only 0.11% and the unemployment 6.7%. The exchange rates do not reflect market fundamentals any more, but currency games and speculations.[53]

Of course, a number of things could happen to cause the country to lose its status of reserve currency. The oil producing cartel (OPEC) might finally make good on its threat to stop pricing oil in dollars, as it happened with Iran. Enough countries might decide to stop treating the dollar as reserve currency that it finally ceases to be the one. Another thing that could trigger this devastating event is that the U.S. might not be able to service the interest on its enormous debt (Ponzi finance), as some Euro-zone nations are facing, today. This is a possibility that we see getting closer by the day, as the country is rapidly closing in on that time, when interest rate would be increased. There will be dramatic consequences in the U.S. that we can hardly imagine if the dollar finally ceases to be the reserve currency of the world. Should the dollar be dropped as reserve currency, then the value of the dollar will plummet. The immediate painful effects will be that commodities' prices skyrocket in the U.S. International traded goods would no longer be priced in U.S. dollars, and we would see the falling value of the dollar will buy fewer and fewer commodities. Gasoline priced at five to ten dollars a gallon is not only possible, but highly likely. Along with higher gas prices, would come higher prices for anything that is shipped or uses oil and gasoline as inputs.

[50] See, *The Wall Street Journal*, June 24, 2013, pp. A1, C1, and C2.

[51] Ancient Greeks were saying, ❄♋❖ □♋♓♎♓❖♋ □♋♓❖⌘♏♓ ("children are playing").

[52] It would take an average of 4.3% growth per year for the U.S. to reach the lowest trend by the end of 2016, which appears unlikely judging from the rate of recovery to this point. See, Atkinson, Luttrell, and Rosenblum (2013, p. 9).

[53] The zero interest rate in the U.S. and the increase in its debt continue to depreciate the dollar, which further widening the division between the U.S. and the other G-20 members. Last year's G-20 meeting in St. Petersburg, Russia, was occupied with the Obama's persistence to bomb Syria, which will harm the global economy according to Chinese and Italian officials. The BRICS countries pledged to create a $100 billion pool of currency reserves to guard against shocks. See, *The Wall Street Journal*, September 5, 2013, pp. A1, A8, and A9. This year, the U.S. decided to expel Russia from the Group of 8 nations and they went back to G07. This decision, the embargos, and the American mercenaries in East Ukraine are very dangerous actions for the global peace.

This means, practically, everything that Americans buy, from food stuffs and airline tickets, to cars and washing machines, would all cost dramatically more. As prices skyrocket, the lifestyle in the U.S. would sustain a punishing drop overnight.

Unfortunately, this is not the only consequence that we would see of the dollar if it is no longer the reserve currency of the world. Interest rates would rise dramatically. They could easily reach 10%-15% or even higher. This would wreck housing prices far worse than they are today (house prices have dropped 41% in real terms since the peak in mid-2006).[54] It would also cause the stock market to crash and burn by maybe even half in a number of weeks. As the cost of supplies and materials goes up with the falling currency, businesses would be forced to cut back on employees in the light of their similarly falling sales. Unemployment could reach 20%-30% or more as a result of this, as it is in EU, today. As if this is not bad enough, inflation would be sky high along with the rising prices and disappearing jobs.[55] The foreclosure of homes, the bankruptcies in businesses and individuals, the civil unrests, and the social chaos will follow, especially for the U.S., where the carrying of arms is free ("legal"). Our socio-political consideration must be to prevent and not to correct future crises. We need to find an immediate solution for the U.S. chronic disequilibria and for Euro-zone to abandon its common currency and member-nations must go back to their old national currencies and to their independent domestic public policies (monetary and fiscal concurrently); otherwise the second global crisis will make the current one insignificant.

4. Conclusion

The current paper aims to some socio-politico-economic considerations and tests the effectiveness of monetary policies pursue by the U.S. Fed and the ECB and discusses the pros and cons of a currency to have an international reserve status, like the U.S. dollar. Economists debate whether a single reserve currency will always dominate the global economy.[56] Many have recently argued that one currency will almost always dominate, due to network externalities,[57] especially in the field of invoicing trade and denominating foreign debt securities, meaning that there are strong incentives to conform to the choice that dominates the marketplace. The argument is that, in the absence of sufficiently large shocks, a currency that dominates the marketplace will not lose much ground to challengers.

[54] How much have U.S. house prices fallen since their peak in mid-2006? It depends on whether you measure them in nominal or inflation-adjusted terms. According to the S&P/Case-Shiller National House Price Index, the fall has been about 34% in some regions. That is in nominal terms, and that is a lot. But since inflation has continued, the fall in real terms is even bigger. Adjusting for Consumer Price Index inflation, the drop in house prices since the peak has been 41%. This is a number nobody predicted! See, Alex J. Pollack, "How Much Have House Prices Really Fallen?", *The American,* April 19, 2012, available online at: http://www.american.com/archive/2012/april/how-much-have-house-prices-really-fallen.

[55] See, Thomas Herold, "What if the U.S. Dollar loses reserve currency status?", available online at: http://chloris-mygardengate.blogspot.com/2011/02/now-imf-is-calling-for-new-reserve.html.

[56] See, Eichengreen (2005).

[57] In economics, a *network effect* (also called *network externality* or *demand-side economies of scale*) is the effect that one user of a good or service has on the value of that product to other people. When network effect is present, the value of a product or service is dependent on the number of others using it. The classic example is the telephone. The more people who own telephones, the more valuable the telephone is to each owner. This creates a positive externality because a user may purchase a telephone without intending to create value for other users, but does so in any case. Online social networks work in the same way, with sites like Twitter, Facebook, Wikipedia, and Google becoming more useful as more users join. The expression "network effect" is applied most commonly to positive network externalities as in the case of the telephone. Negative network externalities can also occur, where more users make a product less valuable, but are more commonly referred to as "congestion" (as in traffic congestion or network congestion).

However, some economists argue that this is not as true when it comes to the denomination of official reserves because the network externalities are not strong. As long as the currency's market is sufficiently liquid, the benefits of reserve diversification are strong, as it insures against large capital losses. The implication is that the world may well soon begin to move away from a financial system dominated uniquely by the U.S. dollar. In the first half of the 20th century multiple currencies did share the status as primary reserve currencies. Although the British Sterling was the largest currency, both the French franc and the German mark shared large portions of the market until WWI, after which the mark was replaced by the dollar. Since WWII (Bretton Woods Agreement), the dollar has dominated official reserves, but this is likely a reflection of the unusual domination of the American economy during this period, as well as official discouragement of reserve status from the potential rivals, Germany and Japan. In 1999, the euro appeared and started competing with the U.S. dollar. But, this new common currency and common monetary policy among 18 nations has affected negatively the most of them, as the data are showing, and has eliminated their domestic public policies. The reduction of budget deficits during periods of recession has made half of the labor force unemployed. Also, the U.S. monetary policy is not effective; a mixed public policy is necessary (monetary and fiscal) and every country must have its independent national public policy.

Finally, the top reserve currency is generally selected by the banking community for the strength and stability of the economy, in which it is used and the political (and military) power of the nation that is issuing it. Thus, as a currency becomes less stable, or its economy becomes less dominant, or its political power is declining, bankers may over time abandon it for a currency issued by a larger more powerful or more stable economy. This can take a relatively long time, as recognition is important in determining a reserve currency. For example, it took many years after the United States overtook the United Kingdom as the world's largest economy before the dollar overtook sterling as the dominant global reserve currency.[58] In 1944 (Bretton Woods Conference) the U.S. dollar was chosen as the world reference currency, whereas it was only the second currency in global reserves.[59] Lastly, the solution is very simple and known for almost three thousand years: "moderation in everything"![60] The public policies needed for the U.S. and the EU are mixed policies (monetary and fiscal simultaneously), otherwise the economies cannot recover from the latest severe global financial crisis, which has made half of the young people unemployed (it has destroyed the dreams, the hope, and the lives of these future generations). Fiscal policy tools (taxes and government spending) are necessary and cannot be ignored by the governments. The political and economic consideration of every government must be the social welfare of its citizens and the respect towards the foreign nations.

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[58] See, Schenk (2009).

[59] The G-8 also frequently issues public statements regarding exchange rates. In the past due to the Plaza Accord, its predecessor bodies could directly manipulate rates to reverse large trade deficits. The *Plaza Accord* or *Plaza Agreement* was an agreement between the governments of France, West Germany, Japan, the United States, and the United Kingdom, to depreciate the U.S. dollar in relation to the Japanese yen and German Deutsche Mark by intervening in currency markets. The five governments signed the accord on September 22, 1985 at the Plaza Hotel in New York City. The U.S. dollar had peaked in March 1985, as Figure 5 shows.

[60] <<♑♋♊■ ♌♏❖♦❒□■ ♋☯❒♓♦♦□■>>!

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Table 1 European Union and Its Economy (2012)

Nations	GDP bill $	GDP % of EU	Growth %	GDP/capita in PPP$	National Debt %GDP	Government Budget %GDP	Inflation % p.a.	Unemployment % p.a.	Recommended $i_{OND_t}^{ECB}$ %	Rates bd_t %
EU 27	16,584.0	100.0	-0.3	32,021	85.3	-4.0	2.6	10.5	-1.6	-4.003
EU 17	-	-	-	-	-	-3.7	2.4	11.4	-2.8	-4.822
Germany	3,400.6	20.5	0.7	39,028	81.9	+0.2	2.1	5.5	2.65	-0.613
France	2,608.7	15.7	0.0	35,548	90.2	-4.8	2.2	10.2	-1.9	-4.066
U.K.	2,440.5	14.7	0.3	36,941	90.0	-6.3	2.8	7.9	1.3	1.909
Italy	2,014.1	12.1	-2.4	30,136	127.0	-3.0	3.3	10.7	-0.75	-3.649
Spain	1,352.1	8.2	-1.4	30,557	84.2	-10.6	2.4	25.0	-16.4	-15.022
Netherlands	773.1	4.7	-1.0	42,194	71.2	-4.1	2.8	5.3	3.9	+0.041
Sweden	526.2	3.2	0.8	41,191	38.2	-0.5	1.0	8.0	-1.5	-3.28
Poland	487.7	2.9	1.9	20,592	55.6	-3.9	3.7	10.1	0.45	-2.911
Belgium	484.7	2.9	-0.2	37,883	99.6	-3.9	2.6	7.6	1.3	-1.828
Austria	398.6	2.4	0.8	42,409	73.4	-2.5	2.6	4.3	4.6	+0.647
Denmark	313.6	1.9	-0.5	37,657	45.8	-4.0	2.4	7.0	1.6	-1.522
Greece	256.3	1.6	-6.4	24,505	152.7	-10.0	1.0	24.3	-17.8	-15.508
Finland	250.1	1.5	-0.2	36,395	53.0	-1.9	3.2	7.7	2.1	-1.471
Portugal	212.7	1.3	-3.2	23,385	123.6	-6.4	2.8	15.9	-6.7	-7.909
Ireland	210.4	1.3	0.9	41,921	117.6	-7.6	1.9	14.7	-6.85	-7.657
Czech Rep	196.1	1.2	-1.3	27,191	45.8	-4.4	3.5	7.0	3.25	-0.73
Romania	169.4	1.0	0.7	12,808	37.8	-2.5	3.4	7.0	3.1	-0.802
Hungary	126.9	0.8	-1.7	19,638	79.2	-1.9	5.7	10.9	2.65	-2.071
Slovakia	91.9	0.6	2.0	24,249	52.1	-4.3	3.7	14.0	-3.45	-5.836
Luxembourg	56.7	0.3	0.3	79,785	20.8	-0.8	2.9	5.1	4.25	+0.263
Bulgaria	51.0	0.3	0.8	14,312	18.5	-0.8	2.4	12.3	-3.7	-5.497
Slovenia	45.6	0.3	-2.3	28,195	54.1	-4.0	2.8	8.9	0.3	-2.659
Lithuania	42.2	0.3	3.7	21,615	40.7	-3.2	3.2	13.3	-3.5	-5.671
Latvia	28.4	0.2	5.6	18,255	40.7	-1.2	2.3	14.9	-6.45	-7.519
Cyprus	23.0	0.1	-2.4	27,086	85.8	-6.3	3.1	11.9	-2.25	-4.693
Estonia	21.9	0.1	3.2	21,713	10.1	-0.3	4.2	10.2	1.1	-2.626
Malta	8.7	0.1	0.8	27,022	72.1	-3.3	3.2	6.4	3.4	-0.496
U.S.A.	13,665.4	82.4	1.8	43,255	119.9	-8.8	1.8	7.8	-0.1	-2.554

Note: $i_{OND_t}^{ECB} = 0.75\%$ and $i_{FF}^{Fed} = 0.25\%$.

Source: World Economic Outlook, *IMF* andhttp://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Unemployment_statistics.

Table 2 Target Rates in Euro-zone Nations (April 2013)

Country	Inflation rate (π_t)	Unemployment rate (u_t)	Recommended rates	Policy Recommended	Target rate	Budget deficit
Austria	2.3	4.9	$i_{OND}^{ECB} \uparrow$	$G \uparrow$	3.55	-0.019
Belgium	2.9	12.3	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-2.95	-5.137
Cyprus	3.6	15.6	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-5.20	-7.108
Estonia	4.3	8.7	$i_{OND}^{ECB} \uparrow$	$G \uparrow$	2.75	-1.429
Finland	3.0	8.2		$T \downarrow, G \uparrow$	1.30	-1.990
France	2.4	11.0	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-2.40	-4.522
Germany	2.2	5.4		$T \downarrow, G \uparrow$	2.90	-0.466
Greece	1.5	27.0	$i_{OND}^{ECB} \downarrow\downarrow$	$T \downarrow\downarrow, G \uparrow\uparrow$	-19.75	-17.17
Ireland	1.9	13.5	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-5.65	-6.757
Italy	3.7	12.0	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-1.45	-4.336
Luxembourg	3.0	5.6		$T \downarrow, G \uparrow$	2.90	-0.040
Malta	3.8	6.4	$i_{OND}^{ECB} \uparrow$	$T \downarrow, G \uparrow$	4.30	-0.064
Netherlands	2.8	6.5		$T \downarrow, G \uparrow$	2.70	-0.859
Portugal	2.9	17.8	$i_{OND}^{ECB} \downarrow\downarrow$	$T \downarrow\downarrow, G \uparrow\uparrow$	-8.45	-9.262
Slovakia	3.7	14.5		$T \downarrow, G \uparrow$	-3.95	-6.211
Slovenia	2.9	10.2	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-0.85	-3.562
Spain	2.0	26.8	$i_{OND}^{ECB} \downarrow\downarrow$	$T \downarrow\downarrow, G \uparrow\uparrow$	-18.80	-16.66
Euro-zone	2.6	12.2	$i_{OND}^{ECB} \downarrow$	$T \downarrow, G \uparrow$	-3.30	-5.278
U.S.A.	1.1	7.5		$T \downarrow, G \uparrow$	-0.85	-2.833

Note: $u_t^N = 4\%$, $i_{OND_t}^{ECB} = 0.75\%$, $i_{FF}^{U.S.} = 0.25\%$, $\uparrow$ = increase, $\uparrow\uparrow$ = drastic increase, $\downarrow$ = reduction, and $\downarrow\downarrow$ = drastic reduction.

Source: *Eurostat*, http://europa.eu/rapid/press-release_STAT-13-75_en.htm, http://usinflation.org/us-inflation-rate/, and http://www.ncsl.org/issues-research/labor/national-employment-monthly-update.aspx.

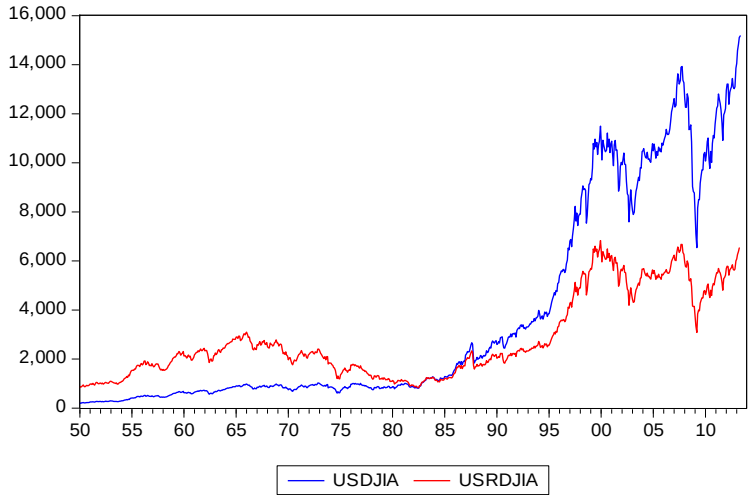

Figure 1 The U.S. Dow Jones Industrial Average Index

Note: USDJIA = the U.S. Dow Jones Industrial Average index (nominal) and USRDJIA = the U.S. Dow Jones Industrial Average index (real). Source: Yahoo, Finance.

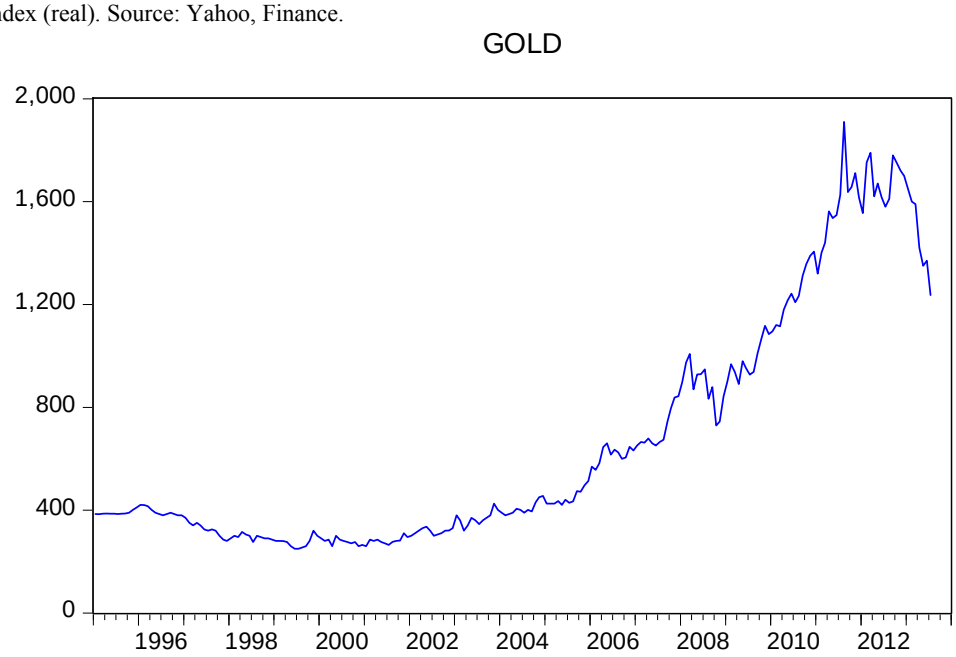

Figure 2 The Gold Bubble

Note: GOLD = price in dollars of one ounce of gold

Source: Economagic.com.

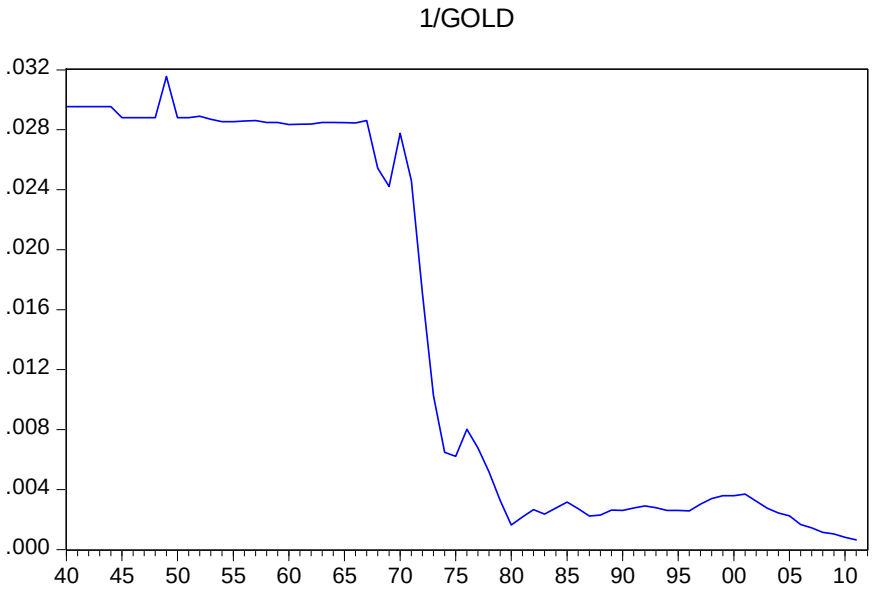

Figure 3 The Depreciation of the U.S. Dollar with Respect the Gold

Note: 1/GOLD=the value of U.S. dollar with respect the price of gold. (troy ounces of gold/$).

Source: Historical Gold Prices-1833 to Present. http://www.nma.org/pdf/gold/his_gold_prices.pdf.

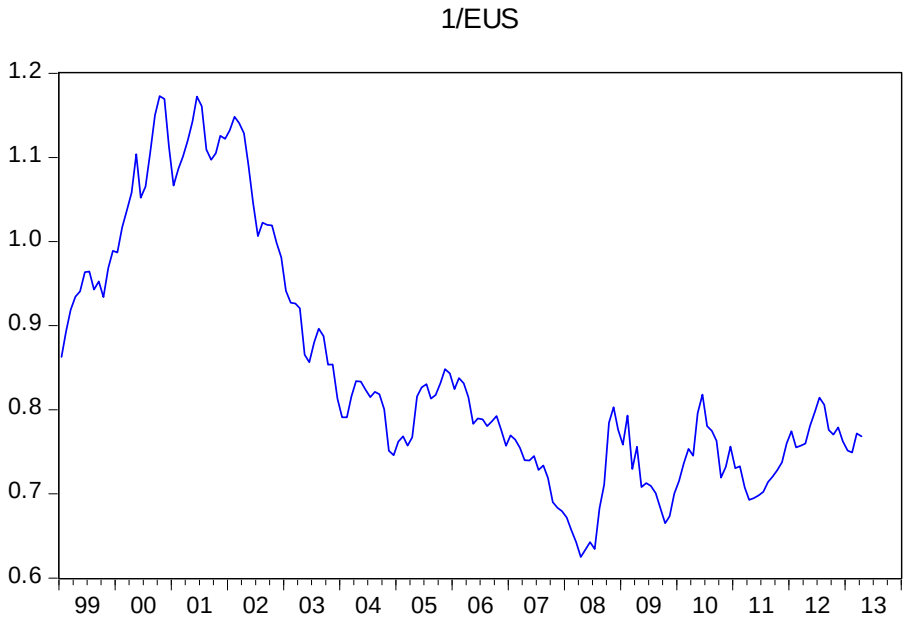

Figure 4 The Depreciation of the U.S. Dollar with Respect the Euro

Note: 1/EUS= the exchange rate between dollar and euro (€/$).

Source: Economagic.com.

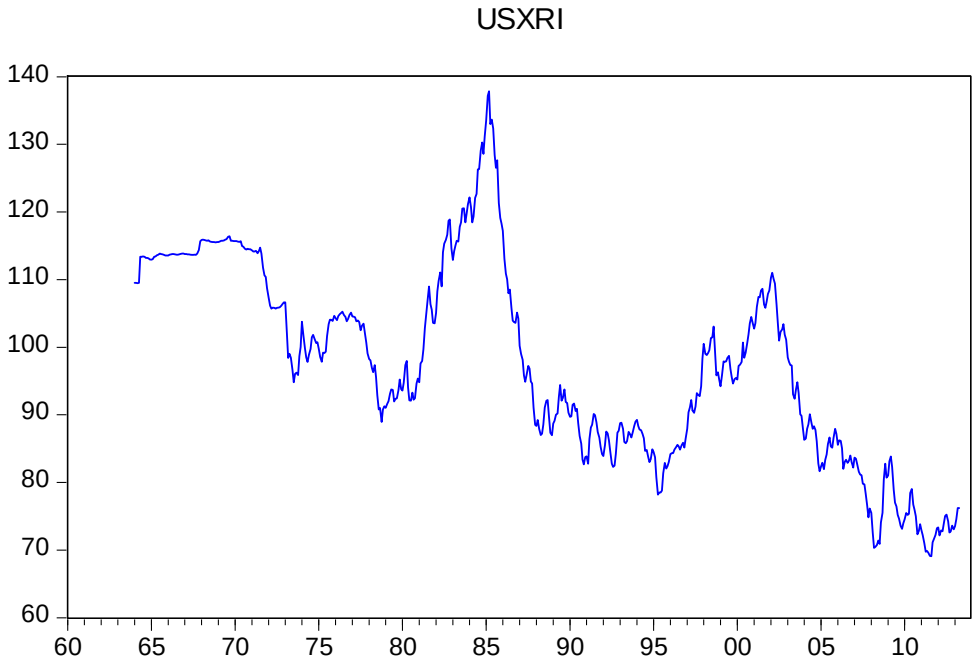

Figure 5 The Value of the U.S. Dollar with Respect the Major Currencies

Note: USXRI = Trade Weighted Exchange Index: Major Currencies: Index March 1973 = 100.

Source: Economagic.com.

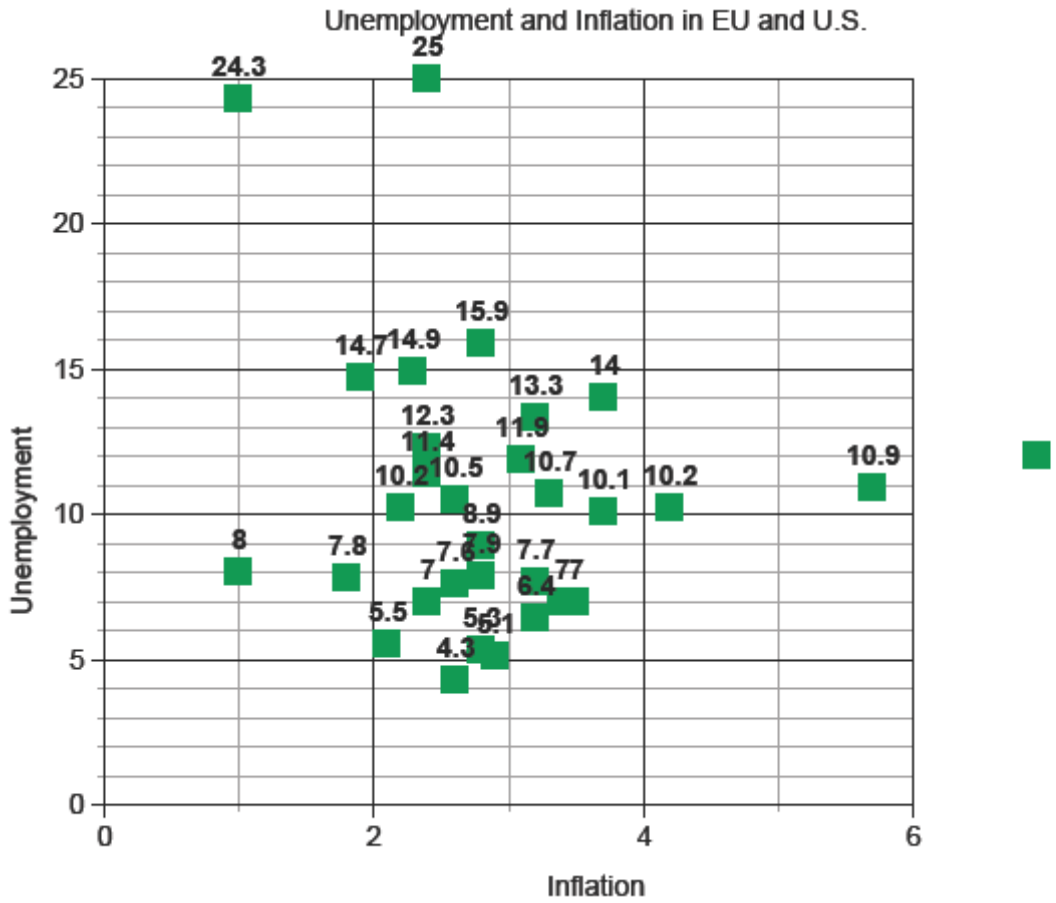

Figure 6 Unemployment and Inflation (2012)

Note: (1) Peripheral countries (with high unemployment): Spain (25.0, 2.4), Greece (24.3, 1.0), Portugal (15.9, 2.8), Latvia (14.9, 2.3), Ireland (14.7, 1.9), Slovakia (14.0, 3.7), Lithuania (13.3, 3.2), Bulgaria (12.3, 2.4), Cyprus (11.9, 3.1).
(2) Countries with high inflation: Hungary (10.9, 5.7), Estonia (10.2, 4.2), Slovakia (14.0, 3.7), Poland (10.1, 3.7), Czech Rep (7.0, 3.5), Romania (7.0, 3.4), Italy (10.7, 3.3), Finland (7.7, 3.2), Lithuania (13.3, 3.2), Malta (6.4, 3.2), Cyprus (11.9, 3.1).
(3) Core countries (with low unemployment and low inflation): Austria (4.3, 2.6), Luxembourg (5.1, 2.9), Netherlands (5.3, 2.8), Germany (5.5, 2.1), Denmark (7.0, 2.4), Belgium (7.6, 2.6), U.K. (7.9, 2.8), Sweden (8.0, 1.0), Slovenia (8.9, 2.8), France (10.2, 2.2).
(4) EU17 (11.4, 2.4), EU27 (10.5, 2.6), and U.S.A. (7.8, 1.8).
Source: See, Table 1.

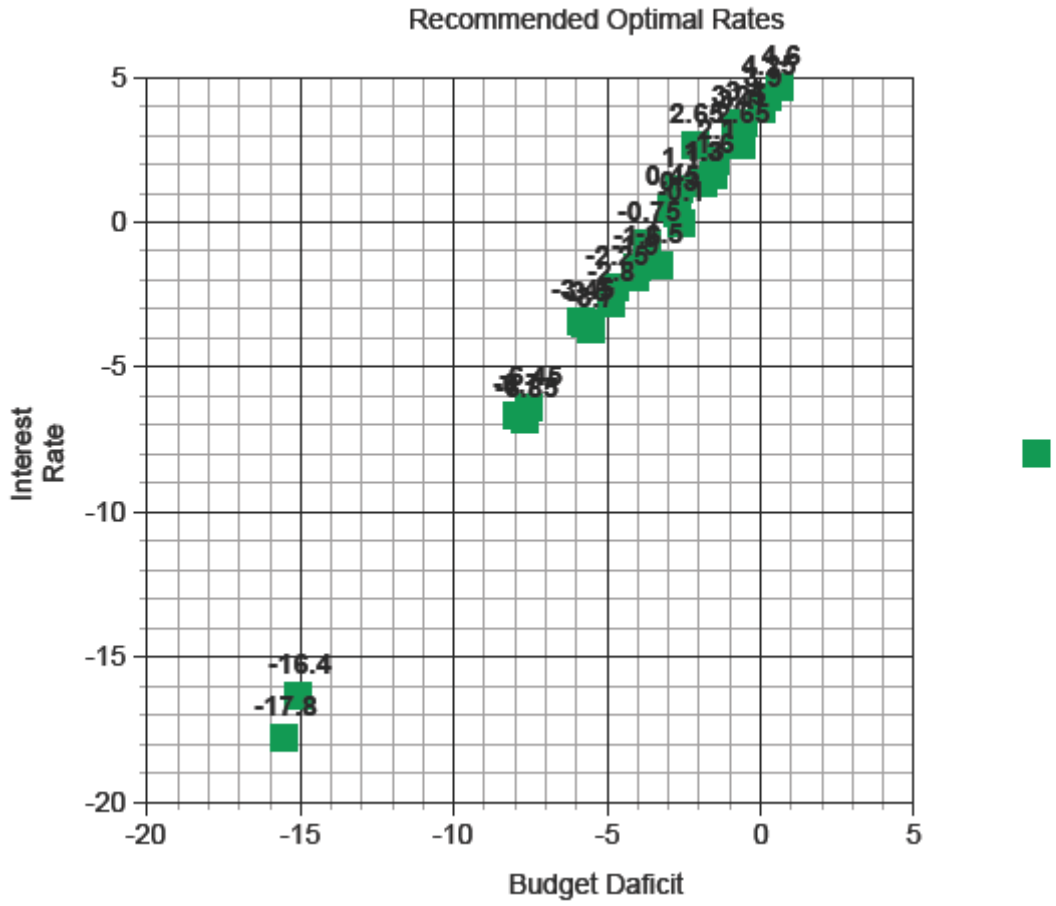

Figure 7 Recommended Optimal Interest Rates and Budget Deficits in Euro-zone and U.S. (2012)

Note: (1) Countries with recommended interest rate less than 0.75% and budget deficit more than 3% (due to their economic recession): Greece (-17.8%, -15.508%), Spain (-16.4%, -15.022%), Ireland (-6.85%, -7.657%), Portugal (-6.7%, -7.909%), Latvia (-6.45%, -7.519%), Bulgaria (-3.7%, -5.497%), Lithuania (-3.5%, -5.671%), Slovakia (-3.45%, -5.836%), Cyprus (-2.25%, -4.693%), France (-1.9%, -4.066%), Sweden (-1.5%, -3.28%), Italy (-0.75%, -3.649%).

(2) Countries with recommended rate more than 0.75% (the target rate): Austria (4.6%, 0.647), Luxembourg (4.25%, 0.263%), Netherlands (3.9%, 0.041), Malta (3.4%, -0.496%), Czech Rep (3.25%, -0.73%), Romania (3.1%, -0.802%), Germany (2.65%, -0.613%), Hungary (2.65%, -2.071%), Finland (2.1%, -1.471), Denmark (1.6%, -1.522%), U.K. (1.3%, -1.909%), Belgium (1.3%, -1.828%), Estonia (1.1%, -2.626%).

(3) Countries for which the target rate is optimal: Slovenia (0.3%, -2.659%), Poland (0.45%, -2.911%).

(4) EU17 (-2.8%, -4.822%), EU27 (-1.6%, -4.003%), and U.S.A. (-0.1%, -2.554%).

Source: See, Table 1.