Money upside down -

A paradigm shift in economics and monetary theory?
Money upside down – A paradigm shift in economics and monetary theory?

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1. Introduction

1.1 Motivation

Motivation for this thesis is triggered by the obvious deficits in today’s prevailing conventional economics, which were demonstrated in the “unexpected” crises of recent years and the corresponding failure of monetary policy: Since the Great Depression ideas of classical economics, Keynesian ideas, neoclassics, and monetarism have replaced themselves revealing a “theory deficit” today. The prevailing, conventional monetary theories failed in explaining reality.

Heads of central bank in the United States and Europe set goals for monetary aggregates and make ad-hoc monetary policy via influencing the key interest rates in money markets. However, disintermediation and the new information technology turn most of the monetary instruments of central banks idle. The Bank of Japan cut interest rates so far, that the nominal yield of Japanese government bonds is close to zero percent. Real interest rates in the NAFTA region, Euroland and Japan are (nearly) all negative in the beginning of 2003. Obviously central banks’ policies are faced with unprecedented challenges. Furthermore, the general confusion in monetary theory is completed in its application of flawed conventional theories.

Neither the Asia Crisis, nor the LTCM debacle\(^1\) with the following currency crises around the globe were foreseen nor even mentioned as an unlikely scenario beforehand. As history proves, a false theory or a wrong perception of the world - like the pre-Copernican perception of the world - or in particular a false monetary and economic theory can prevail for a long time. Acting subsequently, according to a false theory or a wrong perception, may even in the long run have no obvious negative impact on the economy until a major crisis arises. In a major crisis differences between expectations and illusions respectively the well-founded interpretation of reality and reality itself show up.

\(^1\) The collapse of a derivative hedge fund LTCM, which was managed by Nobel laureates, threatened to be a system risk for the global financial system in autumn 1998.
1.2 Subject

In the focus of research are some new economic and monetary theories and their applicability in financial risk management and monetary policy. Key question is where do the new monetary theories differentiate from the contemporary theories and how far are they applicable?

In the focus of research are the monetary and credit theories of Bethmann, Heinsohn, Kindleberger, Kutyn, Malik, Martin, Minsky, Nuri, Rothbard, Soddy, Soros, and Steiger. Their theories are partially compatible; however, they come from different sciences, from economics, sociology, biology, history, physics, chemistry, philosophy, and from the heuristic approach of a banker. It will be examined how far these theories can be integrated and how far they can form a new basic micro-economic understanding of money, credit, and business cycles.

The prevailing, conventional monetary theories are – as to be shown - characterised by unrealistic assumptions. Thus, the applicability of conventional monetary theories in financial management and monetary policy needs to be raised into question.

Why and how unrealistic assumptions may lead to lacking applicability is exhibited by the following five points of critique:

1. Insufficiency of the barter paradigm in economics

Monetary theory in economics has been based upon the assumption of a primitive barter economy in early ages (before money was "invented", man was bartering) before a more complex market economy with credit and a financial structure had evolved. The prevailing main monetary theories ignore the historic development of money and credit and derive the definition of money from the perception of physical money in today's highly segmented and complex economy. It is acknowledged in history that a barter economy never existed. The evolution of money is still not dissolved as admitted in sociology and history.

If the basic assumptions of neoclassic microeconomics are highly questionable, the subsequent microeconomic theories built thereupon
also need to be questioned. New, proven, and acknowledged results in sociology and history falsify the idea of a preceding barter economy and raise the question of the historical and logical origin of money. Obviously, with money you pay, but you do not barter.

Today's prevailing main economic theories derive the origin of money by its functions (such as medium of exchange, measure of value, precondition for credit, store of wealth, the reduction of transaction costs) and are unable to deliver a brief and clear definition of money. Money as a means of payment, a store of value, and as a unit of account does not answer the simple question how does money come into existence and how does it disappear.

2. Problems of the quantity theory of money

The obviously close relation between money and credit falsifies the quantity theory of money. On the one hand, money pays back, pays off, and redeems credit, on the other hand, the granting of new credit creates new money in form of claims and entitlements to the debtor's newly contracted obligations. The unsolvable connection of money and credit is reflected in the fact that each credit, each claim on and entitlement to debt payments, has an equivalent corresponding debt-side, a liability respectively obligation to pay, and vice versa according to the mechanics of the double-entry bookkeeping system. The rights of disposal of borrowed money have its price, which is the price of borrowing respectively lending called interests. Interests compensate - in terms of opportunity costs - the lender/creditor for his foregone rights of disposal and forgone liquidity.

The derivation of money from credit and thereby the synchronous creation of debt contradicts the quantitative theory of money which derives the monetary process from a given macro-economic monetary aggregate.

A theory like the quantity theory of money - which employs the control of given monetary aggregates as means of monetary policy - ignores the fact

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2 Compare with definition of “money” in Encyclopaedia Britannica, Standard Edition CD-ROM 2002.01.0002.0 - International UK. The logic origin and disappearance of modern money are not explained. Instead of a brief and clear definition a host of cross references are offered.
that money respectively credit can be created out of a private credit contract between creditor and debtor. The creation of money out of a new credit is a fact that leads each attempt of defining a monetary aggregate as M, M1, M2, M3, or M3\textsuperscript{expanded} respectively controlling the aggregate and employing it for macro-economic policy ad absurdum.

3. Insufficiencies of the standard model of circulation of money and goods

One of the basic models of economics is the model in which on a macro-economic level, the flows of all goods and the flows of all money are visualised in a general model of circulation. This basic model lacks the dimension of time. The payments of interests and the resulting pressure for the debtor to serve his growing obligations, the pressure defined by the mathematic formula for interest rates - are missing.

Empirically and historically characteristic for economic activity were contracts of credit (respectively debt), but neither barter nor exchange operations in terms of money and goods.

Key feature of a credit contract is its intertemporal nature, the aspect and dimension of time, i.e. the accrual of interest over time. The idea of a “general model of circulation” ignores the dimension of time. Only from a static perspective ex post, the flows of money and the flows of goods are set equal in value.

Kindleberger weighs the function of time, the intertemporal perspective, so high for understanding the basic economic functions that he describes most of the modern economic theories to be misleading, because they would neglect the elements of speculation and credit. Kindleberger mainly criticises Keynes’ monetary theories and Friedman’s monetarism.

\footnote{“The heart of this book is that the Keynesian theory is incomplete, and not merely because it ignores the money supply. Monetarism is incomplete, too. A synthesis of Keynesianism and monetarism, such as the Hansen-Hicks IS-LM curves that bring together the investment-saving (IS) and liquidity-money (LM) relationships, remains incomplete, even when it brings in production and prices (as does the most up-to-date macroeconomic analysis), if it leaves out the instability of expectations, speculation, and credit and the role of leveraged speculation in various assets. The Keynesian And Friedmanite schools, along with most modern macroeconomic theories that synthesize them, are perhaps not so much wrong as incomplete. At the same time, the omissions under particular circumstances may be so critical as to make both Keynesianism and monetarism misleading.” Kindleberger, C. P. (1996) Manias, Panics, and Crashes - A History of Financial Crises, New York: John Wiley & Sons, p. 18.}
Mandel criticises explicitly the idea of a general model of circulation on an abstract level in his essay about "Basic elements of capitalist production or: the unavoidability of disproportionalities and crises"\(^4\): "The pressure of accumulation of capital (for the extended reproduction) has several causes. The pressure for capital accumulation derives from the general conditions of capital in form of money in itself, because capitalist production always starts off with capital in form of money and leads to capital in the generation respectively accumulation of new capital. Otherwise, it would be a vain exercise to throw money (capital) in circulation, in order to receive the amount of capital thrown in beforehand, only. An economy based upon the accumulation of capital, a capitalist economy, makes only sense as an economy, which adds value over time and thereby enables the accumulation of capital. In industrial capitalism, this general tendency is expressed in the stress and pressure to accumulate capital under competition."\(^5\) Mandel's analysis of capitalist structures from the perspective of a left-wing intellectual reveals the weaknesses of the prevailing macro-economic theories, especially the invalidities of a general model of circulation.

4. Incapability of explaining economic crises

The incapability to explain economic crises – in particular with regard to the crises of recent years (Asia, Russia, Turkey, and Argentina) – is admitted by classic and neoclassic theories, because these theories originate from a time in which the idea of money as a veil was more appropriate. Neither Keynesian nor monetarist theories focus on crises. From the simplified perspective of monetarism, flexible exchange rates were introduced in 1971 in order to avoid currency crises, but reality contradicts.


5. Neglect of historical component of money

Common of all conventional monetary theories is their strict neglect of the socio-historic evolution of money. It is generally assumed that an historic analysis of the logic of the nature of financial processes is unnecessary. It will be shown that money, credit, and financial systems have a vital historical component. Without understanding monetary evolution, the abstract and complex processes of credit and finance are hardly accessible.

The new, to be examined monetary theories have a micro-foundation in common and do not show the insufficiencies of the prevailing, conventional economic theories. In the following, the basic structure of the newly derived concept of capitalism and economics will be briefly outlined:

Outcome of new socio-historic research is that property and credit and purchase contracts are the empirically most striking feature of societies with trade and money. In today's social sciences, the importance of private property has been ignored, because the mainstream classic and neoclassic economics are focussed on the allocation of resources and goods in their fixed physical appearance. The creation of property is a legal act and process, which does not change the physical properties of existing resources. In contrast to Anglo-American case law, the Roman court law explicitly differentiates between two types of law of obligations, one focussing on property rights (in German civil law the so-called Schuldrecht) and the other focussing on physical possession (in German the so called Sachenrecht). Conventional monetary theories neglect the abstract property rights.

Central for the understanding of the new approach, the new concept of economics and finance, is to differentiate between physical possession and abstract private property rights. Possession is to be defined by the rights of disposal of material goods. Private property rights are characterised by the rights of the proprietor to sell, lend, assign, securitize, collateralise, or pledge his property, in brief by the proprietor's abstract rights of private property.

Analysing the origins of private property in the Antique Polis and in the early Renaissance of medieval Europe, interest is derived from the exclusivity of private property rights. Money and credit are derived from interest and are
therefore subordinate to interest. In contrary conventional economic theories
derive interest from money and credit arguing that interest is function of
remuneration respectively compensation for utilisation or rent. The causality of
interest is thereby turned upside down.

Credit contracts generally fix legally the temporary assignment of property
rights. Credit contracts always bear implicitly interest, because the debtor
must compensate the creditor for the creditor’s opportunity costs of the
creditor’s foregone liquidity premium. Due to the nature of property, credit
contracts create for the debtor the pressure of adding value over time –
irrespectively, if interest and principal payments are contracted as payments in
money or as payments in goods or services.

If an economic subject and proprietor does not want his relative position of the
yield of his property rights to deteriorate, he attempts to earn a yield, which is
at least as high as his opportunity cost respectively his internal interest rate of
calculation. For the part of (partially) leveraged economic subjects, interests
enforce value-adding activities respectively the creation of new capital
allowing the subject to serve his interest payments as contracted in the credit
contract.

Interest does not derive from inherent value-adding process of production
(classic theories) or from the intertemporal preference of consumption
(neoclassic theories). Interest does not derive from the liquidity premium for
foregone possession of money (Keynesianism). Interest - with its mathematic
effect of compound interest - originates from the transfer and assignment of
property rights between creditor and debtor. According to the terms of
payment of a credit contract, interest is accounted for what it is to be paid in
and that is usually money. However, interest can also be accounted and paid
in physical goods such as precious metals, grain, wood, etc..

A historic analysis of the origins and evolution of money and credit reveals that
the nature of money changed significantly in abstract and complex terms.
Starting with gold as commodity money in ancient societies significant steps
can be described in brief. Promissory notes were invented, even before coins
came into circulation in the Grecian empire. Tally sticks as a type of
promissory notes were reinvented in the early medieval renaissance in Europe
and lasted as the major instrument of commerce and trade until banking rose
to significance in the 18th century. With the establishment of banking, bank notes and a cheque system developed. Marking one of the most important steps in monetary evolution is the silent rise of fractional reserve banking changing the abstract nature of money, which enabled the emergence of bank notes and a cheque system.

With the accelerating industrialisation in the 19th century under a more or less global gold and silver standard, former merchant banks and discount houses grew into major banking houses. The foundation for a two-tiered banking system were laid and fractional reserve banking has since then been dominating the logic of finance and economics.

The results of the historic analysis of the evolution of monetary systems – with special regard to fractional banking – are combined with the implications of a new concept of property rights, credit, and interests. In consequence, the terms of value, price, market, and competition can be derived and defined resulting in a completely new conception and definition of the idea of what a market is and how it works.

As every credit, respectively debt contract is intertemporal; every credit contract has its implicit mathematical interest-bearing function. Usually the accruing interest obligations are accounted for in money and are set in the contract to be paid in money. The debtor is committed not only to his principal repayments, but also to the payments of interest as payments in money.

Regarding the debtor as an economic stand-alone entity, the debtor tries to employ the borrowed money in a way to increase his net property position respectively his net present value. In case the debtor’s balance sheet contains under liabilities exclusively equity capital, the debtor is - in terms of opportunity costs – only committed to his own expectations. In case the debtor’s liabilities in his individual balance sheet consist exclusively of loans respectively debt (theoretical maximum gearing with no equity capital), the debtor is obliged to earn a yield which is high enough to serve his principal and interest payment.

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6 „One of Germany’s major banks, the Bayerische Hypotheken- und Wechsel-Bank, has already been founded in 1834/35 as a bank of exchange first with an admissible issuing volume of bank notes of eight million Gulden. This was the first foundation of a major private corporate bank in Germany. ... The bank’s main task was ... the granting of mortgages.“ Sprenger, B. (1995) Die Gründerzeit der Großbanken [The founder era of corporate banks], in: Die Bank, August 1995, p. 466.
obligations in money. Due to his gearing and the usual terms of the credit contract which ask for repayment in money and not in goods or services, the debtor must "make money" in order to serve his financial obligations.

The debtor as micro-economic subject must “make money” with his entrepreneurial activities, because his enterprise is pre-financed respectively leveraged with debt contracted in money. As the debtor’s liabilities are defined and contracted in money, the debtor must offer – assumed his entrepreneurial activities consist of simple production of goods - his products against money. This logic of the pre-financing debtor respectively entrepreneur constitutes the market. The market originates as a buyer’s market. Proceeding on the assumption of a pre-financing entrepreneur, which is a condition sine qua non in a fractional reserve banking system, the market is to be defined as an institution, whereby the debtor attempts to obtain the means, in which he has contracted his debt, which usually is money.

A market is formally characterised by a concentration of time and space. New technology substitutes the concentration of space more and more by modern means of telecom and computers. Regardless whether markets are over-the-counter markets on the internet, the main characteristics are unchanged.

In markets for goods and services, delivery contracts are concluded. The delivery contracts are concluded in goods and money due to the pre-financing logic of the entrepreneur. Thus, the pricing mechanisms in the market occurs logically and temporarily after the conclusion of the entrepreneur’s debt contracts, i.e. the pricing of the delivery contract in the market is subordinated to and derived from the entrepreneur’s pre-financing. Thereby, the value of goods is defined by its price in money. The market is per se subordinated to financial debt and credit contracts.

This alternative and new definition and derivation of a market is obviously incompatible with conventional economics. According to the new definition of a market the value of goods can neither be derived by the relative costs of classic economics nor by the relative marginal profit considerations of neoclassic economics, because the (neo-) classical barter ratios (of quantity of traded goods) are independent of money and originate from the barter paradigm of a barter economy.
“The value [of a good] in a ‘property economy’ is an absolute price which is to be measured in ‘money of account’ and therefore the value is to be accounted in ‘money of account’. Debts and market prices must inevitably be fixed and accounted for in the same measurement, because the fixing of the debts logically precedes the fixing of prices in the market.”\(^7\) The new perception of a market allows also an analysis of the terms of demand and supply from a new perspective: In the credit and money markets, the conclusion of a credit - respectively debt - contract constitutes a new relationship between a creditor and a debtor. In the market for goods and services, the debtor, who is also the pre-financing entrepreneur, tries to get hold of the means, which will allow him the redemption of his debts. In case the original creditor buys the by the debtor offered goods or services in the market of goods against the payment of money in the amount of the debtor’s total outstanding liabilities (principal debt amount plus accrued interests), the original credit/debt contract disappears and in consequence its thereby beforehand created money.

Due to the nature of the credit/debt contract the original creditor – with respect to the logic of modern banking usually the bank - decides, whether the debts may disappear. Since the debtor, respectively the indebted entrepreneur must (re-)pay at a defined point of time in the future his principal debt plus interests in money as agreed upon in the credit contract, the entrepreneur must offer his goods for sale in order to get hold of the required amount of money. In contrast to the debtor’s compulsory constraints the creditor respectively the potential buyer of the offered goods does not inevitably have to buy, but he has the option to buy, he can buy. The creditor can buy and demand goods, but does not have to. This “market-economy phenomenon” explains the constitution of a buyer’s market in Europe’s arising capitalism.

The dissimilarity of the roles in delivery and credit contracts asks for a detailed analysis and specification of the conventional definition of demand and supply. According to Bethmann, the simple, mathematical computability of a price in the micro-economic market models overlooks that demand and supply are not quantitative dimensions and that demand and supply are not of equal importance and rank. During the settlement of demand and supply in a

specific transaction quantitative changes (of money respectively debts) and simultaneously qualitative changes (pricing of goods) take place.

The inherent pressure arising from the interest rate and its compound effect depends on the unit in which the credit respectively debt contracts are concluded. As long as interests are payable in goods and services, the debtor theoretically can serve his compounding liabilities in the first years before the take-off of the mathematical exponential function. When interests are payable in commodities such as precious metals, which are physically limited resources, the debtor theoretically agrees to the impossible. When interests are payable in fiat money which can only be created by the banking system, the debtor theoretically also agrees to the impossible, whereas the impossibility to serve his obligations is under the exclusive control of the banking system.

Indebted entrepreneurs must produce and invest in such a way that additional property in terms of market prices comes into existence in due time according to the credit contract serving the interest obligations. Competition with other indebted entrepreneurs urge to constant innovation and progress. In this new conception, debts are in the centre of our economy. Debts are the driving force of the economy’s dynamics.

The new perception of economics allows a new analytical approach of inflation. As long as the entrepreneurs take on new credit for the exclusive creation of new property with added value (at market prices), new money is counterbalanced by new property keeping the price level relatively stable. However, if additional credit is created and not invested in entrepreneurial activities, which create additional value-added property, but invested in consumption or speculation, additional money - which is fresh capital coming out of the banking system - is driving up prices in the specific markets of consumption or speculation.

Inflation on the macro-level is an aggregation of relatively synchronous increases in the price levels in many single markets, i.e. inflation on the macro-level consists of synchronous inflations or hausses in single markets. Minsky describes this process of inflation and its inherent mechanisms as “debt deflation dynamics”: Credit can be created and the thereby created money can in general be spent in three ways: First, the entrepreneur employs
the new money for pre-financing production. Second, an economic subject prefers to spend money, which has not yet been earned/made for consumptive purposes, i.e. credit is pre-financing consumption. Third, an economic subject takes on credit for speculation. In the second and third way credit, respectively money is created, but no additional goods and services are created to repay the credit. Thus, the additional credit/money is driving prices higher in the market in which the money is invested. In the third case, the additional credit is not invested in the entrepreneur’s value chain. For example, the additional credit may be invested in a small luxury segment of a specific real estate market. Prices in this market will start rising.

The logic line of argumentation for the blow-off and crash pattern on the micro-economic level and the logic of inflation and deflation on the macro-economic level is the same. Minsky calls this boom and bust pattern “debt deflation dynamics”, because debts and the intertemporal consequences on the market are the key elements for understanding deflation. The logic of boom and bust cycles respectively inflation and deflation can take place in any market including currency markets.

The main difference between the micro- and the macro-level is the different time horizon of the course of events. Blow-off and crash can happen in a relatively short time span (e.g. technology-media-telecoms (TMT) bubble or tulips bubble), whereas inflation and deflation may run over a few decades.

The reason why prices cannot “stay” at inflationary levels is the passing of time. The pressure, economic subjects are faced with due to their gearing and pre-financing, pushes for price cuts, because economic subjects have to speed up to sell at the market for liquidity. “Deflations occur fast, because a collapse of prices strikes. The entrepreneur who must sell due to his indebtedness and his margin calls tears down the price level for all other competitors. He is threatening the existence of all other competitors, because he offers his products at a cheaper price. Therefore, his competitors have to follow him immediately in pricing.”

Mandel criticises the capitalist system in the following: „As soon as inflation begins and exceeds a specific level, inflation cannot feed further expansion.

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9 ibid, p. 384.
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In historic retro-perspective, Somary states that the turning years from periods of a sinking to periods of a rising value of money have always triggered off major crises.11 Usually – with the exception of Somary’s historic analysis of deflation – the close relation of disinflation respectively deflation and depression are missed by mainstream economics.12 Because at the end of an inflationary period, levels of indebtedness are at their historic peaks, bankruptcies and price reductions have to follow as Kindleberger explains.13

The mechanisms of debt deflation dynamics make crashes and deflations occur relatively fast and for most economic subjects unexpected. The phenomenon that the extension of a coming deflation is missed by most economic participants is proven empirically by Evans and Wachtel with their analysis about the deflation of the world economic crisis.14

A further distinction between the crash of a market and a macro-economic deflation is that after a period of inflation bad debts cannot be wiped out by a creditor’s release from debt, private bankruptcy, or liquidation. On the macro-level, the state as one of the biggest debtors is directly involved in the inflation-deflation cycle. A state has the possibility – in contrast to private

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12 „Most of the analyses of the Depression ... ignored the deflation altogether.“ Temin, P. (1976), Did Monetary Forces Cause the Great Depression?, New York: Norton, p. 160.
13 „Both Keynesians and monetarists tend to disregard the macroeconomic impact of price changes, on the ground that gains from price changes for producers or consumers are matched by losses to consumers or producers, with no net effect on the system except where there is money illusion, that is, when consumers or producers fail to see that their income has changed when prices change while nominal monetary aggregates remain unchanged. This disregard is often mistaken, in my judgment, as when prices change while nominal monetary aggregates remain unchanged. This disregard is often mistaken, in my judgment, as when the decline of prices leads to industrial, mercantile, and investor bankruptcy, financial disintermediation, bank failure, and spreading deflation before the benefits, if any, from lower prices have a chance to make themselves felt. The net effects of rising prices in today’s world may be limited by offsetting gains and losses, without letting loose dynamic reactions. I would argue, however, that the pre-Keynesians were right in paying attention to price movements, now so cavalierly disregarded.“ Kindleberger, C. P. (1989), Manias, panics, and crashes, London: Macmillan, pp.14/15.
entities – to eliminate its unredeemable obligations by starting wars or hyperinflation for camouflaging monetary reform.¹⁵

Another difference between the crash of a specific market and a macro-economic deflation is that on the macro-level all deflationary crashes do not necessarily occur simultaneously. Despite global markets, differences in national tax systems, monetary policies, and business cycles may cause major time lags. E.g., Japan’s tax system drove inflationary investors into the real estate market and prevented an exit. Furthermore, differences between the “fix-price sector” and the “flexible-price sector” make deflationary movements set in some markets earlier than in others. Deflationary forces may shift from “fix-“ to “flex-price” markets. Bethmann describes: “Each deflation starts – in the beginning nearly unnoticed – already in the middle of inflation. While prices are still rising, debt and credit still grow rampant, one day the - for the time being unnoticed, unrecognized and creeping - process of a deflationary erosion starts.”¹⁶

The outcome may be a new immanent theory, which questions the conventional economic theories in their foundations and falsifies them. In addition, the outcome may be a new superior perception of economics, which offers a new perspective for the understanding of basic economic processes.

Malik of the Swiss university Hochschule St. Gallen coined the term of a possible “Copernican revolution” for one of the new approaches. The ideas of the new monetary theory call the basic assumptions of economics into question and face the reader with “such a different view of economic principles”, that Malik draws the comparison with a global paradigm shift, a total change in perspective, of economics, because the crucial causalities are reversed and concepts of money and inflation are radically new defined.¹⁷

¹⁵ In a monetary reform, the state defines at her political order the new currency in such a way, that the new currency will be backed by state property or by property, which is, lend to the state against the issuance of the new currency. In this way the old currency and simultaneously the „old“ debt can be devalued against the new property. The debts contracted during (hyper-) inflation can be redeemed with newly assessed property (assets) in the new currency.
From the view of an „old perception of the world“ the rightness of the „new perception of the world“ cannot be judged, because the views respectively theories are incompatible. From the Ptolemaic perspective with the earth at the centre of the universe, the Copernican system with the sun at the centre of the universe appeared incomprehensible and false. The overthrowing of an old paradigm reflects a scientific revolution.

A paradigm shift is a total change in perspective, a shift from one way of thinking to another, and is today as in former times challenging. The comparison of the new proposed theories with the Copernican revolution makes clear, which implications a new economic and monetary view may have. If the basic foundations of economics should be defined newly, today’s status quo in economics would need to be completely overworked.

However, it is possible to analyse a new economic theory and conception of financial processes scientifically. Within this thesis some new theoretical approaches of credit, money and business cycles, which are close to each other, shall be analysed. How far are these new approaches compatible with each other? Could they build the foundation of a new approach of monetary theory? In a dialectical analysis these new approaches shall be opposed to the prevailing monetary theories.
1.3 Methodology

Basis of this thesis is a comprehension of economics and finance as an applied science.

Objective of this thesis is to introduce a new perspective in the economic discussion of credit, money, and business cycles. Objective is to deliver in brief a new assessment of the positions of economic subjects from the point of financial theory, i.e. deliver advice for suitable action for risk management strategies for private companies, households, and financial institutions, and deliver advice for suitable action for monetary policy.

In this thesis at first, the prevailing conventional monetary theories are presented and the contemporary state of monetary theory is derived. The conventional monetary theories are tested for application in different historic phases of monetary evolution.

New approaches in monetary theory and economics of Bethmann, Heinsohn, Kindleberger, Kutyn, Malik, Martin, Minsky, Nuri, Rothbard, Soddy, Soros, and Steiger are presented, analysed, and assessed. Common feature of these new approaches is that they are all focussing on the definition of credit and money, because money („Money makes the world go round.“ ) is the focus of today’s monetary and capitalist system, but stands also for the theoretic basis of the logic and analytic understanding of today’s economic system and the actual state in the business cycle. The new approaches with their common perception and comprehension of credit and money will be analysed in their compatibility and compared with the prevailing conventional monetary theories.

Comparing the new approaches with the prevailing monetary theories the new approaches are tested for compatibility and applicability in order to judge, if they may constitute a change in perspective or even a paradigm shift. Thereby, the implications on monetary theory of a new conception of economics will be analysed. Applying the new approach to today’s state of the business cycle the challenges of risk management in corporate finance and monetary policy are formulated. In consequence, risk positions are newly assessed. Recommendations for strategic risk management and efficient monetary policy are derived.
For judging and assessing alternative theories and alternative lines of argumentation the criterion for science by Karl Popper is employed. The Popperian criterion ("Wissenschaftskriterium") originates from the school of "kritischer Rationalismus" (critical rationalism) and says that what cannot be falsified shall be taken as right.

Furthermore, the method of Occam’s razor\textsuperscript{18} shall be applied. When choosing between two conflicting hypotheses, which appear to satisfactorily explain observed phenomena, the hypothesis with fewer unproven assertions shall be taken as right. In contemporary terminology, Occam’s razor states: "All things being equal, the simplest explanation has to be the right one."

This thesis is written in English – which is not the author’s native tongue – to ease an introduction in the scientific discussion.

\textsuperscript{18} The concepts of Occam’s razor was introduce by the highly respected thinker and scientist William of Occam - also, known as Ockham, who died 1349.
2. Conventional monetary theory

Conventional monetary theory consists of a multitude of monetary theories; most of them were mainly developed within the last two centuries. As the economies and the financial structures and monetary challenges changed over time, new monetary theories were invented and existing monetary theories modified and upgraded.

Most theories can be grouped in classical economics, Austrian and neoclassical approaches, Keynesian and monetarist theories.

In the following, the main schools of monetary theories will be briefly introduced, as a complete roundup of the contemporary state of discussion in monetary theory would be too far-reaching.

The focus lies on the central errors of the conventional theories, which are revealed in detail and explained.
2.1 Classical economics

For understanding classical economics, the origin and the socio-economic parameters of the time in which the basic ideas were first developed are to be considered. From the time of Adam Smith until the beginning of the 20th century, all major economies were running on a financial system based on a gold or silver standard.

The present challenges of a financial system based on fiat money and floating fiat currencies can hardly understood and explained from a perspective of classical economics, because fiat money and floating fiat currencies were non-existent and hardly imaginable at the time classical economics were developed in. Thus, classical and neoclassical economics are exclusively concerned with money as a medium of exchange with focus on goods and possession.

From today’s point of view, most readers are unable to recall in their personal experience the time of a gold standard. Classical economics appear to be non-applicable for a fractional reserve banking system based on fiat currencies in many ways. Analysing classical economics from today’s perspective of a “floating fiat world” Ingham concludes, “The metatheory of the ‘real’ economy that underpins (neo-) classical analysis is concerned exclusively with money as a medium of exchange. The other functions (unit of account, means of payment, and store of value) are taken for granted or assumed to follow from the medium of exchange function. As either a commodity itself, a medium of exchange can have an exchange ratio with other commodities; or, as no more than a symbol or token, it can directly represent ‘real’ commodities. In this conception, money can only act as a ‘neutral veil’ or ‘lubricant’. Money is not an autonomous economic force – it does not make a difference – rather, it merely enables us, according to Mill, to do more easily that which we could do without it. Real analysis and, ultimately, the equations of general equilibrium models are not, as it is generally supposed, purely the results of the axiomatic-deductive method. The ‘real economy’ abstraction actually derives from an inaccurate historical conception of a small scale, pre-capitalist ‘natural economy’, or the ‘village fair’. In this model, economic activity is seen to involve routine spot trades in which media of exchange can be readily taken to be the direct representation of real commodities – that is, as their ‘vehicles’ – by the continuously transacting
economic agents. The natural economy does not possess a complex social-economic structure; it is essentially simple barter with a monetary veil.  

As Ingham criticizes the “inaccurate historical conception” of classical economics, Ingham shows how difficult it is from today’s fiat world, from an inaccurate historical conception of the gold standard of the 18th and 19th century, to judge the appropriateness of classical economics for its time. The central view of classical economics of a barter-economy with money as a veil originates from and fits quite well into an economy based on a gold or silver standard. As long as gold and silver are monies, are the only monies, money respectively gold or silver can only be loaned out – assuming a hundred percent reserve system - to a debtor, if it is existent beforehand respectively if the banks possess the gold or silver beforehand. This explains why classical economics focus on a barter system and employ a general model of circulation of flows of goods and flows of money. 

The general model of circulation of goods and money lacks, however, the dimension of time. The payments of interests and the resulting pressure for the debtor to serve his growing obligations, the pressure defined by mathematic formula for interest rates - are missing. Empirically and historically characteristic for economic activity were contracts of credit (respectively debt), and not barter or exchange operations in terms of money and goods. Key feature of a credit contract is its intertemporal nature, the aspect and dimension of time, i.e. the accrual of interest over time. The model of circulation ignores the dimension of time. Only from a static perspective ex post, the flows of money and the flows of goods are set equal in value. Kindleberger weighs the function of time, the intertemporal perspective, so high for understanding the basic economic functions, that he describes most of the modern economic theories to be misleading, because they would neglect the elements of speculation and credit. The function of time is also the

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20 Compare with Woll, one of the prevailing school books for economics in German language: „As flows of goods and money in a financial system with division of labour are nothing else than the intellectual sum of all of barter operations (of goods/money) for a specific period, these flows of goods and money must exactly match in their values ex post, because every single barter operation with a flow of goods corresponds with a flow of money in the same amount in the reverse direction. This can be demonstrated in simple quotations of flows of goods and money.“ in: Woll, A. (1990), Allgemeine Volkswirtschaftslehre [General Economics], München: Vahlen, p. 61.
function of interest. As classical economics neglect the dimension of time, interest is explained insufficiently.\textsuperscript{21}

Mandel criticises also explicitly the model of circulating flows of goods and money on an abstract level in his essay about "Basic elements of capitalist production or: the unavoidability of disproportionalities and crises"\textsuperscript{22}: "The pressure of accumulation of capital (for the extended reproduction) has several causes. The pressure for capital accumulation derives from the general conditions of capital in form of money in itself, because capitalist production always starts off with capital in form of money and leads to capital in the generation respectively accumulation of new capital. Otherwise, it would be a vain exercise to throw money (capital) in circulation, in order to receive the amount of capital thrown in beforehand, only. An economy based upon the accumulation of capital, a capitalist economy, makes only sense as an economy, which adds value over time and thereby enables the accumulation of capital. In industrial capitalism, this general tendency is expressed in the stress and pressure to accumulate capital under competition."\textsuperscript{23} Mandel's analysis of capitalist structures from the perspective of a left-wing intellectual reveals the weaknesses of the prevailing macro-economic theories, especially the invalidities of the model of circulating flows of goods and money\textsuperscript{24}.

\textsuperscript{21} "Moreover, the rate of interest is not seen as an independent force driving the economy. It only appears in the advanced stage private property with profit and rent as its new sources of income and is disconnected from money as a means of exchange, which already exists at the stage of common property. Interest, therefore, is regarded as a derivative revenue from profit, which is an offspring of the power to use capital in private exclusivity. Capitalist lords who must borrow money for the use of capital, which gives them the opportunity of making profit, have to compensate the lenders – the 'moneyed class' (Ricardo 1817: 89) – by paying interest because the latter suffer the loss of making profit themselves. Classical economics knew that this borrowing was done in their time by discounting real bills. These bills, however, are not analysed as titles to the property of their endorsers but as possessional titles to the already-produced goods on the exchange of which the bills are issued. This idea brought about the real bills doctrine according to which the quantity of banknotes could never exceed the value of produced goods. Collateral is not recognized as a title to non-physical property which could be employed for obtaining credit, while at the same time its possessional, or physical, side continues to be used by the debtor." Heinsohn, G. and Steiger, O. (2000) The property theory of interest and money, in: Smithin, J. (eds) What is Money?, London: Routledge International Studies in Money and Banking, p. 73.


\textsuperscript{23} ibid.

\textsuperscript{24} Stelter criticises the missing dimension of time in conventional economics in detail. Stelter analyses the micro-economic base model of the flow of goods/trades and the flow of money. The absence of time in the conventional economics model does not allow the logic of debt
“The restricted view of money [in classical economics], and, indeed of economic activity in general, creates a number of problems. In the first place, I shall argue that taking all other functions of money (money of account, means of payment/settlement, store of abstract value) for granted, is not only unwarranted, but also diverts the theoretical focus from fundamental questions regarding the actual social processes by which money is produced respectively created and the problematic relationship between money and goods is socially enacted. Second, the narrow concern of classical economics with means of exchange has created difficulties in understanding modern capitalist credit money, in which special signifiers of debt (promises to pay) issued by states and banks, become means of payment and stores of abstract value.”

Ingham concludes “in their preoccupation with the theory of the value in exchange of the ‘money-stuff’ of actual media of exchange, the nineteenth century commodity exchange theorists and their neoclassical heirs appeared to have missed the central importance of money of account.” The existence of major differences between “modern capitalist credit money” and money of gold and silver standards of the 18th and 19th century is admitted. Classical and neoclassical theories obviously do not apply for “modern capitalist credit money.

Without realising the difference between an economy running on a gold standard and an economy running on fiat currencies with a fractional reserve system, Ingham clearly identifies the insufficiencies of classical economics for explaining today’s economic and financial system: “However, money of account cannot simply be assumed to be the spontaneous outcome of ‘truck, barter and exchange’: the very idea of money needs to be explained. Moreover, the economic theory of pure exchange, based as it is on a basic dyadic model of rational utility maximizers, is incapable of providing an explanation. A second major problem with this restricted view of money as a deflation dynamics. Stelter slightly modifies the conventional model and supports his critic with presentations of the double-entry bookkeeping system on a macro-level. Compare Stelter, D. (1990), Die Gefahr einer deflationären Depression [The Danger of A Deflationary Depression], dissertation nr. 1207 at Hochschule St. Gallen, St. Gallen/Switzerland, pp. 108-116.


ibid, p. 18.
medium of exchange in a natural or real economy is the difficulty in adequately conceptualizing capitalist financing."²⁷

Another major insufficiency of classical economics is the missing distinction between possession and property, which originates from the idea of a barter or real exchange economy based on a gold standard. Steiger analyses this confusion: “The focus of classical economics is private property. There is hardly any notion in classical texts that is stressed more powerfully than this blessing or curse of capitalism. Adam Smith could not imagine a society even in its ‘early and rude state’, like a tribal ‘nation of hunters’ (Smith 1776: 47), without the existence of property. In an advanced state of society property, according to Smith, only shifts from ‘common property’ to individual or ‘private property’, with profit and rent as its specific characteristics and added as new sources of income to wages: … Classical economists were convinced that property is defined as the physical use of goods, which has existed throughout history: goods, however, which are mere possessions.”²⁸ Focussing on the production and exchange of goods under a gold standard classical economics do not scrutinize the legal and abstract logic behind the simple exchange of goods and gold. “Classical economics does not deliver an economic theory but a sociological concept of power over goods and resources. Economic categories certainly present in the real world – especially private property, profit, and rent – are grafted on to this concept. In the early and rude state, there is only the class of private proprietors, Karl Marx’ capitalists, which has power over resources. … Therefore, capitalism as a system of power becomes the label of the economic system of classical school.”²⁹

Credit creation as existing in today’s economic system was not planned for by classical economics. Credit creation of fiat money in a fractional reserve banking system is incompatible with a gold or silver standard and does not fit into a barter or real exchange economy. “Classical economists analyse the economy of the real world as a barter or real exchange economy. They see it at work in the state of ‘common property’. The barter economy originates in a supposed inherent tendency of human beings to gain mutual advantages by exchanging their goods and resources. It brings about the division of labour as

²⁷ ibid, pp. 18/19.
²⁹ ibid, p. 72.
a tremendous productive force only limited by the extent of the market. The market, however, plays only a subordinate role in the reproduction of capital, which is the capitalists’ power over resources. ... Money is identified with coins minted out of an existing stock of bullion, that is, of already produced commodities. Thus, money is neither created in a credit contract nor extinguished after repayment.”

Obviously, money creation under a gold standard of the 19th century and money creation in today’s fiat money world with electronic book-entries vary by far.

Steiger analyses further, “Though some classical economists (most prominent Ricardo) know that money is loaned only against good securities and interest, the credit creation of banknotes or paper money is not regarded as having any impact on the economic process. The latter is solely determined by the existing stock of capital goods. Furthermore, it is not demanded that the quantity of paper money has to be redeemable in bullion: the only requirement is that it is regulated in accordance with the value of the bullion so that neither inflation nor deflation can arise. Paper money is regarded as a tool to mobilize more easily the existing quantity of bullion – seen as a part of circulating capital – and to reduce the transaction costs of carrying bullion around. Money is seen as a mere facilitator of barter, a special good to solve the problem of double coincidence of wants. As unit of account, it is perceived as a universal instrument and measure of commerce.”

As in later chapters demonstrated by a detailed analysis of the present fractional reserve banking system, classical economics miss completely the logic of modern fiat money, which is “no fault” of a theory which attempts to explain the economic structures of the 18th and 19th century and which can recall as paper money only Marc O’Polo’s news about Aga Khan’s paper money of the 13th/14th century in China. By Popperian criteria classical economics contributed well to an overall understanding in the economics of the 18th and 19th century and worked well therein assuming a gold standard as condition precedent for classical applicability.

30 ibid, pp. 72/73.
31 ibid, p. 73.
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2.2 Marxist theory of commodity money

Marx’ theory of commodity money originates - as classical economics do - from a time in which the economies of the major nation-states were running on gold and silver standards. Therefore, the Marxist theory of commodity money is as anachronistic as classical economics are for explaining the present fiat money system with floating fiat currencies.

Marx' theory of money is simple and refers to gold as the only money. Gold as money is explained from a perspective where gold respectively money is derived from its character as a commodity. Therefore, Marx' theory of gold as “Geld” respectively money delivers no direct answers to the challenges of today's economic system which is dominated by credit and fiat money.

However, Marx' approach may help to highlight and explain the contradictions of today’s prevailing monetary theories. Marx' approach has a clear micro-economic foundation. Marx’ line of argumentation starts off with the dialectical relationship between labour and commodities as the product of labour. For co-ordinating the many different activities in any human socio-economic system of labouring, the capitalist systems asks for a mechanism which co-ordinates the economic activities in a decentralised way. Marx argues that in a capitalist economy the mechanism co-ordinates indirectly labouring activity by the systematic exchange and evaluation of commodities. For evaluating commodities, a money form of value, which is a universal equivalent form of value per se, a numéraire, is needed. Gold historically became the ideal money, because gold is for thousands of years by most major cultures highly appreciated for its unique nature. In Marx' view gold works as ideal numéraire, as the perfect commodity money. In Marxist theory, the fundamental contradiction of the capitalist system is resolved via gold as money. Gold as money and commodity respectively commodity money allows the systematic evaluation of all other commodities and allows the systematic exchange of commodities indirectly co-ordinating labouring activity.

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32 In German the word for money is called „Geld“ which is very similar to “Gold” in German respectively “gold” in English.

33 Marx writes about gold as the ideal money. “The universal equivalent [gold] … has the same use value for everybody – that of being the carrier of exchange value. Thus the contradiction inherent in the commodity, namely that of being a particular use value and simultaneously universal equivalent, and hence a use value for everybody … has been solved in the case of this one commodity.” Marx, K. (1976) *A Contribution To The Critique of Political Economy*, New York: International Publishers, p. 48.
Applying Marx’ theory of money to today’s monetary system of fiat money and credit two conclusions are allowed only. One conclusion is that Marx’ analysis of money is wrong; because the existence of fiat money and the obvious absence of gold as money in today’s economic system proves Marx wrong.

The other conclusion is that Marx is right, that money is gold. Fleetwood concludes that this other conclusion “accepts the observation about the domination of non-commodity money while at the same time it accepts the argument that money is a commodity. The paradox is resolved through the following (highly disturbing) allegation. If the analysis set out here is correct and money is [gold] a commodity, and if, furthermore, the contemporary capitalist system has abandoned [gold as] commodity money, then one must at least consider the possibility that the system no longer has a universal equivalent. In other words, whilst the system still uses something called money, something that appears to be money, this something might not really be money at all. Appearances might be deceptive.”

Fleetwood goes one step further raising the following questions: “What forces have encouraged nation states to abandon commodity money (the gold standard and convertibility) when the result meant abandoning the universal equivalent? If abandoning the universal equivalent means abandoning the value form, what kind of capitalist system are we now experiencing? Does the abandonment of money [gold] require a more conscious administration of labouring activity and its products? Does the abandonment of money [gold] explain the emergence of artificial money such as the euro?”

That money is gold respectively that gold is still money backing Fleetwood’s questions is strongly indicated by the high trading volume of the London Bullion Metals Associations LBMA. Gold seems to play an important role as a major trading currency in the present world of fiat currencies, because behind the doors of the LBMA 3.000 - 5.000 metric tons of gold (equivalent of approximately USD 30.000-50.000 millions) may be traded daily in London. As the absolute trading volume is immense, annual trading is more than 125 times the world's annual mine production, and annual trading is nearly nine times the central bank’s holdings of approximately 35.000 metric tons, Marx’

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35 ibid, p. 189.
concept of gold as money is supported. Obviously, the high daily trading volume strongly resembles that of currency trading.\footnote{On January 30, 1997, the London Financial Times printed the following: “Gold global market revealed, By Kenneth Gooding, Mining Correspondent: Deals involving about 30 million troy ounces, or 930 tonnes, of gold valued at more than $10 billion are cleared every working day in London, the international settlement centre for gold bullion. This is the first authoritative indication of the size of the global gold market, and was revealed yesterday by the London Bullion Market Association. The volume of gold cleared every day in London represented nearly twice the production from South African mines in a year, Mr. Alan Baker, chairman of the association, pointed out. The size of the gold market will surprise many observers, but traders insisted the association’s statistics were only part of the picture because matched orders are cleared without appearing in the statistics. Mr. Jeffrey Rhodes, of Standard Bank, London, said the 30m ounces should be “multiplied by three, and possibly five, to give the full scope of the global market.” Gooding, K. (1997) \textit{Gold: global market revealed}, article published in the Financial Times, London, on January 30.}

Which monetary role gold plays in the present financial system will be analysed in detail in the later chapters \textit{3.2 Gold standards} and \textit{3.9 Gold and yen carry-trades}. 
2.3 Austrian and neoclassical approaches

Neoclassical theory originates from its predecessor, classical economics. The idea of money as a special good, numéraire and veil is taken from classical economics, slightly modified, and further developed. In neoclassics, the market and individual optimisation decisions are introduced. However, the idea of an economic system as a barter or real-exchange economy is as dominating as in classical economics. Therefore, money is mainly regarded as a medium of exchange.

Modifying classical economics Menger, Böhm-Bawerk and von Mises introduced the individual and his actions and choices as the fundamental building block of the economy. As classical economics were focussed on the aggregated parameters of macroeconomics, the Austrian school tries to provide satisfactory explanations for value, price, or earnings in the market economy by defining utility, price, exchange, production, wages, interest, and capital.

Introducing micro foundations neoclassical approaches explain most economic phenomena as emerging from individual action, besides the supply of money and the price level, which are regarded as given external parameters. Without introducing a micro foundation for the creation and destruction of money, neoclassical and Austrian approaches are flawed, as they miss a clear understanding of money, fiat money, and fractional reserve banking.

The only attempt to integrate micro and macro theory with special regard to the definition and functions of money was made by Mises’ *The Theory of Money and Credit*, which was published in German in 1912, but not translated and published in English before 1934. “Mises' integration of micro and macro theory, his developed theory of money and the regression theorem, as well as his sophisticated analysis of inflation, were all totally neglected by later economists. The idea of integrating macro theory on micro foundations is further away from current economic practice than ever before.”37 Mises’ integration of money and banking with micro theory was not only ignored in Keynesianism, but also even later in neoclassical economics.

As neoclassical economics developed the quantity theory of money, money and its function and nature were again tried to be explained on a macroeconomic level. However, how new loans as well as debt repayments in today's credit and fiat economy affect the equation of quantity theory remained ignored.

While Mises understood that the creation of bank loans also creates money, and the repayment of bank loans destroys money, this understanding has not been applied to the quantity theory of money. The payment of interest also destroys money affecting the business cycle in a fractional reserve banking system, which will be discussed in chapter 3.3 *Fractional reserve banking*. Mises calls the fiat money respectively the credit/debt created in a fractional banking system “fiduciary credit”. Mises admits that the concept of fiduciary credit may appear “puzzling, even inexplicable; it constitutes a rock on which many economic theories have come to grief”. 38 Mises differentiates between “circulation credit” (Zirkulationskredit) and “commodity credit” (Sachkredit) which comes close to the credit in a physical gold bullion banking system. However, Mises defines fiat money as a present good, which misses the actual character of fiat money created by double bookkeeping entries.

The obviously close relation between money and credit falsifies the quantity theory of money. On the one hand, money pays back, pays off, and redeems credit, on the other hand, the granting of new credit creates new money in form of claims and entitlements to the debtor's newly contracted obligations. The unsolvable connection of money and credit is reflected in the fact that each credit, each claim on and entitlement to debt payments, has an equivalent corresponding debt-side, a liability respectively obligation to pay, and vice versa according to the mechanics of double-entry bookkeeping system. The rights of disposal of borrowed money have its price, which is the price of borrowing respectively lending called interests. Interests compensate in terms of opportunity costs the lender/creditor for his foregone rights of disposal and forgone liquidity.

The derivation of money from credit and thereby the synchronous creation of debt contradicts the prevailing quantitative theories of money which derive the

monetary process from a given macroeconomic monetary aggregate. In neoclassical economics, money is perceived as a medium of exchange, which is the outcome of individual utility maximisation. Ingham concludes that “these approaches [neoclassical approaches] must presuppose what they set out to explain [money]; that is to say, at the very best they can only demonstrate that it is economically rational for the individual to hold money once it is in existence and widely accepted. Modern neoclassicism is unable to explain its own interpretation of the problem of the logical origins – micro foundations – of money, exclusively as a medium of exchange.”

The missing micro-economic foundation of money of neoclassical economics is analysed by Steiger and Heinsohn in their *property theory of interest and money*: “Neoclassical theory does not look any deeper into the distinction of property from possession than its predecessor [Classical Economics]. ... The confusion of property with possession, the physical use of goods, also dominates neoclassical economic historians who try to identify the causes of growth. ... The confusion of property with possession in neoclassical theory is most visible in the economic concept of an individual who optimizes given and, therefore, scarce initial endowments of goods and resources. This individual however is not a proprietor but only a possessor. Nevertheless, via the concept of optimizing the physical use of goods, neoclassical theory advances beyond the classical non-economic concept of power over resources and tries to live up to the demands of a genuine economic theory. However, the confusion of property with possession does not allow an explanation of what forces an individual to economise his resources other than by the ad hoc hypothesis of given endowments. Since the scarcity of goods is a characteristic of every society without enabling every society to develop an economic system, it cannot be an endowment per se by which an individual advances from an efficient use of power over resources to their economising. The latter must be due to something entirely different from the posessional use of goods.”

In other words, Ingham sums up: “Money’s existence, narrowly conceived as a medium of exchange, is explained in orthodox economics as the outcome of individual rational utility maximization. ... However, these approaches must presuppose what they set out to explain; that is to say, at the very best, they can only demonstrate that it is economically rational for the individual to hold money once it is in existence and widely accepted. Modern neoclassicism is unable to explain its own interpretation of the problem of the logical origins – micro foundations – of money, exclusively as a medium of exchange.”

Classic and neoclassic theories have in common that interests are derived and determined exclusively from physical parameters. Money, credit, monetary policy are to be irrelevant, because in the view of classic and neoclassic theories human greediness refers to physical goods only. In classic theories, interest rates are derived from the profits of physical production. In neoclassic theories, interest rates are derived from the economic subject’s intertemporal preference of time. Thus, the neoclassic theory of interest rates delivers no genuine explanation of interest, but is a severally times conditioned view of partially optimising trade-offs.

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2.4 Keynesian theories

Keynesian theories will be briefly introduced to an extent, which is sufficient to falsify Keynesian theories, as they contain a host of logical contradictions, errors, and oversimplifications.

Most remarkable about Keynesian theories is their influence on monetary and fiscal policy in the last century, because Keynesian theories provided the theoretical justification for massive increases in government spending and thereby increased government control over individuals and the economy. From a historic perspective, the concept of a cyclical monetary policy emerged from Keynes' theory of deficit spending. Keynes recommended in case of special macro-economic conditions during a depression to stimulate an economy by increasing public demand and spending through increasing public deficits. Keynes' theory was welcomed in the late 1930s as it allowed postponing deflationary impacts of the world depression and allowed the armament for the Second World War. Dumas criticises Keynes' theories in detail with regard to their far-reaching social implications.

42 “In this regard, it must be noted that while we can use mathematics and logical reasoning to show the errors of Keynesian economic theory, it is Keynesian theory that provided the theoretical and moral justification for the massive increase in government debts this century. This has allowed bankers to exert significant influence over governments, while transferring trillions of dollars from taxpayers to bankers to pay the interest on these loans. Has all of this happened because of an innocent error? Or was a false theory deliberately created to bring about the ends that we now see?” Kutyn, J. (1999), The Nature of Money, article published on the internet: www.cfoss.com/nature.html, The Claire Foss Journal, alternatively: http://www3.sympatico.ca/truegrowth/kutyn.htm.

43 „It is a sad irony that the period of greatest material advance in world history, with the most remarkable growth in the living standards of ordinary people, is now in danger of foundering because of excessive material appetites. Escaping the Depression of the 1920s and 1930s required the defeat of old shibboleths. The measures needed were not hard to undertake. Acceptance of Keynesian policies was mainly a question of being less inhibited about spending money. The problem now is harder, because the solution to present difficulties requires a definite sacrifice of living standards in the short run. Small wonder that theories telling us we can escape problems painlessly, with tax cuts for example, are widely and enthusiastically believed. But if the simple requirement of reducing consumption, by means of either government spending cuts or increased taxes on consumers, is not soon accepted, living standards will fall in any case. The resulting strains on the world economic system could weaken or destroy the foundations of prosperity. At best, there would be a prolonged stagnation of living standards and a steady rise in unemployment. More ominously, financial crisis could drive at least some parts of the world into depression and misery.” Dumas, C. E. (1985), The Effects of Government Deficits: A Comparative Analysis of Crowding Out, in: Essays in International Finance No. 158, Princeton University Press, pp. 46/47.
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Keynes’ ideas are at their core a rejection of the Austrian and classical approaches of laissez-faire and a self-regulating economy. Shelton analyses: „Over the course of his career, Keynes had come up with three essential propositions that greatly influenced his thinking on structuring a new international economic order to reign after World War II. First, based on his early familiarity with India’s monetary situation, Keynes had concluded that a gold exchange standard was more efficient than a classical gold standard. Second, as the result of his experience at the Paris Peace Conference, he was convinced that sweeping multilateral initiatives and extensive financial cooperation were necessary to assist crippled economies and promote political stability. Finally, Keynes believed that governments should act as counterweights within their domestic economies by spending money when private demand failed to meet aggregate output.“ Thereby Keynes delivered the scientific and psychological backing for a transformation from a gold standard of the 19th century via a denatured gold exchange standard into a fiat money system with US dollar domination. Keynes who was strictly opposing a gold standard as a “barbarous relic” was directly involved in the erection of the International Monetary Fund and World Bank after the conference in Bretton Woods.

Keynes’ basic idea of government spending and consumption on credit simply contradicts common sense and Popperian criteria. In the long run, the standard of living depends on production, no matter if dis-saving through public deficits may increase actual spending in the short- and medium-term.

New considerations and aspects of explaining interests were introduced by Keynes. Keynes regards interest as an immaterial liquidity premium. After

45 „Human beings seem to be blind for two undoubted fact, every school kid can understand: first, unlimited growth in limited space is not possible in the long run, and second, no economic subject can spend more, than what it takes in. ... The paradox of this widespread conviction is, that representatives of all classes seem to overview, that money and gold are symbols only and that even a lot of money cannot buy what does not exist anymore.“ Lorenz, K. (1983), Der Abbau des Menschlichen [The Decline of Humanity], Munich: Piper & Co. Verlag, p. 72.
46 Compare with: „In the long run, living standards depend on productivity; we can live on borrowed money for the time being, but ultimately we can’t spend more than we produce.“ Malabre, A. L. (1987), Beyond Our Means - How America’s long years of debt, deficits and reckless borrowing now threaten to overwhelm us, New York: Random House, p. 18.
47 „Whereas classical economics and the neo-classical synthesis are based upon a barter paradigm - the image of a yeoman or a craftsman trading in a village market - Keynesian theory rests upon a speculative-financial paradigm - the image is of a banker making his deals
Keynes, money is an asset with implicit liquidity. Furthermore, money in comparison with all other asset classes has the advantage of relative low transaction costs in barter transactions. Both advantages of money, the liquidity premium and the low transaction costs, constitute the liquidity preference. Thus, according to Keynes, interests reflect the liquidity preferences of economic subjects. By this explanation, Keynes turns away from previous biologic and sociologic ways of explaining interests and derives interests from abstract macro-economic considerations. However, Keynes misses to identify interest as one of the key elements of an economy based upon property rights. After Keynes, interest was also applicable for tribal and feudal societies, because interests are not derived from property, but from the physical possession of goods.

Keynes’ theories are strictly macroeconomic and thereby fail to understand money from its microeconomic foundation. Kutyn analyses in detail how Keynesian theory lacks microeconomic foundations. It gives current income an important role in determining consumption, yet does not consider how consumption is affected by new loans (increasing consumption) or by loan payments (decreasing consumption). Nominal money supply is considered to be set by the government, totally ignoring the role of banks in creating money in a world of gold-backed fiat money. The role of money in determining interest rates is seen as affecting investment, but the effects of creating money on the economy are ignored.
2.5 Monetarism

The ideas of monetarism originate from the book *Monetary History of the United States* by Friedman and Schwartz, which was published in 1963. In contrast to Austrian and neoclassical theories, Friedman and Schwartz offer an alternative approach explaining the Great Depression of the 1930s. Their alternative approach contradicts the conventional and prevailing views of the time of the Great Depression and offers a new ultimate cause of the Great Depression. While Keynesian theories attempt to explain how the Great Depression and recessions can eventually be overcome, monetarism attempts to explain how imminent recessions can be averted in the short-term.

In the conventional view, the Great Depression was regarded as the unavoidable consequence, of an unsustainable economic development, the reckoning for a preceding excessive credit boom in the late 1920s. However, according to Friedman and Schwartz the credit boom of the 1920 did not cause the Great Depression, but a false monetary policy during the Great Depression were the main driver of the Great Depression. Friedman and Schwartz write that the monetary collapse from 1929 to 1933 were not an inevitable consequence of what had gone before, but that it were the result of the policies followed during those years. In their opinion, alternative policies of an easy-money policy could have halted the monetary debacle and were available throughout these years.

In the late 1960s and early 1970s, the ideas of Friedman and Schwartz became popular as "monetarism" among American economists. By delivering a new mainstream interpretation of the Great Depression, American economists conveniently accepted the underlying basic assumption of monetarism, the assumption, that adequate monetary policy is sufficient for avoiding the painful economic consequences of a preceding boom. Friedman argues that with an early easy-money policy, the Great Depression could have been averted, because not until late 1930 the money supply in the United

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48 Compare with: “For American economists, the views expressed in this book on the role of monetary policy in precipitating the depression have become standard history and the standard explanation of the Great Depression. One important, inherent conclusion of this monetarist approach for the future was the comforting message that sufficient monetary easing is enough to prevent a serious recession after a boom. This is, for sure, one assumption of central importance behind the currently prevailing bullishness about the U.S. economy.” Richebächer, K. (2000), *The Worst in History – (1929-30 vs. 1999-2000)*, article published on the internet: www.dailyreckoning.com, May 10, 2000.
States contracted by more than 40 percent. The preceding stock market crash of 1929 is regarded by Friedman more a less as a none-event.\footnote{Compare with: "In this regard, Milton Friedman’s analysis of the causes of the Great Depression has played a momentous role. I take strong exception to his work in this area. At the minimum, it grossly oversimplifies the issues that confronted the post-crash Fed. The bottom line is that the depression was not, as the consensus believes, caused by the Federal Reserve’s failure to create bank reserves/liquidity (through the purchase of government securities) after the stock market crash. Instead, depressions are the unavoidable consequence of reckless boom-time money and credit excess, rampant speculation and the resulting severe structural and economic distortions.” Noland, D. (2001), We Know His Enemy; article published on the internet: www.prudentbear.com.} Thus, assessing monetarism asks for brief analysis of the Great Depression and of the central term of money supply.

The book *Monetary History of the United States* introduces the parameter of money supply and delivers overwhelming data stressing the importance of money supply. However, money supply – usually abbreviated by an “M” - reflects only a small part of the financial overall structure of an economy. The creation of credit in the preceding boom years of the 1920s occurred in a volume of many times of the measurable money supply. Credit creation by the fractional banking system propelled the stock market boom in the 1920s.

A simple example demonstrates the inadequacy of the focus on money supply: If in the credit boom of the 1920s a bank grants a new credit to a person who immediately afterwards invests the newly created money, respectively the received credit/loan, in the stock market, the newly created credit will not go into the money supply statistics. The newly created credit respectively the new money moves through the money supply for a theoretical second only while being transferred through the debtor’s current account. However, the newly created credit will influence the stock market. The stock market crash of 1929 may have put the debtor under severe financial stress, because the proceeds of his credit and most likely the collateral for his credit are destroyed or sharply reduced in value. If the debtor is generally over-indebted, he may attempt to sell his assets and use up his last liquidity reserves in form of cash money parked at current accounts and cash at hand for repaying the loan. In that case, the statistics would indicate a reduction in the money supply. Obviously, the money supply has a substantial time lag, measures only side effects, and misses the main (credit) volume which is created by modern banking. However, the money supply is easily measurable.
and under direct control of the Federal Reserve via open market and minimum reserve policy.

Concerning the money supply and credit creation, it is estimated that the stock market crash involved a wealth destruction of more than USD 80,000 million in total with capital losses in late 1929 of about USD 25,000 million. In comparison the stock of broad money declined between late 1930 and the end of 1933 by USD 13,000 million only. Friedman argues that the deflationary money supply's shrinkage - due to false, tight monetary policy of the Federal Reserve - were the main driver for a deep depression. By ignoring the stock market crash Friedman neglects the consequences of the stock market crash to the overall liquidity of the US economy.

Unfortunately, nearly no data are available concerning the credit creation, but it must be assumed that the credit creation was a multiple of the existing money supply. The estimated wealth destruction in the stock market crash indicates the dimension of credit creation which took place in the preceding 1920s. Even Friedman does not offer one figure about the volume of credit creation in his book *Monetary History of the United States*. It is obvious that the stock market crash did not only destroy the wealth-effect in consumer spending, but reduced sharply the overall liquidity in the economy. As explained in the preceding example, measuring liquidity only by changes in the money stock respectively money supply is a gross mistake.

The logic of credit and boom bust patterns such as stock market bubbles will be analysed in detail under the chapter 4.4 *Debt deflation dynamics and credit waves* showing the importance of credit and the relative unimportance of money stock.

Concerning the liquidity of assets and especially financial assets, Richebächer notes that in boom phases with easy-money policy and low interest rates private households and corporations reduce their cash balances and cash by highly liquid financial assets. In an abrupt market downturn financial assets collapse in value and the former liquidity is transformed in illiquid assets, which can only be liquidated at a substantial loss. "Considering the amount involved in this wealth and liquidity destruction, we do not have the slightest doubt that the stock market crash was the most important, immediate cause of the ensuing depression. The pattern of the depression might well have been
radically different from what happened had it not been preceded by the stock market catastrophe. Nevertheless, this implies, indeed, that the Great Depression primarily originated in the excesses of the preceding boom.  

Statistics for the credit boom of the 1920s are hardly available. Nevertheless, it is known that during the four years from end-1925 to end-1929 corporations issued bonds for about USD 20.000 million and equity of USD 10.000 million. Bank loans increased by about USD 8.000 million. During this period, U.S. GDP grew by USD 13.900 million to USD 104.400 million mostly for mortgage lending. Furthermore, securitization and disintermediation boomed in the 1920s leading to further credit creation which is even harder to measure and estimate. E.g., auto credit and its securitization (of auto receivables) may not even move through any monetary aggregates, which are measured as money supply.

As monetarism focuses on money supply and monetary aggregates and strictly neglects credit, monetarism is based on a reverse conclusion. Inflation (and respectively deflation) are the consequence of monetary policy which provided to much (to little) money to the economy beforehand. Thus, according to monetarism deflation can be avoided by the adequate expansive monetary policy providing the economy with enough money. Monetarism implies that inflation is not created by the central bank, but on the contrary, it is the central bank with its monetary policy, which fights inflation.

The derivation of money from credit - as will be explained in chapter 4.2 Property theory of interest and money - and thereby the synchronous creation of debt contradicts monetarism, because monetarism derives the monetary process from a given macroeconomic monetary aggregate. A theory which employs the control of given monetary aggregates as means of monetary policy - ignores the fact that money respectively credit can be created out of a private credit contract between creditor and debtor. The creation of money out of a new credit is a fact that leads each attempt of


51 Compare with: “It follows … that inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output.” Friedman, M. (1987) Monetary Policy for the 1980’s published as Monetary Policy: Tactics versus Strategy, in: Dorn, J. A. and Schwartz, A. J. (eds), The Search for Stable Money, Chicago: University of Chicago Press, p. 362.
defining a monetary aggregate M, M1, M2, M3, or M3, respectively controlling this aggregate, and employing it for macroeconomic policy ad absurdum.

In the 1980s and 90s financial innovation and deregulation developed so rapidly, that the search for a unique monetary aggregate - M1 versus M2 versus M3 versus Mx etc. - which fulfils monetarist requirements becomes more and more futile. Thus, in the late 1990s monetarism and targets for M’s vanished in the public discussion of central banks in North America and Europe.

A second important trait of monetarism is its support for flexible exchange rates, which was also derived from the idea of a "right" monetary policy and self-adjusting trade imbalances. The idea of flexible exchange rates was also very welcomed among American economists in the early 1970s, as Friedman's monetarism offered an alternative scientific justification for the debasement of the US dollar from a gold standard prior to the major inflationary wave of the first oil crisis.

According to monetarism, the debasement of the US dollar from gold was not a default of the United States or its financial system, but an overdue financial adjustment or reform to avoid future currency crises. From a monetarist point of view, the debasement of the US dollar from gold was not the trigger for the inflationary 1970s, but in the contrary a measure enabling the Federal Reserve to fight inflation in a more efficient way. Thus, in retrospective monetarism provided the scientific base and justification for the debasement of the US dollar, floating exchange rates, and the high-interest rate policy of the early 1980s for curbing inflation.

52 Causalities between dollar debasement in 1971, gold standard, and monetarist ideas are explained in detail in the chapter 3.2 Gold standards.

53 The debasement of the US dollar from gold and the introduction of floating exchange rates were condition precedents which enabled the Federal Reserve to submit most nations within the course of two oil crises under US dollar supremacy. Compare with chapter 3.5 Post-war inflation.
2.8 Summary

The central error of present economic thought is its failure to understand the micro-economic foundation of money respectively credit.

Classical economics, Marx’ theory of commodity money, and the Austrian approaches have some micro-foundations, but these theories originate from a time when the major parameters of the financial systems were differently set up. Bluntly speaking classical and Austrian ideas are anachronistic. Classical economics, Marx’ theory of commodity money, and the Austrian approaches all miss the concept of fractional reserve banking running on fiat money.

Keynesian and monetarist ideas are exclusively working on macro-economic level. The key questions how money is created, works, and disappears in an economy are not answered. Keynesian and monetarist theories are in their foundation flawed concepts, but both theories – similar to the concept of communism – were widely welcomed and accepted in their time and few years after public establishment broadly applied in (monetary) policy.
3. Applicability of conventional monetary theory - Monetary evolution and policy in retrospective

From a historic perspective, the financial system of the present global economy running on “modern credit-money” or fiat has evolved through many metamorphoses, especially in the 20th century and the last few decades thereof major changes occurred.

For the understanding of an economy and economics as well as for the assessment of economic and financial theories, it is essential to understand the logic of the nature of financial processes. Thus, it is not only convenient to go back in history and start the analyses of financial processes and structures with the beginning of financial systems; Rothbard argues that it is even impossible to understand money and how its functions without analysing its historical development, because “money is unique in possessing a vital historical component.”

Soddy reveals that the mainstream economics are missing a sound theoretical foundation. For understanding the existing monetary system and the conception of money, Soddy recommends to focus on the historic evolution of money.

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55 “The Simplest Questions About Modern Money Are Unanswerable: How is money made, by the King and Royal Mint, or by the banks? How much money is there? Does money bear interest? What is precisely the distinction between bad money and good, between what is issued by the King and Royal Mint, by a counterfeiter, or by the banks? What is the correct quantity of money needed for the conduct of a nation’s business, and why cannot it be printed as railway tickets are, or as food tickets were during the War without an elaborate mystical apotheosis of the golden calf and a bowing down to vulgar fallacies concerning the fecundity of debt? Even a child can understand the reason why money was made of a valuable metal. A commercial transaction in which gold bullion exchanges for goods is simple barter. When we pass from bullion to gold and silver coins, which circulate practically for ever, from these to a national paper money, like the papier mâché of Kubla Khan or the American “greenbacks,” then to the modern bank-note and cheque which have practically displaced national money, and then the various forms of elusive bank credit, “created out of and de-created into Absolute Nothingness by the mere fiat of the Human Will,” the simplest questions that would occur to the mind of a child seem incapable of a definite answer. If it was considered an elementary principle of honesty, and self-evident that the nation’s currency should be of just weight and fineness and issued only by a duly authorised Mint, how are the vital national interests in the creation of money properly safeguarded now that the big transactions of the world are carried on by cheques, bank-notes, and other forms of paper credit that never saw the inside of a Mint?
In the following, the key features of economic and financial systems will be analysed through different historic phases.

As the evolution of monetary history sometimes jumps forth and back due to technological and political circumstances, the following structure is not strictly chronological. In the chapter 3.1 Tally stick economies, medieval Europe will be the focus with parallels drawn to ancient Mesopotamia and Egypt. In the chapter 3.2 Gold standards, the 19th century will be the focus with parallels drawn to the Greek and Roman Empires. Thereafter, the major monetary developments in the 20th century will be analysed in several steps.

With regard to the historic and socio-economic origins of the respective monetary theories and with regard to the different historic phases, the applicability of conventional monetary theories is assessed. Subsequently, the applied monetary policies are regarded in retrospective.

It is unavoidable, before proceeding further, for the reader to try to understand the existing monetary system. In all the ramifications of the evolution of the conception of money it is essential that one main thread running through them should never be for one moment lost sight of. It is the same thread one must pursue in passing from the common conception of money, as it is thoroughly well understood by every individual, to the conception of money as a national instrument to effect the distribution and allocation of the community’s wealth, for the historical evolution of money in the community mirrors the evolution in the mind of a learner trying to master the subject.” Soddy, F.(1933), Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox, New York: E. P. Dutton & Co., Inc., p. 132.
3.1 Tally stick economies

The so called “tally stick economy” will be introduced first, as the first advanced economies in Mesopotamia and Egypt as well as medieval European economies were mainly running on “money without coins”.

The barter-based ancient economy will not be introduced, because it exists only in books of economics and their students’ minds. “Mainstream economics basic assumption for explaining the origin of money is the assumption of a barter-based ancient economy. However, there is no historical or sociological evidence supporting this assumption. Central idea of the barter-based paradigm is that the forefathers of the homo oeconomicus were inconvenienced by barter until they spontaneously hit upon the idea of money as medium of exchange. Over time, greater efficiency was obtained by coining precious metals, and market efficiency was enhanced by free banks, which substituted paper money backed by precious metals reserves.”

Thus, the assumption of a barter-based ancient economy contradicts history of trade and commerce.

The existence of debts in the form of clay tablets is at least 2000 years older than the oldest coins. In addition, the denominations of all the early precious, metal coins, even the least valuable, were far too high to have been used in everyday exchanges. Moreover, according to MacDonald the most common denomination of the earliest electrum coins would have had a purchasing power of about ten sheep, which does not fit well in a barter-based economy.

Analysing the origin of money Wray goes back to the beginning of trade in ancient societies, which started with temples and clay tablets in Mesopotamia and Egypt: “Tax payments [of farmers] became standardised in terms of quantities of wheat or barley grain. These grain standards formed the basis for all the early money of account units, such as the mina, shekel, lira, and pound. Money, then originated not as a cost minimizing medium of exchange, but as the unit of account in which debts to the palace (tax liabilities) were measured. As the area over which taxes were imposed increased, palaces found it useful to farm out tax collections to private farmers. The first evidence of lending at

interest comes from the practice of payment of taxes by the tax farmers, who then took bondservants and charged interest on the village debts. ... The clay shubati (received) tablets record these and other debts. Each tablet indicated a quantity of grain, the word shubati, the name of the person by whom received, the date, and the seal of the receiver. The tablets were either stored in temples where they would be safe from tampering, or sealed in cases, which would have to be broken to get to the tablet. Unlike the tablets stored in temples, the case tablets could and did circulate. A debt could be cancelled and taxes paid by delivering a tablet recording another’s debt whereupon the case which recorded the cancelled debt could be broken to verify the debt terms. This was general practice for several thousand years .... In other words, taxes, debts, and price lists existed for thousands of years, with clay tablets circulating before anyone had the bright idea of reducing transactions costs by creating money through stamping precious metals to coins. ... From the earliest times, markets operated on the basis of credits and debits, and even the smallest sales to consumers took place on credit, which could be carried on the books of the merchant for years before being cleared.58

Summing up Wray’s analysis of the ancient economy of clay tablets and temples of Mesopotamia the following features are striking:

- taxes and administration of tax liabilities outsourced to temples working as merchant banks
- taxes, debts, price lists, and markets existing without coinage
- legal framework for private property existing as precondition for deb(i)ts and credits
- systems of debits and credits based upon physical goods and services (grain)
- interest existing for debit and credit accounts, settled respectively payable in physical goods and services (grain)
- merchant banking existing through trading system for debt in form of tradable (double-entry) clay tablets
- tradable and discountable debit respectively promissory notes (in form of clay tablets) exclusively non-interest bearing

In terms of modern finance, the ancient economy and its financial system were running on promissory notes (in terms of clay tablets) which are tradable tax

liabilities in favour of the tax office. The promissory notes are payable - i.e. to be settled - in physical goods and services (grain) at tax time. Counterfeiting clay tablets is forbidden by the administration of the local government. Merchant banking of the temples is focussed on and limited to the trading of promissory notes in form of clay tablets, because lending was only possible in terms of already existing clay tablets or existing precious commodities.

In the essay “What is Money?” Mitchell describes the functioning of clay tablets in detail. In addition to Innes’ description, it shall be added that clay was plentiful in Mesopotamia compared to scarce papyrus. The contracting parties of debtor and creditor "signed" their names to the tablet by impressing their respective seals. In this age of mass illiteracy, men carried their signatures around their necks in the form of stone amulets engraved with the wearer's mark, and buried with them at death.

Similar to the ancient economy of clay tablets, in medieval Europe for many centuries the principal instrument of commerce was the tally or tally stick. The

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59 Compare with: “Among recent discoveries in ancient Babylonia, far the most common commercial documents which have been found are what are called “contract tablets“ or “shubati tablets“—the word shubati, which is present on nearly all of them, meaning “received." These tablets, the oldest of which were in use from 2000 to 3000 years B. C. are of baked or sun-dried clay, resembling in shape and size the ordinary cake of toilet soap, and very similar to the Italian copper cakes. The greater number are simple records of transactions in terms of “she", which is understood by archaeologists to be grain of some sort. They bear the following indications: the quantity of grain, the word "shubati" or received, the name of the person from whom received, the name of the person by whom received, the date, the seal of the receiver or, when the King is the receiver, that of his “scribe" or “servant. From the frequency with which these tablets have been met with, from the durability of the material of which they are made, from the care with which they were preserved in temples which are known to have served as banks, and more especially from the nature of the inscriptions, it may be judged that they correspond to the medieval tally and to the modern bill of exchange; that is to say, that they are simple acknowledgments of indebtedness given to the seller by the buyer in payment of a purchase, and that they were the common instrument of commerce. But perhaps a still more convincing proof of their nature is to be found in the fact that some of the tablets are entirely enclosed in tight-fitting clay envelopes or "cases", as they are called, which have to be broken off before the tablet itself can be inspected. On these "case tablets", they are called, the inscription is found on the case, and it is repeated on the enclosed tablet, with two notable omissions. The name and seal of the receiver are not found inside. It is self-evident that the repetition of the essential features of the transaction on the inner tablet, which could only be touched by destroying the case, was, just as in the other instances, for the protection of the debtor against the danger of his tablet being fraudulently tampered with, if it fell into dishonest hands. The particular significance of these "case tablets" lies in the fact that they were obviously not intended as mere records to remain in the possession of the debtor, but that they were signed and sealed documents, and were issued to the creditor, and no doubt passed from hand to hand like tallies and bills of exchange. When the debt was paid, we are told that it was customary to break the tablet. " Mitchell, I. A. (1913), What is Money?, article in: The Banking Law Journal, May 1913, pp. 394-399.
Money upside down – A paradigm shift in economics and monetary theory?

Tally stick worked in the same way as the clay tablet. King Henry the First of England reintroduced the tally stick for taxation and commerce in Europe around 1100. The tally stick was made of a polished, squared hazel-wood stick, with notches cut along one edge to signify the denominations.

Figure 3.1

![English tally stick due in 1694 as exhibited in the museum of Bank of England](image)

Tallies sticks are like clay tablets records for the documentation of debt/credit contracts and tax liabilities. The name of the debtor and the date of the transaction are written on two opposite sides of the stick. After contracting, the stick is split full length so each piece has a full record of the notches bearing the amount of the debt and its unit of account for the contracted goods or services, the name of the debtor and the due date. The split is stopped about an inch from the base of the stick by a crosscut, so that one of the pieces is shorter than the other. One piece is called “stock” (from which our terms capital and corporate stock and stockholder derive) and issued to the creditor. The other piece is called “stub” (a term still used as in ‘ticket stub’) or “counter-stock” and kept by the debtor. The King kept the stock. The taxed debtor kept the stub, because both halves were a complete record of the credit and debt and the debtor is protected by his stub from the fraudulent imitation of tampering with his tally. The King could buy with paying his “stocks” to sellers of goods and services.

The inherent acceptance and marketability of tally sticks was maximum high - comparable with today's treasury bonds - because tally sticks were required i.e. exclusively accepted by the king as the only legal tender for payment of taxes. In case the king did not want to wait until tax date, he could sell the

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60 For the better understanding and clearance of the often employed terms debt and credit: Debt and credit stand for the same intertemporal contract concerning the assignment of property rights. Whereas debt is contracted from the perspective of the debtor, credit is contracted from the perspective of the creditor.

61 Compare with: “The method by which governments carry on their finance by means of debts and credits is particularly interesting. Just like any private individual, the government pays by giving acknowledgments of indebtedness ... in medieval England, where the regular method used by the government for paying a creditor was by "raising a tally “on the Customs or on
tallies against discount via his exchequer and the merchant banks. Therefore, tallies worked like today’s (zero) bonds issued by public entities. By the middle of the 12th century, a functional market in government debt existed centred on London. Besides the original issuance by the government, tallies were also commonly used for credit contracts between private parties.

When the debtor retired his debt, the two pieces of the tally would be matched to verify the amount of the debt. Tallies were transferable, negotiable debt instruments.

As tallies spread quickly over the European continent, commerce in Europe was for many centuries carried on entirely with tallies. By their means all purchases of goods, all loans were made, and all debts cleared. For more than 700 hundred centuries the tally (Latin talea, French taille, German Kerbholz) worked as the principal instrument of commerce.

The clearing and settlement houses in “tally stick economies” were the great periodical fairs at which merchants settled their mutual debts and credits. “Justiciaries” were set over the fairs to bear and, determine all commercial disputes, and to “prove the tallies according to the commercial law, if the plaintiff desires this”.62 A merchant holding a number of tally stocks against customers could get together with another merchant holding tally stocks against him and clear his own tally stub debts, thereby settling mutual debts...
and credits - without the use of a single coin. The role of merchant banks and clearing houses as agents of government is described by Hoskins in detail. While most textbooks say that these medieval fairs were early markets, the retail trade probably originated as a sideline to the clearing-house trade. According to Wray wooden tallies were not the only records as there was nothing unique about hazelwood. Copper tallies appear to have been used in Italy from 1000 to 2000 years BC, purposely broken at the time of manufacture to provide stock and stub.

It is of importance for later considerations of fiat money and deflationary crises to keep in mind that the tally debts or debts in from of clay tablets worked on a stand-alone basis without money in form of coins. That means that the debts traded in tally stick economies are contracted in goods and services (e.g. in form of gold, grain, or commodities, labour in form of slaves or other specified services), and are not contracted in money. Thus, interests are not self-compounding, but inherently discounted as in modern bills of exchange and inherently charged in goods and services. Tally sticks are nominally non-interest bearing debt instruments.

Gold and silver, usually in form of coins of standardised weight units, were compatible with and traded within tally stick economies as valuables and precious commodities. Gold and silver (coins) functioned as the ideal currency for settlement between different tally stick economies respectively regional tax systems.

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63 Compare with: “The medieval governments by law obliged certain selected persons to become its debtors. This procedure is called levying a tax, and the persons, who are forced into the position of debtors to the government, must in theory seek out the holders of the tallies and acquire from them the tallies by selling to them some commodity in exchange for which they may be induced to part with their tallies. When these are returned to the government treasury, the taxes are paid. ... Until recent times, the vast majority of government spending and the revenues collected by inland tax collectors in England were in the form of the tallies. Each taxpayer did not have to individually seek out a crown tally, because matching the crown’s creditors and debtors was accomplished “through the bankers, who from the earliest days of history were always the financial agents of government.” Hoskins, R. (2000) War Cycles/Peace Cycles, Lynchburg: Virginia Publishing Company, p. 46.


65 The actual meaning of Tallymann in German is the terminus technicus for an inspector of goods in a shipping terminal.

66 Compare Hoskins: “At tax time, taxpayers were required to bring in one half of a tally to pay their taxes. Woe unto the man who did not have the required number of tally sticks. Consequently, these intrinsically worthless sticks of wood were in great demand. Gold and silver coins were fine if you travelled abroad for a crusade or something, but at home if you did
After the invention of the tally stick in the 11th century the tally dominated as the major instrument of trade and finance until the beginning of the nineteenth century. During this time, Europe experienced three major inflationary respectively deflationary waves.

First, Europe experienced the Renaissance of the twelfth century. “Families, cities, markets, gilds, and fairs multiplied everywhere in Europe. Centres of commerce and industry grew at a great rate. As late as the year 1100, Paris had been a small settlement, largely confined for its own security to an island in the Seine. By 1215, it had become a city of perhaps 50,000 souls. The economy of the medieval Europe rapidly developed from a comparatively primitive system of barter exchange toward a more complex system of market relationships.” Interregional gold banking boomed. A wave of great inflation in medieval Europe set slowly in in the middle of the 13th century, accelerated all over Europe and peaked with big bank failures of Italian (gold and silver) banks in the first decades of the 14th century. In the medieval tally stick economies gold banking was not extinct. In inflationary phases, it always advanced and nearly disappeared in deflationary depressions.

The rapid economic progress of the 12th century led to a growing population: “The cause of medieval population-growth was mainly an increase in fertility, not a decline in mortality. After a long period of comparative stability and growing prosperity, women throughout Europe married at earlier ages and decided to have more children. The result was a medieval baby boom that...”

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Compare with: “In the year 1298, Siena’s banking boom came suddenly to an end, with the failure of its greatest bank, the Gran Tavola of the Buonsignori. This was a world bank, with agents throughout Europe and the Mediterranean basin. Among its borrowers were great merchants, cities, nobles, kings and even the Pope himself. Increasing numbers of loans went sour. In the year 1298, a banking panic began in Siena. ... The bank of the Peruzzi, for example, had fifteen branches throughout the world, and was bigger than the Medici Bank would ever become. The big Florentine banks made foreign loans to the kings of England and Naples. This was dangerous business. Once it had begun, the loans grew inexorably larger. The banks could not call them in, for fear of default or confiscation. Early in the fourteenth century, Florentine banks began to fail. The Mozzi went under in 1302, the Franzesi in 1307, the Pulci and Rimbertini in 1309, the Frescobaldi in 1312, and the Scali in 1326. Six houses failed in 1342. Then, in 1343 and 1346, the three great houses of the Peruzzi, Acciaiuoli and Bardi all collapsed with a great crash. Not for many years would banking enterprise recover ...”. Ibid, pp. 33-34.
began in the twelfth century and continued for many years. Growing population triggered rising prices for grain and the Inflation of the late 13th century: "Rising prices led to a need for larger stocks of silver and gold, which drove prices higher still. Great kingdoms and small city-states teetered on the edge of bankruptcy. They struggled to survive by borrowing heavily at ruinous rates of interest and by debasement their money."

The floods of 1315 and 1316 and a universal failure of crops ended the boom phase. In the second half of the 14th century the plague, the Black Death, sharply reduced population, and economic activity reflected in a many decades persisting deflationary depression. In the 15th century economic activity, agricultural output, trade and commerce, slowly picked up again. Strong nation and city-states emerged in the later decades of the 15th century. Venice re-emerged as gold banking centre. All over Europe, the growth of population picked up again. In the second half of the 16th century, an inflationary wave built up again. Inflation was fuelled by newly produced and imported gold and silver: "In every price revolution [inflationary wave], one finds evidence of frantic effort to expand the supply of money, after people have discovered that prices are rising in a secular way. The price-revolution [inflation] of the sixteenth century caused the rulers of Spain (who were hard-pressed to keep up with inflation) to redouble their efforts to extract gold and silver from their American dominions." Inflation accelerated all over Europe. Decoimages and bankruptcies of public entities became common. With new blows of the plague setting in, in the last decades of the 16th century “a major economic collapse occurred in the period from 1610 to 1622. This was more than merely a cyclical downturn. It was a major break in the secular trend.”

69 ibid, p. 20.
70 ibid, p. 34.
71 Compare with: “Within the city of Venice itself, the arsenal became the largest industrial complex in Europe and the basis of the city’s naval power. Here the Venetians developed assembly lines and standardized parts, from which an entire galley could be manufactured in a single day. ... the Venetians were extracting from their territories public revenue of a million gold ducats a year, and much private wealth as well. The immense prosperity of Venice ... Venice became the golden city of the west. ... Its purse-proud merchants looked with envy upon the palazzo ca d’oro, a palace covered entirely with gold. ... Very different in spirit was the city of Florence, which also became a great centre of commerce, industry and finance during this period. The Medici Bank, with branches in London, Geneva, Bruges and Avignon became highly profitable.” ibid, pp. 58/59.
72 ibid, p.83.
73 Compare with: “In September, 1565, while the poor were literally starving in the streets of Antwerp, the warehouse of Pauwels van Dale was so packed with grain that the building collapsed. A wild riot broke out and spread through the city.” ibid, p.88.
74 ibid, p. 95.
With many decades of social disorder, religious conflicts, and war in the first half of the 17th century, the civilisation of early modern Europe was shaken to its deepest foundations, but survived. In the middle of the 17th century, grain prices all over Europe collapsed and bottomed.

In the late 17th century, trade and commerce picked up again, cities prospered throughout Europe. The prosperity is reflected by the baroque epoch. In the first decade of the 18th century, a booming Paris advanced to the metropolis of Europe. An economic prosperous and politically stable period, the epoch of enlightenment, occurred all over Europe from approximately 1660 to 1740.

During the last four decades of the 18th century, a new inflationary wave set in starting slowly with rising grain prices. During that period, a large expansion occurred in commercial paper, which served increasingly as a circulating medium in the eighteenth century. Private notes and bills of exchange became widely used as money in many Western cities and passed from hand to hand in multilateral transactions. Stock speculation institutionalised itself. Heavy speculation in public securities came up for the first time in history. In the 1770s, a massive credit crisis throughout Europe happened. Many financial collapses occurred in Europe and the European colonies including the colonies in North America. Social unrest and riots in all western cities became common.

“The general crisis became a cultural revolution that transformed the values of the western world. The great [inflationary] wave reached its crest and broke with shattering violence during the Napoleonic Wars (1796-1815). With uncanny precision, prices reached their peak in each nation during the

75 See p. 140, ibid.
76 Compare with: “But the hard years of the 1780s were different. They came after half a century of rising prices, falling wages and growing instability. ... In France, these troubles coincided with a fiscal crisis. By 1787, Europe’s most powerful government was on the edge of bankruptcy. Annual expenditures of 300 million livres and revenues of merely 140 millions left a deficit of 160 million livres – more than half of total national public spending. ... Much of the budget went for irreducible military and social spending. Half of it was needed for service on the debt. ... The effect of fiscal crisis in France was compounded by a world depression in commerce and industry. From 1782 to 1789, the output of the French textile industry fell by 50 percent. ... In France during the late 1780s, anger and frustration overflowed into acts of violence. ... Historians Ernest Labrousse and Georges Lefebvre discovered that the Bastille was attacked on precisely the same day when grain prices reached their cyclical high in Paris. The men ... were driven to desperate acts by the high cost of living.” ibid, pp. 142-147.
moment of its greatest military peril. Romanticism reflected the from reality disillusioned, backward looking mood of the western world of this period.

After full economic recovery in the 1820s the so-called Victorian era started. A revolution in transportation, an agricultural, industrial, and commercial revolution took place in the Victorian period until the First World War. During this economic stable and prosperous century, no general war – besides the Krimean War - took place in Europe. Wholesale commodity prices finally bottomed in 1896. Fischer analyses that late in the 19th century the commercial world with its nations became integrated in a single economy.

In summary during the time from 1100 until the First World War, three major inflationary und subsequently deflationary waves took place. Quite unnoticed Europe’s financial system underwent major changes. In 1694, the Bank of England by its formation attacked the tally stick system. Therefore, it may be no coincidence that the tally stick (s. Figure 3.1), which is exhibited by the Bank of England, falls due respectively expires in the year 1694. Issuing debt was an issue, which was outside the power of money changing merchant banks in the tally stick system. The use of hazelwood tallies continued in England until 1826.

The end of tally-stick economies is driven by the technological invention of gunpowder and firearms. The invention of gunpowder was driving the

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77 ibid, p. 155.
78 Hoskins describes the end of the tally stick economy. In Hoskins’ terminology the term “usury money” stands for credit-money in a fiat money system without reserve requirements or gold backing: “The [tally-stick] system flourished as long as tax-evaders and counterfeiters were punished and they always were. For 726 years the system flourished. ... Government “tally” money and “usury” money cannot exist side by side. Tally-money makes usury-money look bad because it stays constant, while usury-money expands and contracts. The advent of usury-money spelled the death of the tally. The process started in 1694 when the Bank of England was chartered. This new type of interest-bank was permitted because of a promise made by the Pretender to his financial backers before he became King, and before he had access to the privilege of issuing the potentially inexhaustible supply of wooden money. When the Pretender became King, he kept his promise to his usurer bankers. The days of tally-money were numbered. At that time, there were about 14 million pounds in tally-money in circulation. In 1697 when the capital of the Bank of England was increased, 160,000 pounds of this new money was paid for with tally-sticks. The irritation of having usury-money and tally-money circulating at the same time ended when Parliament abolished the use of tallies for taxes in 1783. Circulation of tallies continued in the back country of England until 1826. In 1834, the treasury tallies were burned by allies of the Bank of England. The furnaces, which heated the House of Lords, were used. The fire blazed up and burned down both houses of Parliament.” Hoskins, R. (2000), War Cycles/Peace Cycles – The Necessity of War in Modern Finance, Lynchburg: Virginia Publishing Company, p. 47.
reshaping of the structure of political units in Europe. Gunpowder enabled the rise of larger political units until nation states were formed, because gunpowder allowed the activation of military superior (mass) armies with longer range. Gunpowder changed the balance of power between States. Yet gunpowder allowed cannons to destroy castle walls. The longbow brought about the extinction of the knight as a military unit. The new weapons could be mass-produced at a fraction of the cost of suits of armour and warhorses, allowing an ambitious ruler to arm the peasantry and invade his neighbours. More territory gave him a larger tax base, which allowed him to build an even larger army, and invade yet more of his weak neighbours. Thus, the 500 yearlong rise of the nation state began. Before firearms came into existence, Europe was split in countless small units due to the very short range of heavy metal-armed knights on horses. Crusades in far-off regions were possible, but expensive and exclusive for well-equipped knights. The standard range of armed knights on horses from their castle was quite short.

Thus, indirectly the invention of gunpowder made it possible for the first time for big banks in nation states to successfully challenge the financial system of tally sticks and replace it by a (fractional) banking system. In a tally stick economy, the role of banks is strictly limited to the conventional functions of merchant banking. Banks can only trade in already existing tallies respectively liabilities. Banks can trade and settle tallies, but they cannot issue tallies because as debtor banks cannot deliver goods and services (besides banking services). Thereby the creation of debt respectively credit was limited to the natural limits of direct taxation. As it will be explained in chapter 3.3 Fractional reserve banking, the creation of fiat money and fractional reserve banking is extremely profitable, because banks themselves can create money - and thereby property rights – in accounting terms without limitation out of nothing. Of course, unlimited credit creation in the short-term is kept in check by competition between banks for their creditworthiness. However, as long as Europe was fragmented in small political units, banks could not challenge successfully the well-functioning tally stick system.

The introduction of fiat money and a fractional banking system always produced inferior debts, because the direct link to the respective debtor is dissolved. With a missing direct link – which is the characteristic of a promissory note and tally – to the debtor, a common denominator becomes necessary which is best accomplished by gold and silver. After Gresham's law\(^{80}\), bad money drives out good money, new paper and new bills issued by goldsmiths and banks drove out tallies.

With the rise of large political tax units in form of nation states, the abolishment of tallies could take place in England with the King’s political backing for the first time. In small political units the fraudulent nature of fractional banking would have been too obvious and the competitive disadvantages for the respective political unit too high. The marketability and fungibility of paper money without the direct link to the respective debtor could not compete with the characteristics of gold and silver in interregional trade. Until the rise of big taxable units, fractional banking did not succeed, as advantages were limited to a relatively small tax unit and disadvantages to high.

Fiat money of a fractional banking system and tally sticks are contrary in their nature. Tally sticks have an individual debtor backing the value with physical goods or services and cannot created out of nothing – without levying a new direct tax to a citizen. In contrast to tally sticks, coins can be created out of nothing by a mint, which is run by a state or a private bank.

After tally sticks were officially abolished and forbidden in Europe nation by nation, the accounts of the already in 14\(^{th}\) century in Florence developed system of double entry bookkeeping were introduced by bankers, as the cheque system became more and more widespread during the industrial revolution. Credit contracts were recorded in the two ledgers - one for the credits and one for the debits with the amounts in each ledger always balancing. As the tally stick is in its physical presence a veto against compound interest, the double entry bookkeeping combined with a cheque system has the immanent feature of compound interests payable in legal tender, not in goods or services.

\(^{80}\) The name of the English financier Sir Thomas Gresham (1519-1579) was given to the economic principle which says that bad money drives out good money. When depreciated or debased „bad money“ circulates concurrently with „good money“ (money of higher values such as gold or silver), the good money automatically disappears because of hoarding.
Understanding the nature of coins is tricky, as coins can have two completely different functions and still look the same: Coins of pure gold or silver are commodity money in the sense of the Marxist theory of commodity money and are compatible with tally tick economies. Coins of relative worthless metal are fiat money issued by a mint. Gold and silver coins need no backing as they represent value per se and per excellence. “Fiat coins” are the opposite as they represent a promise by the mint. However, the mint promises nothing, the mint only promises that fiat coins are to be fiat. Therefore, fiat money is called fiat (money). It is backed by nothing, but the creditworthiness of the issuer to be fiat.

The complex and abstract nature of coins irritate and confuse in most analyses. However, Wray concludes that the inordinate focus of economists on precious metal coins and market exchange appears to be misplaced, as the key concept is debt respectively credit.\footnote{“The key concept is debt, and specifically, the ability of the state to impose a tax debt on its subjects. Once it has done this, it can choose the form in which subjects can pay the tax. Certainly, the government’s tokens can also be used as a medium of exchange, but this derives from its ability to impose taxes, and is necessitated by imposition of the tax (if one has a tax liability but is not a creditor of the crown, one must offer things for sale to obtain the crown’s tokens). Private coins (such as those of Gaul), like the government coins, are tokens of private indebtedness. These coins could be issued for example by feudal lords or ecclesiastics, as their debt which they then accepted as payment of feudal rent or tithes.” Wray, L. R. (2000), Modern Money, in: Smithin, J. (eds) What is Money?, London: Routledge International Studies in Money and Banking: What is Money?, p. 47.}

In a tally stick economy the applicability of monetary theory is strictly limited to classical economics and Marxist idea of commodity money: Tally stick economies with commodity money for interregional settlement allow no application of Keynesian, neoclassical, post-Keynesian theories or monetarism, because monetary policy does simply not exist, besides in the form of fiscal policy. Moreover, fiscal policy is strictly limited to short-term capability of the taxable citizens to serve the tax liabilities. Classical theory works, because the assumptions of a pure gold or silver standard are given. The terms of “money as a veil” and “money doesn't matter” fit well into a tally stick economy.

Not only in his title “Babylonian madness” Ingham misjudges the natures of fiat and non-fiat systems: “The use of specific institutionally-legitimate debts as means of payment is arguably on of the most important developments in the
history of humanity’s organizational or infrastructural power. ... money-proper itself comes to consist in a particular form of social relation. This development freed the production of the means of payment from the physical constraints of territory and geology. Credit money brought the possibility of a controlled or managed elasticity of supply for money and made possible the financing of the capitalist enterprise”.82 “Financing the enterprise” - which is capitalist per se - worked well – besides only two inflationary/deflationary waves - and without madness in Babylon and in medieval Europe for more than seven hundred years.

The beginning of western industrialisation and the abolishment of tally stick systems with the substitution and rise of fractional banking happened by coincidence in the same time. Industrialisation with “capitalist enterprises” could also have developed in a financial system based on tally sticks. The tally stick system83 is the most successful form of currency in western history and the British Empire was built under a tally stick system. The tally stick system worked well more than seven hundred years without hyperinflation, currency crises, and monetary reforms.

For the tally stick economies of 1100 until the end of the eighteenth century, modern monetary theories do not apply, because Keynesian and Monetarist theories assume implicitly a fiat currency system. Classical economics and the Austrian approaches were invented after the tally sticks were abolished, because monetary phenomenon such as inflation can only exist in a modern banking system, which did not became common practice before the industrial revolution.

Thus, Marx’ theory of commodity money fits well into a Europe where the tips in interregional trade are settled in gold.

In tally stick economies, finance, economics, and monetary theories were quasi irrelevant, as the creation of debt and credit was extremely restricted compared with today. The idea of creating legally titles of property rights out of nothing remained the unfulfilled dream of medieval alchemists until the Bank

83 Tally stick economies are completely compatible with so-called “Islamic banking”, because banking with interest payable in money is not essential for both systems.
of England officially re-established Croesus’ mechanism with paper notes in 1694.
3.2 Gold standards

From a historic perspective, financial and monetary systems in the past were nearly always running on a kind of gold standard – especially with regard to interregional/international trade - until the end of the 19th century. It will be shown that the present credit-money or fiat money system is a rare exception in the course of history.

A brief analysis of history reveals how different types of gold standards evolved and were employed. First, a brief overview of the different gold standards will be given from a historic view revealing the characteristics about gold standards starting with the gold standards of the ancient economies of Egypt, Mesopotamia, Persia, Greece, and the Roman Empire. In a second step, the role of gold in the financial system of medieval Europe is explained in addition to the made illustration of tally stick economies. Next, the emergence of the modern gold standard of the nineteenth century until 1913 respectively Bretton Woods and Nixon’s closing of the gold window in 1971 will be analysed.

In ancient Egypt, gold was first used as commodity money as described under Marxist theory of commodity money: “The Egyptians were the first to mine and utilize gold on large scale. Between 4000 and 2000 BC, the Egyptians may have produced as much as 750 tonnes of gold. Most of this vast treasure became the property of the Pharaohs, and a great part of it was used for the elaborate decoration of royal tombs. About 4500 years ago, Egyptian and Mesopotamian officials received their wages in gold.”

In the neighbouring countries of Mesopotamia and Persia, gold was also appreciated as precious and scarce commodity. Especially in Babylon, it is known that banks were founded, which traded in gold. Babylonian banks lent gold out to debtors and charged interest payable in gold. Babylonian banks also became debtors as they deposited gold of merchants and paid interest in gold to the depositors.

In the course of international trade between Persia and the Mesopotamia Babylon’s banks became a net creditor of gold (bullion) lent to Persia’s king.

As Babylon’s banks were charging interest payable in gold and Persia’s total liabilities – payable in gold - were exploding due to the exponential function of compound interest, the king of Persia became indebted. As Babylon had the gold, Persia’s king desperately needed, Persia went to war against her creditor and conquered Babylon in 536 BC confiscating Babylon’s gold.

Confiscated gold transferred to a new regional tax system – with annihilated debts by extinction of the former creditor - can be spent or lent by the new proprietor. Due to its compatibility with clay tablets as explained earlier, new gold has immediate purchasing power for its owner in a society, which is based on property rights and private property. Thus, new gold means new demand stimulating economic activity. Furthermore, new gold lifts its new proprietor in the comfortable position of a creditor with its increasing economic and political influence over the already existing net debtors.

In the further course of history, Persia lent gold to Sparta in international trade and then Sparta became a net gold debtor to Persia. After Sparta’s conquest of Athens, Sparta’s growing gold liabilities were transferred and debited on the account of Athens. As interests were compounding the new king of Macedonia and Greece, Alexander the Great, was faced with indebtedness. Therefore, Alexander invaded Persia and confiscated Persia’s gold.

With the new Persian gold, the Grecian empire began to flourish. Temples as gold lending banks were set up all over the empire. As time passed and interests and liabilities compounded the gap between creditors and debtors grew. Due to the explosive nature of compound interests, lending gold with charging interests payable in gold always builds up economic and social pressure, because the new and additional gold required for serving the new liabilities, which arise from compound interest, simply does not exist. Within a regional tax system, debtors and creditors may trade and set off their unservable positions in substitute commodities, services, or debt contracts. In international trade however, the growing pressure leads to geographic expansion. Foreign debtors are new debtors and new debtors are free of any liabilities and can be newly debited.

85 The concept and inherent mathematical logic of interest and compound interest will be taken as known. Famous quotation of the physicist Albert A. Bartlett is, “The greatest shortcoming of the human race is our inability to understand the exponential function.”
As parts of Italy became in the course of international trade a net gold debtor to Greek banks, indebted Rome conquered Greece confiscating most of the gold of the Greek empire. As Rome adapted the practice of banking (in gold) and charging interests payable in gold, pressure of compounding interest began to built up in a flourishing Roman empire and turned it into an aggressive imperialist Empire conquering neighbouring countries confiscating their gold.

An important monetary innovation happened during the reign of King Croesus in Lydia from 560 to 546 BC: the minting of coins. Before the minting of coins gold, silver, and other scarce metals were accepted as legal tender for tax liabilities in Lydia. As Croesus invented the minting of electrum coins - electrum was an allow of gold and silver - Croesus created a pure bimetallic system at this time by minting coins of pure gold and pure silver in a specific ratio of one to ten weight units. By minting new unique coins of a new allow, Croesus actually increased the pressure on his debtors, the pressure which originates from the charging of the “unservable” interests, to a new historic maximum. As Croesus’ banking system lent out new unique coins, it is obvious that the interests payable in electrum coins are unredeemable respectively “unpayable” by their nature. Interest banking in self-made coins is similar to a pyramid scheme. The earlier the debtor becomes indebted and insolvent, the earlier the covenants of the credit contracts become effective increasing the creditor’s wealth.

Whereas gold, silver, and other scarce metals were lent out against interest in symmetrical, bimetallic or monometallic monetary systems, the lending of coins was exceptionally profitable. The missing metal for interest payment in a conventional sym-, bi- or mono-metallic monetary system could always partially be substituted by metal imports from foreign regions. Thus, the inevitable insolvency of the debtor could be transferred to third parties in new territories and prolonged. New precious metals - quasi - are buying time for the debtor against his unavoidable and system inherent bankruptcy. Coins, however, could exclusively be created by the minting creditor. Precious metal imports from other tax and banking regions could not ease the unservable debt burden of interests payable in specific coins. The invention of coins simply makes the minting creditor faster richer.
With this new invention of coinage, Croesus managed to amass unimaginable wealth within few years of his reign. After the invasion of Persia Croesus was killed in 546 BC, but in German language Croesus is still present in the saying “rich as Croesus”. The advantage of the creditor was the disadvantage of the debtor who helped ideas of usury\(^\text{86}\) to spread. Croesus’ monetary innovation was important, and it spread quickly over the Mediterranean world and throughout the Middle East.

In 46 BC, Julius Caesar set the Roman monetary system on a 12:1 silver-to-gold basis. As the West Roman empire employed continuous decoinage of the gold and silver contents of their coins in order to overcome the shortages of indebted public households, inflation of nominal face values of coins relative to their precious metal contents was running for more than four hundred years until the eventual total decay of the West Roman Empire. Rome’s Eastern Byzantine successors kept their currency stable without employing decoinage. Byzantine managed to keep the price of silver in terms of gold constant for more than 1250 years and survived as economic and political unit until the sacking of Constantinople in 1204 AD.

Byzantine’s monetary stability – i.e. zero decoinage - originates from the high mark-up of gold Caesar put on gold in relation to silver be creating a bimetallic standard. As soon as the bimetallic standard is lifted by minting pure or decoinaged monometallic gold and silver coins, the immediate effect of decoinaging becomes more profitable for a mint. Decoinaging monometallic coins is much more profitable for the emperor’s mint than decoinaging bimetallic coins. Bimetallic coins contain in relation to the mark-up of one metal against the other one relatively overvalued and one relatively undervalued precious metal tied in one coin together. By decoinaging, the mark-up of the relatively overvalued metal is partially offsetting the effects of decoinaging.

\(^{86}\) “In its original meaning usury simply meant the interest upon a loan of money, whereas today it has come to be a term of opprobrium, referring rather to excessive and extortionate interest, increasing in proportion to the debtor’s inability to repay. ... The evil of interest upon money is not difficult to understand with money made of naturally very scarce materials. “Get your man into debt for what he has not got and cannot get, and you may take the skin off him”, is a financial aphorism, which sufficiently indicates not only the cause of the evils of usury, but of those of monetary power in general. Make debts repayable in wealth, which, if people have not nor they can make, and you strike at the heart of both evils.” Soddy, F.(1933), Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox, New York: E. P. Dutton & Co., Inc., New York, pp. 186/187.
According to Lips, the standard interpretations of the Roman monetary system are wrong: “Nineteenth century scholars looked at the 19th century form of bimetallism, which was based on free markets and free coinage and incorrectly assumed that bimetallism had the same meaning back in Rome. In Rome, the market price ratio between silver and gold was about 6½ : 1, but the Romans priced gold at 12:1. They took a mark-up on their gold currency of about 100%. This kept the Roman system operating for the astonishing period of 1200 years. It was possible only as a result of a carefully enforced monopoly of gold production\(^{87}\) and the inherent waiver of decoinage. As the tax authorities of “West Rome” employed decoinage to its physical limit, the empire fell apart as the precious metals contents of coins were further and further below market prices of pure precious metal bullion and tax authorities lost military respectively executive control of enforcing tax liabilities on their citizens.

In the late stages of the financial decay of the West Roman Empire, the major invention of the stirrup was brought to Europe from invading riders from the East. The stirrup - as an attachment to a saddle that allows a rider to steady himself with his feet - is a megapolitical invention. The stirrup enables the existence of heavily armed knights. The effectiveness of armoured cavalry increased by far the military effectiveness of conventional infantry. The high cost for armament, horses, and training limited the military and social advantages of knights to a small fraction of Europe’s male population. The heaviness of the armour limited the knights’ horses in their range of power. Thus, the military equation after the Roman Empire in Western Europe was stirrup plus horse plus armed knights and castle equals feudalism. With the stirrup and the rise of knights, Europe’s political units began to disintegrate over many centuries and fall apart in smaller and smaller units. In war, the advantage was to the defender, with castle walls to hold out invaders, and suits of armour being something that only the rich could afford. This prevented massive scale invasions and accumulations of new territories by conquest. It simply took too long to successfully capture your neighbour’s territory, and cost too much to amass huge armies of knights on horseback. This combined with the lack of money, prevented kings from being able to maintain standing armies. Feudalism with little trade and commerce was the result.

As explained under the chapter 3.1 *Tally stick economies*, gold and silver during the medieval ages were worth the same whether as commodity or money in the sense of Marx’ commodity money. In the Renaissance, gold had a renaissance as Italian city-states emerged. In 1252, the Republic of Florence began minting the first significant gold coinage in Europe since Caesar’s Aureus. The new-minted coin was called gold Florin and set Florence on a gold standard. Few years later, the Republic of Venice followed by minting the Ducat to the same weight and value as the Florin. By the end of the century, nearly all other cities in northern Italy, and several beyond the Alps, were issuing gold coins in Florin/Ducat denominations facilitating interregional trade within the many tax units of medieval Europe. The availability of a reliable gold coinage combined with interregional tally stick fairs brought a period of great commercial success and prosperity to the Italian city-states and eventually to most of Western Europe. “Consequently, gold money was the economic and financial basis of the Renaissance.”

As described under the chapter 3.2 *Tally stick economies*, medieval Europe was running on gold and silver as commodity money for settling balances in interregional trade. The role of gold in banking was minor, because banking with gold and charging interest payable in gold was limited, as it made little sense within a feudal unit. And the execution of covenants of indebted and insolvent feudal lords respectively the execution of bankruptcy procedures against feudal lords in different regions was difficult for medieval banks and merchant houses. These difficulties restricted interregional gold banking respectively interest banking and slowed it down. In the whole period from 1100 until the abandonment of tally sticks at end of the 18th century, only two inflationary/deflationary waves occurred. The military and political backup for ‘efficient’ interregional interest banking was missing in continental Europe for many centuries.

With the invention of gunpowder, small feudal units merged into and formed bigger political units by military conquest. Subsequently big merchant and credit banks could emerge and tally sticks were abandoned all over Europe in

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88 ibid, p. 6.

89 Compare with: “During the early seventeenth century, the armies of Europe reached their largest size since the Roman era. Their upkeep imposed heavy costs at the same time that public revenues were reduced by the combined effect of famine, pestilence, war, depression, regressive taxation and monetary inflation.” Fischer, D. H. (1996), *The Great Wave – Price Revolutions and the Rhythm of History*, New York: Oxford University Press, p. 97.
the beginning of the nineteenth century. In order to describe the key qualitative changes that took place in the financial system after tally sticks were abolished and substituted by minted precious metal coins, the changes in England around 1826 will be analysed exemplary.

After tally sticks as the main instrument of trade and commerce had been abolished, major changes took place. On the face of it, the tallies were exchanged into gold and silver coins minted by the minting monopoly of the Bank of England, which was granted the minting licence from the King of England. Subsequently, taxes were levied and collected in form of coins, which were minted by the Bank of England. The prohibition of tallies changed also the credit documentation. Double-entry bookkeeping on paper substituted the trading and discounting of physical tallies.

As explained in the introduction, the historic analysis and the analysis of money and economics of this thesis concentrate on qualitative aspects. Another reason why the employment of statistics is kept to a minimum is the questionable quality of quantitative sources. In a world of exclusive bullion banking in gold and silver, prices can be easily measured in weight units of gold and silver and can be compared over time. As soon as coinage, decoinage, currency debasements and a fractional reserve banking system become part of the economic system, measuring prices becomes more difficult. The purchasing power of currency units has take into account decoinages and currency debasements inter alia.

A good comparison is a railway station with moving platforms. One platform or a set of platforms represents commodities, real estate, labour, things that can be bought with purchasing power. Another platform shall be the official currency of account (legal tender for levying taxes). And another platform is the currency of gold respectively silver. As long as the platforms of gold and currency are pegged to each other, changes in the purchasing power (e.g. statistics for grain, salt) can be easily compared. As soon as all platforms are moving against each other, measuring commodity prices and comparing them over different periods of time becomes tricky. This measuring problem becomes most obvious in the 20th century when new, in quality different types of gold standards were employed to devalue the currency of account, the US dollar, in major steps (1913, 1933, 1945, and 1971). The reader is familiar with thinking in the legal tender or "his" fiat currency, i.e. the reader is most familiar
with regarding historic price movements from the perspective of his platform of currency (of account) whereby a clear view of price movements is usually obstructed.

**Figure 3.2**

The Price of Grain in Western Europe

*The Abel Series, 1201-1960*


Warburton describes this phenomenon as the loss of a stable numéraire. To overcome these limitations of subjectiveness, an analysis of money should

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shift perspective to the platforms, which are most reliable and comparable, the platforms of gold and silver and – if necessary – the platforms of easily comparable basic commodities such as grain units. This shift of monetary perspective is accomplished by Tlaga thinking in terms of a gold standard index.\footnote{1} Tlaga’s gold standard index is simply the introduction for a new point of reference for the intertemporal development of fiat currencies, gold, and inflation (measured by development of a consumer price index) and will be explained in detail under the chapter 3.4 Bretton Woods becoming essential for the understanding of the post-war monetary history.

The complex abstract changes in gold standards are multiple. Analysis will start with the Bank of England, which obviously plays the central role: In a tally stick economy the role of banks, including the Bank of England was strictly limited to the conventional functions of merchant banking. Banks could only lend out already existing tallies. Banks could trade and settle tallies, but they could not issue tallies, because banks as debtor could not deliver, i.e. deliver goods and services. The debts traded in a tally stick economy are contracted in goods and services (e.g. grain, wine, labour) and are not contracted in gold, silver, or precious metal coins. Thus, on the face of a tally stick economy interests were not charged. Interests could not be charged, because interests were nominally nonexistent. Interest were inherently discounted in tallies, but had built in a fixed due (respectively latest) date/maturity which prohibited the compound effect of interest. Installing the Bank of England with a minting monopoly meant introducing the principle of interest-charging bank lending in precious metal coins under a state-enforced minting monopoly. In 1826, the highly profitable coin-minting strategy of Croesus was suddenly reinstalled by government decree. Furthermore, in addition to physical coins (bank) notes were issued by the Bank of England\footnote{2}. The Bank of England became immediately the focus of merchant banks, as the Bank of England had the exclusive right to mint the official coins respectively (bank) notes required for serving tax liabilities.


Already in 1694, he first notes were issued by the Bank of England. These bank notes were handwritten notes on bank paper signed by officers of the Bank of England as return for deposits in gold. The first bank notes were the promise of the Bank of England to pay to the bearer of the note the sum of the note on demand respectively redeem the deposed amount of gold. Within the following the 18th century, fixed denomination notes and printed notes were gradually substituting handwritten depository/warehouse receipts.

According to the Bank of England’s website, the Bank of England’s notes were made legal tender for all sums above £5 in England and Wales in 1833. Since 1855, notes were not individually signed anymore, but merely printed and the name of the payee was abandoned.

The Bank of England was awarded and assigned with many new functions: It could mint gold into gold coins and lend them out against charging interest. Croesus’ principle drives up the price of coins relative to gold and other precious metals, because the from the debtor required additional coins for serving his interest liabilities payable in the mint’s gold coins are nonexistent. Thereby, Croesus’ wealth effect works for the Bank of England, which amasses within a short time span great wealth in coins, gold and other precious metals. As the scarcity of precious metals and especially coins in trade and commerce rises due to the compounding effect of interest, private credit contracts will be subsequently switched to contracts with coins as denominator.

In retrospect, the instalment of interest-charging bank lending combined with a state-enforced minting monopoly works like a black hole. The mint sucks in via the banking system all coins and precious metals and ultimately drains the economy of “liquidity”. The term of liquidity fits well, because after a while, most credit contracts and liabilities are contracted in coins or gold, which are less and less available. With rising scarcity and rising prices of gold and especially gold coins, creditors conclude new credit contracts in gold coins with interests also payable in gold coins. This is a self-reinforcing and accelerating process in which the more and more desperate search for the missing “thing”, in which debt and interest are contracted (gold, silver, coins, dollars, francs, guilders, krones, marks, pesos etc.). This process is reflected in rising nominal and real interest rates. Thereby trade and commerce are
contracted. The drying up of liquidity of the whole national economy accelerates, unless new credit is granted in form of coins.

As the Bank of England – standing also for the banking industry in general – becomes the proprietor of gold, it is not anymore confined to the former merchant banking functions of settling and trading debts. Banks also offer to pay interest on coins and gold they take as deposit from wealthy citizens and public organisations. By the fact that their deposits are unlikely to be withdrawn all at the same time, they can lend out more gold than actually existing in their books. To stay liquid at any time, banks have carefully to watch their reserves whereby the term reserve stands for coins or gold bullion, which cannot be lent out, but have to serve as a liquidity buffer.

The end of tally sticks in Europe was a transition period in which many abstract and complex changes in the financial background occurred at the same time. Between the end of the 18th century and the end of the 19th century interest-based fractional banking crowded out tally sticks, bi-metallic standards were turned into gold standards by demonetisation of silver, and cheque systems became common.

The interest-based fractional reserve banking developed from the practices of goldsmiths who established Europe’s first banks. Goldsmiths offered depository services for gold coins and issued receipts in ‘bearer’ form for any deposit. These receipts stated the face value in gold from the goldsmith deliverable on demand. As soon as these receipts became liquid, highly accepted, negotiable, and tradable bills, they formed Europe’s first form of paper money. In this way, the bank note originated. Thus, the bank note is logically securitized gold. The depositor obtained receipts for definite sums of gold, with which in course of time citizens became familiar. The receipts respectively bank notes circulated as money as easily as and more conveniently than the gold itself. At this stage, there was the gold behind the note. It was a promise of the banker to pay the holder of the receipt or note the sum of gold specified on demand in exchange for the note. The historic approach reveals that a bank note is a derivative of gold.

As all outstanding bearer certificates were usually not turned in for physical delivery at the same time, “goldsmith banks” could issue more certificates than actual gold in deposit, charging also interest payable in gold for the additional
“unbacked” paper certificates. The gold coins kept in reserve, as a proportion of the amount of receipts outstanding, became known as the “reserve ratio”. Obviously, as soon as the reserve ratio is below 100 percent, banking becomes extremely profitable, as interest payable in gold is charged for a kind of “fictitious” certificates printed cheaply in the back office. The lower the reserve ratio is, the higher the bank’s profit. The term fractional of fractional reserve banking derives from the reserve ratio.

As these bearer notes respectively warehouse receipts for gold stored in bank vaults become standardised bearing the same nominal amounts than the gold and silver coins, these bank notes became as accepted in trade and commerce as precious metal coins were. Bank notes became a proxy for gold and silver coins. Fractional reserve banking turned out to be an unusual profitable business only endangered by defaulting debtors respectively customers. In order to minimise this credit risk, it became common for bankers to ask for collateral and fix a specific set of covenants in the credit contracts. From the banker’s perspective, collateral acts as a cushion in the event of the debtor's default.

93 “The Displacement of National Money by Bank Money: The goldsmith, now turned banker, found by experience that he was in permanent continuous possession of a stock of gold far greater than he was ever called upon to pay out. So long as a bank-note circulated, the gold it was a receipt for remained unused in his safe. But there was a far more important effect produced by the rise in popularity of the cheque system. The banker’s own clients, when they issued to one another orders to pay, or cheques, clearly did not in the least affect the amount of gold he held. Their cheques merely transferred ownership of money from one of the banker’s clients to another. The settlement of mutual indebtedness between those banking with the same bank by cheque system is merely an affair of book-keeping, which goes farther than the bank-note and dispenses altogether with money. The money it thus freed for use over again by the banker, who can, and does, lend it to reputable producers for definite periods, to be repaid with interest out of the proceeds of wealth-producing enterprise. But, again, the money itself need not be used for this, as a cheque-book serves the same purpose everywhere, so long as the bank’s reputation for solvency remains good. The original money is thus used over and over again, and out of an original quantity of wealth, claims to many times this amount of wealth in the possession of other quite innocent and unsuspecting people are created literally by the stroke of a pen.

This is the pons asinorum of banking, and at this point, its apologists always seem to be distracted from the principles that money is supposed to be distracted from the principles that money is supposed to subserve in a community to an ex parte defence of the system. It certainly does seem odd to a tyro to discover that the law proceeds with the utmost severity against the fraudulent counterfeiter for uttering new money tokens, but allows the banks in effect to create it wholesale to lend at interest by these methods, which is a far more profitable business and infinitely more serious in its consequences to the general community than counterfeiting. To any other age it would have been the most obvious form of treason against the State.” Soddy, F. (1933), Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox, New York: E. P. Dutton & Co., Inc., pp. 146/147.
Compared with Croesus’ banking fractional reserve banking allows greater and faster profits for banks, not only for the central bank but also for all banks running on a reserve ratio. On the one hand, banking is more profitable; on the other hand, more wealth is extracted from the individual debtor endangering the existence of the economy as the goose, which lays the golden eggs.

Therefore, authorities in England acted to counter the dangers posed to the health of an economy in which numerous private issuers of paper money were active. The unlimited rise of private issuers of paper money led to many bank failures, as the equity positions of undercapitalized country banks were often too small to cushion failures of debtors. Under the 1844 Bank Charter Act, the right to issue most kinds of paper money was restricted to the Bank of England. However, the newly developing cheque and account statement system evaded the Bank Charter Act of 1844 efficiently. Notes issued by private banks were substituted by current accounts within the banks. For payments, the physical handling of private bank notes became substituted by issuing cheques or more common in continental Europe by ordering money orders for transfer of money from one account to another.

The important major monetary transition from the bank note to the cheque system was camouflaged by the industrial revolution. Soddy explains: “The forces at work in the Industrial Revolution were gigantic, and none, probably, understood them. The power of increasing production conferred by the harnessing of mechanical power called for a means of increasing the currency and economising in the use of gold. Nevertheless, the Governments of those days would neither allow the banks to do it in their own way, nor openly and frankly do it themselves by the issue of a national paper money.

In this situation, the invention of the cheque system practically solved the problem. It has virtually displaced the bank-note and relegated to quite a minor rôle the money authorised and issued by the State. It has altered the very nature of money itself without the public and the legislature yet realising what has occurred.

95 In the analysis of fractional banking and the evolution of modern money it is often overseen that bank money respectively bank notes stand in complete contrast to state money (in form of coins and notes) which is never destroyed in the act of repayment.
It is characteristic of the dizzy virtues of compound interest that they are not at all dizzy at the start. It is only after they have been in operation a certain time that they show any disposition to become marvellous and to transcend the bounds of the physically possible. Now that the increments of indebtedness are mounting up, it is hardly a sufficient defence of the system to say that it served the country well in the past, and only needs to be left alone to work further miracles in the future. A single grain of corn doubled as many times as there are squares on a chess-board represents more corn than the present population of the world could consume in a period longer than that covered by the records of history, whereas doubled only half that number of times it would scarcely suffice to give London a square meal. This means that a system might show no signs of breakdown for a century and yet become impossible during the course of the next.

Reverting to the transition from the old to the new system, before banking started was a definite amount of gold and silver coinage only. The first step on the downward path, from money for use to money for usury, was the power conferred upon the Bank of England to issue bank-notes to a limited extent in return for the loan of money to the Government – a power they still possess under the Bank Charter Act of 1844. Their uncovered note issue was then limited to £M14, beyond that they were required to keep gold in reserve. The whole intentions of the latter Act, which is still the law – namely, to prevent the issue of paper money uncovered by gold – were frustrated by the development of the cheque system. The latter effectively killed the bank-note as a form of currency by establishing a much more insidious and uncontrollable form. It is only the latter that needs any further elucidation."96

This is the logical start of fractional banking and the invisible, complex, and abstract shift towards a system of fractional reserve banking marking the end of tally sticks. In a tally economy, banks were restricted to trading in existing debts. In a fractional banking system banks are the focus of credit activities and even can partly create new credit respectively debt out of nothing. Banks quickly found out, that they could accelerate the multiplying wealth effect of credit creation by issuing commercial paper and introducing bills of

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By the introduction of commercial paper, which is backed by gold, the actual physical circulation of coins and gold bullion can be reduced, as bills of exchange and commercial paper work as substitute in trade and commerce. Thereby, the multiplying credit effect and the subsequent power of banks can be enhanced many times.

By the very nature of the tally stick the creation of debt, respectively credit was limited to the strict limits of direct and personal taxation. Every “tally credit contract” circulating in trade and between merchant banks was directly linked to a debtor who was estimated – by the taxing authorities - to fulfil his liabilities. Every “tally credit contract” was contracted in good or services. Switching to coins and fractional banking means that the limits for creation of new debt respectively credit were lifted.

Lifted limits for money creation enable fractional banking and a cheque system which produce inferior debt respectively credit. Credit, which is not completely backed by individual debt, became common. According Gresham’s law bad money drives out good money, gold coins drove out gold bullion and tallies. Decoinaged coins drove out gold coins. Partially gold backed bills of exchange and bank notes drove out minted coins. Pure fiat money drove out partially gold backed bills and bank notes.

Fiat money of a fractional banking system and tally sticks are contrary in their nature. Tally sticks have an individual debtor backing the value with physical goods or services and cannot be created out of nothing – without levying a new direct tax to a citizen. In contrast to tally-sticks, coins can be created out of nothing by a mint, which is run by a state or a private bank. With the rise of large political tax units in form of nation states, the abandonment of tallies could take place with the King’s political backing for the first time. In small political units the imminent trick of fractional banking would have been too obvious and the competitive disadvantages for the respective political unit to high. The marketability and fungibility of paper money without the direct link to the respective debtor could not compete with the characteristics of gold and silver in interregional trade. Until the rise of big taxable units and urbanisation, fractional banking did not succeed on a broad scale in Europe, as the

advantages of fractional reserve banking were too small due to relative small tax units.

In the 19th century, Europe shifted completely on the quiet and unnoticed towards a financial system based upon the principles of fractional reserve banking and of the minting monopolies of tax-levying nation states. Urbanisation, double-entry bookkeeping, the rise of literate and affluent bourgeois and industrialisation were accompanying the acceptance of commercial paper and fractional reserve banking. The new fictitious wealth in form of newly credit created out of nothing originates first in the balance sheets of banks in the major cities.

Croesus’ logic of lending out self-made and monopolised money and charging nonexistent interest liabilities payable in the same form of money is not invalidated. In the contrary substituting coins minted by a state mint through book-entries allows not only the central bank/mint to create/mint money, but allows also all banks to participate in the money-creating business. Obviously, physical limits of coinage are left behind, as book-entries are comparatively cheap.

Soddy starts his historic approach from the function of gold or silver coins going to paper money as legal payment for debt, however missing the accelerating effect of Croisus’ coinage. Soddy traces back the first historic paper money in China to Kubla Khan’s currency. Paper money was not used

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98 “It then appears that what really gives the coin its value is not that it is made of gold or silver, so much as that it is legal payment for debt. ... We thus come to look upon money – quite irrespective of whether it is specie or paper – as a token certifying that the owner of it is a creditor of the general community and entitled to be repaid in wealth on demand. The only difference between specie and paper money is that in the first case the nation’s creditor holds in his hand not only the nation’s promise to repay on demand, but also the means of enforcing the demand, if the nation should default, by melting the coin and destroying it as money, so gaining gold out of which it is made in repayment of his debt. In the case of an inconvertible paper money, he has not that power. In the case of a paper money convertible on demand into gold money he has the power, but only exceptionally, as an individual, provided too many other individuals do not at the same time try to exercise their power also.” Soddy, F. (1933), Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox, New York: E. P. Dutton & Co., Inc., pp. 134/135.

99 “Paper money is in itself a fascinating study, and it is perhaps worth while tracing its invention to at least one of its origins in the East. Kubla Khan, the great Mogul emperor, as Marco Polo records in his travels, “had the secret of alchemy to perfection, for he makes his money of the bark of mulberry-tree, and this they cut up into something resembling paper, but black ... Everyone takes them readily, for wherever a person shall go he will find these pieces of paper current, and be able to transact all business just as if it were gold.” ... The first issue was in 1260-1287, and some of this paper is still extant, and can be seen occasionally in
by Europeans before Marco Polo discovered its successful use in China in the 13th century.

The 19th century was a financially in terms of inflation and currency debasements a stable period for Europe. The price of gold was fixed in silver and vice versa. In the 19th century, Europe was running on a bimetallic gold and silver standard as Rome’s Byzantine successor did for more than 1250 years without currency crises and inflationary waves. "The period form 1815 to 1873 was a period of bimetallism, for which gold and silver were the basic reserve assets and the main countries were France and the United States. During the Civil War, the United States suspended convertibility, leaving France alone among major powers, on bimetallism. Remember that in a world economy, as long as one country fixes the price of both silver and gold, then that fixes the relative prices of both gold and silver in the world. From 1815 until 1873, the relative price ratio of gold and silver varied only between 15:1 and 16:1. This bimetallic system gave the world a monetary unity, providing countries that were on the silver standard with a fixed exchange with countries on the gold standard. Support for the bimetallic monetary system dwindled a bit when the United States dropped its commodity standard and incurred inflation from 1862 until 1879." 100

Mundell describes how the bimetallic standard was turned into a gold standard as silver was gradually demonetised: “But, what happened in the 1870s? France went to war with Germany and had to suspend convertibility. Then nobody was on bimetallism, except for a few countries like Belgium and Switzerland that were in the Latin Monetary Union, but these countries were too small to manage the system and therefore followed France’s lead and suspended convertibility. France pondered the idea of returning to a bimetallic monetary standard, but with American production of silver going up and Germany dumping silver as the new German Empire shifted to gold, France realized it would have to buy up all the excess silver in the world on its own. Silver would have displaced all gold currency. France did not go back to bimetallism and that system therefore became a dead letter. The world economy now split into an international gold standard on one hand and an...
international silver standard on the other. Silver's monetary role was diminishing and the gold brigade was beginning to encompass the mainstream of the world economy.” Mundell describes further, how over the period from 1873 to 1896 the price level of gold was falling.101

An alternative approach for the demonetisation of silver is delivered by Tlaga who explains that the demonetisation of silver was the monetary goal of the Bank of England for more than a century. After a century of monetary preparations, England managed to replace the bimetallic silver-and-gold standard with a monometallic gold standard.102 In the next chapter

101 Compare with: “This was the period of populist revolts in the Midwest. The populists hated the fact that farmers had to pay back debts with an appreciated currency. In 1896, William Jennings Bryan's electrified his audience with his Drexel Avenue speech in Chicago in which he charted that the American farmer was being "crucified on a cross of gold." There was deflation in the gold countries in this period because when countries shifted fro bimetallism to the gold standard, the movement created an excess demand for gold--tight money--and as a result, deflation. Also in 1873, Prussia and the Scandinavian countries abandoned the silver standard, depressing silver and creating inflation in countries sticking to silver. So there were two worlds during that time period: an inflationary silver world and a deflationary gold world until 1896, when, finally, soaring gold supplies from South Africa, where gold had been discovered in the Witwatersrand in 1886, combined with the introduction of the cyanide process to bring huge amounts of gold into the system.” ibid.

102 Compare with: “In his occasional paper THE RETURN TO GOLD 1925, Cambridge University scholar, Donald E. Moggridge, tells us that it was Sir Isaac Newton, who, back in 1717, set the price of gold at 77 shillings 10 and 1/2 pence per standard ounce (22-carat, .9167 fine), a price that endured for two hundred years.

In reality, Sir Isaac, serving as Master of the Mint, recommended that the gold coin of the realm (Guinea) be valued at 20 shillings 8 pence (which corresponded with 76 shillings 7.6 pence per 22-carat ounce), but Parliament rejected his odd number and set the guinea at 21 shillings even. This of course compelled Sir Isaac to increase his mint price of gold by 1 shilling 2.9 pence in order to make 89 guinea coins out of two troy pounds of 22-carat gold at Parliament's price. Thus it was Parliament, not Sir Isaac, who set the price of gold at 77s 10.5d, which was destined to preside over the rise and fall of an aberrant monetary system known as gold standard.

Pound Sterling, England's monetary unit, containing 20 shillings, with 12 pennies (pence) to each shilling, was obviously a misnomer. It has been over seven hundred years since the last time 240 pennies were made out of each troy pound of sterling silver (37/40 or .925 fine). From the times of Edward I on, English kings had been making more and more pennies out of the same troy pound of sterling silver. In times of Elizabeth I, one troy pound of sterling silver was already yielding 744 pennies, or 62 shillings. The silver content of one penny became so small, that the smallest coin made out of sterling silver was Threepence (1/4 shilling), whose weight was a bit short of the weight of the original silver penny Alfred the Great inherited from Charlemagne (slightly less than 2/3 of US silver dime). "One-Third Pound Sterling" would thus be more appropriate name for "Pound Sterling".

In times of Charles II, 89 gold "Pound Sterling" coins, then called "Guineas" because gold was coming primarily from the Guinea coast of Africa, were made out of two troy pounds of 22-carat gold (.9167 fine). After the roller coaster rides during Louis XIV wars in Europe, gold/silver ratio settled at 1/15, and that was the reason why Sir Isaac recommended to Parliament that the value of Guinea coin be set 8 pence above 20 shillings.

When Parliament set the value of a guinea coin 4 pence above this equilibrium price, it was not an act of simple rounding to the nearer full shilling. It was an act of deliberate policy that
started a chain of events which ultimately led to replacing the eternal silver-and-gold standard
with gold standard, and then to reducing gold standard to the fiat money regime.
By setting gold/silver value ratio at about 1/15.2, instead of 1/15 suggested by Sir Isaac,
Parliament initiated a long time policy of drawing gold to England at the expense of silver.
Because gold was thereby set to buy more silver in England than it did in continental Europe,
Gresham’s law would compel speculators to buy gold on the continent, sell it in England, and
take their proceeds in silver back to the continent for the next round of gold purchasing.
(Gresham’s law was already proposed by the famous astronomer of Renaissance era,
Copernicus, and because merchants of the world have been using it for millennia without
waiting for anyone's explanation.)
After two generations of this surreptitious enrichment procedure, in which each side thought it
was taking advantage of the other, enough gold was accumulated in England to make possible
the first overt move toward replacement of the ancient bimetallic silver-and-gold standard with
monometallic gold standard. But when the first law to that effect - "providing that silver coin
should not be legal tender for more than 25 pounds in one payment except for its bullion value"
- was formally enacted in 1774, "its significance was not fully understood at the time."
(Encyclopaedia of Banking and Finance, 466) This long term policy of drawing gold to
England was challenged by Napoleonic France, where gold/silver ratio was set still higher at
1/15.5, but after Waterloo, with England free of immense financial burden of supporting
enemies of France, gold standard (which could better be described as a war against silver) was
openly adopted in England by way of a monetary reform, whose significance was not fully
understood again.
The weight of silver coins was reduced in 1816 by 2/31 or 6.45% (now Master of the Mint
would make 66 shillings instead of 62 out of a troy pound of sterling silver), and the weight of
a new "Sovereign" gold coin, first issued in 1817, was reduced against that of a "Guinea" coin
by 1/21 or 4.76%, in order to make it worth One "Pound Sterling" even. The reduction of the
weight of a gold coin of the realm did not change the "Newton price" of gold bullion because
the value of a Sovereign was only 20 shillings, instead of 21 shillings for a Guinea, but the face
value of the new shillings was now higher than their silver content, meaning, the status of
sterling shillings was now formally reduced to that of token coins, i.e., silver was effectively
demonetized.
What even the authors of Encyclopaedia of Banking and Finance do not seem to fully
understand is that demonetization of silver alone was enough to put the British Empire on the
road toward the fiat money regime. With gold Sovereigns in circulation, and with Pound
Sterling Bills freely redeemable in gold Sovereigns, no one ever realized that gold standard,
without silver, could not assure integrity of the money supply as effectively as silver-and-gold
standard could, that gold standard was in reality a clever, covert form of the fiat money regime.
The fact that England had a gold Sovereign that was worth one Pound Sterling was immaterial.
What really mattered was that one Pound Sterling was no longer defined as twenty sterling
silver shillings, but as twenty token shillings. What it meant was that for monetary purposes
gold was no longer priced in silver (an independent unit of account) but in a fiat unit of account
(a token coin or a paper Pound Sterling). Gold must be priced in something other than gold,
otherwise every sale of gold would have to end up as exchange of equal amounts of gold, and
that "something other than gold" must have full intrinsic value of its own if the honest money
regime is to be maintained.
It was demonetisation of silver, which introduced a fiat unit of account. But because it was
done through the kitchen door, so to speak, by way of pricing gold in terms of gold rather than
in terms of silver, no one had any reason to question this tautology as long as the gold
definition of the fiat unit of account was maintained, i.e., as long as Sterling Bills were being
redeemed in gold Sovereigns.
We can have honest money regime when gold is priced in silver and silver is priced in gold;
physical silver and physical gold. But once gold is priced in printed pieces of paper instead of
pieces of silver, the honest money regime is gone, even though the formerly silver and now fiat
units of account are defined in weight of gold, because there is no natural limit on the overall
amount of printed pieces of paper as there was on overall amount of pieces of silver...
3.3 Fractional reserve banking, the importance of a switch to a monometallic standard becomes obvious, because a fractional reserve banking system can only be transformed into a fiat money system, if the fractional reserve banking system develops from a monometallic standard.

In 1913, President Wilson signed the Federal Reserve Act into law. By this Act, the control of the money supply of the United States was centralised and transferred from Congress to private banks, the stakeholders of the Federal Reserve. The national “minting monopoly” of the biggest industrial nation became privatised. In 1914, European countries went off gold to finance deficit spending for the First World War. In international trade, European nations had to pay gold to the United States in return for munitions and other war supplies. Gold flooded from the old continent into the new continent.

After the overextension by the expenses of the First World War European countries had to go back to a gold standard in order to save their fractional reserve banking systems from collapse by debasing against gold. Debasing means partial default for the creditor, but stabilises the remaining credit contracts. In 1924, Germany went back to gold to stop its hyperinflation. In 1925, Britain went back to gold, too. In 1926, France went back to gold. Then, the fractional reserve banking systems of Europe and the United States created a credit boom in the late 1920s mainly driven by credit expansion in financial markets. As the credit expansion collapsed in 1929 and the Great

When silver-and-gold standard is replaced with gold standard, it is false to represent the new system as still honest money regime. Despite all the appearances to the contrary, gold standard is already a fiat money regime. The populist representatives of American farmers grasped this truth all too well over a century ago, when they insisted on restoration of silver as money alongside gold after provisions for free minting of silver dollars were omitted from Specie Resumption Act of 1873. They did not wait for anyone to explain it to them; they knew the fraud when they saw one.

England replaced silver-and-gold standard with gold standard, to be able to confer upon her Sterling Bill a world reserve currency status on par with gold itself. Upon that Sterling Bill the whole imperial power rested. Once the gold standard was in place, the monetary base of the British Empire could be supplemented with paper gold, thus making real gold available for massive predatory interventions on other markets, in the form of periodic infusions and withdrawals of gold, which was the real reason for periodic booms and busts all over the world. So called “business cycles” under gold standard were wrongfully attributed to capitalism as such; they were only the results of financial bubbles hatched and milked by the bankers of London. And when those bankers would occasionally lose control over their machinations, and their shirts in the process, Old Lady from Threadneedle Street, as Bank of England came to be known, always stood ready to bail them out. They were ripping-off other nations without incurring military expenses; they were providing England with the fruits of war without war.” Tlaga, J. N. (2002), Gold standard = fiat in disguise, article published on the internet: www.gold-eagle.com.
Depression set in, partial government defaults had to follow. In 1934, the United States as the biggest nation economy devalued against gold. In 1936, France had to devalue again.

Rothbard describes the structural changes in the employed gold standards, “The other major monetary change accomplished by the New Deal, of course and done under cover of a depression “emergency” in the fractional reserve banking system, was to go off the gold standard. After 1933, Federal Reserve Notes and deposits were no longer redeemable in gold coins to Americans; and after 1971, the dollar was no longer redeemable in gold bullion to foreign governments and central banks. The gold of Americans was confiscated and exchanged for Federal Reserve Notes, which became legal tender; and Americans were struck in a regime of fiat paper issued by the government and the Federal Reserve. Over the years, all early restraints on Fed activities or its issuing of credit have been lifted; indeed, since 1980, the Federal Reserve has enjoyed the absolute power to do literally anything it wants: to buy not only U.S. government securities but any asset whatever, and to buy as many assets and to inflate credit as much as it pleases. There are no restraints left on the Federal Reserve. The Fed is the master of all it surveys.”

The state-enforced armament for the Second World War asked for new credit on a large scale, the fractional reserve systems were ready to provide. After the Second World War, the winner was the United States. Thus, the United States set up an order for international trade and commerce, which favoured the winner most. Mundell admits frankly the immense advantages of the system of Bretton Woods for the United States. France’s General De Gaulle later called the system of Bretton Woods "an exorbitant privilege" of the United States: the right of the winner of the war to have its bank notes considered as equivalent to gold in the reserves of the world’s central banks.

The post war agreement of Bretton Woods was violated by President Nixon in 1971, when he "closed the gold window", and refused to continue redeeming

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104 Compare with: "The United States would be the last country to ever agree to an international monetary reform that would eliminate this free lunch. Again, I have to disagree with my good friend Milton Friedman, who says there is not free lunch. I feel there are all kinds of free lunches.” Mundell, R. A. (1997), The International Monetary System in the 21st Century: Could Gold Make a Comeback?, lecture delivered at St. Vincent College, Letrobe, Pennsylvania, Columbia University March 12, 1997.
dollars in the hands of foreign Central Banks, for gold, at any price. Thus, the United States were free to expand credit out of nothing. The International Monetary Fund and World Bank were set up as institutions superguarding the system of Bretton Woods. In order to protect the primacy of the US dollar, members of these institutions and members of GATT/WTO, which conclude the most important partners in trade and commerce, are forbidden to go back to gold.

Thus, after Bretton Woods became effective, the western world was running on a quasi-gold standard: “Golden Age - With the dollar stabilizing price levels around the world, production began to soar in the 1950s. International trade flourished as restrictions were steadily reduced. Governments still maintained the right to exercise fiscal policies in accordance with their own perception of domestic priorities, but they did not have carte blanche to indulge in financial or economic fixes that ultimately would put pressure on currency exchange rates. With the dollar providing outside monetary discipline, governments were forced to act responsibly in implementing economic policies for their reactions. For the most part, they did so, and the 1950s marked an extraordinarily successful economic era characterised by stable prices, high productivity, and free trade.”

Greenspan describes the impact of the abolishment of convertibility to gold in 1971 as follows: “The abandonment of the gold standard made it possible for the welfare statists to use the banking system as a means to an unlimited expansion of credit. They have created paper reserves in the form of government bonds which - through a complex series of steps - the banks accept in place of tangible assets and treat them as if they were an actual deposit, i.e., as the equivalent of what was formerly a deposit of gold. The holder of a government bond or of a bank deposit created by paper reserves believes that he has a valid claim on a real asset. However, the fact is that there are now more claims outstanding than real assets. ... As the supply of money (of claims) increases relative to the supply of tangible assets in the economy, prices must eventually rise. Thus, the earnings saved by the productive members of the society lose value in terms of goods. When the economy's books are finally balanced, one finds that loss in value represents the goods purchased by the government for welfare or other purposes with the

money proceeds of the government bonds financed by bank credit expansion.106 Greenspan concludes further in his essay Gold and Economic Freedom107: “In the absence of the gold standard, there is no way to protect savings from confiscation through inflation. There is no safe store of value. ... The financial policy of the welfare state requires that there be no way for the

107 “If all goods and services were to be paid for in gold, large payments would be difficult to execute, and this would tend to limit the extent of a society's division of labor and specialization. Thus a logical extension of the creation of a medium of exchange, is the development of a banking system and credit instruments (bank notes and deposits) which act as a substitute for, but are convertible into, gold.
A free banking system based on gold is able to extend credit and thus to create bank notes (currency) and deposits, according to the production requirements of the economy. Individual owners of gold are induced, by payments of interest, to deposit their gold in a bank (against which they can draw checks). But since it is rarely the case that all depositors want to withdraw all their gold at the same time, banker need keep only a fraction of his total deposits in gold as reserves. This enables the banker to loan out more than the amount of his gold deposits (which means that he holds claims to gold rather than gold as security for his deposits). But the amount of loans, which he can afford to make, is not arbitrary: he has to gauge it in relation to his reserves and to the status of his investments.
When banks loan money to finance productive and profitable endeavours, the loans are paid off rapidly and bank credit continues to be generally available. But when the business ventures financed by bank credit are less profitable and slow to pay off, bankers soon find that their loans outstanding are excessive relative to their gold reserves, and they begin to curtail new lending, usually by charging higher interest rates. This tends to restrict the financing of new ventures and requires the existing borrowers to improve their profitability before they can obtain credit for further expansion. Thus, under the gold standard, a free banking system stands as the protector of an economy's stability and balanced growth.
When gold is accepted as the medium of exchange by most or all nations, an unhampered free international gold standard serves to foster a world-wide division of labor and the broadest international trade. Even though the units of exchange (the dollar, the pound, the franc, etc.) differ from country to country, when all are defined in terms of gold the economies of the different countries act as one--so long as there are no restraints on trade or on the movement of capital. Credit, interest rates, and prices tend to follow similar patterns in all countries. For example, if banks in one country extend credit too liberally, interest rates in that country will tend to fall, inducing depositors to shift their gold to higher-interest paying banks in other countries. This will immediately cause a shortage of bank reserves in the "easy money" country [with exception of the US dollar as international reserve currency], inducing tighter credit standards and a return to competitively higher interest rates again....
The abandonment of the gold standard made it possible for the welfare statists to use the banking system as a means to an unlimited expansion of credit. They have created paper reserves in the form of government bonds which--through a complex series of steps--the banks accept in place of tangible assets and treat as if they were an actual deposit, i.e., as the equivalent of what was formerly a deposit of gold. The holder of a government bond or of a bank deposit created by paper reserves believes that he has a valid claim on a real asset. But the fact is that there are now more claims outstanding than real assets. ... As the supply of money (of claims) increases relative to the supply of tangible assets in the economy, prices must eventually rise. Thus, the earnings saved by the productive members of the society lose value in terms of goods. When the economy's books are finally balanced, one finds that loss in value represents the goods purchased by the government for welfare or other purposes with the money proceeds of the government bonds financed by bank credit expansion.” ibid.
owners of wealth to protect themselves. This is the shabby secret of the welfare statists' tirades against gold. Deficit spending is simply a scheme for the "hidden" confiscation of wealth. Gold stands in the way of this insidious process. It stands as a protector of property rights. If one grasps this, one has no difficulty in understanding the statists' antagonism toward the gold standard.\(^\text{108}\)

Ron Paul and Lewis Lehrman describe the impact of a gold standard on personal freedom as follows: "Gold money is always rejected by those who advocate significant government intervention in the economy. Gold holds in check the government's tendency to accumulate power over the economy. Paper money is a device by which the unpopular programs of government intervention, whether civilian or military, foreign or domestic, can be financed without the tax increases that would surely precipitate massive resistance by the people. Monetizing massive debt is more complex and therefore more politically acceptable, but it is just as harmful, in fact more harmful, than if the people were taxed directly. This monetising of debt is literally a hidden tax.\(^\text{109}\)

Soddy describes the deflationary tendency of a gold standard in a 100 percent reserve system: "In mathematical terms, society, in adopting gold as its measure of value and its medium of exchange, is attempting to keep a differential coefficient proportional to its own integral, for it must make the proportionate increment of its revenue of wealth always as great as the proportionate increment of its aggregate quantity of gold. There is one mathematical function. This is the function which regulates the dizzy virtues of compound interest."\(^\text{110}\) The common view that interest bearing banks and fiat money creation are a necessity for avoiding deflation and economic catastrophe is a false myth, because if the money stock - as it is under a commodity gold standard – is kept constant, all money holders effectively gain interest without keeping their money in banks. From a neoclassical view, a gold standard tends to be deflationary in a rapidly growing economy, but this does not negatively affect the economy.


Applicability of modern monetary theories to an economy running on gold is very limited, because Keynesian and Monetarist theories come from a dollar denominated global economy with fractional reserve banking and a denatured gold standard. Keynes’ deficit spending can only be applied in an economy, in which a gold standard and a 100 percent reserve system are abolished. Nearly the same applies for Monetarist theories. Monetarist theories were applied after Nixon’s closing of the gold window. Monetarism can only be applied in an economy, in which monetary aggregates can be easily controlled by a central bank and are not subject to restrictions of physical gold reserves.

Marx’ theory of commodity money fits well into a financial system running on gold, as Marx’ theory comes form the 19th century. The same applies to classical economics and the Austrian approaches which are theories coming from and referring to the gold standard of the 19th century.
3.3 Fractional reserve banking

Essential for the understanding of fractional reserve banking - which is briefly introduced as the end of chapter 3.1 *Tally stick economies* – is its accounting analysis. The accounting analysis is so important, because the accounting analysis is a condition precedent for understanding post-war developments from a monetary perspective.

After a recapitulation of the historic beginnings of fractional reserve banking, the focus lies on the accounting mechanisms.

The end of tally sticks in Europe was a transition period in which many abstract and complex changes in the financial background occurred at the same time. Between the end of the 18th century and the end of the 19th century, interest-based fractional banking crowded out tally sticks. Briefly after the reintroduction of fractional reserve banking, a cheque system became common.

Fractional reserve banking developed from the practices of goldsmiths who established Europe’s first banks. Goldsmiths offered depository services for gold coins and issued receipts in 'bearer' form for any deposit. These receipts stated the face value in gold from the goldsmith deliverable on demand. As soon as these receipts became liquid, highly accepted, and tradable bills, they formed Europe’s first form of paper money. As all outstanding bearer certificates were usually not turned in for physical delivery at the same time, "goldsmith banks" could issue more certificates than actual gold in deposit, charging also interest payable in gold for the additional "unbacked" paper certificates. The gold coins kept in reserve, as a proportion of the amount of receipts outstanding, became known as the "reserve ratio". Obviously, as soon as the reserve ratio is below 100 percent, banking becomes extremely profitable, as interest payable in gold is charged for a kind of "fictitious" certificates printed cheaply in the back office. The lower the reserve ratio is, the higher the bank’s profit.

As these bearer notes respectively warehouse receipts for gold stored in bank vaults become standardised bearing the same nominal amounts than the gold and silver coins, these bank notes became as accepted in trade and commerce as precious metal coins. Bank notes became a proxy for gold and
silver coins. Fractional reserve banking turned out to be an unusual profitable business only endangered by defaulting debtors respectively customers. As banking is more profitable, more wealth is extracted from the individual debtor endangering the existence of the economy as whole. Therefore, authorities in England acted to counter the dangers posed to the health of an economy in which numerous private issuers of paper money were active. Under the 1844 Bank Charter Act, the right to issue most kinds of paper money was restricted to the Bank of England. This restriction was evaded by the newly developing cheque and account statement system. Notes issued by private banks were substituted by current accounts within the bank. For payments, the physical handing over of private bank notes became substituted by issuing cheques or ordering money orders for transfer of money from one account to another. The same effect in favour of commercial banks is targeted by banks attempting to substitute payments with cash notes through electronic payments.

In a fractional reserve banking and cheque system, money is simply created by posting a new loan in the balance sheet. Without a cheque system, the new loan was to be issued in form of bank notes written in the back office. As already explained in the chapter 3.1 Tally stick economies, banks in a tally stick system act automatically in a 100 percent reserve banking system. A tally stick can only be lent out, when it is already existing and given up respectively lent out by a third party beforehand. The simple creation of tally sticks by production respectively forgery out of a bank’s back office was not allowed.

In contrast to gold bullion banking, banking where gold is lent out only physically, and “tally stick merchant banking”, in which tallies are only lent out physically, fractional reserve banking has the characteristic that more assets are lent out than actual existing. Thereby, the irredeemability or better inservability of interests per se is completed by the partial inservability of the principal amounts. The major difference is that in a fractional reserve banking system it is in the power of the banks to determine when the inflated pyramid scheme will collapse. It is hard to judge if an overextended economy can always be further inflated or reinflated. Nevertheless, it is the banking industry, which determines the time when a high-geared and overextended economy collapses.

A very special feature of a fractional reserve banking system is that out of nothing, by granting a loan, additional money, additional property rights are
created. The debtor can immediately use this additional newly created money for buying existing physical goods. The moral and legal aspects of fractional reserve banking will not be discussed here.\textsuperscript{111} The most obvious legal issue is, whether fractional reserve banking is legal under contract law respectively civil law, because something created out of nothing is the basis for a contract.

The feature of the free creation of money in a fractional reserve system is so important, as it is the basis for an understanding of economics. Furthermore, the shift from bullion and tally banking towards fractional banking is a hardly perceptible and noticeable event. The event is abstract and complex changing the structure of property rights over time. This remarkable feature of fractional reserve banking will be proven by simple microeconomic analysis of money focussing on a bank’s simplified balance sheet.

A simplified balance sheet of a bank standing exemplary for the banking industry will be analysed. Assumed is the following balance sheet for start off and a cashless e-economy with electronic accounts or a total cheque system:

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Loans</td>
<td>Deposits</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Buildings</td>
<td>Equity</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{111} Kutyn describes the process of fractional reserve banking in detail: “The borrower has increased the amount of money he has, while the money held by all other persons has remained the same. An economist must understand this before anything else, and failure to understand this will only lead to an illusion of reality. Next, an economist must understand how the creation of a loan affects the economy. When a loan is created, this allows the borrower to increase expenditure, (generally all loans are given to finance some sort of purchase) which will affect GDP (Gross Domestic Product), since expenditures make up GDP. Secondly, the creation of a loan also results in the borrower having to make payments of interest and principle. Loan payments of principle or interest reduce the disposable income of a person or firm (Here consider a person earning $1000 per month. If the person has no loan payments, then the whole $1000 is available to consume or invest. If the person has loan payments of $200 per month, then only $800 is available to consume or invest) which causes expenditures to be reduced, which again affects GDP. The payment of either principle or interest will reduce the amount of money held by the borrower, and since the amount of money held by all other people has not changed, this must reduce the amount of money. In addition, money is also created whenever a bank purchases an asset, or is destroyed whenever a bank sells an asset. To confirm and clarify these points, we will examine the effect of these transactions on the banks balance sheet.” Kutyn, J. (1999), *The Nature of Money*, article published on the internet: www.cfoss.com/nature.html, The Claire Foss Journal, alternatively: http://www3.sympatico.ca/truegrowth/kutyn.htm.
If a loan of € 3 is granted to a new customer respectively debtor who runs a deposit account with the bank, the following bookings are posted: € 3 are credited to the customer’s deposit account and € 3 are debited to the general loan account of the bank.

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

The customer can now spent his new € 3, e.g. the customer buys goods for €3 and transfers the € 3 by electronic money order or internet banking to the seller’s deposit account, which is in the same general deposits ledger of the same bank. The circulation of created money in trade and commerce of the economy does not affect the bank’s balance sheet.

There are regulations and laws restricting unlimited creation of money. Most observed rules are at present the minimum balance sheet ratios required by the Bank for International Settlement in Basle. However, not all these regulations affect the main feature of fractional reserve banking.

Assumed the bank purchases something, e.g. buys a government bond for €3:

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

The bank purchases the € 3 government bond, with the government depositing the € 3 in its bank deposit account.

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Government bonds</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>
This type of balance sheet lengthening transactions could be repeated in unlimited amounts, besides BIS restrictions.

Bank deposits - which are in this simplified model all the money circulating in the economy - are only destroyed whenever
- a loan payment is made,
- an interest payment is made, or
- a bank sells an asset.

Assumed the bank sells a government bond of €1. It is - reverse to the purchase of the government bonds beforehand - a "balance shortening" transaction:

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Government bonds</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

Assumed a €2 principle loan (re-) payment is made. The depositors account is debited by €2 and the bank’s general ledger loan account credit by €2. It is a simple “balance shortening” transaction:

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Government bonds</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

Assumed an interest payment of €2 is made. The depositors account is debited by €2 and the bank’s equity account is credited by €2:

<table>
<thead>
<tr>
<th>(€)</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Government bonds</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>
As the payment of interest inevitably destroys money, it is proven that a fractional reserve banking system is an unstable financial system. Its system inherent instability is comparable with a Ponzi or pyramid scheme or a chain letter system. It is self-accelerating and by the passing of time destined to collapse.

It is important to note, that the bank’s equity position does not affect the bank’s ability to make loans or purchase assets. The increase in equity through profits or additional stock offerings does not affect the bank’s ability to create loans or purchase assets. It may be useful that a bank maintains certain balance sheet ratios for fulfilling external financial regulations and laws, technically however, it is irrelevant to the creation of loans or to the purchase of assets. Since each time a bank purchases an asset or creates a loan, an equal and offsetting deposit is created, these transactions can continue to occur regardless of the equity level of the bank.

In this context, the importance of a bank’s equity position asks for clarification. Steiger criticizes the missing equity position in the conventional explanation of the process of multiple credit creation as it is presented by Riese. In accounting terms, the equity, which is provided to a company by the shareholders, is posted as equity under the liabilities side and has an equivalent, offsetting position on the assets side of the balance sheet. It is obvious that a positive equity position does not have the character of liabilities, although it is posted under the liabilities side. A positive equity position has the character of an asset position buffering against insolvency, which is especially true for banks and central banks. Thus, central banks liabilities side is often entitled with “liabilities and capital side”.


The importance of the introduction of a cheque system in a fractional world is also explained by Soddy.114

In any banking system charging interest payable in money – regardless whether fractional or a 100 percent reserve system - money is created by interests and destroyed with the payment of interest.

The complex and abstract character of creating new credit in a fractional reserve system is disguised by the fact that banks also borrow money themselves, i.e. banks also engage in trading debt respectively money like trading tallies or gold bullion. In a balance sheet on the first look, it is impossible to distinguish between these two types of credit granting, because ex post these two different types of credit cannot be clearly separated. The effects for the economy are however very different.

This accounting analysis reveals that the common perception – the perception that the borrower is borrowing money, which the owners of the bank have invested in the bank beforehand, or that the borrower is borrowing money from a pool of funds that depositors have entrusted to the bank beforehand – is wrong. When a bank gives a loan, the bank completes two bookkeeping entries. The bank credits the borrowers account with the amount of the loan and debits a general ledger loan account by an equal amount. What has happened is that the bank has created money out of nothing, and this is money.

The amount of money available in the economy equals the amount of money created exclusively through bank loans115. Thus, the amount of money

114 Soddy explains the logic of lending in a simplified fractional banking system briefly: „Let us suppose that cheques entirely replace cash as purchasing power and that everyone has a bank deposit. This now so near the actual state of affairs that for the purpose of this argument it may be taken as already to very substantial extent true. Now if we concede to the banker the right to lend the deposits on the score that their existence shows the owners are not using them, we thereby double the money in the country, and double deposits. The existence of the doubled deposits is a clear evidence as before that their owners are not using them so they may be lent again, and now the deposits are increased four times. So we may go on and create an infinite quantity of money.” Soddy, F. (1933) *Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox*, New York: E. P. Dutton & Co., Inc., p. 189.

115 “Indeed, to some people it seems sufficient to prove this that a bank’s balance-sheet balances. Whereas, of course, when a bank credit is created, both sides of the balance sheet are written up to the same extent. It is not merely the old lady of fable who overdrew her account and sent her banker a cheque for the amount. Her misfortune was merely that she was not her
available in the economy is always less than the amount of money required to repay the loans (principal plus interest). In simple terms, by agreeing to pay interest in money, the debtor agrees to the impossible. The missing “interests” in the economy always require continuous additional new creation of credit to keep the system running. If the creation of new credit should be stopped all over, money would completely disappear within a few years depending on the nominal level of interest rates. Should the money in the economy be kept stable, the sum of all outstanding loans must grow by the amount of interest paid, leading to a continual increase in loans for the same money supply.

In a fractional reserve banking system based on a gold standard - as existed in the 19th century in the United States – the overall money supply depends on two factors: the sum of total currency in circulation and the percentage of the fractional reserve margin.\footnote{Compare with: “Under American gold standard system, where gold was the only legal tender without limitations, and all forms of „paper money“ were redeemable in gold (silver certificates in silver or in gold at the Treasury’s option) on demand, the supply of money was finite. American bankers, unlike their English counterparts, could not create new deposits beyond the natural limit imposed by the percentage of the “fractional reserve”. Banks that would create excessive deposits would be unable to redeem their paper, and would have to close down.” Tlaga, J. N. (2001), A Tale on Wine and Water – Part 1 and 2, articles published on the internet: www.gold-eagle.com.}

The transformation of an institutional – concerning property rights integer - government-banking complex into a – concerning property rights parasitic - privately owned fractional reserve system occurred more or less in the last century as a lingering process. Like a frog being boiled in gradually heated up water, the transformation in its complex and abstract nature taking place over decades is commonly not realised.

In England, no fractional reserve requirement existed.\footnote{Compare with: „It is still not a part of common knowledge, that under gold standard, sterling (and to a lesser degree mark and franc) enjoyed reserve currency status, which allowed Bank of England to replace substantial amount of gold with notes, and then use the gold so extracted from circulation as “hot money” for inducing boom and bust cycles around the world, including the United States. Sterling acquired its reserves status by sheer preponderance of English merchant fleet in worldwide shipping, which made London banks the logical place to}

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However, these loans are neither self-sustaining nor repayable, and the system must eventually collapse. Collapse means that loans must turn sour in the end and debtors must default. This is inherent part of a fractional reserve banking system, of a system, which is based on the logic of inservability of interest obligations over and in time.

Mathematically Croesus’ system of banking with compounding interest payable in an exclusive fiat currency is taken into another dimension: First, in a fractional reserve system money can be created without physical restrictions. Second, the monopoly of Croesus’ central bank is partially broken and transferred to the commercial banking industry, which is together with the central bank in “the economy’s driver’s seat”. The difference between coins respectively money and credit is briefly explained by Soddy.\textsuperscript{118}

To complete the balance sheet analysis for a fractional reserve banking system, in the following the balance sheet of a central bank will be analysed. As Euroland and the United States run on a two-tiered banking systems with central and commercial banks, the basic accounting mechanisms are the same. The “money multiplier” is the reverse of the legally imposed minimum reserve requirement. For simplification purposes a money multiplier of 10 is assumed, i.e. 10 % minimum reserve is required.

In the first step, the central bank purchases via its open market agent € 1.000 (million) of government bonds, writing out a cheque for € 1.000 million on itself or ordering a corresponding money transfer to the agent:

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\textsuperscript{118} “The distinction between money and credit, as purchasing power, is that the use of the former does not leave the user in debt, whilst the use of the latter does. In the case of money the buyer does not have to pay again for the wealth purchased, but the seller who receives the money passes on the token, as a legal claim to wealth on demand, indefinitely – that is, the claim circulates and is not cancelled.” Soddy, F. (1933), \textit{Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox}, New York: E. P. Dutton & Co., Inc., p. 79.
The net effect of this open market operation is that the total money supply is instantly increased by € 1.000 (million). In the course of a few weeks, the commercial banks expand as described earlier the money supply by another €9.000 (million):

It is obvious why the central banks prefer crediting the commercial banks instead of printing new notes by themselves. The gearing of 10:1 on the level of commercial banks would be missed. This also explains why banks push for the use of cheques or means of electronic payment rather than of cash. Cash is not under the control of the central bank as deposits are. From the perspective of central banks, cash in circulation slows down the effectiveness of a two-tiered fractional reserve banking system.

In a tally-stick-economy respectively a financial system based on a 100 percent gold or/and silver standard, a loan can only be made, if the lender releases property in the same amount. In a fractional banking system based on a fiat-currency, a loan can be made with the lender giving up nothing. Soddy explains: “For a loan, if it is a genuine loan, does not make a deposit, because what the borrower gets the lender gives up, and there is no increase in the quantity of money, but only an alteration in the identity of the individual owners of it. But if the lender gives up nothing at all what the borrower receives is a new issue of money and the quantity is proportionately
increased.” In comparison with medieval Europe it becomes clear that paper money – in contrast to tallies and gold – is a prerequisite for a fractional banking system, although a paper money system is not necessarily either receipt, fractional, fiat, or electronic money.

Mises calls the fiat money respectively the credit/debt created in a fractional banking system “fiduciary credit”. Mises admits that the concept of fiduciary credit may appear “puzzling, even inexplicable; it constitutes a rock on which many economic theories have come to grief”. Mises differentiates between “circulation credit” (“Zirkulationskredit”) and “commodity credit” (“Sachkredit”) which comes close to “tally stick debt” and credit in a physical gold bullion banking system. However, Mises defines fiat money as a present good, which misses the actual character of fiat money created by double bookkeeping entries.

The nature of compound interest is demonstrated by Soddy with a comparison: “If the rate is 5 per cent per annum, ... In 1070 years out of our 9-inch ball of gold, disposed of in this way [lending the interest at the

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122 Compare Antal E. Fekete September 9, 2002 www.gold-eagle.com Summer Semester, 2002, Monetary Economics 101: The Real Bills Doctrine of Adam Smith, Lecture 10, The Revolt of Quality: “Mises' dictum that the bank note is a present good naturally leads to the tantalizing question whether an undetected counterfeit bank note is a present good as well. Exactly the same argument that made the genuine bank note a present good would make a counterfeit bank note a present good, too. Pity, this puts the bankers and counterfeiters into the same class: they are both in the business to create present goods out of practically nothing. I would be happy to rest my case there, however, it raises more questions than it answers. Should the practice of producing present goods out of nothing be outlawed along with quackery and witchcraft - regardless whether this dangerous prestidigitation is practiced by honourable gentlemen, the bankers, or by disreputable crooks, the counterfeiters? Both the banker and counterfeiter are illusionists, mesmerizing the public into believing that their product, the bank note, is a present good and not merely a promise to deliver present good on demand. Both the banker and the counterfeiter are determined to escape any and all responsibility concerning the bank note after they have succeeded in putting it into circulation. The activities of the two are hardly different from an economic point of view. The difference is exclusively in our legal arrangements, aiding and abetting the former, while criminalizing the latter.” Fekete, A. E. (2002), The Revolt of Quality – Deliberate Dollar Debasement, The Congenital Disease of All Paper Currencies, Omnipotent Government, Demonetizing Gold, Lecture 10, Summer Semester 2002, Monetary Economics 101: The Real Bills Doctrine of Adam Smith, published on the internet: www.gold-eagle.com.
compounding rate], there would arise legal claims to a golden ball equal in size to the earth, and weighing four times as much. ... This is the celebrated fallacy of compound interest ...

A further analysis of fractional reserve banking reveals that banks are centrally involved in the transfer of wealth. With their economic key position, banks cannot only control the amount of new credit, but also the direction. Banks can fuel and channel economic expansion, can create financial bubbles in specific sectors and can time the bursting of bubbles using two intertwined instruments for regulating volume and velocity of money, which are fractional reserve banking and money expansion. Institutionally equipped with this power, banks can employ their inside knowledge to speculate at the right time in the right investments. Taking into account the logic of ancient gold banking and the logically constant missing interest in a global economy, the system runs as a pyramid or Ponzi scheme as long as new credit is created by the financial institutions. Like the child’s game of musical chairs, a chair respectively the newly accruing interests for the overall outstanding credit is/are always missing. As long as the music is playing, the missing chair does not matter for the participants. If the music is stopped by the financial institutions, the wealth of not well-positioned respectively prepared participants can be quickly and completely redistributed.

"We must remember that the key to controlling the world is the creation and control of economic contractions. It is here that the majority of wealth is transferred to the money people. Moreover, it is at these times that these same people bring about political change. As bad as the banks ability to create money is, it is their ability to destroy money that is even more

124 A good example is the TMT bubble. The TMT bubble was a mainly media- and credit-induced bubble, in which shares of inflated companies were the most common money for merger and acquisition transactions. Remarkable is the likely foresight of the implosion of the TMT bubble of the telecom company Vodafone compared with its continental European telecom competitors. While the enormous debts which the competitors like Vivendi, France Telecom, Deutsche Telekom made in the last year of the TMT bubble, are enforcing these companies to asset-stripping and endanger in their dimension national budgets and one of France’s largest infrastructure company, Vodafone reduced its gearing in the last half year of the bubble by selling assets into the hyper-inflated telecom market. Therefore, in the deflationary post-bubble period after March 2000 Vodafone could easily pick-up its competitors' core assets at low prices. In retrospective by inducing the TMT bubble, strategic assets for the new information age could be easily redistributed and the otherwise economically unfeasible wiring of the financial and economic centres of the western world with broad band cables could be accomplished.
By the employment of fractional reserve banking, banks are the manufacturers of abstract credit and thereby are able to extract real wealth.

Therefore, Nuri compares fractional banking with illegal counterfeiting: “Whoever has or is given the authority to create credit has the authority to extract wealth from the economy by that same mechanism. Moreover, there is no meaningful distinction between fractional reserve banking and money expansion. The analogy of counterfeiting looms large as the mathematics reveals. In many ways, the only difference between illegal counterfeiting and legal privately owned money expansion is that gains by the recipient in the latter case are officially sanctioned, not indiscriminate, and limited based on the expansion rate. Therefore, paradoxically, privately-owned money expansion is basically equivalent to ‘legalized counterfeiting,’ i.e. a surreptitious state-sanctioned plundering of money holder wealth by private bankers.”

Analysing the nature of fractional reserve banking Frederick Soddy, one of the first generation of English atomic scientists, used his analytical skills, which earned him a Nobel Prize in chemistry to decipher the genetic code, the DNA of money. Soddy undertook a microeconomic analysis of money by applying abstract mathematics. Soddy realised that inflation is the consequence if modern money is issued a source of revenue and that inflation will lead eventually to economic disintegration and crises.

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127 Compare with: “Genuine and Fictitious Money Loans. … the real charge against the modern system is not so much that it has caused an enormous increase in the practice of carrying on industry upon borrowed money, as that the bank loans are not genuine money loans, but are entirely fictitious, in that no one gives up the money lent, which is new money created for that purpose.” and “The essential rule is that whoever, in the way of business, receives wealth for money – itself now intrinsically valueless – must give up the equivalent, and this is simply secured by his having in the preceding transaction given up for the intrinsically worthless money the equivalent in wealth. But it is not and cannot be observed with credit – money, falsely so called, in the first issue of money, and as a result, the whole scientific civilization has been brought about as near to ruin as it is possible to go. It is only in regard to its first issue (and final destruction, if it is ever destroyed) that modern money is the least difficult to see through. In the first exchange of new money for wealth, the issuer, whoever he is gets something for nothing, and cannot help getting something for nothing… But when it comes to the money created to lend and destroyed when the money is repaid, the users of it know neither who created it nor how it was created. It differs from all the rest only in the
Reflecting Soddy’s mathematical approach Kutyn describes a financial system based on fractional reserve banking as an illusion; because today’s financial system is not a natural system, but a system created by man. It is a system without any physical limitations, is subject to the laws of mathematics best shown by the accounting models that it adheres to. Soddy analyses that the financial system is very separate from the natural economy of production, consumption, and asset accumulation and that the financial system is designed specifically to control the natural economy.

The limits in money creation in a fractional reserve banking system are determined by the competition between banks, because an overextended bank would likely be driven into bankruptcies by its competitors. For overcoming these limitations in money creation, the banking industry must be – at least partially – monopolised by the introduction of a central bank. In his latest book “The Case Against the Fed”, Rothbard reveals that common argumentation for the existence of central banks is central bank’s propaganda: “The second crucial part of the official legend claims that a Central Bank is necessary to curb the commercial banks’ unfortunate tendency to over-expand, such booms giving rise to subsequent busts. ... In fact, as we have seen, the banks desperately desired a Central Bank, not to place fetters on their own natural tendency to inflate, but, on the contrary, to enable them to inflate and expand together without incurring the penalties of market competition. ... In short, the real reason for the adoption of the Federal Reserve, and its promotion by the large banks, was the exact opposite of their loudly trumpeted motivations. Rather than create an institution to curb their

first transaction in which it exchanges for wealth, and the last in which it is decreated and indeed, what does “all the rest” now amount to?” Soddy, F. (1933), Wealth, Virtual Wealth And Debt – The solution of the economic paradox, New York: E. P. Dutton & Co., Inc., p. 188. Compare with: “Writing in 1934, Soddy said: “Whatever further social changes experience may dictate, no unbiased inquirer into the subject of money today can long escape the conclusion that until the system is drastically transformed and its mistakes eliminated, there can be no hope of peace, honesty, or stability again in this world... It is necessary in this respect to return to the fundamental basis of money as something no private person should be allowed to create for himself. All, equally, should have to give up for money the equivalent value in goods and services before they can obtain it.” Soddy saw money as the nothing you get for something before you can get anything. This basically explains the exchange transaction, giving up goods or services to obtain money in order to purchase goods and services. Further, he saw that the essential feature of money was that it was a legal claim to wealth over and above the wealth in existence, all of which in an individualistic society is already in the ownership of others independently of this claim.” Kutyn, J. (1999), The Nature of Money, article published on the internet: www.cfoss.com/nature.html, The Claire Foss Journal, alternatively: http://www3.sympatico.ca/truegrowth/kutyn.htm.
own profits on behalf of the public interest, the banks sought a Central Bank to enhance their profits by permitting them to inflate far beyond the bounds set by free-market competition.  

As all conventional theories fail to understand the basic concept of fractional reserve banking, the schools of Keynesianism and Monetarism miss the applicability for monetary policy.

In case the state owns the fractional banking system, the legitimacy of such a system may be discussed. In case a fractional reserve banking system is privately owned, its legitimacy is out of question, as unlimited private confiscation of public property is allowed and institutionalised.

In the United States a completely private-owned two-tiered banking system with the Fed as private institution and private commercial banks has been operating since 1913/14.

In Europe in the 20th century state-owned central banks and private commercial banks were dominating. However, by the implementation of Euroland and the euro the most important privileges of national monetary sovereignty were abandoned. Unnoticed by the public under the veil of Euroland and the smooth introduction of the euro a de facto thorough privatisation of the two-tiered banking system has been nearly completed. The neutralisation of national central banks, most of all the neutralisation of the German Bundesbank, will leave the exclusive monopoly of fiat money/credit creation to the private banking industry. Besides England, Norway, Switzerland, and Russia, all major states in Europe are now deprived of their monetary sovereignty.

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3.4 Bretton Woods

The conference in Bretton Woods in 1944 stands for an international post-war financial order, which shaped the post-war era. Due to the high complexity and abstractness of monetary evolution in the 20th century the idea of Bretton Woods with its implications will not be regarded as one minor step in-between on the road to a pure fiat system, but in detail be analysed as one of the major monetary events in the 20th century.

Fractional reserve banking, the two world wars, and the post-war financial order of Bretton Woods are closely interconnected and turned the financial system as it existed before the First World War as a financial system with a gold standard and fractional banking into a global financial system of pure fiat currencies with evaded limits of a fractional reserve banking system under US dollar domination.

The idea of Bretton Woods was based on the pegging two parallel currencies, gold, and the US dollar. By guaranteeing convertibility of dollar into gold, the dollar was gold-backed. Whereas most other currency where designed to be dollar-backed pegged by fixed exchange rates against the US dollar. The fixed exchanged rates of the Bretton Woods system were derived from the respective worth of national currencies against gold. The main institutions realising and controlling the concept of Bretton Woods, were the International Monetary Fund IMF and the World Bank demanding – at first - dollar convertibility from all member states. The concept of Bretton Woods required its member nations to move substantial amounts of their national gold reserves physically to the United States and hand their national reserves over into the custody of the International Monetary Fund and World Bank, labelled as reserve assets for “special drawing rights”.

In terms of fractional reserve banking, new layers in the financial pyramid scheme were introduced. Above central banks (other than the Federal Reserve), the Federal Reserve as the “dollar central bank” was installed. Via the International Monetary Fund, World Bank, and the gold reserves of foreign nations and of the United States, the dollar was backed by physical gold on top of the pyramid. For stabilising the structure of the extended pyramid, the single member nations at first had the choice of pegging their national currency by gold or by the US dollar. And at a later stage the single member
nations were ruled out the direct backing of their national currencies to gold. Therefore, France’s General De Gaulle later called the system of Bretton Woods "an exorbitant privilege" of the United States: the right of the winner of the war to have its dollars considered as equivalent to gold in the reserves of the world’s central banks.

The concept of Bretton Woods was most of all a gold exchange standard. It was the base for system of fixed exchange rates in the post-war era. From a historic perspective Bretton Woods was a step in-between the gold standard of the 1930s and the dollar standard after Nixon’s closing of the gold window in 1971. Bretton Woods was leading the world over into a pure fiat currency world focussed on the US dollar. Regarding the Bretton Woods system from a perspective focussing on a gold index and a purchasing power respectively inflation index, it becomes clear that the Bretton Woods system respectively the “Bretton Woods gold exchange standard” was a scheme to suppress the free market price of gold.

Lips states in 2001, “To understand today’s monetary situation, it is important to understand what has been going on in the gold markets since the collapse of Bretton Woods in 1971, or even better, what happened since the end of the gold standard of the nineteenth century. Bretton Woods, actually, was not a

130 Shelton describes in detail the concept and the background of Bretton Woods: "The Articles of Agreement of the Bretton Woods conference were signed and came into force in 1945. ... At the heart of the Bretton Woods agreement, beneath all the rhetoric about promoting high levels of employment and real income, was the solid reality that the U.S. dollar was technically worth a specified amount of gold. As a result of January 1934 proclamation by President Roosevelt ... 35 dollars was equal to one ounce of gold. The U.S. government was thus obligated to maintain a stable relationship between gold and the value of its currency – at least, for international purposes. Recognition of this commitment was encapsulated in the U.S. government’s promise to freely convert dollars into gold, or gold into dollars, at the established rate when so requested by any foreign central bank in the Bretton Woods system. Because the Bretton Woods agreement permitted member countries to declare the par value of their currencies in terms of either gold or the dollar, there effectively could be no distinction between these two forms of international money. As long as the U.S. dollar was truly “as good as gold,” because of the convertibility privilege, other countries did not need to hoard gold to serve as reserve backing for their own currencies. It was enough to maintain a fixed exchange rate with the dollar to ensure the integrity of their own money.” Shelton, J. (1994), Money Meltdown – Restoring order to the global currency system, New York: The Free Press, pp.52/53.

131 Compare with: “... restoration of the pre-war gold standard was ... Mr. Churchill’s “gold standard”, identical to Bretton Woods “gold standard” with only one difference: in America, the Bretton Woods “gold standard” was maintained by making it a criminal offence for US nationals to own or possess monetary gold; in England, Mr Churchill’s “gold standard” was maintained by making gold available for purchase only in bricks of 400 fine ounces, which made gold-convertible pound sterling inaccessible for general public.” Tlaga, J. N. (2000), Announcing Copernican Revolution, article published on the internet: www.gold-eagle.com
gold standard but a ‘gold exchange or ‘dollar exchange’ standard. It was, as Wilhelm Röpke called it, a denatured gold standard, and, as such, a dangerous surrogate whose implications plunged the world economy into precarious inflationary, and subsequently deflationary, crises twice during this century.132

For understanding the implications of Bretton Woods, it is necessary to develop an instrument, which reveals the effects of backing the US dollar by gold. The comparison of moving platforms as developed in the chapter 3.2 Gold standards will be illustrated by a diagram (see Figure 3.3).

Figure 3.3 shows three graphs, which are indices. All indices are based with “1” in 1913, the year the Federal Reserve Act was signed. The first graph “official US CPI” shows the development of the official consumer price index CPI in the United States133. This graph shows the strong inflation during the First World War, the deflationary phase after the Great Depression, and the slowly accelerating inflation after the Second World War which takes off in double-digit price increases in the 1970s.

The second graph “adjusted CPI” is identical to the graph “official US CPI” until 1980. After 1981 until 2002 the development of the “adjusted CPI” is increased for each year by 2,0 percent in comparison with the “official US CPI”. This adjustment is made as a rough estimate for taking into account the real estate boom in the 1980s and 1990s, which is only partially reflected in the official US CPI figures.

The third graph “Gold Price (USD) index” shows the development of the gold price. It starts with a gold price for one 0,9 fine ounce of gold of USD 20,6718 in 1913 based at “1”. In 1933/34, the graph jumps due to the debasement of the US dollar. The gold standard parity was newly defined as USD 35,00 per ounce of fine gold. Until the closing of the gold window in 1971, the index stays constant. After 1971, it reflects the inflationary take-off of two oil crises, the flight in precious metals, and the disinflationary 1980s.

133 Official US CPI figures are retrieved from website of NASA.
Figure 3.3

* The graph “adjusted CPI” is identical to the graph “official US CPI” until 1980. After 1981 until 2002 the development of the “adjusted CPI” is increased for each year by 2,0 percent in comparison with the “official US CPI”. This adjustment is made as a rough estimate for taking into account the real estate boom in the 1980s and 1990s, which is only partially reflected in the official US CPI figures.

Comparing the gold index with the consumer price index/indices helps to understand the comparison of the moving platforms. There are three moving platforms, which abstractly form a triangle with three interrelations. The platforms are fiat (currency) accounted for in US dollars, goods and services accounted for in a so-called indexed CPI-basket, and gold accounted for in fine ounces.
The first relation fiat to goods/services respectively the ratio US dollar divided by the CPI basket is measured by the CPI graphs. The second relation fiat to gold respectively the ratio US dollar divided by the official price of one fine ounce of gold is measured by the gold index.

The resulting third relation is the ratio between gold and goods/services respectively the relation between the other two graphs. Pricing the CPI basket in gold the third relation is accounted by the ratio fine ounces of gold divided CPI basket. Thus, this ratio simply reflects the purchasing power of one fine ounce of gold measured in CPI baskets. This ratio is therefore labelled “gold standard index” and is reflected by the graph in Figure 3.4. According to the adjustments in the CPI made in Figure 3.3, Figure 3.4 shows two gold standard indices, an “official gold standard index”, and an “adjusted gold standard index”.

The development of the gold standard index in Figure 3.4 shows the development of the purchasing power of gold in terms of one US CPI basket of goods and services in the 20th century.

Focussing on the gold standard index the perspective of monetary developments is changed. It becomes obvious that the fixing of the gold price worked as a mechanism of suppressing the price of gold below its inherent purchasing power. From 1913 until the US dollar debasement in 1933/34, the price of gold is undervalued in terms of purchasing power. With the new fixing of USD 35.00 for one fine ounce of gold, gold is instantly overvalued by approximately 25 percent.\(^{134}\) This overvaluation strengthens the US dollar in international terms of trade and leaves room for a gradual devaluation by inflationary monetary expansion until the Second World War.

In December 1952 to February 1943 the gold standard index reaches parity of “1” again, i.e. in terms of its own parity of USD 35 per ounce of fine gold, the US dollar is worth 100 percent in terms of the consumer price index and in terms of gold standard parity of 1913 of $20.67 per ounce of fine gold.

\(^{134}\) Compare with: “Some people believe that the primary reason why FDR devalued gold standard dollar, parity of $20.67 per ounce, to $35.00 instead of to $27.28 per ounce was to make advance preparation for financing the Second World War, while others argue that he merely made the room for expansion out of the slump of Great Depression. But if he only made the room for expansion, why did he wait with that expansion until 1941?” Tlaga, J. N. (2000), Euro and Gold Price Manipulation – Part 1 and 2, published on the internet: www.gold-eagle.com.
Money upside down – A paradigm shift in economics and monetary theory?

In July 1944 when the Bretton Woods agreements were signed the gold standard index decreased to 95 percent, i.e. the domestic purchasing power parity of gold was – compared with winter 1942/43 – reduced by five percent.
As the foreign currencies of the major nations participating in the Bretton Woods agreements were fixed to gold, the purchasing power of foreign currencies in terms of US goods and services were simultaneously reduced. Vice versa, the purchasing power of the US dollar abroad increased in inverse.

Tlaga - thinking in terms of a gold standard index - describes the implications of Bretton Woods in his elaborate article “Euro and Gold Price Manipulation”\textsuperscript{135}: “To grasp the real meaning of the Bretton Woods system …

It's August 1947. International Monetary Fund is now fully operational and member countries are pegging their currencies within 1 percent of their official par values to the 100-cent dollar, convertible to gold at $35 per ounce. CPI for August 1947 reads 1.33 in terms of 1.00 in December-February 1942/43, which means that US dollar is now worth only 75 cents at home, while abroad it is still worth 100 cents. In economic terms, this was prima facie revaluation of the 75-cent dollar for purposes of foreign exchange upward 33.3% to 100-cent dollar level, but the New York Times never reported it as such. "Dollar Stays at $35 an Ounce" is not the same as "Dollar Revalued One Third". That's how the Bretton Woods rigged casino, in which 75-cent chips would be cashed for 100-cent gold-convertible dollars, was formally, officially and legally established. … To make the long story short, disparity between 100-cent Roosevelt Dollar and 75-cent fiat dollar was automatically pricing every foreign product one-fourth cheaper in America, and every American product one-third more expensive abroad. … Half a century after it was created, Bretton Woods rigged casino is back in operation; imports from Europe again enjoy one-fourth subsidy in America, while American exports again face one-third tariff in Europe. … By the time President Nixon finally closed the "gold window" in August 1971, the paper dollar sank to 41 cents in terms of $35-per-ounce dollar." In 1971, the gold standard index was suppressed below 50 percent, which could only be maintained by forbidding US citizens the possession of monetary gold.

By understanding Bretton Woods in terms of its function as an exchange system, the export-driven boom of Japan, Germany, and France in the post-war era does not require a miracle or "Wirtschaftswunder" for explanation. From the perspective of a gold standard index Bretton Woods worked as a

scheme for leveraging US dollar seigniorage in favour for the United States as importer.\textsuperscript{136}

According to Rothbard, “A primary aim for the United States in World War II was to reconstruct the international monetary system from the conflicting currency blocs of the 1930s into a new form of international gold exchange standard. This new form of gold exchange standard, established at an international conference at Bretton Woods in 1944 by means of great American pressure, closely resembled the ill-fated British system of the 1920s. The difference is that world fiat currencies now pyramided on top of the dollar reserves kept in New York instead of sterling reserved kept in London”.\textsuperscript{137}

However, the US paid this seigniorage by an accelerating outflow of physical gold at suppressed prices. The enormous gold reserves accumulated during two world wars were quickly eroding. Thus, the system of Bretton Woods became unsustainable. In 1971, the United States closed the gold window. In June 1973, the Committee of Twenty decided to abandon the International Monetary System and move to flexible exchange rates. The move to flexible exchange rates was promoted as a measure to control inflation.

Mundell describes the new lack of an international monetary system after lifting the denatured gold standard of Bretton Woods in 1971 as follows: „When the international monetary system was linked to gold, the latter managed the interdependence of the currency system, established an anchor for fixed exchange rates, and stabilized inflation. When the gold standard broke down, these valuable functions were no longer performed and the world moved into a regime of permanent inflation. The present international monetary system neither manages the interdependence of currencies nor stabilizes prices. Instead of relying on the equilibrium produced by automaticity, the superpower has to resort to "bashing" its trading partners which it treats as enemies.”\textsuperscript{138}

\textsuperscript{136} Compare with: “Discovery that the Bretton Woods gold exchange standard was in reality a gargantuan scheme to suppress the free market price of gold clears the road for Copernican revolution in economic and general history. It allows reconstructing the true events of history by way of reverse engineering. The primary tool of this revolution consists of a mere thinking in terms of Gold Standard Index.” Tlaga, J. N. (2000), Announcing Copernican Revolution, article published on the internet: www.gold-eagle.com.

\textsuperscript{137} Rothbard, M. N. (1983), The Mystery of Banking, New York: Richardson & Snyder, p. 250

is analysed in the chapter 3.8 *Currency crises in the late 1990s and early 2000s*.

The gold standard index in Figure 3.4 visualises an overvaluation of the US dollar in terms of its gold purchasing power after the devaluation in 1933. By this overvaluation the United States was buying monetary leadership, only a major nation with high gold reserves could allow. At the world gold conference in 1933, France wanted international monetary reform. France wanted the United States and Britain to go back to fixing of the price of gold. President Roosevelt said no, and the dollar continued to float until, unilaterally, the U.S. devalued the dollar, raising the price of gold from $20.67 per ounce to $35. The United States did not want to move back to an international monetary system, except under terms that gave it leadership. ... It is inappropriate to speak of a "Bretton Woods system". The conference at Bretton Woods, New Hampshire, in 1944 did not create a new international monetary system. Rather, it created two new international institutions, the IMF and the World Bank, were set up to manage international interdependence in the international financial system and provide a supranational veneer for the anchored dollar standard.\textsuperscript{139}

After the price of gold was set free in 1971/73, the gold standard index quickly regained its parity of "1" in the mid 1970s. After the second oil crisis, the price of gold overshot to a multiple of its inherent purchasing power according to CPI statistics. After the high-interest rate policy of the Federal Reserve in the early 1980s the gold price index declined nearly to parity again. Two major "hiccups" occurred in the period from the mid 1980s until the mid 1990s, the stock market crash in 1987 and the drop out of the Pound Sterling off the European Exchange Mechanism in 1993.

Figure 3.4 reveals that the gold standard index declined under parity of “1” in the late 1990s, although no official price fixing of the US dollar or alternatively the Euro was installed.

A gold standard index below parity without an official price fixing is hardly explainable, even taking into account that dimension of “undervaluation” of gold in terms of purchasing power in 2002 resembles the situation after 1970 when the price of gold sprang back to parity and immediately overshot. An

\textsuperscript{139} ibid.
alternative approach for explaining this phenomenon will be given in the chapter 3.9 *Gold and yen carry-trades.*
3.5 Post-war inflation

As explained in the chapters 3.2 Gold standards and 3.3 Fractional reserve banking the circumstances of the 20th century are unique in monetary evolution. Especially in the last quarter of the 20th century fractional reserve banking is institutionalised on a global scale, the denatured monometallic gold standard is abandoned, and the exclusive fiat currencies are “free floating”.

Under the heading “price stability and gold” Mundell diagnoses: “The 20th century has not been a very satisfactory century from the standpoint of price stability. If we measure the magnitude of inflations both the product of its rate and the total value of commodities affected by it, we can be sure that more

Figure 3.5

Inflation in England from 1200-1996 *


Inflation has been created since 1914 than in all preceding millennia put together. Note that the starting date of the great inflations, 1914, begins with both the opening of World War I in Europe and the opening of the doors of the Federal Reserve System in the United States. Of the two events, the latter has
been more culpable.”

Thereby, Mundell admits the cause of the great inflationary period of the 20th century to the creation of the Federal Reserve System. Most astonishing is the fact that inflation in the United States was relatively moderate during the two world wars compared with the period after the closing of the gold window in the 1970s.

War is by its nature very inflationary, because war – in comparison to capital expenditures or consumption – leads to destruction. War, capital expenditures respectively capital investments, and consumption can all be publicly financed on a big scale, but war usually does not lead to overcapacities or profits in consumption and service-related industries.

After the Federal Reserve System - which is despite its name and management protocols a privately owned financial institution - was instituted in December 1913, the United States switched to a denatured gold standard as it is documented by the notes.

In 1913 a USD 50 Gold Certificate note stated "Fifty Dollars In Gold Coin, Payable To The Bearer On Demand". This was obvious a true gold certificate, because the holder of this certificate held title to 2.41896 troy oz of gold (at USD 20.67 per troy oz.) which could be redeemed at any bank or from the U.S. Treasury itself at any time.

In 1914, a one dollar note of the Federal Reserve Bank was introduced and became labelled as a "Federal Reserve Bank Note" to be understood to be a promise of payment. Concerning its redeemability the one dollar note says "Secured By United States Certificates Of Indebtedness Or One-Year Gold Notes, Deposited With The Treasurer Of The United States Of America". The Note was directly redeemable in Treasury debt, but it was not directly redeemable in gold anymore.

The last true gold certificates, the USD 100 Gold Certificate was turned into fiat money by the prohibition of gold in 1934. Obviously, with the institution of the Federal Reserve System in 1913 the financial system of the United States was gradually converted into a fractional banking system based on fiat money.

Under a decentralised banking system, as it existed in the United States before 1913, bankers could not increase money supply at will beyond the safety margin of the fractional reserve without risking insolvency.

As the Federal Reserve System became instituted in 1913, a – in contrast to the deceiving name – before federal system was turned into a centralised banking system with one privatised central bank. The foundation of the Fed in 1913 is a de facto a sale of the minting monopoly to the banking industry. By introducing the “Fed” as a central bank, the threat of insolvency (of the reserve requirement) vanished, because the Fed was then able to function a lender of last resort ready to issue “Federal Reserve Notes” by ledger entries at will. On December 23, 1913, President Wilson signed the Federal Reserve Act. Thus, the limitations of federal reserve requirements in the biggest economy of the world were de facto lifted, enabling Europe’s prefinancing of the First World War. The other major implication of the Federal Reserve Act is that the bankers in control of the Federal Reserve System became in economic terms the most powerful entity in the United States.

Rothbard describes the structure of the Federal Reserve and the corresponding banking structure as an “inflationary structure” per se. With an detailed analysis of fractional reserve banking and the structure of the Federal Reserve, Rothbard concludes that the boom of the 1920s was a credit induced boom by a fractional reserve system.

After the bank runs of the Great Depression, in 1934, the private ownership of gold became illegal in the United States and gold in private possession was

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141 “The new Federal Reserve System was deliberately designed as an engine of inflation to be controlled and kept uniform by the central bank. In the first place, the banking system was transformed so that only the Federal Reserve Banks could print paper notes. The member banks, no longer able to print cash, could only buy it from the Fed by drawing down deposit accounts at the Fed. The different reserve requirements for central reserve city, reserve city, and country banks were preserved, but the Fed was now the single base of the entire banking pyramid. Gold was expected to be centralized at the Fed, and now the Fed could pyramid its deposits 2.86:1 on top of gold, and its notes 2.5:1 on top of gold. (That is, its reserve requirements were: 35% of total demand deposits/gold, and 40% of its notes/gold.) Thus, since gold reserves were centralized from the national banks to the Fed, it could pyramid further on top of them. All national banks were forced to become members of the Federal Reserve System, while state banks had a voluntary choice; but nonmembers could be controlled because, in order to get cash for their customers, they had to keep deposit accounts with member banks who had access to the Fed.” Rothbard, M. N. (1983), The Mystery of Banking, New York: Richardson & Snyder, p. 237.

142 ibid, p. 249.
confiscated by the state. After 1934, the switch to a fractional banking system purely based on paper money was completed. A USD 1000 Federal Reserve Note said "The United States Of America Will Pay To The Bearer On Demand One Thousand Dollars. This Note Is Legal Tender For All Debts Public And Private And Is Redeemable In Lawful Money At The United States Treasury Or At Any Federal Reserve Bank". The denaturalisation – as entitled by Röpke – of the gold standard was achieved.

Mundell diagnoses further, "Before 1914, price levels based on gold were remarkably stable over the long run. In 1977, Roy W. Jastram published an excellent study, called The Golden Constant, and followed it up with a second book in 1982 called Silver: The Restless Metal. In these books, he developed figures for the price level based on the wholesale price index in Britain from the 1500s to the present, and for the U.S. from 1800. England's data provided a very consistent series of prices over four centuries. From 1560 to 1914, England's price index remained fairly constant. There were waves of gentle inflation and deflation but they tended to cancel out. World War I brought inflation followed by post-war deflation, and, with the onset of the great depression, Britain went off gold. From that time forward, Britain lost the monetary discipline it had since the time of Alfred the Great. The inflations since Britain left gold in 1931 and especially since the break-up of the anchored dollar system in 1971 have been the highest in Britain's history, higher by several orders of magnitude. In the quarter century after 1971, Britain's price level rose 7.5 times! Over this period, Britain lost its centuries-old reputation for monetary stability and the pound ceased to be a leading international currency. Like the pound, most currencies lost their gold base in the 1930s, thus removing an important convertibility constraint on money supplies. Nevertheless, until 1971, the system did preserve an indirect link to gold through fixed exchange rates with the anchored dollar. It was the severing of the link to gold in 1971 and the movement to flexible exchange rates in 1973 that removed the constraint on monetary expansion. The price level of what had become the mainstream of the world economy was now in the hands of the Federal Reserve System, the greatest engine of inflation every created. Because there was no other international money, the Fed could now pump out billions and billions of dollars that would be taken up and used as reserves by the rest of the world. Not only that, but also US government Treasury bills and bonds became a new form of international money. Dollars
became the reserves of new international banks producing money in the Eurodollar market and other offshore outlets for international money."143

After the abolishment of the denatured gold standard respectively the indirect link of the US dollar to gold in 1971 and the introduction of flexible exchange rates, two oil crises occurred in the 1970s supporting the value of the dollar and protecting the dollar’s role as reserve currency, because oil as the most important commodity in the 20th century traded in dollars. Mundell describes: "The newly elastic international monetary supply was now made to order to accommodate the supply shock of the oil price spike at the end of 1973. The quadrupling of oil prices created deficits in Europe and Japan which were financed by Eurodollar credits, in turn fed by US monetary expansion. The Fed argued that its policy was not inflationary because the money supply in the United States did not rise unduly. The fact is that it had been exported to build the base for inflation abroad. As I showed in an article published in 1971, it is the world, not the national dollar base that governs inflation. US prices rose 3.9 times in the quarter century after 1971, by far the most inflation than at any other time in the nation's history."

Mundell: “But a fundamental change came about with the breakdown of the international monetary system in 1971. As already noted, both countries inflated, but the British price level rose by 750% while the US price level rose by 390%. The pound lost half its value relative to the dollar after it moved to flexible exchange rates. National price levels of every country became unstable after 1970. ... Prior to 1971, the international monetary system, anchored to the dollar, which was in turn anchored to gold, kept world inflation in check. After 1971, when the Golden Anchor was lifted, inflation control had to depend on the slender reed of Federal Reserve discipline. The result was pandemic inflation that has all the characteristics of becoming a permanent feature that future generations will have to cope with.”144

Since the end of the 1930s, prices have been rising in most countries. Already in 1958, Röpke stated that the actual worldwide inflation has not suddenly set in, but is embedded in a long-term inflationary trend since 1939. Röpke describes the actual inflation as a flood wave of continuous increase in money

144 ibid.
and entitles it a “Great Inflation”. From today’s subjective point of view the Röpke’s great inflation just started after the Second World War.

Table 3.6

Inflation since 1950 until 1979

| Consumer good indices (measured in national currencies), 1950=100 |
|-----------------|--------|--------|
|                  | 1953   | 1968   | 1979   |
| USA              | 111    | 145    | 302    |
| Great Britain    | 119    | 185    | 633    |
| Japan            | 130    | 229    | 567    |
| West Germany     | 108    | 148    | 242    |
| France           | 129    | 227    | 566    |
| Italy            | 116    | 183    | 594    |
| Australia        | 147    | 209    | 548    |
| India            | 105    | 213    | 427    |

Development of export prices, world index in US dollar

<table>
<thead>
<tr>
<th></th>
<th>1953</th>
<th>1968</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial products</td>
<td>118</td>
<td>126</td>
<td>364</td>
</tr>
<tr>
<td>Primary products</td>
<td>100</td>
<td>91</td>
<td>481</td>
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In theory fiat money appears to be swindle on the first sight, because in an economy based on private property rights, property is created out of nothing. In history, repeatedly fiat money evolves through different phases: In the beginning commodity money in form of gold and silver coins or bullion exists, as in Babylon 2000 BC with no coinage and payment by weight in precious metals only. Then coins with a minting monopoly are invented. These coins are decoinaged e.g. as in the Roman Empire. In later stages - if hyperinflation has not taken its toll - the gold and silver coins are substituted by relative worthless coins with an authoritatively fixed gold or silver convertibility by the central bank. In Egypt and Mesopotamia, 3000 BC convertibility into cattle or barley was also in place. This convertibility is in a later stage abandoned and replaced by an indirect backing through the gold

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147 In Augustan Rome a ‘symmetallic’ coinage system was in place: Precious metal were used as means of payment of taxes and debts (the gold aureus and silver denarius as legal tender) and base metal tokens were used as media of exchange (sestertius of copper, zinc, tin, and the quadrans of copper). During three hundred years of inflation and decoinage the metal contents were continually reduced. The real hyperinflations had to wait until Gutenberg invented printing and solved the way for printing paper money at accelerating speed.
Money upside down – A paradigm shift in economics and monetary theory? 118

and silver reserves of the central bank. As pure commodity money turned into nearly pure fiat money – besides the still remaining indirect gold and silver backing by the central bank – fiat money explodes in volume as richness and wealth – at least the illusion of wealth in form of worthless coins or paper money – can be created out of nothing. At the end of the fiat explosion, central banks sell their gold and silver reserves to monetary insiders who need the commodity money for restarting the whole cycle in the exclusive creditor position as the financial implosion of an overstretched fiat money system crashes the financial systems and leads to monetary reform. Monetary reform means debasement against gold.

"Financial Fragility poses an intractable problem for the Greenspan Fed. Ironically, things have finally come full circle, with financial fragility having materialized specifically through years of rampant money and credit excess ineptly accommodated by the central bank. Financial fragility is structural and is endemic. The forces of financial fragility will only be strengthened and become even more stubbornly entrenched by the present policy course of perpetuating monetary excess. More credit is not an antidote but instead a potent stimulant for Financial fragility. Financial fragility is comprehensive and very complex, but emanates from the massive amounts of over borrowing by the household, corporate, and financial sectors. Clearly, the massive accumulation of foreign liabilities is a source of great fragility, and Greenspan policy ensures its perpetuation." 148 The key aspect of financial fragility, which results from inflation, 149 is the accumulation of debt obligations (by households, businesses, financial institutions, and the (US) economy as a whole) which are not supported by sufficient underlying economic wealth-creating capacity.

Fischer stresses in his analysis about price developments in the last thousand years that „price revolutions“ - as he entitles boom-bust-patterns or long-term sequences of accelerating inflation with abrupt following economic


149 Compare with: „One characteristic of capitalism in the 20th century its the permanent inflation, which is typical for capitalist economies since the end of the 1930s. There is no need for a special analysis in order to understand that the main feature of inflation is a credit-induced inflation. … The inflation of fiat money means self-evidently an accumulation of debts. Credit is not given for free. Credit leads to the service of debt which grows exponentially. Credits must sooner or later be repaid. Thus, there is a contradiction characterising capitalism in the 20th century.“ Mandel, E. and Wolf, W. (1989), Cash, Crash & Crisis, Hamburg: Rasch und Röhring Verlag, pp. 80/81.
contractions - are not cycles, but waves.\textsuperscript{150} Thus, the inflationary 20\textsuperscript{th} century may – according to Fischer – be regarded as the greatest price revolution in monetary history and as the first part of a wave of unprecedented dimensions.

\textsuperscript{150} Compare with: “Most historians in the United States are familiar only with one great ware, the price-revolution [inflation] of the sixteenth century. Its successor, the inflation of the eighteenth century, has been much discussed by French scholars in relation to the revolution of 1789, but it is little known in America or Britain where its effects were less dramatic. The medieval price-revolution [inflation] is even more obscure, because it is distant from our time and its sources are inaccessible. The price-revolution [inflation] of the twentieth century is misunderstood for opposite reasons: the data are overwhelming, and the event is so close to us that we have trouble thinking of it in historical terms.” Fischer, D. H. (1996), \textit{The Great Wave – Price Revolutions and the Rhythm of History}, New York: Oxford University Press, pp. 6/7
3.6 Japanese bubble economy

The so-called Japanese bubble economy of the 1980s will be briefly described, because it stands for a major boom-bust cycle with severe monetary consequences in the post-war era. Furthermore, the inflationary and deflationary dynamics of the Japanese bubble economy will serve as an example for the monetary theories to be explained in chapter 4.

After the strong inflationary waves of the 1970s, the re-enforcing effects of inflation spurred further creation of fiat in a worldwide fiat system with floating exchange rates. It is important to notice that the lifting of the denatured gold standard in 1971 and the subsequent massive creation of new fiat dollars – in the United and in the euro dollar markets – did not collapse the US dollar, because the events of the first and second oil crisis supported and counterbalanced the US dollar. As oil is priced in US dollar, the dollar was strongly supported by oil. After the support of the oil crises ceased, Paul Volcker’s high-interest rate policy substituted and continued the dollar support. Thereby, due to high oil prices and a “strong dollar policy”, the system of floating exchange rates exported the dollar inflation into the other currency systems.

After the inflationary 1970s, financial markets became the driving force of economic activity by sheer volume. The spectacular growth spurts of the 1980s and 1990s were powered by financial bubbles. No longer did the direction of causality run only from economic growth to asset prices, but the feedback effect from financial markets back to the real economies became significant. When the US stock markets crashed in 1987, total equity market capitalisation in the US was equivalent to around 20 percent of GDP. In 2000, this ratio reached around 130 percent of GDP. Asset bubbles became driving investment and consumption.

The Japanese bubble occurred mainly in the Japanese real estate and stock market. While all Western and the Japanese economies experienced double-digit inflation during the 1970s, the Federal Reserve’s high-interest policy and tight monetary policy in the early 1980s substantially slowed down inflation in North America and Europe. In contrary, the Japanese economy in the 1980s took its own course. A very loose monetary policy allowed an enormous credit creation in yen, which was driving the real estate and stock markets higher.
and higher. Fractional reserve banking in the local fiat currency of yen enabled the enormous credit creation necessary for driving up prices so high. Without the immense credit creation, a real estate boom to such an extent would not have been possible.

From the mid 1960s until the end of the 1980s real estate price indices in Japan increased by more than 20,000 percent, while all other prices increased in the same period by about 550 percent. In the inflationary boom phase in the 1980s, the real estate boom was accelerating itself. Banks were eager to grant new loans for real estate investments, as the collateral values for their loans were rising at high marginal rates. New loans drove up the demand and the subsequent price level in the real estate sector. And a booming real estate sector attracted more credit. As soon as the rate of price increases in the real estate market slowed down slightly, high-geared investments turned sour, because the service of interest payments became higher than price increases.

When the bubble peaked in the late 1980s, most high-geared investments turned sour. Interests for the enormous outstanding real estate loans were accumulating further due to their exponential mathematical nature. While interest-driven growth of liabilities in the balance sheets of real estate investments did not stop, positions under assets in the balance collapsed in value. Like a collapsing pyramid scheme, credit slowed, and so did demand. Investors defaulted, and banks are faced with non-performing loans and shrinking, illiquid collateral values.

A special feature of the Japanese bubble economy is that by creative accounting, tax policy, and enormous amounts of fresh fiat yen, which were directed in the contracting parties, softened and prolonged for more than ten years the deflationary consequences. The prolonging of deflationary consequences was and is without alternative for Japan as a member of the international World Trade Organisation, because a breakthrough of full deflationary forces would – before destroying the Japanese banking industry – export the deflationary forces through liquidation of US dollar reserves abroad and attack the stability of the US dollar bond markets and the US dollar fiat currency.

Fractional reserve banking allows a prolongation of deflationary forces by specific financial and monetary mechanisms. The ongoing prolongation of the
logic deflationary collapse in Japan’s economy also delays a subsequent recovery. As already explained capital adequacy requirements of the banks do not directly affect on bank lending. The creation of a loan creates an equal deposit, which can occur regardless of the equity of the bank. In case equity capital requirements approach limits of BIS, creative accounting practices allow increasing equity in order to maintain credit expansion. By earning vast profits on loans created out of nothing, banks equity is increased allowing the bank to further expand assets as done in the late 1980s in the United States to reliquify an insolvent banking industry.

As fighting compounding interests proved to be insufficient in 2002, Japanese banks issued new shares (resulting in deposits decreasing and equity increasing), again allowing for a further expansion in assets. The nearly insolvent Japanese government issues new bonds that are purchased by the banks. This increases the banks assets (government bonds), and liabilities (deposits). The government then uses the money they received for the bonds to purchase bank equity. This results in deposits decreasing and equity increasing. The net result is that assets have increased by the amount of the bonds purchased, and liabilities have increased by the increase in equity.

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151 How Japan not only postpones her own deflationary collapse, but also stabilises the dollar and the euro areas is explicitly explained in the chapter 3.9 Gold and yen carry-trades.

152 Compare with: „How can banks flourish if banking itself is dying? This idea is not as paradoxical as it seems. American banks have lately enjoyed freakishly favourable circumstances, thanks to a deliberate policy decision by the Federal Reserve. In order to pump liquidity into the economy, interest rates have been set that allow the banks to borrow money short-term at a low price and to lend - mainly to the federal government itself in the form of long-term bonds - at a much higher one. American banks have exploited this steep yield curve by expanding their holdings of public debt massively since 1991, at the same time as their lending to businesses has declined.“ Coming apart, Survey International Banking, in: Economist, April 30, 1994, p. 7.
3.7 Disintermediation and securitisation

Disintermediation and securitisation reflect a major trend in the dominant Anglo-American financial markets starting with the financial deregulation of the mid 1980s and lasting until today. Disintermediation and securitisation play a major role in the process of money and credit creation altering sustainably the functioning of a fractional reserve banking system. Disintermediation and securitisation silently transformed the financial system. Therefore, in the following disintermediation and securitisation will be analysed from a micro-economic point of view.

Before deregulation, the money and credit creation process was dominated by the banks acting in an economy of fractional reserve banking as already described in detail beforehand. Credit respectively money expansion was still partly restricted by reserve requirements. Bank lending dominated credit creation in the capital markets as it did for centuries. With the introduction of deregulation, the structure of the financial system has gone through a major transformation.

At present, credit creation is not mainly driven by bank lending, but by investment bankers, brokerage firms, and the money markets. Security issuance and financial sector borrowing dominate the credit creation process. Disintermediation means that that the traditional role of the bank as lender is partially lifted. The bank acts no longer in the role of the creditor, but becomes agent between debtor and creditor arranging the issuance of new debt and credit. Even by bundling and selling (respectively securitizing) existing bank loans into the market, the banking industry transfers the credit risk – which in conventional bank lending was almost completely borne by the bank – to the ultimate holder of the securities.

Disintermediation and securitization mean that the last restriction in the creation of money and credit in a fractional reserve banking system, the reserve requirements, are evaded. Any company can create credit by lending money, ordering a securities firm to bundle, securitize, and sell the debt respectively credit. The issuance of asset-backed securities still keeps an indirect link to a long-position in a physical asset, whereby the (abstract) issuance of none-asset backed securities goes even further and usually confines itself to the respective credit rating of the abstract securities.
Major corporations or companies which can provide a government guarantee as Fannie Mae and Fannie Mac in the United States can borrow cheap money in the money markets and rapidly expand their balance sheets with loans and leases. This side of disintermediation and securitisation is reflected in the emergence of financial services companies of major corporations of which financial performance usually became the main performance driver of the overall corporation. Thereby bank credit – no to mention money supply - has become a very poor indicator of credit growth in a global financial system with domination of non-bank lending. In the global financial system of the 1990s, brokerage accounts, credit cards, home equity loans, lines of credit, and mutual funds turned the measurement of bank deposits into a useless indicator of available financial expansion and available purchasing power.

The effects of disintermediation and securitization on debt and money creation are well explained by a micro-economic example given by Noland 153: “Money is electronic and created simply by additional electronic entries. Importantly, the Fed is certainly not the only institution that can create money by making electronic entries and the banks certainly don’t have a monopoly on the process. To be a player in this electronic financial landscape, one just has to borrow and lend money in the markets – create a balance sheet of entries on the vast electronic ledger of debits and credits. It doesn’t take much to get in the game, as is being proven with the proliferation of companies providing financial services on the internet. All the same, most analysts take as an article of faith that only banks create credit and that the Fed is the master of money creation. We see this is an intellectual trap that is not only erroneous, but severely hampers sound real world analysis. Today, any sensible analysis would certainly expand the definition of what functions as money to include other liquid financial assets, such as holdings in money market funds. The Fed understands this, and therefore includes retail money market funds in M2 and institutional money funds in M3. So, if we accept that money market fund assets are money, then who creates it? Is it the Fed? Is it the banking system? No. The creators of this money are those institutions that create the financial liabilities that are the assets of these money market funds. The creators of this money are predominantly those institutions that borrow in the money market, create additional liabilities, and then use these funds to either

lend or purchase financial assets, such as mortgages. Let’s say Fannie Mae borrows $100,000 from a money market fund to provide financing for a home equity loan. Fannie simply creates an electronic IOU, and exchanges this IOU with the money market fund as “money” is electronically transferred to the borrowing homeowner. Here, money market fund assets indeed remain the same, as “cash” is credited, IOU from Fannie is debited. However, the difference is that the homeowner now has $100,000 to deposit into a Charles Schwab money market account to play the market, as well as $100,000 more debt. There need not be a bank anywhere involved in the transaction. And as far as the original money in the money market fund that began the process, it could come from myriad of sources, including the sale of company stock or options. The key point is that electronic money is multiplied instantaneously and, we will add, without any restriction of reserve requirements. … Today, the non-banks borrow in the money and capital markets and make loans, hence increasing total credit within the system. And while the belief is that only the Federal Reserve and its member banks can “multiply,” this is not true. In fact, the idea of “multiplying” has been discussed at least as far back as 1690. Today, money and credit are created by Fannie Mae and Freddie Mac when they borrow and balloon their balance sheets and lend “money.” Money and credit are also created by General Motors Acceptance Corp., GE Credit and other captive finance companies when they borrow in the money markets and lend for credit card purchases, auto loans or new mortgages. Money and credit are also created when Charles Schwab or Merrill Lynch borrows in the money markets to fund margin debt when their customers borrow money to buy stocks. Indeed, money and credit are created by a long list of lenders within and without the banking system. Moreover, we see this mechanism of borrowing in the money markets and financing the purchase of financial assets working much as “high powered money,” creating money and credit unrestrained by reserve requirements – we see it as an “infinite multiplier effect.”

Summing up the effects of disintermediation and securitization the lending monopoly of the banking system and the central banks has been lifted and reserve requirements evaded. Marketable securities veil the distinction between money and credit further.

Disintermediation and securitization can accelerate monetary expansion during a phase of monetary expansion. However, disintermediation and
securitisation will not be able to create the money, which is required by conventional creditors for serving due interest rate payments during a phase of credit contraction in terms of fractional reserve banking. Therefore, disintermediation and securitization multiply the present expanding or contracting monetary trend in the economy. The ultimate power of the banking industry over the timing of credit cycles is thereby increased.

The conventional understanding of money created in a regulated fractional reserve banking world is not applicable anymore in the present financial system.
3.8 Currency crises in the late 1990s and early 2000s

Currency crises in the late 1990s occurred at a historic unique frequency. Summarised under Asia Crisis in 1997 and 1998 the economies of South Korea, Indonesia, Thailand, and Malaysia were mainly affected. In 2000/2001 Turkey’s currency and in 2001/2002 Argentina’s currency collapsed.

In a historic context, the currency crises took place in a floating exchange rate system in which the major currency of trade, the US dollar, was released from a gold fixing about 30 years before.

The common feature of the currency crises is that the affected currencies did not collapse synchronously, but one currency after another as described in the media with the term “Asian contagion”. All affected currencies were fiat currencies of small economies compared with the United States. In addition, each crisis started with an unexpected collapse of the local currency. Thereafter, consequential damages in the economy set in. After severe damages in the local financial industry due to panic reactions, a brief credit crunch partially destroyed the economic value chains and credit structures of the nation’s economies. The International Monetary Fund and World Bank offered fresh capital in form of new hard currency respectively US dollar loans as incentive for subscribing their economic and political policy. Strategic assets were fire-sold to hard currency investors.

Outstanding are Korea’s and Malaysia’s different reactions. While Korea may have averted its currency collapse by selling part of its huge dollar currency reserve in form of US treasury bills, Korea did not, but strictly subscribed to the International Monetary Fund stipulations. The Chaebol was opened up and national gold reserves and gold in form of jewellery, which was nation-wide collected and minted in, were handed over to the International Monetary Fund - in contrast to Malaysia. Malaysia ignored the International Monetary Fund’s request, introduced fixed exchange rates with tight capital controls, and was the Asian economy, which recovered best and fastest from its currency crisis without major foreign take-overs.

The logic, abstract, and complex processes behind the currency crises can be viewed from the perspective of fractional reserve banking and Gresham’s law
of bad money driving out good money. Prerequisites for this type of currency crises are fractional reserve banking, freely floating exchange rates, pure fiat currencies without any linkage to gold, and loose foreign exchange and loose capital controls.\footnote{The opposite of loose forex and capital controls are implemented by the United States for global reach. According to US legislation each single euro dollar executed in an purely overseas OTC transaction must move through - for a split of a second – US financial institutions with respective official registration.}

Focussing on the logic of the abstract financial processes, Nuri explains the structure of a currency crisis by a simple comparison: “Now, suppose that two private banks A and B are competing to extract money-energy from a given economy. Suppose that the owners of bank A manage to clandestinely incite a run on the reserves of bank B by its depositors, such as by spreading rumours of collapse. Bank B fails, and its assets then may come under control of bank A. If undetected, bank A appears to have successfully waged “economic warfare” against bank B. It successfully attacked and seized “economic territory”. The attack is not necessarily limited to collapses. Bank B may not totally fail due to the run, but be significantly weakened from decline in its reserves from withdrawals. The economic leverage of bank A is still commensurately increased. In a sense, bank B’s money has been undermined from an economic oscillation. Substitute “nation A, B” for “bank A, B,” “national currencies” for “bank deposits,” and this gives the theoretical background of a worldwide economic warfare technique. Moreover, if the losses are made up by taxpayers, it becomes essentially state-financed! Bailouts may fail dangerously to address the core disease and maybe even unintentionally mask or promote it.”\footnote{Nuri, V. Z. (2002), \textit{A Fractional Reserve Banking as Economic Parasitism: A Scientific, Mathematical, & Historical Exposé, Critique, and Manifesto}, article published on the internet: http://www.ex.ac.uk/~RDavies/arian/controversies.html and http://econwpa.wustl.edu/eprints/mac/papers/0203/0203005.abs.uri, p. 47.} In retrospect, the important result of a currency crisis is, that the debts in local currency of the attacked economy decrease and collapse in volume while the debts of the attacked economy denominated in US dollars increase, i.e. fiat dollar substitutes local fiat currency.

Nuri explains further: “The analogy applies on international levels. Different nations have currencies that are backed by their reserves. Nations become analogous to individual banks in a larger world economy. Currency exchange rates are a measure of the leverage of on currency against another. If a nation expands the circulation of its own fractionally-backed money outside its
borders, it’s totally analogous to banks that increase circulation of their debased money, and one nation can seize assets of another based on money manipulation.”\textsuperscript{156} As will be explained in the following chapter 3.9 Gold and yen carry-trades, in the preceding years of the currency crises a dollar carry-trade became common practice among local bankers. I.e., (fractional) fiat US dollars were borrowed by local banks, exchanged in local currency, and lent out at the higher interest rates of the specific local currency. Similar to the pyramiding structure of the Japanese bubble economy, investments were channelled at accelerating speed not in the real estate sector, but in one specific currency respectively in the fractional reserve banking system of a specific emerging economy. Thus, the local banking sector is gradually overtaken by a foreign respectively the US fractional reserve banking system. Instead of refinancing themselves by the local central bank, the local financial institutions borrowed in US dollars.

**Figure 3.7**

**Cutting off the credit in South East Asia**

International bank lending (amounts outstanding)

![Chart showing international bank lending in South East Asia](chart.png)

Note 1: Includes Indonesia, Malaysia, Philippines, and Thailand. Source: Faber, M: Tomorrow’s Gold – Asia’s age of discovery, CLSA Books, Hong Kong 2002, p. 329, Figure 4; Bank for International Settlements; Ed Yardeni / Prudential Securities (www.prudential.com).

With a high degree of dependency on foreign currency respectively US dollar, the condition precedent for a successful currency raid became accomplished.

\textsuperscript{156} ibid, p. 47.
From an ex post perspective, the winners and losers of these currency crises are easy to identify. Strategic assets changed ownership from emerging South East Asian economies to the West. Closer links to the International Monetary Fund and World Bank – with the exception of Malaysia - may guarantee sustainable deregulation in the specific economies, i.e. national financial firewalls are removed, and the dependability on US dollar denominated fiat money is increased. With successful deregulation, new currency raids become a constant threat. Furthermore, the deflationary elements of the Asia Crises cheapened exports for the First World importers, stabilising the inflationary environment in the United States and Euroland and resulting in a net transfer of wealth to North America and Euroland.

The major monetary and economic theories are not applicable to currency crises, as they do not take into account the causalities of a fractional reserve banking system and are not focussed the nature of a financial crises.
3.9 Gold and yen carry-trades

Against the new theoretical background of the historic evolution of credit creation, the events currently unfolding in the economies of the world are to be analysed.

Disintermediation and securitization as described beforehand enabled and accelerated the creation of new credit on unprecedented scale. After creation, the new credit respectively money was mainly channelled not into long-term capital investments, but into the financing of instant consumption, financial assets, and the real estate markets. Especially in the US economy, disintermediation and securitization led to massive credit expansion for corporates and households.

As an inflationary expansion of consumption is financially engineered, counterbalancing effects are expected to set in the US economy decreasing (the exchange rate of) the US dollar and increasing domestic inflation in the US. This increase in inflation of an economy experiencing a rapid credit expansion would also increase interest rates, which would tend to decrease demand and counterbalance the expansion. In case the central bank of the Fed attempts to keep interest rates low, thus creating an environment of low or negative real interest rates, capital would begin to flow out of the economy, again limiting the credit expansion. However, the US trade deficit in the late 1990s was offset by large capital inflows into the US driven by the so-called yen carry-trade. In order to pump up US bond and stock markets to counter the effects of an increasing trade imbalance, the yen carry-trade played a central role.

The yen carry-trade is a series of paper financial transactions within the Japanese banking system that has not only allowed “the American bubble” to be created, but has added greatly to its rise. Since around 1995, financial institutions borrowed in yen, exchanged the yen in US dollar, and invested the proceeds in the financial US dollar markets. This trend was triggered by the extremely low interest rates set by the Japanese central bank Bank of Japan due to the deflationary and contracting Japanese economy and triggered by the expanding US economy, which was fuelled by the falling US dollar interest rates of the early 1990s. Within the Japanese banks, offsetting bookkeeping entries have created vast amounts of new loans and new yen. These new yens were then sold for US dollars in sufficient quantity to not only offset the
effects of a trade imbalance, but also significantly increase the value of the US dollar. This Japanese created liquidity has had a significant effect on the United States, providing funds not only to finance the trade imbalance, but also funds for the purchase of US government bonds - thus holding down long-term interest rates - and investments in the US share markets. The combination of a rising US dollar, and higher investment returns in the United States have allowed investors in the yen carry-trade to show significant paper profits. It must be stressed that the creation of such a large financial bubble in America would not be possible without the yen carry-trade. As fractional reserve banking allows for the unlimited creation of fiat money, the yen carry-trade has lasted until the time this thesis is finished in March 2003. Similar to the currency crises the timing of the collapse of the yen carry-trade is mainly in the hands of the creditors which is the Bank of Japan holding down the yen against the US dollar by currency interventions and holding down the yen interest rates.

The inflationary credit bubble of the United States in the 1990s involves the stock markets, the bond markets, the US dollar, the real estate market, and the very economy. There is interdependency on all four areas in a way that each individual bubble tends to feed the other bubbles. The extremes developing within certain areas should be highlighted: Profits shown by major corporations are likely to be significantly higher than would be possible without the massive credit expansion or creative bookkeeping. The yen carry trade has lead to an increase in American economic activity, which was supportive for the profitability of corporate America. A rising stock market inflated indirectly corporate profits by risen values in pension funds. Share buy-backs increased the liquidity-driven bull market in stocks and effectively lifted the gearing of corporate America to a maximum. Stock options and creative accounting created virtual wealth in the steep end of the stock bull market.

In the absence of any new loans, consumption is limited to income less loan payments. With consumption now exceeding incomes in the US, consumers must increase debt by the amount of their loan payments plus the excess of consumption over income. Due to the compounding of interest, ever-increasing levels of debt must be created. Should consumers reduce consumption sufficient to meet loan payments from income, the resulting fall in demand would send the economy into a deflationary spiral, with falling

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157 In 1999 the Bank of Japan USD 42.000 million in twelve interventions to suppress yen.
incomes, profits and government tax revenues feeding the collapse. The present option of increasing levels of unpayable debt prolongs deflationary adjustments.

From a historic point of view, credit expansion occurred over a period of many decades, more or less the all over the last century, making it difficult to distinguish between cause and effect. With no theoretical limit as to the amount of debt which can be created, it is impossible to point to a future time when a credit contraction will bring in a sea of consequences substantially different from those of a credit expansion.

Summing up the yen carry-trade is an inflationary credit creation scheme pushing up the price of financial assets in the United States and supporting the US dollar. Similar to the functioning of securitization, the yen carry-trade evades - by its international nature - the restrictions of the national reserve banking systems.

On the other hand, a gold carry-trade exists which even less is known than the yen carry-trade. The gold carry-trade also supports the US dollar supremacy. The gold carry trade supports the US dollar against gold by suppressing the price of gold via leasing structures and derivatives. Similar to the yen carry-trade, the net effect of the gold carry trade is to build up long-positions in US dollar financial markets or in the dollar itself at an accelerating path supporting the fiat currency of the US dollar. The long-positions are offset by increasing short-positions in gold on a massive scale.

In order to understand the role and scale of the gold carry-trade, the role of gold in the global economy of the late 1990s and early 2000s will be briefly summed up. The common believe is that most of the aboveground gold is hold in the steady hands of central banks. An article in the Financial Times published a few years ago may reveal to what extent gold is traded in the London Bullion Metals Association LBMA\textsuperscript{158}.

\textsuperscript{158} On January 30, 1997, the London Financial Times printed the following: “Gold global market revealed, By Kenneth Gooding, Mining Correspondent: Deals involving about 30 million troy ounces, or 930 tonnes, of gold valued at more than $10 billion are cleared every working day in London, the international settlement centre for gold bullion. This is the first authoritative indication of the size of the global gold market, and was revealed yesterday by the London Bullion Market Association. The volume of gold cleared every day in London represented nearly twice the production from South African mines in a year, Mr. Alan Baker, chairman of the association, pointed out. The size of the gold market will surprise many
This leads to the following conclusions about the gold market in the late 1990s:

- LBMA is trading more than 1,200 tonnes daily.
- LBMA is trading more than 300,000 tonnes annually.
- Daily gold trading represents about 50% of the world's yearly mine production.
- Annual trading is more than 125 times the world's annual mine production.
- Annual trading is nearly nine times the central bank's holdings of approximately 35,000 metric tonnes.
- LBMA daily gold trading value is about approximately USD 12,000 million.
- LBMA annual gold trading value is higher than USD 3,000,000 million at current [1997] prices.

In view of the huge daily trading volume of gold by the LBMA, annual supply/demand dynamics may have little to no influence on the long-term price of the gold. Obviously, the high daily trading volume strongly resembles that of observers, but traders insisted the association's statistics were only part of the picture because matched orders are cleared without appearing in the statistics. Mr. Jeffrey Rhodes, of Standard Bank, London, said the 30m ounces should be "multiplied by three, and possibly five, to give the full scope of the global market". Mr. Baker said the association would produce average daily clearance figures every month. "They will provide a useful benchmark for comparison and analysis of trends in the volume of the global bullion business," he predicted. He denied suggestions that the move might drive business away from London by upsetting clients who preferred secrecy. "These figures do not in any way affect the confidentiality of the market. While discretion and integrity will always be bywords in the London bullion market, the LBMA is nevertheless conscious of the general call for greater transparency in markets. "The statistics demonstrate the prominence of London in the world of bullion, something we have long been aware of but which until now has been difficult to demonstrate with statistics." LBMA members were divided over the move. One said he was puzzled. "What will people make of it?" Another said the exercise was "futile" because it did not give a complete picture of bullion market activity. But Standard Bank's Mr. Rhodes suggested the statistics would "become the key indicator in the world of gold, providing the numbers by which the market can be monitored". Mr. Martin Stokes, vice-chairman of the association, said: "This shows we have a serious market with a lot of depth and deserving of more attention." The statistics showed, for example, that the 300 tonnes of gold sold recently by the Dutch central bank - a disposal that badly affected bullion market sentiment - was not a large amount by the market's standards. The association was "making a bid to attract investors' interest". The association also gave details yesterday about the silver market. Roughly 250 million ounces of silver valued at more than $1 billion are cleared daily in London. It also published the results of a Bank of England survey of turnover that the 14 market-making members of the LBMA in the London bullion market conducted in May last year. This showed about 7 million ounces of gold, worth nearly $3 billion, was traded daily by these market-makers." Gooding, K. (1997) Gold: global market revealed, article published in the Financial Times, London, on January 30.
currency trading. At the alleged current daily trading rate, more than hundred
times the annual world’s gold production rate is traded annually in the LBMA.
There is no other commodity in the world experiencing an annual trading
volume of hundred times its annual production. Assumed that LBMA volume
represents only a major part of world trading volume, one might guess that the
worldwide gold markets clear the amount of gold equivalent to all central bank
holdings every few weeks.

Figure 3.8

The chart OTC Gold Derivatives is taken with kind permission by Mike Bolser from the article Gold Market Regression Charts\(^{159}\). The data of the chart OTC Gold Derivatives are derived from the Bank for International Settlement’s latest semi-annual report released on November 8, 2002\(^{160}\) and from the IMF publication Developments and Trends in Mature Capital Markets\(^{161}\).

In Figure 3.8 the charts shows the development of total gold derivatives in
metric tonnes of gold from 1995 until 2002. Converting dollar notional value

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\(^{160}\) BIS data are computed and into estimated metric tonnes. All figures are adjusted for double-counting. Notional amounts outstanding have been adjusted by halving positions vis-à-vis other reporting dealers. Gross market values have been calculated as the sum of the total gross positive market value of contracts and the gross negative market value of contracts with non-reporting counterparties. Compared with data of BIS Press release, 8 November 2002, published on the internet under www.bis.org/publ/otc_hy0211.htm on November 8, 2002, see p. 5.

figures into tonnes requires an assumed gold price. Concerning the
adjustments for double-counting due to swaps, forwards, and leasing and spot
transactions, it becomes clear that the correctness of the gold derivatives
positions in gold is limited.

Howe analyses the developments in the gold carry-trade in the essay “Gold
Derivatives: Moving Towards Checkmate” and estimates the global overall
physical short position that consists of all the gold that has been leased (or
swapped) from the vaults of the central banks, sold into the market by the
bullion banks, and is now owed by their customers to them under derivatives
contracts, and by them directly in physical form to the central banks, “Taking
the gold derivatives data reported by the BIS as a whole, the totals for
forwards and swaps when converted to tonnes at some reasonable price
appear to offer a pretty good proxy - admittedly imprecise - for the total short
physical position. Viewed in this light, these figures align quite closely with Mr.
Veneroso's estimate of a total short physical position in the range of 10,000 to
15,000 tonnes.”

Former President of France, General Charles de Gaulle expressed it well:
"Any workable and acceptable international monetary system must not bear
the stamp or control of any one country in particular. Truly, it is hard to
imagine any other standard other than gold. Yes, gold, whose nature does not
alter, which may be poured equally well into ingots, bars, or coins, which has
no nationality, and which has, eternally and universally, been regarded as the
unaltered currency par excellence..." Obviously, in today's global economy
gold still plays a silent but central role as a settlement currency for
international trade and finance.

In Figure 3.9 the chart shows the development of the notional values of gold
derivatives of US commercial banks from 1995 until 2002 in billions
(American-English) of dollars. Especially after the Washington Agreement in
autumn 1999 gold derivatives were heavily employed to contain rising gold
prices.

The mechanism of the gold carry-trade involves mainly central banks, bullion
banks and partially gold producers. Central banks lease out physical gold to

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162 Howe, R. (2002), Gold Derivatives: Moving Towards Checkmate, essay published on the
bullion banks who immediately sell the gold in the spot market, invest the
proceeds in government bonds until the end of the leasing period.
Theoretically, bullion banks would buy back the physical gold and return it to
the central banks at maturity. As the gold carry-trade is an ongoing scheme,
which is continuously rolled over, the central banks’ physical gold bullions
leave the central banks’ vaults and physically “disappear” by sale in the gold
spot markets of the LBMA.

**Figure 3.9**

![Gold Derivatives - Billions of Dollars](image)

The chart Gold Derivatives - Billions of Dollars is taken with kind permission by Mike Bolser from the article *Gold Market Regression Charts*. The data of the chart Gold Derivatives - Billions of Dollars are reported by the Office of the Comptroller of the Currency the United States in 2002.

Partially gold producers are involved in the extended leasing scheme. When
gold producers sell forward respectively hedge their future production, they
create for themselves a short-position in gold – partially backed by
underground reserves – offering their counterparts, which are the bullion
banks to buy into the corresponding long-position backed by assigned
underground reserves. Thereby, bullion banks go long in the forward market

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where they can hedge part of the open short position respectively the exposure from the leasing scheme.

The gold carry-trade is quite profitable, because the bullion banks can explore a major spread in interest rates between gold and treasury bonds similar to the yen carry-trade. Central banks ask for leasing gold for much lower interests than they ask for leasing dollar, euro, or yen. By the gold carry-trade, even central banks can earn interest on their physical gold without giving up the official proprietorship.

As interests for leased gold have to be settled in gold itself, the revolving scheme of gold leasing increases the net short positions of gold bullion banks. As long as the central banks do not call the bullion banks for physical delivery and believe in the bullion banks ability to buy back in the spot market the overall outstanding liabilities in gold bullion, the gold carry-trade goes on. Indirectly, the proprietors of gold, central banks and partially gold producers, create new short positions in gold, which keep the price of gold bullion down. The results of the gold carry-trade are a suppressed price of gold bullion, gradually emptied vaults of central banks and exploding short position in gold derivatives in the balance sheet of bullion banks.

Mundell frankly admits the actual fixing of the gold price and the necessity of gold for central banking. The bullion banks’ overall short position accounts – only according to their own disclosure - in the beginning of 2002 to roughly US dollar 36.000 million in notional value whereof around 50% accounts exclusively to the position of JPMorgan/Chase. This makes the gold

164 Compare with: ”There will also be a role for gold. The total amount of gold mined since the days of Nefertiti is about 3.5 billion ounces (120,000 tons). One billion ounces is in the central banks, more than another billion ounces is in jewellery, and the rest is in speculative hoards. This last holding is why Alan Greenspan says he looks at gold whenever he gets a chance. I look at three things for signs of inflation in the economy: I look at the money supply, I look at interest rates, and I look at gold. You can see this in the bond market. If there is a big outbreak in the price of gold, you know that there is an increase in inflationary expectations and people will start to sell bonds, sending interest rates up. The stock of gold in the world is going to maintain itself as a viable reserve asset for a long time to come. But I do not think that we will see the time when either of those two great economic powers, the United States and the European Union, will ever again fix their respective currencies to gold as they have in the past. More likely, gold will be used at some point, maybe in 10 or 15 years when it has been banalized among central bankers, and they are not so timid to speak about its use as an asset that can circulate between central banks. Not necessarily at a fixed price, but a market price.” Mundell, R. A. (1997), The International Monetary System in the 21st Century: Could Gold Make a Comeback? lecture delivered at St. Vincent College, Letrobe, Pennsylvania, Columbia University March 12, 1997.
derivatives market the second largest (derivative) market in the world. The biggest market in notional values is the market in interest rate derivatives. Similar to the functioning of Bretton Woods, physical gold is moved out the US treasury for stabilising an – in terms of purchasing power – overvalued US dollar. De facto central banks’ gold bullion is sold in the LBMA (to publicly unknown parties), in order to keep the dollar against gold up respectively keep the price of gold against the dollar down, i.e. supporting the status of the fiat US dollar as a stable reserve currency.

In its nature a carry-trade is a dynamic structure which slowly starts, accelerates, and usually finally collapses, because a carry-trade is a pyramiding scheme which derives from the logic of fractional banking. In a historic context outstanding are the dimensions of the gold and yen carry-trades and the fact that both carry-trades simultaneously support the fiat currency of the US dollar. Both, the yen and gold carry-trades, started in the mid 1990s and were still running at the time of finishing this thesis in March 2003. Possible scenarios for unwinding both carry-trades\textsuperscript{165} will be discussed

\textsuperscript{165} Howe describes two likely scenarios for unwinding both carry-trades: “In any event, a real recovery in Japan that leads to more normal interest rate levels for the yen should cause both the yen carry trade and gold's backwardation against the yen to reverse, draining the liquidity which they had provided, and quite likely causing upward spikes in both the yen and gold, with concomitant downward pressure on the dollar and upward pressure on U. S. interest rates. None of these events bode well for the U. S. stock or bond markets. On the other hand, a continued absence of recovery in Japan must at some point adversely impact the yen, a collapse of which against the dollar will export Japan's deflation to the rest of the world. Whichever way Japan falls, the nub of the problem is how to freeze the bubble that the U. S. stock market has become, as have some European stock markets as well. It is a long way from where these markets are today to even normal valuations. The history of bubbles is not one of slow, controlled deflations, but of sudden, sometimes cataclysmic, crashes. Of course, predicting exactly what pin will provide the fatal prick is almost impossible. Even after the event, there may not be agreement on the immediate cause of the collapse. What is more, the world today presents a number of potential military flashpoints, any one of which could explode sufficiently to puncture overvalued western markets. In truth, the effort to rescue Japan has created a credit bubble bigger than that which caused Japan's troubles in the first place, and this bubble has now left the G-7 countries hostage to events over which they have little or no control. But there is good news. With their four year war on gold, the central banks have virtually assured that when it arrives, a U. S. stock and bond market collapse will either bring with it a classic gold banking crisis or be the result of one. What is a gold banking crisis? In essence it is a failure of confidence in the promise of gold banks to deliver gold, i.e., a "bank run" or a "panic" to our grandfathers. The equivalent today would be gold $1000 bid, none offered, underlining the key point: In a true gold banking crisis, customers demand delivery of physical gold. They want the asset itself, not a promise that is someone else's liability. And why would a gold banking crisis be good news, other than to the few who had the luck or foresight to profit from it? Because it would force serious rethinking and likely meaningful reform of the international monetary system that caused it, all to the benefit of future generations who would enjoy, as did our forefathers, the blessings of honest money. This happy prospect will be discussed in my next essay: The Golden Millennium: Aftermath of the Gold Banking Crisis of 1999-2000.” Howe,
in the chapter under 4.4 Debt deflation dynamics and the last chapter 5.3 Suitable action for monetary policy.

Howe analyses Keynes’ Gibson’s paradox and come to the conclusion that in the period of the late 1990s and early 2000s real long-term interest rates were falling, although the price of gold did not rise which indicates an – unofficially – fixed respectively held down price of gold.166

Conventional monetary theories are not applicable to the yen and gold carry-trades, because the contemporary currency policies of central banks, which are running fractional banking systems on fiat money, as well as the employment of derivates on a globally big scale are very recent developments.

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166 Compare with: “Lord Keynes gave the name "Gibson's paradox" to the correlation between interest rates and the general price level observed during the period of the classical gold standard. The bottom line of their analysis is that gold prices in a free market should move inversely to real interest rates. Under the gold standard, higher prices meant that an ounce of gold purchased fewer goods, i.e., the relative price of gold fell. Since under the Gibson paradox long-term interest rates moved with the general price level, the relative price of gold moved inversely to long-term rates. Assuming, as Barsky and Summers assert, that the Gibson paradox operates in a truly free gold market as it did under the gold standard, gold prices will move inversely to real long-term rates, falling when rates rise and rising when they fall.” Howe, R. H. (2001), Gibson’s Paradox Revisited: Professor Summers Analyzes Gold Prices, published on the internet: www.gold-eagle.com, August 13, 2001.
3.10 Explosion of fiat money

As explained beforehand the total debasement of the US dollar from a denatured gold standard, the introduction of flexible exchange rates, and financial deregulation in the 1980s and 1990s have led to an unprecedented creation of credit in a global fiat money system. Considering the exploding derivative markets with special regard to the yen and gold carry-trades, it seems appropriate to speak of an explosion of fiat money (credit) or in straight talk of a “credit bubble” on global scale.

During a historic period of strong monetary expansion, self-reinforcing mechanisms work. Noland describes these mechanisms as “credit bubble dynamics”\(^ {167}\). The focus of credit bubble dynamics is on processes and forces, which cannot easily be characterised and are certainly non-quantifiable. Credit bubbles absolutely feed on money and credit excess, which only induces an intense appetite for greater excess like in the Japanese real estate bubble. Credit bubbles are about financial wealth creation and accumulation. Lending fiat money respectively the creation of additional liabilities is the mechanism, while the immediate consequences of such an excess are spending increases and asset inflation.

Wealth is about power and credit bubbles help to obtain and retain power. Those who control a mechanism for money and credit creation have enormous power. The ultimate bankers in charge of controlling the Federal Reserve allocate an economy’s resources. During the last 30 years after the closing of the gold window, the financial sector attained the financial power to dictate an economy’s reward system thereby achieving supreme power. With this achievement, the financial sector creates its own financial wealth. “Financial wealth begets greater wealth, and power begets abusive power. Those having attained great power have no intention whatsoever of relinquishing control, of course not.”\(^ {168}\) Credit expansion is the inherent feature of a deregulated fractional reserve banking system running on floating fiat currencies.


\(^{168}\) ibid.
As great economic thinkers have appreciated for centuries, there is significant danger in allowing excessive credit growth, because credit excess asks only for more credit and for a runaway boom destined for bust. As Mises recognized, the extent of the unavoidable bust is directly proportional to the excesses committed during the preceding boom. Importantly, the longer monetary excess is allowed to continue, the further economies and financial systems diverge from conditions of sustainable growth and stability. Articulated brilliantly by Mises, “every deviation from the prices, wage rates, and interest rates which would prevail on the unhampered market must lead to disturbances of the economic “equilibrium”.

During a credit boom, credit excess creates disturbances, including the increase in perceived household wealth. This perception of profound wealth further stimulates excessive borrowing and spending, which leads the economy only deeper into a boom/bust cycle. In addition, as is presently observable, the more protracted the period of unfettered credit-induced boom, the greater the monetary inflation feeds directly into rising wages and income, again working to exacerbate the precarious expansion and more permanently distort the underlying economic system.

Additionally, Mises’ analysis focused on “entrepreneur errors” that were a function of decision making in a distorted marketplace, as well from the extrapolation of unsustainable boom-time trends. The longer the calculation of the entrepreneurs is misguided by credit-induced distortions, the greater the over investment and malinvestment by the business sector, and the further the economy travels down an unsustainable track. Certainly, signs are proliferating within the economy of the significant costs to be paid for previous errors as shown in the collapse of the new economy reflected in the collapse of TMT (technology-media-telecoms) stocks in the “new markets”.

“It appears a fatal characteristic of bubble economies that financial obligations grow exponentially at the same time that the true economic wealth creation collapses.”169 While credit-induced imbalances and distortions wreak subtle havoc on the real economy, equally dangerous disturbances are inflicted on the financial system. It may appear harmless for an individual consumer to borrow against a surging home price or increasing stock values. It is, however,

an altogether different matter when the entire household sector increases its
debt load substantially to fund consumption, not only above income but also
above much beyond what an economy can produce. For one, this process
presently adds additional debt on an already over leveraged system, again in
a self-reinforcing bubble. Over time, this monetary expansion has been
increasingly backed by rising asset values. The greater the expansion, the
more fuel for additional asset inflation; and this creation of additional
“collateral” only fosters more borrowing and higher debt loads. As this self-
reinforcing process stokes destabilizing asset inflation (i.e. real estate bubbles
in Japan and North America) and resulting over consumption, the outcome is
much larger quantities of increasingly poor quality debt for the financial
system.

When debt is created to finance sound investment with stable future cash
flows, effects of credit creation are limited and minor. When enormous credit
excess is created to finance consumption and rising asset prices, the systemic
risk increases significantly.

The fact of a double-entry bookkeeping system is that one person’s asset is
another’s liability. Thus, while the household sector – especially in the US - is
perceived to be enjoying a bonanza from historic financial asset inflation, the
majority of this “wealth creation” is simply the other side of the explosion of
liabilities from both the business and financial sectors. And with both sectors
locked in a process of extreme over-borrowing where the proceeds are
funding questionable expenditures, it should be clear that these respective
credit bubbles are creating a mountain of liabilities of increasingly dubious
character. The extreme leverage that has developed within the financial sector
is certainly a house of cards. As long as the self-reinforcing credit-driven paper
respectively fiat bubble can continue, unprecedented illusion fakes
unprecedented prosperity.

As explained money growth has become an inappropriate measure in a
deregulated financial system. Credit growth is overwhelmingly taking place
outside of the banking system. Central banks, first of all the Federal Reserve
and the Japanese central bank, have presided over a credit explosion that
simply defies reason and comprehension. In 1995, total financial and non-
financial credit had expanded by a little more than USD 1 billion (British
English, USD 1 trillion in American English). After a rise to USD 1.4 billion in
1997, credit flows abruptly increased to more than USD 2.1 billion in 1998 and further to USD 2.25 billion in 1999. In comparison to GDP growth of USD 459,000 million in 1998 and of USD 500,000 million in 1999, credit creation has been truly running amuck in the late 1990s. The explosion of fiat money fosters acute financial fragility and extraordinary economic vulnerability.
3.11 Summary

Summarising the evolution of financial structures and systems the following steps are important:

1. Private property plus interest
2. “tally sticks” plus tax systems
3. bullion banking
4. coinage
5. bimetallic standard
6. “coin banking”
7. fractional reserve banking
8. bank notes plus cheque system
9. two-tiered banking system with central banks
10. monometallic standard
11. denatured gold standard
12. fiat currencies
13. privatisation of fractional reserve banking
14. erosion of reserve requirements by securitisation, disintermediation, and derivatives
15. inflationary wave (real estate and financial markets) in final blow-off sustained by currency crises and gold and yen carry-trades
16. credit crisis respectively deflationary credit crunch
17. devaluation of fiat currencies against gold (as precondition for restarting a new inflationary wave)

Mundell concludes in his lecture “The International Monetary System in the 21st Century: Could Gold Make a Comeback?” that gold will be part of the structure of the international monetary system for the 21st century. Mundell takes the view that the most important event in the 20th century was the creation of the Federal Reserve System in the United States, which spread the dollar and its supremacy around the world and the major force shaping “the subsequent monetary events” of the 20th century.170

170 “Gold is going to be a part of the structure of the international monetary system for the 21st century, but not in the way it has been in the past. We can look upon the period of the gold standard, the free coinage gold standard, as being a period that was unique in history, when there was a balance among the powers and no single superpower dominated. Let me just conclude with a final thought: Bismarck once said that the most important event in the 19th century was that England and America spoke the same language. In the same spirit, the most
The prevailing monetary theories are not applicable, as the central concept of today’s financial system, which is based on the logic of fractional reserve banking and deregulated fiat currencies, is not understood.
4. New approaches of a paradigm shift in economics and monetary theory

Before an economist can provide an analysis of an economy, the financial system needs to be understood in its basics. Otherwise, all analysis becomes meaningless, because different financial systems affect the economy in different ways. Moreover, a false understanding of the basics of the present financial system may lead into logical contradictions and errors.

In recent years a few new approaches have developed.

Heinsohn and Steiger laid with their “Property Theory” the foundation explaining the beginning of economic structures. The logic of an economic system focusing around credit contracts is revealed. Heinsohn’s and Steiger’s derivation of interest allows later theories to be integrated.

Bethmann created in a heuristic approach a complete economic theory called “Monetary Economics” which focuses on the credit creation and destruction and which logically transfers the micro-economic structures of credit creation to the macro-economic level of business cycles and debt deflation dynamics. The logic of debt deflation dynamics and the necessity of credit crises is analysed in detail by Kindleberger and Minsky. Soros’ idea of reflexivity enriches the logic of boom-bust-patterns respectively debt deflation dynamics from a mass psychological and behavioural point of view.

173 The German magazine SPIEGEL published in the late 1980s an article which says, if Bethmann were right with his conception of economics, he were to be a Nobel laureate in economics.
In the late 1920s Soddy who was a professor of chemistry in the University of Oxford turned to money and economics by analysing finance from the uncommon perspective of a natural scientist: “The simple question which the scientist asks about the mysterious appearances and disappearances of anything – “Where does it come from and where does it go to?” – suffice whether we deal with matter, energy, or money. However voluminous the writings of those who have essayed to teach the public the mysteries of money, these are the questions that are not asked and the interference is that the orthodox money experts either cannot or dare not answer them.” In the last paragraph of the foreword of his book “Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox” Soddy explains that a thorough and common understanding of the mechanisms of capitalism and money is required as foundation for further studies in social sciences.

The logic of a fractional reserve banking system is analysed by Soddy, Rothbard, Nuri, and Kutyn. Soddy transfers the insights of nuclear-chemistry and energy to the flow of money and credit and to the financial structures, which are derived by Rothbard from a historic-analytical approach. Nuri analyses the sociologic facets of fractional reserve banking and blends


178 Compare with: “The mechanism of Nature has us all still in its grip, as it has had from the days of the first man though it has taken humanity a very long time to disentangle the mechanism form the highly picturesque and melodramatic personifications man has invented in explanation of his plight. The upholders and detractors of Capitalism alike are still envisaging it in the thoroughly old-fashioned human guise of god and demon, but in this book angels and devils give place to the underlying mechanism. The one and only way to control a mechanism is, not by edicts and legislation, but by understanding it. Science has started civilisation on a new road which the old terms of wealth and debt, capital, labour, money and the like have assumed new meanings, and before we start political and sociological controversies it is well to know that we are all speaking the same language.” Soddy, F.(1933) ‘Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox’ E. P. Dutton & Co., Inc., New York 1933, pp. 6/7; see also: Soddy, F. (1931), Money versus Man – A statement of the world problem from the standpoint of the new economics, London: Elkin Mathews & Marrot.


them with biological approaches of parasitism. Kutyn retrieves the logic of fractional reserve banking from the accounting mechanisms.

The functioning of an economic system running on a fractional banking system is integrated by Martin\textsuperscript{182} into a conception of economics called “Debitism”. Malik’s understanding of economics\textsuperscript{183} is based on Bethmann’s and Martin’s theories and reflects and integrates them.

In the following, the theories will be introduced in detail and integrated into a new conception of economics and finance.


4.1 Historical and sociological origins of credit, interest, and money

As already described in the evolution of the financial structures in the previous chapters, the following major qualitative steps have occurred:

As soon as private property and more complex societies with tax liabilities came into existence, tally stick economies and banking based on interest bearing loans in gold and other precious metals emerged.

In the next step, coins were invented for levering the advantage of a state-run minting monopoly. During the Roman empires (Eastern and Western), a bimetalllic standard based on gold and silver as ultimate reserve currencies dominated for centuries. Decoinage became possible and widely applied.

In the next step, fractional reserve banking systems evolved in medieval Europe with the emergence of nation states. During the nineteenth century, silver became demonetised and the world economy gradually switched to a monometallic gold standard.

The process of credit creation became privatised by the institution of the Federal Reserve in 1913 for the US dollar, and for the Euro with the introduction of the euro and the privatisation\(^{184}\) of public banks in continental Europe. With the institution of the Fed, the gold standard was gradually - in the course of two world wars - denatured and transformed into a dollar standard.

The abolishment of the indirect linkage of gold and dollar in 1971 altered the world financial system and turned it into a pure fiat money system. With deregulation in the 1980s and 1990s, the limits of the fractional reserve banking system were evaded. A long inflationary wave starting with the foundation of the Federal Reserve, has been running – besides the few years of the Great Depression – the whole 20\(^{th}\) century, and developed after 1971 in a final blow-off, led by an mega-inflationary boom in financial markets.

\(^{184}\) The privatisation of the credit creation process of euros is mainly driven by national tax reforms, the introduction of new accounting standards, Basle II, and the phasing out of the German “Anstaltslast” and “Gewährträgerhaftung”.
The descriptive approach of monetary evolution of the third chapter, which reveals that mainstream economics are missing a sound micro-foundation, will form the basis for the following theories.
4.2 Property theory of interest and money

The property theory of interest and money focuses on abstract property rights. The interrelation of property rights and credit will be analysed first. Outcome of new socio-historic research of Heinsohn and Steiger is that property and credit and delivery contracts are the empirically most striking feature of societies with trade and money.\(^{185}\) As soon as private property comes into existence, interest-bearing contracts with monetary obligations show up. Contemporary economic and business history and theory are not capable of explaining the strikingly close relation of property and credit contracts.\(^{186}\) According to the new property theory, it is private property that enables and constitutes capitalist structures.

In today's social sciences, the importance of property has been ignored, because the dominating classic and neo-classic economics are focussed on the allocation of resources and goods in their fixed physical appearance. The creation of property is a legal act and process, which does not change the physical properties of existing resources. In contrast to Anglo-American case law, the Roman court law explicitly differentiates between two types of law of obligations, the law of obligations focussing on obligations (in German “Schuldbrecht”) and the law of obligations focussing on physical possession (in German “Sachenrecht”).

From the perspective of classic and neo-classic theories the creation of property rights does not affect physical resources and – from this view – the relevant physical economic parameters.\(^{187}\) Therefore, the abstract

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\(^{185}\) In order to demystify the historic origin of money Heinsohn and Steiger examine the economic characteristics of forms of societies with money. See Heinsohn, G. and Steiger, O. (2002), *Eigentum, Zins und Geld – Ungelöste Rätsel der Wirtschaftswissenschaft*, Marburg: Metropolis-Verlag, pp. 84-88.

\(^{186}\) “How property (rights) and economic contracts (delivery and credit contracts) link up, remains for economic history as well as for economic theory a painful mystery. [Wie das eine - Eigentum - mit dem anderen - ökonomische Kontrakte - zusammenhängen könnte, gilt für Wirtschaftsgeschichte und Wirtschaftstheorie gleichermaßen als schmerziges Rätsel.]” ibid, p. 137.

\(^{187}\) „The creation of a landed property does not change the physical quality of the land as a resource which remains in terms of possession unaltered. Regarding the creation of property in terms of possession property arises physically from nothing. The creation of property is a legal act. [Die Schaffung des Grundebigentums ändert an seiner physischen Beschaffenheit als Ressource, die es in seiner Besitzzeit bleibt, nichts. Schaut man mit einem gütermäßigen Blick auf die Entwicklung, dann erwächst sie in der Tat aus Nichts. Sie ist ein Rechtstitel setzender Akt.]” ibid, pp. 137/138.
implications, when a society with private property rights develops, are regarded as irrelevant by classic and neoclassic theories.

Central for the understanding of the new economic approach, the new concept of capitalism and economics, is to differentiate between physical possession and abstract private property rights. Possession is to be defined by the rights of disposal of material goods. Private property rights are characterised by the rights of the proprietor to sell, lend, assign, securitize, collaterise, pledge, etc. his property, in brief by his abstract rights of private property.

Ingham concludes that a good deal of confusion has been caused by the retention of the conceptual and theoretical apparatus of the erroneous commodity-exchange theory of money in modern economics' attempt to comprehend modern credit money. As gold, money, and credit appear in many aspects similar, Heinsohn and Steiger diffuse this general confusion in economics by the clearly defined introduction of property rights.

Ingham explains the general confusion in economics: “The concepts that comprise the theoretical apparatus of most mainstream economic approaches to money all derive from the commodity-exchange theory in which money is essentially a commodity (or direct symbol). In some accounts, it is seen primarily as a veil over the real exchange ratios between other commodities. It can also be seen as a ‘quantity or ‘stock’ that circulates of flows with some degree of short-run autonomy. This is not the place to examine the subtleties and contradictions of this general position. In any event, money is a ‘thing’. However, such metaphors fail fully to capture money as socially constructed and constituted by social relations between the monetary and other economic agencies.”

In conventional economic theories, the basic assumption for explaining the origin of money is the assumption of a barter-based ancient economy. However, there is no historical or sociological evidence supporting this assumption. The central idea of the barter-based paradigm is that the forefathers of the homo oeconomicus were inconvenienced by barter until they spontaneously hit upon the idea of money as medium of exchange. Over time,

189 ibid, p. 31.
greater efficiency was obtained by coining precious metals, and market efficiency was enhanced by free banks, which substituted paper money backed by precious metals reserves.\textsuperscript{190}

The outcome may be a new immanent theory, which questions the conventional economic theories in their foundations and falsifies them. The outcome may be a new superior perception of economics, which offers a new perspective for the understanding of basic economic processes.

The approach of Heinsohn and Steiger comes from the critique of mainstream economics, which cannot explain the origin of money and subsequently cannot deliver a clear definition of money.\textsuperscript{191} Rothbard's explanation of the origin of money stands for mainstream economics.\textsuperscript{192} „Or, to put the question in its starkest terms, I make a living as a professor of economics. If I wanted to buy a newspaper in a world of barter, I would have to wander around and find a newsdealer who wanted to hear, say, a 10-minute economics lecture from me in exchange. Knowing economists, how likely would I be to find an interested newsdealer?“\textsuperscript{193} In Rothbard's fictitious barter-economy, the main feature is the double coincidence of desires\textsuperscript{194}: „\textit{Trying to overcome the limitations of barter, he [man] arrived, step by step, at one of man’s most ingenious, important and productive inventions: money.}“

For understanding the basic elements in a capitalist economy, it is helpful to analyse how an economy with property rights evolved in the ancient "temple society" of the Antique Polis. In order to analyse the characteristics of an economic subject in a (private) property economy, capitalist societies will be compared with other types of societies.


\textsuperscript{191} Compare with definition of “money” in Encyclopaedia Britannica, Standard Edition CD-ROM 2002.01.0002.0 - International UK. The logic origin and disappearance of modern money are not explained. Instead of a brief and clear definition of money a host of cross references are offered.

\textsuperscript{192} „Before coinage, there was barter. Goods were produced by those who were good at it, and their surpluses were exchanged for the products of others. Every product had its barter price in terms of all other products, and every person gained by exchanging something he needed less for a product he needed more. The voluntary market economy became a latticework of mutually beneficial exchanges.” in: Rothbard, M. N. (1983), \textit{The Mystery of Banking}, New York: Richardson & Snyder, p. 5.

\textsuperscript{193} ibid, p 4.

\textsuperscript{194} „This crucial element in barter is what is called the double coincidence of wants.“ ibid, p. 4.
The genuine human interest of man to replicate its own gene-pool reveals itself - depending on the type of society man lives in - in different forms: In a primitive tribe-based society, man strives for winning to solidarity-committed relatives. In a feudal society, man strives for tributary slaves or unfree subordinate members of society. In a capitalist society with property rights, man strives for increasing his net present value and his liquidity.

Outcome of the historic analysis of the Antique Polis is that the interests are compensating the creditor for his forgone property rights, i.e. interests reflect the opportunity costs of the creditor's property. This logical conclusion derives interests from (the existence of private) property. This new derivation of interests from property rights forms the base of the new economic approach.

Societies without private property rights comprise of members who are non-proprietors deriving social security and privileges from tributary tribal relatives or feudal obligations. Thus, societies without private property rights, tribal or feudal types, are not familiar with the concept of opportunity costs and therefore the missing relation between opportunity costs and private property rights makes the idea of interests in tribal or feudal types unknown.

This new conception of basic economic parameters deriving interests from the exclusivity of property rights delivers an alternative approach to conventional micro- and macroeconomics.\textsuperscript{195} The importance of time in societies respectively economies with property rights arises from the position of the proprietor respectively legal owner: In a theoretically complete capitalist ("commercialised") society without any tribal or feudal features, an economic subject cannot rely on tribal or feudal mechanisms of social security and privileges.\textsuperscript{196} The economic subject's position in the complete capitalist society is exclusively defined by his overall position of property rights, in terms of cash flows defined by his net present value, which protects the economic subject from bankruptcy respectively from debt/default enforced loss of freedom or slavery. Thus, the economic subject is constantly exposed to assessing his


\textsuperscript{196} As any constitution with property rights is not created by nature and as a constitution with property rights negate the social structures of possession in tribal and feudal societies, it needs a legal base. The idea of private property includes the right of a person about itself. These rights are protected in the civil code of a „property society“. 
overall situation of property rights, in order to decide whether to borrow or lend, to sell or buy, to pledge or securitize etc. under what time horizon respectively taking which risk and which interest rate into account.

Summarising the socio-historic analysis of the Antique Polis two logic relations need to be mentioned: First, interests originate from the existence of property rights and are therefore subordinated to property. Second, money and credit derive from interests and are therefore subordinated to interests.

In today's prevailing economic theories, interests\(^{197}\) are derived from money and credit (as remuneration respectively compensation for utilisation or rent) which turns the causality upside down.

The superior applicability of the new derivation of interest is obvious: It is characteristic of a capitalist economy with property rights that interests accrue and interest payments have to be made, whether or not the added value (profit) can be created by the debtor over time. Interests respectively interest payments do not depend on the profitability or the yield of the economic employment of physical goods. This fact is ignored in classic and neoclassic theories.

Classic and neo-classic theories have in common that interests are derived and determined exclusively from physical parameters. Money, credit, monetary policy are irrelevant, because in the view of classic and neo-classic theories, human greediness refers to physical goods, only. In classic theories, interest rates are derived from the profits of physical production. In neoclassic theories, interest rates are derived from the economic subject's intertemporal preference of time. Thus, the neoclassic theory of interest rates delivers no explanation of interest, but is a severally times conditioned view of partially optimising trade-offs.

New considerations and aspects of explaining interests were introduced by Keynes\(^{198}\). Keynes regards interests as an immaterial liquidity premium. After


\(^{198}\) "Whereas classical economics and the neoclassical synthesis are based upon a barter paradigm - the image of a yeoman or a craftsman trading in a village market - Keynesian theory rests upon a speculative-financial paradigm - the image is of a banker making his deals
Keynes, money is an asset with implicit liquidity. Furthermore, money in comparison with all other asset classes has the advantage of relative low transaction costs in barter transactions. Both advantages of money, the liquidity premium and the low transaction costs, constitute the liquidity preference. Thus, according to Keynes interests reflect the liquidity preferences of economic subjects. By this explanation, Keynes turns away from previous biologic and sociologic ways of explaining interests and derives interests from abstract economics considerations. However, Keynes misses to identify interests as a key element of (an economy based upon) property rights. After Keynes interests were also applicable for tribal and feudal societies respectively economies, because interests are not derived from property, but from the physical possession of goods.

Credit contracts generally fix the temporary assignment of property rights. Credit contracts always bear implicitly interest, because the debtor must compensate the creditor for the creditor’s opportunity costs of his foregone liquidity premium.

From the view of modern financial theory, the derivation of the Fisher Separation makes sense in a new way: The existence of a „liquidity premium“ for property - which is turned into interest liabilities, when the property is loaned out - makes all proprietors who are investing – no matter if they are creditor or debtor – treating their property as borrowed property. Due to the liquidity premium, property bears opportunity costs per se on account of its proprietor, because property could alternatively be lent out against interest.

This phenomenon expresses itself in the calculus of „debt interest“ in the concept of the net present value. The concept of the net present value implies that the value of property is derived by the interest rate \(i_{\text{calc}}\) interest rate for calculation). Even under the assumption that a made investment is completely (re-) financed by equity capital (i.e. financed by zero loan capital), the invested capital is expected to yield a return, which equals at least the interest rate of the capital markets. Essential difference between a project, which is fully equity capital financed and a project, which is fully loan capital financed, is that an „equity capital project“ generates yield expectations, only, whereby a „loan capital project“ generates legally binding (yield) obligations.

Due to the properties of property, credit contracts create for the debtor the pressure for adding value over time. If an economic subject and proprietor does not want his relative position of property rights to deteriorate, he is forced to make with his properties at least a yield, which is as high as his opportunity costs respectively his internal interest rate of calculation. For the part of (partially) leveraged economic subjects, interests enforce value-adding activities respectively the creation of new capital allowing the subject to serve his interest payments.

Interests do not derive from inherent value-adding process of production (classic theories) or from the intertemporal preference of consumption (neoclassic theories). Interests do not derive from the liquidity premium for foregone possession of money (Keynesianism). Interests originate from the transfer and assignment of property rights between creditor and debtor which are usually accounted for in money as means of accounting units and usually settled in payments of money as means of payment.¹⁹⁹

The interest rate reflects the liquidity premium of the corresponding property. However, this derivation of interest does not refer to the so-called risk premium of the capital asset pricing model CAPM of modern financial theory. The risk premium of the so-called capital asset pricing model CAPM is to be applied as additional premium on top of the liquidity premium.

4.3 Concept of Debitism and Monetary Economics – value, price, and market redefined

Starting from the new conception of property, credit, and money in a capitalist economy based on private property rights, the terms of value, price, market, and competition can be newly derived and defined resulting in a completely new conception and definition of the idea of a market.

In a modern economy with fractional reserve banking, an economic subject borrows money as credit from a bank. The bank grants the credit (for simplification an unsecured abstract credit is assumed) to the economic subject as debtor under consideration of his creditworthiness and the capability of legal enforcements of the banks' rights as creditor. As every credit/debt contract is intertemporal, every credit contract has an implicit interest-bearing function. Usually the accruing interest obligations are accounted for in money and are set in the contract to be paid in money. The debtor is committed not only to his principal repayments, but also to the payments of interests as payments in money.

As the logic of a fractional reserve banking system is already explained in the third chapter, the following ideas assume the understanding of fractional reserve banking as given. Rothbard stresses the inflationary nature of fractional reserve banking as money is created out of nothing.200 Rothbard sums upon the nature of the present financial system: “Thus, we see that the chronic and accelerating inflation of our time has been caused by a fundamental change in the monetary system. From money, centuries ago, based solidly on gold as the currency, and where banks were required to redeem their notes and deposits immediately in specie, we now have a world of fiat paper moneys cut off from gold and issued by government-privileged Central Banks. The Central Banks enjoy a monopoly on the printing of paper

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200 “Thus, fractional reserve banking is at one and the same time fraudulent and inflationary; it generates an increase in the money supply by issuing fake warehouse receipts for money. … Where did the money come from? It came – and this is the most important single thing to know about modern banking – it came out of thin air. Commercial banks – that is, fractional reserve banks – create money out of thin air. Essentially the do it in the same way as counterfeiters. Counterfeiters, too, create money out of thin air by printing something masquerading as money or as a warehouse receipt for money. In this way, they fraudulently extract resources from the public, from the people who have genuinely earned their money” Rothbard, M. (1983), The Mystery of Banking, New York: Richardson & Snyder, p. 98.
money, and through this money they control and encourage an inflationary fractional reserve banking system which pyramids deposits on top of a total of reserves determined by the Central Banks.\footnote{ibid, p. 178.}

Soddy describes the cheque system as the driver of the fractional reserve system.\footnote{“The Pyramiding of Credit: As the banking and cheque system developed and people got into the habit of depositing their money more and more in banks and using cheques, in lieu of cash, to settle their accounts, the banker at first would, as we have seen, always possess a much larger stock of gold and silver than he required to meet such demands for cash as the public still made. It is therefore clear that the banker can safely lend part of his depositors’ money; but which is not so clear is that he can lend many times as much as the whole nation possesses – in fact, create it to lend at will.” Soddy, F. (1933), \textit{Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox}, New York: E. P. Dutton & Co., Inc., pp. 153/154.} The banks’ seigniorage of a fractional reserve system is obvious as Soddy demonstrates: “At least since, if not before, the War [first World War] the figures suggest rather a 7 per cent “safe” limit than 15 per cent. On this basis, a client depositing £100 of cash in current account enables the bank to loan £1,330, which at 5 per cent brings in £66 10s. 9d. per annum.\footnote{ibid, p. 154.} The social cost of creating new property rights out of nothing is to be debited to the public money stock.

As an intuitive analogy, Nuri compares the functioning of money with stock of a company: “Another analogy is extremely helpful. Imagine a company stock trading on an exchange, with some quantity of shares publicly owned. The founders decide to issue additional stock. As is well known this “secondary offering” dilutes the share price. One could say that the supply and demand of the stock changed, but this is not a change in supply and demand that is related to market effects or change in underlying value of the company. ... The issuers of the new stock shares then own a greater share of the company even after the price depreciation of their previous shares. All other shareholders have lost real value in their holdings at the abstract renomination. ... Now obviously this analogy extends further. Evidently, a nation’s currency actually represents share of the economy of that country (the GDP) and money expansion is exactly analogous to issuing new shares. But how are additional shares allocated?”\footnote{Nuri, V. Z. (2002), \textit{A Fractional Reserve Banking as Economic Parasitism: A Scientific, Mathematical, & Historical Exposé, Critique, and Manifesto}, article published on the internet: http://www.ex.ac.uk/~RDavies/arian/controversies.html and http://econwpa.wustl.edu/prints/mac/papers/0203/0203005.abs.}
Soddy criticises today’s approach of defining money by its function of exchangeability: “The definition of wealth has always been the touchstone of clear thinking in economic matters, and after centuries of effort that definition still eludes us. Aristotle tried to cut the Gordian knot by defining wealth as all thins whose value can be measured in money, and the Roman jurists, in their practical fashion, followed suit in defining wealth as what can be bought and sold. Money, however, is merely a claim to wealth, and to define wealth as that which can be claimed by claims to wealth, or can be measured by the numerical legal claims to wealth called money, is merely like defining a fluid as that which can fill and be measured by an empty hole, capable of holding the fluid, called a fluid measure. Such logic has always exerted, and will probably always exert, a powerful attraction to the ruling and legal type of mind, more concerned with the ownership of wealth than the processes which bring it into existence and which it, in turn, brings into existence. To the economist, on the other hand, their fascination was fatal. It solved many little difficulties and apparent inconsistencies regarding the real nature of wealth entirely to ignore it, and to base it as the Roman jurists did, upon principle of exchangeability as the sole criterion.”

Regarding the debtor as an economic stand-alone entity, the debtor tries to employ the borrowed money in a way to increase his net property position respectively his net present value. In case the debtor’s balance sheet contains under liabilities exclusively equity capital, the debtor is - in terms of opportunity costs – only committed to his own expectations. In case the debtor’s liabilities in his individual balance sheet consist exclusively of loans respectively debt (theoretical maximum gearing with no equity capital), the debtor is obliged to earn a yield which is high enough to serve his principal and interest payment obligations in money. Due to his gearing and the usual terms of the credit contract - which ask for repayment in money and not in goods or services - the debtor must "make money" in order to serve his financial obligations.

The debtor as microeconomic subject must “make money” with his entrepreneurial activities, because his enterprise is pre-financed respectively leveraged with debt contracted in money. As the debtor’s liabilities are defined and contracted in money, the debtor must offer – assumed his entrepreneurial activities consist of simple production of goods - his products against money.

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This logic of the pre-financing debtor respectively entrepreneur constitutes the market. The market originates as a buyer’s market. Proceeding on the assumption of a pre-financing entrepreneur, the market is to be defined as an institution, whereby debtors attempt to obtain the means, in which they have contracted their debts, which is usually money.\footnote{Compare with: Heinsohn, G. and Steiger, O. (2002), *Eigentum, Zins und Geld – Ungelöste Rätsel der Wirtschaftswissenschaft*, Marburg: Metropolis-Verlag, p. 325.}

As any market is formally characterised by a concentration of time and space – whereby today technology substitutes the concentration of space more and more by modern means of telecoms as telephone, internet, e-commerce - the new derivation of a market does not change its formal traits. In markets, delivery contracts are concluded. The delivery contracts are concluded in goods and money due to the pre-financing logic of the entrepreneur. Thus, the price finding mechanisms, the pricing, in the market takes logically and temporarily place after the conclusion of the entrepreneur’s debt contract(s), i.e. the pricing of the delivery contracts in the market is subordinated to and derived from the entrepreneur’s pre-financing. Thus, the value of goods is defined by its price in money. The market is per se subordinated to the debt/credit contracts.

This alternative and new definition and derivation of a market is obviously incompatible with the conventional economics. According to the new definition of a market, the value of goods can neither be derived by the relative costs of “classic economics” nor by the “relative marginal profit considerations” of neoclassic economics, because the (neo-) classical barter ratios (of quantity of traded goods) are independent of money and originate from the barter paradigm of a barter economy.\footnote{Woll (German business and economics professor representative for the conventional perspective of economics): „In the bartering processes, value ratios of the bartered goods are coming into existence which are called prices. If these barter trades are now settled with the employment of money, the value rations can be expressed in money (money prices).“ Woll, A. (1990), *Allgemeine Volkswirtschaftslehre [General Economics]*, München: Vahlen, 10. edition, p. 59.}

“The value of a good is an absolute price which is measured in money of account and therefore the value is to be accounted in money of account. Debts and market prices must inevitably be measured and accounted for in
the same measurement, because the fixing of the debts logically precedes the price fixing in the market.\textsuperscript{208}

The new perception of a market allows also an analysis of the terms of demand and supply from a new perspective: In the credit and money markets, the conclusion of a credit (respectively debt) contract constitutes a new creditor-debtor-relationship. In the market of goods, the debtor - who is simultaneously the pre-financing entrepreneur - tries to procure the means, which will allow him the serve his liabilities. “The markets for goods and services represent from the perspective of the debtor the symmetric counterpart for the perspective of the creditor.”\textsuperscript{209} In case the original creditor buys the by the debtor offered goods or services in the goods market against the payment of money in the amount of the meanwhile totally accrued liabilities (principal debt plus accrued interests), the original credit/debt contract disappears and in consequence its thereby created money.

Due to the nature of the credit/debt contract the original creditor decides, whether the debts may disappear. Since the debtor, respectively the indebted entrepreneur must (re-)pay at a defined point of time in the future his principal debt and interests in money, as agreed upon in the credit contract, the entrepreneur must offer his goods for sale in order to get hold of money. By way of contrast the creditor, respectively the potential buyer of the offered goods does not inevitably have to buy, but he can buy. The creditor can buy and demand goods, but does not have to. This “market-economy phenomenon” explains the constitution of a buyer’s market in Europe’s arising capitalism.\textsuperscript{210}

The variety of roles in delivery and credit contracts asks for a detailed specification of the conventional definition of demand and supply. According to Bethmann, the simple, mathematical computability of a price in the microeconomic market models overlooks that demand and supply are not quantitative dimensions and that demand and supply are not of equal importance and rank. During the settlement of demand and supply in a

\textsuperscript{208} Heinsohn, G. and Steiger, O. (2002), Eigentum, Zins und Geld – Ungelöste Rätsel der Wirtschaftswissenschaft, Marburg: Metropolis-Verlag, p. 332.

\textsuperscript{209} ibid, pp. 341/342.

\textsuperscript{210} „The development of capitalism is based on the right each citizen has to serve the customer better and/or cheaper.“ Mises, L. (1983), Vom Wert der besseren Ideen - Sechs Vorlesungen über Wirtschaft und Politik, first lecture, Stuttgart: Poller, p. 16.
specific transaction, quantitative changes (of money respectively debts) and simultaneously qualitative changes (pricing of goods) take place.

In case the original creditor does not accept and buy the offered goods or services, the debtor must look for alternative ways for procuring the money for repayment of his credit liabilities, i.e. finding a third-party, which is ready to buy his products with money.

Assumed the third-party wants to buy the entrepreneurs products, but does not have the money for the purchase, the third-party may conclude a new credit contract. With the conclusion of a new credit contract, new money and new liabilities are created. If the third-party takes the borrowed new money for purchasing the entrepreneur’s goods, the original debts of the entrepreneur are abstractly transferred and traded over to the new third-party, which buys.

Starting with the simplified idea of a pre-financing entrepreneur and his creditor - who at a later point of time turns out to be the buyer of the entrepreneur’s products - the creation and disappearance of money in form of debt and credit and the intertemporal logic of credit and delivery contracts are explained. This model could be extended to a complex economy by integrating third-parties without changing the original logic.

As banks are the only institutions, which are able to create credit and money as legal tender out of marginally nothing, an interest-bearing credit system functions like a pyramid, Ponzi, or pilot scheme, or chain-letter system. As long as the music is turned on, respectively new credit is created to overcome the always present, system-immanent deficit of money for serving interest liabilities, the pyramiding goes on.

The difference between the roles in a market transaction requires a new definition of demand and supply. In conventional economics the simplicity of demand and supply curves and the clearing function of the market price overlooks that supply and demand are not only quantitative measures. In conventional economics, demand and supply are regarded as equal measures. An analysis of single market transactions reveals that a market transaction is driven by quantitative and qualitative processes. Inherent of a market transaction is a quantitative clearing in terms of debt and credit and at
the same time the qualitative determination of a new price. Bethmann founded - based on his heuristic approach as a banker - the school of “Monetary Economics” („Monetäre Ökonomie”) which sums up the explained logic of price, market, and credit.

Monetary Economics of Bethmann:

1. All existing monetary claims (receivables, demand for payments, financial entitlements etc.) are “money” (regardless of the practical usability as means of payment).
2. All existing money consists of individual credit contracts always contracted (with payment in money) between creditor and debtor.
3. New money comes into existence (i.e. money respectively credit creation) with each newly contracted obligation of a debtor to pay a/the respective creditor.
4. Money (respectively credit) creation is always an individual, autonomous act, executed between two contracting parties.
5. The three imaginable ways of money (respectively credit) creation are: the conclusion of a delivery contract, the conclusion of a credit contract, the crediting respectively the corresponding debiting of due interest payments.
6. Money respectively credit destruction occurs exclusively through the disappearance of a monetary claim.
7. The disappearance of a monetary claim occurs exclusively by a declared waiver (for repayment) of the creditor.
8. The waiver of a creditor concerning the write-off of his monetary claim only occurs by (re-) payment or by definite irredeemability of the monetary claim.
9. Each new delivery contract is always at the same time also a new credit contract.
10. Conclusion of Monetary Economics is: The sum of all (existing) debts equals the sum of all money.

Competition constitutes itself among sellers respectively indebted entrepreneurs who have to sell their products and services - regardless of the difference of their products and services – for the same thing, money - money that is needed to serve the entrepreneurs’ debt payments. Thus, competition originates from the entrepreneur’s debt pressure to offer products and

212 ibid, p. 88.
services for sale in the market. Over time, the entrepreneur’s pressure to sell is building up in the same way as his liabilities respectively debts are increasing. Due to the mathematical nature of an interest function, the way debts increase is exponential. Thus, the entrepreneur’s pressure to sell and to make money is exploding over time (proportionally to the gearing of the entrepreneur’s capital structure/balance sheet). The pressure to sell and make money together with the existence of other indebted entrepreneurs leads to competition in the market.

The liabilities arising from interest payments are forcing each indebted entrepreneur to make more money in nominal terms than he originally drew down from the creditor. The entrepreneur has to sell his products – at an added value respectively for an amount of money, which is higher than the original credit volume in order to make up for the interest payments.

From the subjective perspective of a single entrepreneur, in this respect, the indebtedness of the entrepreneur requires in terms of market prices new property. Indebted entrepreneurs must produce and invest in such a way that additional property in terms of market prices come into existence in due time according to the credit contract serving the interest obligations which are payable in money. Competition with other indebted entrepreneurs urge to constant innovation and progress.

The missing dimension of time in conventional economics is revealed by Stelter in detail. Stelter analyses the microeconomic base model of the flow of goods and the flow of money. The absence of time in the conventional economics model does not allow the logic of debt deflation dynamics. Stelter slightly modifies the conventional model and supports his critique with presentations of accounting mechanisms on the macro-level.213 As the macroeconomic model of circulating flows of money and goods cannot grasp the intertemporal aspects of credit contracts, the central element of the present economic and financial system – named “Debitism” by Martin - is ignored:

Due to the partial indebtedness of economic subjects respectively the prefinancing of the entrepreneur, the debtors are forced to procure additional money in the markets for payments of interest, which does not exist or has not been created, yet. For overcoming the shortcomings of money for interest payments, new economic subjects have to indebt themselves to create the missing money. Martin refers to the term “Nachverschuldung” which stands for the necessary creation of new debts for serving the existing interest liabilities. Fractional reserve banking functioning like a pyramid or Ponzi scheme is described by Martin with an example of the prefinancing entrepreneur. Martin labels the economic and financial system therefore as a chain-letter system, as the system is characterised by the system immanent lack of money for serving existing respectively accumulating interest liabilities.

Martin’s concept of debitism stresses the importance of credit contracts as Heinsohn and Steiger do. In consequence, Martin sets up the following equation\(^\text{214}\), which is fully compatible with the conclusion of Bethmann’s Monetary Economics:

\[
\text{The sum of all debts, which have been contracted in a previous period or are still existing} \quad \text{minus the sum of all goods and services of the debtors accepted as final repayment in the present period by the creditors (volume \(x\) price)} \quad \text{times interest rate} = \text{sum of new, additional debts to be contracted in order to enter the next period without credit losses/defaults ("Nachverschuldung")}
\]

“The complete ‘money volume’ [according to Bethmann’s broad definition of money defined as all outstanding monetary liabilities respectively monetary claims] always grows by the difference between newly created debt respectively credit on the one hand and the sum of all made payments [in terms of debt repayments] and the volume of money which is waived by creditors on the other hand.”\(^\text{215}\)

Due to the mathematical nature of exponentially compounding interest rates regardless of the nominal level of interest rates, the pyramid character of a


\(^{215}\) Bethmann, J. P. (1984), Der verratenene Kapitalismus, Die Ursachen der Krise, Königstein im Taunus: Athenäum Verlag, p. 145
credit system becomes obvious by this descriptive approach. Soddy and Kutyn argue that this concept of compound interest is “very interesting”, because it sends both the deposits of the creditor, and the loans of the debtor towards infinity, which while mathematically possible, is physically impossible in the sense that money is a claim on the real assets of the community.216

Thus, Kutyn describes the present financial system in which money is based on debt as inherently unstable and as a system which eventually must implode, regardless of how efficient or technologically advanced an economy were. As demonstrated in the analysis of fractional reserve banking, the impact of repayment of loans is important. Reversing Martin’s equation of debitism means that if new loan creation stops, the money for due interest payments is extracted from the financial system. Over time, in a system where money is created through debt, if new debt creation stops, all money will eventually be destroyed (even if no loans are repaid) as a result of interest payments.

Because banks create money by agreeing new loans, economic subjects overall must be in constant debt to banks by an amount approximately equivalent to the total of an economy's money supply, as Soddy explains. However, when banks create money, they do not create the money needed to repay the loan plus the interest charge. The loans banks grant are therefore unrepayable. The unrepayable debt in turn forces the economic subjects of the economy to compete instead of co-operate, since the borrowers in aggregate experience a constant shortage of money. Only one thing can save current borrowers, and that is the creation of more money (Martin’s “Nachverschuldung”), either by the state or by the banks. This provides sufficient new money with which current borrowers can repay existing debts. When banks and the state do not create enough new money, a recession sets in. If banks create too much, then inflation sets in. And always there is more debt.

216 Compare with Kutyn explaining Soddy: “Unlike wealth, which is subject to the laws of thermodynamics, debts do not rot with old age and are not consumed in the process of living… For sufficient reason, the process of compound interest is physically impossible, though the process of compound decrement is physically common enough. Because the former leads with passage of time ever more and more rapidly to infinity, which, like minus one, is not a physical, but a mathematical quantity, whereas the latter leads always more slowly towards zero, which is, as we have seen, the lower limit of physical quantities.” Kutyn, J. (1999), The Nature of Money, article published on the internet: www.cfoss.com/nature.html, The Claire Foss Journal, alternatively: http://www3.sympatico.ca/truegrowth/kutyn.htm.
From this new perspective of monetary economics and debitism, debts are in the centre of our economy. Debts with compounding interests motivate and push all economic subjects. Debt and credit structures are the driving force of the economy's dynamics.
4.4 Debt deflation dynamics and credit waves

The logical process of debt deflation dynamics can be transferred from the microeconomic level to the macro-level for analysing the development of business and credit cycles.

The terms of business and credit cycles are common, but misleading as they imply an automatism of endless repetition. Therefore, the term credit wave – instead of credit cycle – is chosen, because a wave relatively slowly builds up, breaks, and disappears in white water. A credit wave is driven by the beginning acquisition and the ending liquidation of debt respectively credit. Debt in a fiat money system creates an incremental demand for money in addition to its intrinsic, genuine demand for principal repayment. When debt creation becomes excessive, it will finally peak, forcing the debt-driven system to become illiquid. During this deflationary period - often referred to by bankers as credit crunch – the debt level must be reduced to alleviate the pressures of illiquidity. Once debt is liquidated by crash, default, or devaluation respectively monetary reform, the system reliquifies. Thereafter, new debt can be created, and the economic super cycle can begin anew.

The new perception of economics and the present financial credit system allows a new analytical approach of inflation\(^{217}\): As long as entrepreneurs take on new debt/credit for the exclusive creation of new property with added value (at market prices), new money is counterbalanced by new property keeping the price level relatively stable. However, if additional credit is created and not invested in entrepreneurial activities, which create additional value-added property, additional money is driving the prices in markets upwards.

Inflation on the macro-level is the aggregation of relatively synchronous increases in the price levels in many single markets, i.e. inflation on the macro-level consists of synchronous inflations or hausses in single markets. In order to understand and explain inflation on the macro-level, the process of inflation will be analysed in an isolated single market. Minsky describes this process of inflation and its inherent mechanisms as “debt deflation dynamics”:

\(^{217}\) The definition in economics of „inflation“ is - according to Woll - still controversial. Inflation is a generic term for complex processes which have in common that the price level – regardless of empirical problems in measurement – is continuously rising. According to conventional economics (of the functioning of a market), the price level rises due to a surplus in demand (demand pull inflation) or due to a shortage of supply (cost push inflation).
Credit can be created and the thereby created money can be spent generally in three ways: First, the entrepreneur employs the new money for pre-financing production. Second, an economic subject prefers to spent money, which has not yet been earned/made for consumptive purposes, i.e. credit is pre-financing consumption. Third, an economic subject takes on credit for speculation.

In the second and third way, credit is created, but no additional goods and services are created to repay the credit. Thus, the additional credit is driving prices in the market the money is invested in higher. E.g., the additional credit will not invested in the entrepreneur’s value chain, if the additional credit is invested in a small luxury segment of a specific real estate market. Prices in this market rise in consequence.

As long as the average price increase in the market - the additional credit is invested in - is higher than the average interest of the credit, which is accruing, investing the new credit in this market pays off for the investor. The higher the gearing of the investor, the higher the investor’s return on equity. In addition, as long as the specific market segment goes up in price, the investor is provided with additional collateral, because the price increase in the market provides additional marginal unleveraged property for the creditor.

In abstract terms, the credit, which is invested in this rising real estate market, is not invested for entrepreneurial investment, but in a price inflation of a specific market (e.g. in Japan’s real estate bubble of the 1980s). The high profit margins in a rising market make more and more investors invest in this market with a higher and higher gearing. Thereby bankers and investors start channelling more and more credit in this market. The accelerating speculation and credit expansion in this market leads to higher price increases over time, but eventually the specific market cannot grow as fast as the new credit. This phase is called blow-off. Creditors are willing to grant new credit easily; because debtor’s collateral – priced mark-to-market – is increasing.

In consequence, a credit expansion takes place whereby the property in the market is leveraged to a maximum. Investors can increase their net value position, because the percentage by which the market prices increase over
time is higher than the percentage respectively the interest rate by which the outstanding credit facilities compound.

Due to the highly leveraged property in the specific market, the prices of the property in the market must increase exponentially. In abstract terms, the market capitalisation must explode due to the mathematical nature of compounding interest rates. The market value must increase at least as fast, as the debts of the leveraged and collateralised property increase.

However, there are limits in the gearing of every market. If these limits are approached, credit expanding will be slowed down and tops out. The marginal requirements for credit expansion are set by the creditor on a stand-alone basis with regard to the future cash flows of the specific investment and its expected market value. In the covenants of the credit contract, the creditor minimises his exposure by securing property rights of the investment in his favour. Usually with regard to the quality of the investment, the creditor will grant credit up to a specific percentage of the mark-to-market priced investment. This is mathematically hard to define, but rarely exceeds 100 percent of the investment. Thus, there is a kind of limit for the overall gearing and credit expansion of the market itself.

When the credit expansion slows down and tops out, the additional new credit, which has been driving prices higher, retreats. The price increase in the market slows. In the moment when the price increase in the markets are lower than the credit cost respectively the interest rate, investment in the highly leveraged market suddenly cause the net present value of the investment to turn negative. Investment returns will begin to shrink, because investments become more marginal in an (over-) extended market.

Due to the maximum gearing of the market, creditors will quickly approach their debtors asking for margin calls. Creditors are asking the debtors to come up with additional capital for securing their exposure, as their collateral for the outstanding credit facilities shrinks, but the credit facilities increase further due to the logic of the mathematical function of compound interest.

Thus, the creditors’ margin calls force the debtors respectively investors to liquidate their long-positions in the market, i.e. to sell immediately. This is the point of time, when the market prices suddenly fall, because all the investors
have to exit the market at the same time. This phase is called crash. Crash, because the fall in the market price level is deep and sharp. Mass liquidation is forced into a market from the seller’s side.

As no additional property has been generated by entrepreneurial activity, many investors are unable to serve their credit obligations. The credit facilities become unredeemable. Creditors have to write down their loans as debtors are defaulting on their obligations and file for bankruptcy. At the end of this blow-off and crash pattern or boom-and-bust cycle, market prices are approaching their former price level of the time before the blow-off started at.218

The unservable liabilities of debtors disappear by bankruptcies, crashes, partial debt relieves, moratoriums etc.. Kindleberger’s student Bladen stresses also the importance of the overall gearing respectively the degree of indebtedness and regards the overall indebtedness as “crucially important economic variable”. Bladen explains the mechanism of debt deflation dynamics, the sequence of boom and bust, of inflation and deflation analysing the real estate market of the United States.219

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219 „Preface: A Reform of Financial Theory Is Needed in Order to Make the Current Inflationary Chaos Understandable - The coming crash in house prices: The inflationary overexpansion of debt, both within the United States and several other countries as well as internationally, has reached a level from which a soft landing into price and financial stability is no longer feasible. A painful crash is inevitable sooner or later, and the longer we try to put off by doing additional inflationary things the more painful it will be when it does happen. ... A long series of unwise political policies has produced a bubble in house prices that cannot be sustained indefinitely even though its popping is likely to cause a substantial downturn in consumer spending, and therefore a serious recession. The amount of debt outstanding is a crucially important economic variable. ... The fundamental cause of each of the localized crashes that have already occurred, and of the crash in house prices that looms ahead, is the excessive rate of debt formation that has been going on at an accelerating pace for many years. The main reason why its painful consequences were not generally recognized in time to prevent it from producing an unsustainable inflation of house prices in that ever since the Keynesian revolution in Economics that occurred during the late 1930’s academic economists have foisted upon us some theories about the financial system that are remarkably contrary to the facts as they are perceived by practical financial managers. These current theories suggest that neither the rate of debt nor the total amount of debt outstanding is an important economic variable. This view, which contradicts both common sense and practical experience, has made it possible for most economists to understand, let alone predict, the steadily worsening disorders that have plagued the American financial system since 1965 and the international financial system since 1970.“ ibid, pp. IX/X.
Due to the nature of a debt-based financial system, a maximum level of debt is existent, even if the created money is invested in capital investments and not in speculation or consumption. Soddy explains that for each type of debt creation, there are factors that will tend to restrict new debt. Moreover, a fractional reserve banking system is not self-stabilising. Households and corporates tend to borrow in good economic periods when profits and incomes are strong, and tend not to borrow in poor economic times when profits and incomes are weak. In poor economic periods, there are not as many profitable areas to invest in, and many businesses may be losing money. In economic downturns, since their incomes are reduced, people see themselves as unable to repay new debt. This leads to a rising money supply in good economic periods, and a falling money supply in poor economic periods, which is the exact opposite of what is required in order to have stable economic growth.

The logical line of argumentation for the blow-off and crash pattern respectively boom-bust pattern on the microeconomic level and the logic of inflation and deflation on the macroeconomic level are the same. Similar to the creation and destruction of a single loan, credit creation on the macro-economic level is inflationary and loan repayment respectively credit destruction is deflationary.

Minsky calls this boom and bust pattern “debt deflation dynamics”, because debts and the intertemporal consequences on the market are the key elements for understanding deflation. The logic of boom and bust cycles respectively inflation and deflation can take place in any market including currency markets and carry-trades. The main difference between the micro- and the macro-level is the different time horizon of the course of events.

Blow-off and crash can happen in a relatively short time span (e.g. technology-media-telecoms (TMT) bubble or tulips bubble) whereas inflation and deflation may run over a few decades.

In modern democracies, states and governments tend usually to spend more than they receive as tax income (deficit spending). The notorious deficit spending (public choice) usually kicks off general price increases in many markets.\(^{220}\) As the blow-off gains slowly momentum, the course of events of

\(^{220}\) Compare with: „Der Staat als Beherrscher einer großen Quote von wirtschaftlichem Einkommen birgt in der Demokratie die Gefahr zu großer Konsumaufwendung auf Kosten der
the inflation-deflation-logic takes control. Simple arithmetic of debt and compound interest is also valid for public entities. As Domar proves in his growth model\textsuperscript{221} and Sargent and Wallace\textsuperscript{222} explicitly discuss, a public insolvency respectively the bankruptcy of states is programmed whenever the real interest rate exceeds the growth of underlying GDP in the long run. However, even without democracies, inflationary waves can be simply induced by a loose credit policy of the banking industry and the accompanying correspondent media spin.

On the macro-economic level the indebtedness or the gearing of all sectors in the economy increases further and further, until in nearly most markets the limits for further credit expansion are reached.\textsuperscript{223} The limit of an overall gearing and saturation of indebtedness is described by Haga in detail.\textsuperscript{224}

One major difference of the macro-level is that states play an extra role as debtor. Assumed the debts of state are occurred as domestic indebtedness only, creditors are usually unable to execute margin calls against the (power of) state. Thus, the state can prolong the inflationary boom process longer, as private entities can.

The reason why prices cannot “stay” at inflationary high levels is the passing of time.\textsuperscript{225} The pressure - economic subjects are faced with due to their gearing and pre-financing - pushes for price cuts, because economic subjects have to speed up to “make money” respectively immediately sell at the market against money and for liquidity. “Deflations occur fast, because a collapse of prices strikes. The entrepreneur who must sell due to his indebtedness and his margin calls tears down the price level for all other competitors. He is threatening the existence of all other competitors, because he offers his


\textsuperscript{224} Martin, P. C. (1986), Der Kapitalismus, München: Langen-Müller/Herbig, p. 382.
products at a cheaper price. Therefore, his competitors have to follow him immediately in pricing. \(^{226}\)

Based on an understanding of fractional reserve banking and credit creation in a fiat money system, Noland focuses on the nature of financial bubbles: “A key to appreciating credit bubble dynamics is to recognize that they are actually self-reinforcing. Here, the focus is on processes and forces not easily characterized and certainly non-quantifiable. Credit bubbles absolutely feed on money and credit excess, which only induces an intense hunger for greater excess. What’s more, this appetite is insatiable. After all, credit bubbles are about financial wealth creation and accumulation. Lending, the creation of additional liabilities, is the mechanism, while the consequences of excess are immediate spending increases and asset inflation. Wealth is, of course, about power and one should appreciate that credit bubbles have everything to do with obtaining and retaining power. Those who control a mechanism for money and credit creation have enormous power. Those who manage vast sums of financial assets on behalf of their clients are immensely powerful. And those who attain discretion to allocate an economy’s resources possess great power. Credit bubbles by their very nature direct enormous power to the financial sector, for the financial sector, by the financial sector. And, as has developed during this historic period, as the financial sector attains sufficient financial power to dictate an economy’s reward system it achieves supreme power. With this achievement, the powerful financial sector garners and relishes in its ability to create its own financial wealth, with devastating consequences to the underlying economy and financial system.” \(^{227}\)

Malik explains how a deflationary trend and credit crunch occur on the microeconomic level. Malik demonstrates the irrelevance of consumer confidence in a deflationary environment and unmasks the stressing of a lacking consumer confidence as misleading media spin. \(^{228}\)

The idea of the micro-level with the entrepreneur who must sell at any price in order to procure the liquidity for his margin calls is hereby transferred to the macro level. “Prices are decreasing (deflation) only, because the debts have

\(^{226}\) ibid, p. 384.


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not been decreasing. The indebtedness leads to pressure for selling at the market for liquidity, which drives prices down.\(^\text{229}\) ... as soon as the indebtedness is significantly reduced, prices stop falling, because entrepreneurs can wait longer until a customer comes by.\(^\text{230}\)

Due to the pyramid character of a debt-based financial system, once, credit expansion stops, the financial system must implode. Examining a debt-based economy asks for understanding the logic of inflationary and deflationary processes. On a macro-economic level, the credit contraction or credit crunch is entitled a deflationary spiral. Prices turn negative while loan growth and money supply growth are still positive. This will lead to a contraction in demand for loans to increase production, which further reduces prices, and so a downward spiral is created. A decrease in interest rates by central banks will reduce the economy’s overall interest burden, which has a positive short- to medium-term positive effect on the money supply and the price level. However, this is only temporary, as for any given interest rate, the total interest paid will again start to increase over time. Kutyn summarises that in a debt-based economy, whenever debt stops increasing, the economy will enter a downward spiral. Thus, the only way for such an economy to continue operating is an ever-increasing level of debt.

In exactly the other way as prices for goods and services are falling during a deflation, the value of cash money is increasing. "It is obvious why the value of cash money is increasing: The debts catapult cash up. There are debts, which were contracted during inflation and have mysteriously survived inflation."\(^\text{231}\)

This new conception of inflation explains also deflation, explains why - after a period of rising prices - prices must fall again. Mandel criticizes the capitalist system in the following: "As soon as inflation begins and exceeds a specific level, inflation cannot feed further expansion. Inflation even begins to kill further expansion."\(^\text{232}\) In historic retrospect Somary states: "The turning years

\(^{229}\) The „fast-buy myth“ is typical for inflation and is reflected in warehousing in the employment of the LIFO ("last in, first out") method, whereby inflationary profits in warehousing are thesaurusied and tax-deferred. With falling prices, companies start switching to the FIFO ("first in, first out") method, whereby deflationary losses in warehousing are immediately disclosed.


\(^{231}\) ibid, p. 413.

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from periods of a sinking to periods of a rising value of money have always triggered off major crises.233 Somary - who was one of the few representatives of both sides, of theory/economics and practice/banking - analysed in 1928, that the causes of the Great Depression were the unrealisable mountains of debt and credit.234 The close relation of disinflation respectively deflation and depression are usually missed in economics, besides Somary's historic analysis of deflation.235 Because at the end of an inflationary period, levels of indebtedness are at their historic peaks, bankruptcies and price reductions have to follow, as Kindleberger explains in detail.236

The mechanisms of debt deflation dynamics make crashes and deflations occur relatively fast and for most economic subjects unexpected. The phenomenon that the extent of an approaching deflation is missed by most economic participants is proven empirically by Evans and Wachtel in their analysis about the deflation of the Great Depression.237

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235 „Most of the analyses of the Depression ... ignored the deflation altogether.“ Temin, P. (1976), Did Monetary Forces Cause the Great Depression?, New York: Norton, p. 160.
236 „Both Keynesians and monetarists tend to disregard the macroeconomic impact of price changes, on the ground that gains from price changes for producers or consumers are matched by losses to consumers or producers, with no net effect on the system except where there is money illusion, that is, when consumers or producers fail to see that their income has changed when prices change while nominal monetary aggregates remain unchanged. This disregard is often mistaken, in my judgment, as when prices change while nominal monetary aggregates remain unchanged. This disregard is often mistaken, in my judgment, as when the decline of prices leads to industrial, mercantile, and investor bankruptcy, financial disintermediation, bank failure, and spreading deflation before the benefits, if any, from lower prices have a chance to make themselves felt. The net effects of rising prices in today’s world may be limited by offsetting gains and losses, without letting loose dynamic reactions. I would argue, however, that the pre-Keynesians were right in paying attention to price movements, now so cavalierly disregarded.“ Kindleberger, C. P. (1996), Manias, Panics, And Crashes – A History of Financial Crises, New York: John Wiley & Sons, pp.14/15.
237 „The use of simple time series forecasts to identify expected inflations is strongly rejected by our analysis of the joint behavior of nominal interest rates and inflation. Our switching model, however, provides estimates of agents’ expectations that are consistent with the behavior of nominal interest rates. These estimates display considerable ex post bias during the early 1930’s because agents anticipated a return to a regime of stable prices prematurely. As a consequence, they expected little of the deflation that actually occurred even though it appears predictable with the benefit of hindsight.“ Evans, M. and Wachtel, P. (1993), Were price changes during the Great Depression anticipated? - Evidence from nominal interest rates, in: Journal of Monetary Economics, Nr. 32/1993, New York, pp. 3-34.
A further distinction between the crash of a market and a macro-economic deflation is that after a period of inflation bad debts cannot be wiped out by a creditor’s debt release, by private bankruptcy, liquidation or the like, because on the macro-level, the state as one of the biggest debtors is directly involved in the inflation-deflation cycle. A state has the possibility – in contrast to private entities – to eliminate its unredeemable obligations by starting war or hyperinflation with a following monetary reform.238

Another difference between the crash of a specific market and a macro-economic deflation is that on the macro-level deflationary crashes are completely simultaneous. Despite global markets, differences in national tax systems and business cycles may cause major time lags. E.g., Japan’s tax system drove inflationary investors into the real estate market and prevented an early exit. Furthermore, differences between the “fix price sector” and the “flex(-ible) price sector” make deflationary movements set in some markets earlier than in others. Deflationary forces may shift from fix to flex price markets. Bethmann describes: “Each deflation starts – in the beginning nearly unnoticed – already in the middle of inflation. While prices are still rising, debt and credit are still growing rampantly, one day the - for the time being unnoticed - unrecognized and creeping - process of a deflationary erosion starts.”239

Because at the end of an inflationary period, levels of indebtedness are at their historic peaks, bankruptcies and price reductions have to follow as Kindleberger explains: „Both Keynesians and Monetarists tend to disregard the macroeconomic impact of price changes, on the ground that gains from price changes for producers or consumers are matched by losses to consumers or producers, with no net effect on the system except where there is money illusion, that is, when consumers or producers fail to see that their income has changed when prices change while nominal monetary aggregates remain unchanged. This disregard is often mistaken, in my judgment, as when prices change while nominal monetary aggregates remain unchanged. This disregard is often mistaken, in my judgment, as when the decline of prices...

238 In a monetary reform, the state defines at her political order the new currency in such a way, that the new currency will be backed by state property or by property, which is lend to the state against the issuance of the new currency. In this way the old currency and simultaneously the „old“ debt can be devalued against the new property. The debts contracted during (hyper-) inflation can be redeemed with newly assessed property (assets) in the new currency.
leads to industrial, mercantile, and investor bankruptcy, financial disintermediation, bank failure, and spreading deflation before the benefits, if any, from lower prices have a chance to make themselves felt. The net effects of rising prices in today’s world may be limited by offsetting gains and losses, without letting loose dynamic reactions. I would argue, however, that the pre-Keynesians were right in paying attention to price movements, now so cavalierly disregarded.”

4.5 Summary

The importance of a clear conception of money and finance is essential for understanding human history: “It is essential to have a clear physical conception of money and finance, as such, to enable us to understand their more important indirect bearing upon the admittedly still to be solved problems of achieving industrial expansion without the unwelcome concomitants of unemployment and the trade cycle. Those who have penetrated most deeply into the study of human history find it impossible to exaggerate the importance of the institution of money. As Delmar [History of Monetary Systems] has said: “It is a study that none can afford to approach with rashness or leave with complacency.” Among the list of master-minds, he cites as having essayed its study in the past it is encouraging to a scientific man to read the name of Newton, Copernicus, and Tycho Brahe.²⁴¹

The new approaches of Bethmann, Heinsohn, Kutyn, Martin, Minsky, Nuri, Rothbard, Soddy, Soros, and Steiger explain a property- and debt-based economy with the features of a modern fractional reserve and fiat money banking system. The integration of these new approaches forms a stringent economic theory which is able to explain the past and present economic and financial system from a very new perspective executing a paradigm shift in economics and monetary theory.

²⁴¹ Soddy further cites: “Again, one could hardly better describe “Europe after twenty centuries of Christendom than by this passage from Ferraro [Greatness and Decline of the Roman Empire, vi, 223]: “The Imperial Democracy that held a world beneath its sway, from the senators who bore historic names down to the humblest tiller of the soil, from Julius Caesar down to the smallest shopkeeper in a back street of Rome, was at the mercy of a small group of usurers.” Soddy, F. (1933), Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox, New York: E. P. Dutton & Co., Inc., p. 184.
5. Impact of a paradigm shift in economics monetary theory

The presented new perspective allows to understand that the circumstances of the 20th century are unique in monetary evolution. Especially in the last quarter of the 20th century fractional reserve banking is institutionalised on a global scale, the denatured monometallic gold standard has been abandoned, and the only currencies are free-floating fiat currencies. Thereby, inflation in financial securities has taken place on a global scale, which is unprecedented in history.

Why such a long and sustainable inflation in the industrialised world could occur and now makes deflation unavoidable is explained by Bethmann with the general deficit in monetary theory: “The desperate situation we in the free West have managed to manoeuvre in is the inevitable consequence of an ever increasing “theory-deficit” in economics, a “theory-deficit” especially there, where it is about the vitally important fundamentals of an economy, i.e. the market and the money.”

Soddy described the theory-deficit many years ago and sums up the status quo in media and science in the 1930s: “The upshot of our incursions into the scientific aspect of the social question is that the monetary system of the world is false and absurd, and that without minute attention to this little understood mechanism for distributing the products of industry, it is not much use thinking about where we all want to go and the supreme importance of getting there. Politicians of all parties never tire of this easy theme, but each and all seem anxious to discuss anything and everything rather than money, which has us all in its absolute uncontrolled grip. There is an almost complete boycott of the subject in the Press.”

Since the time of Soddy, no significant progress against the “theory-deficit” has been made during the last seventy years beside a couple new and further misleading economic theories.

After scientific and public discussion had paid attention to the problem of public and private indebtedness in North America and Western Europe in the early 1980s, in the last two decades the discussion became silent, as viable

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political alternatives disappeared. Especially during the last years, themes around currency reforms were completely evaded by the media with regard to the successful introduction of the euro.

The problem of public over-indebtedness is also a psychological problem, because the major parameters in business and society change exceptionally slowly. Thus, viewing daily business, long-term changes are hard to realise. Changes, which occur slowly, cannot be recognised by most of the people.\textsuperscript{244} However, these changes are the changes, which really count. Thereby whole generations were confronted with so-called surprises, events, which were hard to imagine beforehand. Managers and bankers in their strategic function are not paid for optimising the continuity of sustainable trends, which does not ask for particular ability. Managers and bankers are paid for realising "surprises", breaks in trends, and preparing their enterprises for these situations.\textsuperscript{245}

\textsuperscript{244} The French psychologist Le Bon writes: „Experiences of one generation are in general worthless for the preceding generation. Therefore, it makes no sense to employ historic events as evidence.“ in: Le Bon, G. (1982 [1911]), \textit{Psychologie der Massen [Psychologie des Foules]}, 15\textsuperscript{th} edition, Stuttgart: Kröner Verlag, p. 78.

5.1 New assessment of risk positions of public and private sector entities

The famous Swiss banker Somary analyses the state of the finance industry in retrospect just before the Great Depression: “Seeing the crisis ahead and acting correspondingly was the essence for a banker, it sealed his fate.”\(^{246}\)

Monetary policy bears particular responsibility. “Monetary policy has failed, because monetary policy followed a false doctrine of money and therefore applied a false recipe for treating the disease of inflation.”\(^{247}\) The present state is entitled by Bethmann with „too much' money in the world - or the debt crisis”.\(^{248}\)

In 1990, Malik und Stelter of Managementzentrum St. Gallen in Switzerland set up a likely deflationary scenario for the world economy based on their understanding of debitism and Bethmann's monetary economics.\(^{249}\) Most


\(^{248}\) Compare with: “The crisis of the world economy - most politicians in charge of the particular nations refer to with apologies - has two sides. There are two ugly sides. One side is called general lack of demand, overcapacities, unemployment. The other side is called indebtedness, explosion of debt, acute financial crisis. Both have a common cause, as both sides have a close mutual relationship and disastrously impact the further development. The great crisis must come, because everybody has bought and borrowed too much for many years. What yesterday was bought too much and too early, is bought less today. What yesterday was pumped/loaned too much, cannot be paid back today and must tomorrow – better even today – be written off. If the economy is to be recover, i.e. is to become more stable, huge surplus production capacities on the one hand and hundreds of billions of bad loans must be “destroyed.”” Bethmann, J. P. (1984), Der verratene Kapitalismus, Königstein am Taunus: Athenäum, pp. 121/122.

\(^{249}\) Compare with: „In conclusion we can sum up that economic policy is due to its already exhausted reserves bound to ineffectiveness. Expansive measures seem quite doubtful and - even if still possible – with limited chances for success. Increasing indebtedness of the state – ongoing with an economic crisis – would make bankruptcies of state in one form or the other most likely unavoidable. In final consequence, these constellations have until today always led to currency reforms. How this would technically look like, must left open at this point. But it is very likely that these type of bankruptcies will be admitted and executed however not before the deepest point of crisis has been reached. Politicians would recoil from bankruptcy until the last moment, because they would face severe social unrest of the betrayed saver. If it would then become as bad as in France in the 18th century, cannot be assessed. The French Revolution had its origin in the bankruptcy of the French state and not in the – today’s emphasised – motives of freedom, equality, and fraternity.” Malik, F. and Stelter, D. (1990), Krisengefahren in der Weltwirtschaft - Überlebensstrategien für das Unternehmen [Threats of crisis in the
likely, deflationary processes and bankruptcies of state will be postponed by all means.

How deflationary forces are postponed by government invention is well described by Warburton\textsuperscript{250}. An organised debt repudiation and renunciation on the international level with subsequent currency debasement/devaluation respectively monetary reform looks unlikely, because politicians would be required to have the necessary observance of secrecy and determination.

Thus, Malik and Stelter conclude that most likely deflationary forces will occur in batches in different markets until the financial system unexpectedly collapses. A re-inflation is also unlikely, because the inflationary destruction of fixed-income markets would also cause social unrest. Therefore, in case of a financial systemic collapse hyperinflation with subsequent currency reform will be the politically “easiest” way to execute bankruptcy.

\textsuperscript{250} Warburton describes the present macroeconomic environment: “What we see at present is a battle between the central banks and the collapse of the financial system fought on two fronts. On one front, the central banks preside over the creation of additional liquidity for the financial system in order to hold back the tide of debt defaults that would otherwise occur. On the other, they incite investment banks and other willing parties to bet against a rise in the prices of gold, oil, base metals, soft commodities or anything else that might be deemed an indicator of inherent value. Their objective is to deprive the independent observer of any reliable benchmark against which to measure the eroding value, not only of the US dollar, but of all fiat currencies. Equally, their actions seek to deny the investor the opportunity to hedge against the fragility of the financial system by switching into a freely traded market for non-financial assets.” Warburton, P. (2001), The debasement of world currency: it is inflation, but not as we know it, guest commentary published on the internet: www.prudentbear.com, April 9, 2001.
5.2 Suitable action for risk management strategies

As the global fiat money system draws to a close, the search is on for the perfect hedge. Warburton analyses: "What would be the ideal characteristics of such a numéraire? First, it would be in fixed physical supply. Second, it would be resistant to weather-related influences. Third, its ownership would be diffuse, rendering futile any attempt to restrict supply through a non-competitive structure. Fourth, it must be freely tradable. Fifth, there would be no futures or options markets attached to it. Finally, I list some of the candidates, in no particular order. Each seems promising, yet none of them seems to me to satisfy fully all five of the requirements above: Arable land with a dependable climate, oil refining capacity, electricity generating capacity, water treatment capacity, drinking water, bottled or piped, coastal access, harbours and ports, palladium/platinum/diamonds, real estate in long-standing, distinctive locations, antiques, fine art, stamps and coins, commodities without futures and options markets." \(^{251}\)

Furthermore, suitable action in acute crises may be tested and trained in simulations. E.g. in July 2000 sixty high-ranking government and finance people of the United States simulated a world economy in crisis fighting a hypothetical global meltdown. The setting was the Harold Pratt house in Manhattan, headquarters of the US Council on Foreign Relations (CFR). According to CFR senior research fellow Roger Kubarych\(^{252}\), who led the project, the CFR decided that its members should pay more attention to financial and economic crises by simulating high-cost, low-probabilities events. If similar simulations are played on a European respectively continental level is unknown.


5.3 Suitable action for monetary policy

In Soros’ opinion the current capitalist system is flawed, because it does not always seek equilibrium, but from time to time results in collapse. Systemic collapse is inherent in a debt-based fractional reserve banking system, because it works like a pyramid scheme. Thus, suitable action for monetary policy in the long-run means overcoming the negative effects of a debt-based pyramid system, i.e. the present “fiat interest loans” must be neutralised, and the banking industry must be prevented from creating money from nothing.

The sustainable disadvantages of a privately owned fractional reserve banking system for most non-bank participants in an economy could be abolished by the introduction of a system that comes close to full reserves. However, in a “100 percent reserve banking system”, the requirements for accountability would be extremely high. Thus, the feasibility of switching directly to a “100 reserve banking system” is low.

One theoretical step even further would be a financial system similar to what is called “Islamic finance” or “Islamic banking”, a system in which loan banking with interests payable in monopolised currency units is not allowed.

A major improvement would be the – intentional or by collapse of major fiat currencies unintentional/coincidental – re-introduction of a “non-denatured” respectively real gold standard. The re-introduction of a gold standard would overcome the major disadvantages of a fractional reserve banking system with completely debased fiat currencies. In historic terms, the chances are high and increasing for moving globally forward to a real gold standard. In today’s world of e-commerce, electronic currency units could be easily backed by physical gold. As in the tally stick economies of medieval Europe, physical gold markets for settling the peaks in interregional and international trade could be introduced on a global scale.

In addition, the introduction of electronic tax tallies, e-bills with denomination in goods or services, would be viable. Trade and settlement could be arranged via internet on platforms similar to today’s most common internet auction.

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253 Obviously China and countries in the Middle East took pre-emptive steps by setting up physical gold markets with legal and logistic infrastructure in 2002 and early 2003.
houses and financial OTC markets. Thereby, currency crises - as happened in the past - could be eliminated for the future.

For the theoretical defence of a 100 percent or full reserve system, it needs to be mentioned that borrowing is not made impossible. Timed-deposit accounts are viable. For early withdrawal depositors respectively lenders would agree to penalties. However, the introduction of a 100 percent reserve system combined with a real gold standard appears politically unrealistic.

As other precious metals such as silver, palladium, and platinum are essential for industrial production, the return to a more stable bi-metallic standard seems also unlikely. Therefore, the return to a monometallic gold standard seems most likely.

Armstrong’s advice goes into the same direction. Devaluation, i.e. always devaluation against gold, is inevitable. “If we can draw only one shred of guidance from history, we cannot guarantee the world economy by pouring money down an endless drain. The only way out of this dilemma is to allow the deflated economies to inflate through devaluation. We must not forget that Franklin Roosevelt himself brought the Great Depression to an end only by the confiscation of gold followed by a devaluation of the dollar by 69%.”

In the last chapter “What can be done?” of his last book “The Case Against the Fed”, Rothbard proposes: “There is only one way to eliminate chronic inflation, as well as the booms and busts brought by that system of inflationary credit: that is to eliminate the counterfeiting that constitutes and creates that inflation. And the only way to do that is to abolish legalized counterfeiting: that is, to abolish the Federal Reserve System, and return to the gold standard, to a monetary system where a market-produced metal, such as gold, serves as the standard money, and not paper tickets printed by the Federal Reserve. While there is no space here to go into the intricate details of how this could be done, its essential features are clear and simple. It would be easy to return to gold and to abolish the Federal Reserve, and to do so at one stroke.”


According to Greenspan, it is possible to return to a monetary system, which is based on a gold standard: „The major roadblock to restoring the gold standard is the problem of re-entry. With the vast quantity of dollars worldwide laying claims to the U.S. Treasury's 264 million ounces of gold, an overnight transition to gold convertibility would create a major discontinuity for the U.S. financial system. However, there is no need for the whole block of current dollar obligations to become an immediate claim. Convertibility can be instituted gradually by, in effect, creating a dual currency with a limited issue of dollars convertible into gold. Initially they could be deferred claims to gold, for example, five-year Treasury Notes with interest and principal payable in grams or ounces of gold.”

Rothbard drafts as a feasible solution, a liquidation of the Federal Reserve in which the Fed’s stock of gold is completely allocated – and thereby revalued – to the Fed’s creditors. By revaluation – like in the transition to euro – the old currency of US dollars would be converted into gold coins at a to be defined gold exchange rate. Rothbard admits that the re-introduction of a gold coin standard does not mean the abolishment of fractional reserve banking. However, Rothbard promotes this solution as a “second-best” solution” which could at a later point of time be gradually transformed into a full, 100 percent reserve banking system.

Another way for finding a viable way for suitable action is to ask how today’s financial system can be successfully transformed into a modern tally stick system, into a system in which the creation (and destruction) of fiat money by the banking industry is restricted and eliminated. In theory it seems possible that in the same way tally stick economies were abandoned and transformed into a fractional banking system in the 18th century, today’s fractional banking system could be transformed into a tally stick system: by government decree.

By government decree, credit per se could be nationalised, i.e. all bank loans would be turned into (national) bank notes, which are non-interest-bearing debt instruments. Nationalising bank credit would also avoid the negative effects of credit destruction for the economy. Kutyn explains in his article The Death of Rational Knowledge and the Creation of a New Paradigm the specific

implications of such a macroeconomic operation for the different types of bank
loans.\textsuperscript{258} Government bonds held by banks would be substituted by
government notes, which could be immediately paid out. Thereby the state’s
tax burden arising from interest payments would be eliminated.

The German banker Herrhausen already proposed in the 1980s debt-equity-
swaps and major debt releases - with special regard to Third World countries -
which would free economic activity from the burden of over-indebtedness.\textsuperscript{259}
The substitution of bank loans through government notes would be especially
helpful for the indebted Third World countries. The debts to Third World
country’s could be eliminated at no cost to Western governments and
taxpayers, while improving the financial soundness of the world’s financial
system, Kutyn argues.\textsuperscript{260} Kutyn stresses that this operation of nationalising
credit by printing of government notes is not inflationary, because it does not
increase the money supply. “No new money is created with nobody having
any additional money. All that has happened is that banks have substituted
assets, replacing loans with government notes.”\textsuperscript{261}

The introduction of the euro with the Eurosystem was briefly taken up at the
end of chapter 3.3 \textit{Fractional reserve banking} drawing a parallel to the
privatisation of the credit creation in the USA in the beginning of the 20th
century. Due to the present impact of the new realities of a Eurosystem for
suitable monetary policy, the main features of the Eurosystem with the new
currency of the euro will be briefly analysed from the new perspective:

Similar to the transition of the financial system of the USA in 1913, national
monetary sovereignty of Euroland member states has gone. Where has the
national monetary sovereignty gone to? Is it gone? As national monetary
sovereignty has not arrived - in consolidated form - on the level of the EU, its
neutralisation has taken place. This neutralisation was most likely willingly
accompanied by most Euroland member states, as the supremacy of
Bundesbank in European monetary policy was broken and the introduction of

\textsuperscript{258} Compare with: Kutyn, J. (1999), \textit{The Death of Rational Knowledge and the Creation of a

\textsuperscript{259} Herrhausen, A. (1989), \textit{Die Zeit ist reif - Schuldenkrise am Wendepunkt}, in: Handelsblatt,
June 30/July 1, 1989, p. 6.

\textsuperscript{260} Kutyn, J. (1999), \textit{The Death of Rational Knowledge and the Creation of a New Paradigm},

\textsuperscript{261} ibid.
Money upside down – A paradigm shift in economics and monetary theory?

the euro works like a silent scheme for a major redistribution of wealth within Euroland.

By the introduction of the euro, Bundesbank became deprived of its former powers of the de facto leading central bank of Western Europe. (Western) Germany had the hardest currency and the German economy enjoyed the lowest interest rates in post-war Western Europe. Most other European states had weaker currencies and higher interest rates. With the introduction of the euro - which is basically an accounting basket – the process of interest rate convergence levels interest rates in on a common level. Thereby, the - in comparison to other European nations - relative low interest rates of Deutsche Mark are irreversibly lost for the German economy. The so-called interest rate convergence in the run-up to the euro means eventually higher real interest rates for Germany and lower real interest rates for the other Euroland member states (than without the introduction of the euro). For the time being, the loss of monetary sovereignty for most Euroland members is offset by real wealth transfer via the “interest rate convergence mechanism” which is paid by the German economy.

The faster the accession of Eastern European states to Euroland progresses, the higher the net wealth transfer out of Germany into the other Euroland member states via the “interest rate convergence mechanism”. Due to the stability criteria of Euroland, the member states of Euroland have not only given up their sovereignty, but also their independent social and economic policies. The national adherence of Euroland’s stability criteria means the subjugation of fiscal policy to monetary policy, i.e. enforced price stability has to be bought with a loss in economic growth and a loss in employment.

Should the advantages of the redistribution via the “interest rate convergence mechanism” for France and Italy slowly dissolve, an exit strategy from the euro respectively the Eurosystem might look profitable. As the European central bank is backed by a relatively small volume of gold in comparison with the national gold reserves of France, Germany, and Italy, a future return to national monetary systems respectively national currencies looks - especially for France and Italy - viable.

Steiger analyses the Eurosystem in the chapter “4. Der fehlende “Lender of Last Resort” im Eurosystem [The missing lender of last resort in the
Eurosystem". Steiger reveals that the idea of a strong European central bank ("Märchen vom mächtigen Eurokaiser [Fairytale of the powerful Euro-emperor"] is an illusion, because the weaknesses of the structure of the Eurosystem are manifold:

i) The ECB does not - and thereby cannot - issue bank notes.

ii) The ECB equity position respectively the ECB’s asset side is undercapitalised in terms of gold reserves.

iii) The capital structure of the ECB is weak. The volume of assets relatively small.

iv) The major monetary operations of the Eurosystem are executed on the level of the local central banks.

v) ECB’s Governing Council is dominated by members of local central banks.

vi) The function of lender of last resort is not well institutionalised in the Eurosystem.

vii) The Eurosystem is missing a central supervisory institution.

viii) The Eurosystem is missing a central fiscal institution.

ix) The Eurosystem is not well prepared for financial crises.

The issuance of the bank notes of the Eurosystem can be easily identified by the following scheme Steiger found out: The first letter of the series number of the note stand for the central bank of issuance with Z for Belgium, Y for Greece, X for Germany, V for Spain, U for France, T for Ireland, S for Italy, R for Luxemburg, P for Netherlands, N for Austria, M for Portugal, and L for Finland. The decoding of euro bank notes leaves room for speculation that precautionary steps have been taken by Euroland member states to allow for a quick exit and return to national currencies.

From a distanced view, tax reforms in Euroland member states, the introduction of the euro, the introduction of „Euroland accounting standards“, 262


the new capital adequacy rules of the BIS (“Basle II”), the phasing out of the German “Gewährträgerhaftung” and „Anstaltslast“, and the deregulation in the finance industry are steps in the total privatisation of Europe’s continental finance industry including the abolishment of Bundesbank’s monetary dominance and the decartelisation of “Deutschland AG” with Germany’s – in the past financially unassailable – Mittelstand. The myth and the paradigm of European financial “deregulation” vanish with the question qui bono. Besides England, Norway, and Russia, all major states in Europe are now deprived of their monetary sovereignty and depending on the Eurosystem. Thus, suitable action in monetary policy in Europe should also aim at the named shortcomings and deficiencies of the present Eurosystem.
6. Conclusion

This thesis is not meant to provide a practical guide to getting rich quickly. This thesis is meant to contribute to an understanding of the economic and financial system we live in.

From its integrating function of different new schools and its historic approach, this thesis may offer a new perspective. This thesis directly opposes conventional economic thought. It asks for a paradigm shift in economics and monetary theory. This thesis attempts to deliver a highly creative alternative to the way conventional economics and financial theory view the world.

The accounting mechanism of a fractional reserve banking system demonstrates that a debt-based banking system in aggregate does not create sufficient money to repay the interest that is charged on outstanding liabilities made. Hence, an economy is in aggregate unable to repay existing liabilities, unless it continually borrows/creates more new debt from the banking system. This is a simple and astonishing fact that is rarely realised in the literature. The total supply of money within an economy at any one time is insufficient to repay the existing net stock.\(^{265}\)

Kutyn summarises the logic of a fractional reserve banking system as follows: “This is the ultimate irony of today's financial system. Society pays interest to banks on money that financial institutions created from nothing. After banks have leveraged the maximum gain from society, then society is asked to pay for the losses of the banking system as it falls apart. When debt levels have increased beyond the capacity of the economy to repay, there are two alternatives for remedy. The first will be to maintain the value of the debt. This will initially result in all funds from productive activities being transferred to the banks. This ultimately results in bankruptcy, forcing an end to productive activity. Once this happens, loan losses will wipe out the banking system. The second option is to eliminate the debt as soon as possible - through either debt forgiveness or more likely a debt-equity swap. This will cause the failure of the banking system, as the value of the equity obtained will be far less than

\(^{265}\) Compare with: “It should be clear that modern fractional reserve banking is a shell game, a Ponzi scheme, a fraud in which fake warehouse receipts are issued and circulate as equivalent to the cash supposedly represented by the receipts.” Rothbard, M. (1983), The Mystery of Banking, New York: Richardson & Snyder, p. 96.
the nominal value of the debt. However, the economy is left producing goods and employing people.  

Bethmann describes the situation of the mid 1980s from the long-term view of a banker who has a clear understanding of finance: “Now we are that far, that credit needs to be pumped for a while further, for postponing a little bit the final loss of much too big loans and other financial claims. Pumping further means fabricating more bad money, which is de facto, worthless when created. Postponed is not cancelled out. The bitter reckoning will come.” Bethmann further analyses: „For someone thinking in the right monetary terms and taking into account the debt deflation dynamics of debt and compound interest, there are very clear answers. ... There are only two ‘way outs’: either ‘destruction of money’ or ‘destruction of the value of money’.“ Destruction of money means that during a deflationary recession, bad loans are written off in bankruptcies, defaults, or moratoriums, i.e. the creditors partially waive their claims. Destruction of the value of money means that in an inflationary wave the unredeemable financial assets are cancelled or devalued. Debasement respectively devaluation always means devaluation against gold.

Kutyn states: “The ultimate test of any theory is its ability to predict and explain actual events.”

The presented new conception of finance and economics reflects the further development of the ideas of Bethmann, Heinsohn, Kutyn, Martin, Minsky, Nuri, Rothbard, Soddy, Soros, and Steiger, and integrates these approaches in a
one new approach. Due to the major shift in causalities, this very new approach may be regarded as a Copernican revolution in economics.

Regarding recent scientific developments in economics and finance, Nuri assumes that a paradigm shift in finance and economics is likely\(^\text{271}\). The key feature of a paradigm shift is that the perspective flip-flops.

The completely new conception of basic economic and financial causalities offers the chance of a new orientation for many economic subjects. The new conception leads to a new assessment of all risk classes and to a re-evaluation of business strategies.

As long as the new conception of finance and economics is not falsified, but falsifies the mainstream schools of economics in terms of Popper’s understanding of science, the new conception of finance and economics is superior to the actual conceptions of most economic subjects.

The moral legitimation of a fractional reserve banking system and modern paper money is not subject of this thesis\(^\text{272}\).

Why are the new challenges and dangers grasped so inadequately by conventional economics? Decision makers in today’s global economy are mislead by false theoretical conceptions and are missing from their own experience deflation and hyperinflation. The new challenges and dangers are camouflaged by a psychological intransparency, because they result from a slow and over a couple of decades creeping economic development. As a frog slowly boiled in water, most economic subjects are unable to realise the major

\(^\text{271}\) Compare with: “The dynamics of money is an extremely complicated subject. ... Possibly the full leverage of focused worldwide scientific inquiry and attention has yet to be applied to economics. Some evidence that the science is still in its infancy are that the new fields of “economic physics” or “econophysics”, “computational finance,” also dubbed “phynance,” have been proposed only recently. ... Despite the overused cliché, objective scientific commentators sensitive to these kinds of shifts and trends could easily identify all the signs of an apparent Kuhnian “paradigm shift” Nuri, V. Z. (2002), A Fractional Reserve Banking as Economic Parasitism: A Scientific, Mathematical, & Historical Exposé, Critique, and Manifesto, article published on the internet: http://www.ex.ac.uk/~RDavies/arian/controversies.html and http://econwpa.wustl.edu/ eprints/mac/papers/0203/0203005.abs, p. 1.

\(^\text{272}\) Soddy comments: “To any business man a knowledge of the truth ought to be sufficient to condemn the system according to the canons of ordinary competitive business. Where else in the whole realm of human activity is it possible to create capital by an act of imagination and to derive from its supposed existence a perennial revenue, just as though it were real wealth put to productive use?” Soddy, F. (1933), Wealth, Virtual Wealth And Debt – The Solution Of The Economic Paradox, New York: E. P. Dutton & Co., Inc., p. 162.
monetary changes, which happened in the last decades. Furthermore, the usual linearity of thinking misses the compound effect of exponentially growing interests. Linear thinking means that, if insolvency can have been averted yesterday, insolvency can also be averted tomorrow. The general crisis of indebtedness and its immanent (debt deflation) dynamics with growing systemic instability are misjudged and missed.

The modern negation and ignoring of history blocks up the view on historic parallels. Burckhardt analyses how the routine character of our modern time builds up pressure by information overload, which makes critical pausing and reflecting impossible. Global mass media, especially television penetrate with their information into the public’s subconscious creating a kind of hypnosis. The art of “treating” the broad public is largely automated. Especially this automatism of pre-treatment respectively pre-washing - serving the political needs - prevents any attempt to gain and to apply from the past respectively from history standards and criterions. The negation of history and the subsequent loss of criterions help following - economic and financial - doctrines and opinions without foundation.

Money is the lifeblood of our financial system, and in order for economies to continue to expand, the money supply must continue to grow. The major problem with an economy based on a debt-money system is that such a system both creates money as well as destroys money. Thus, Soddy asks for a financial system where money cannot be destroyed, but grows at the same rate as the productive economy [e.g. electronic tally stick system]. Soddy calls for a system where growth can occur without the increase of debt.

Suitable action for monetary policy in the long run may be a radical change in the structure of financial institutions and the processes of banking. In the essay “The Alternative Future – A Call for Overnight Revolution”, Tlaga suggests a permanent solution, which could be implemented overnight.

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274 Tlaga’s draft for a speech for the United States impresses by its briefness and practical approach saving the complex, abstract, and theoretical background: “Good Afternoon: If you are standing, please sit down. …When the choice must be made between the reigning evil and the suppressed good, there is no substitute for throwing the evil away and bringing the good in. Effective immediately, the Federal Reserve notes, commonly referred to as paper dollars, are declared null and void, and are no longer the official currency of this country. Because the total
face amount of all these paper dollars now in circulation within the United States is about ten times greater than the total face amount of all coins, the paper dollars can be instantly replaced with the existing coins, provided the value of the coins is increased ten times up.

How can this be accomplished? By converting all prices, wages and accounts into cents, and dividing them by ten. And so, my fellow Americans, all the prices are divided by ten and are payable in cents only; All the wages and salaries are divided by ten and are payable in cents only; All the bank accounts are divided by ten and all the payments are to be made in cents only; All the debts are divided by ten and are payable in cents only; All the taxes are divided by ten and are payable in cents only; All the pensions are divided by ten and are payable in cents only; Everything and anything with a dollar sign in front of it is divided by ten and is payable in cents only.

If we would have decided to exchange Federal Reserve green dollars for new red dollars at the rate of one new dollar for ten old ones, all the prices and accounts would have also been reduced by the factor of ten. Instead we are using already existing coins as the new currency, and effect is the same.

The exchange of the old money (paper dollars) into the new money (coin cents) is automatic, and the transition period will end at the strike of midnight on Monday night. During this one day transition period, both paper dollars and coins at their new value may be used interchangeably, for example, a copy of the New York Times can be paid for with one dollar in paper or 10 cents in coins on Monday, but from Tuesday on, only 10 cents in coins will be the proper payment. All paper dollars not deposited on Monday by midnight deadline in banking institutions for credit in cents at the rate of 10 cents for each dollar, shall not be accepted as payment from Tuesday on. From now until midnight Monday, all the border crossings shall be closed, all interbank wire transfers shall be suspended, and no international flights will be allowed into the United States except those now in the air.

It would make little sense, to scrap the Federal Reserve paper dollars while leaving the Federal Reserve System in place so it would produce counterfeited cents in place of counterfeited dollars. The Federal Reserve banks are hereby declared to be on indefinite holiday, and the Secret Service, which has jurisdiction over investigating the cases of counterfeiting, was instructed to put padlocks on all of them under official seal of the President of the United States. The proposed legislation to repeal Federal Reserve Act as amended, shall be submitted to Congress first thing tomorrow morning. This legislation calls for transfer of the Fed's entire "estate" to the US Department of the Treasury, whose primary duty now it shall be to see to it that unearned currency is never reintroduced again.

It would also make little sense to scrap the paper dollar and the Federal Reserve producing it, while leaving your credit cards intact, so you could produce unearned money yourself. For this reason, indefinite moratorium is declared on credit card payments, and the new legislation shall be submitted to Congress in the morning, to make charging the purchase of anything into non-existing funds a felony equal to passing bad checks. If you like to use your Visa or Master Card, first apply for a loan, deposit the loan proceeds into your bank account, and then use your Visa or Master Card to your heart's content as a debit card, charging your purchases to the money you actually have in your account. Creating new money out of thin air after the fact just to make good your plastic "payments" with non-existing money is over. But you will be happy to hear that the proposed credit card legislation calls for uniform, statutory discharge in bankruptcy of all existing credit card debt. Whatever you bought so far with your credit cards is yours to keep, and you won't have to repay anything on your terminated credit cards accounts. So far, but no further.

All your other debts whether secured by public filings, such as mortgages, UCC-statements, liens, etc, or plain unsecured debts are still valid and enforceable. Scrapping the fiat dollars, the Federal Reserve System and the credit cards would still be insufficient to kill the fiat money regime, if the Federal debt in the form of Treasury bills, Treasury notes and Treasury bonds was not declared null and void either. These bills, notes and bonds are simply the counterfeited fiat dollars earning interest.
Ordinarily, interest is the price of liquidity. If you prefer to keep your wealth in perfectly liquid form, you keep it in the form of cash and your cash earns no interest. To earn interest you must exchange your cash for less liquid assets, and the less liquid the asset the higher the interest rate you earn. Under the fiat dollar regime, Treasury bills, notes and bonds allowed one to keep one's wealth in perfectly liquid form and still earn interest by courtesy of the American taxpayers. And to add proverbial insult to injury, these obligations were originally paid for not in earned money but the unearned money, the counterfeited money, created out of thin air by a few keystrokes on Alan Greenspan's computer at the Fed.

In his famous essay, Gold and Economic Freedom, Alan Greenspan wrote: "The abandonment of the gold standard made it possible for the welfare statists to use the banking system as a means to an unlimited expansion of credit. They have created paper reserves in the form of government bonds which - through a complex series of steps - the banks accept in place of tangible assets and treat as if they were an actual deposit, i.e., as the equivalent of what was formerly a deposit of gold. The holder of a government bond or of a bank deposit created by paper reserves believes that he has a valid claim on a real asset. But the fact is that there are now more claims outstanding than real assets. … "The law of supply and demand is not to be conned. As the supply of money (of claims) increases relative to the supply of tangible assets in the economy, prices must eventually rise. Thus the earnings saved by the productive members of the society lose value in terms of goods. When the economy's books are finally balanced, one finds that loss in value represents the goods purchased by the government for welfare or other purposes with the money proceeds of the government bonds financed by bank credit expansion." Thus we have it on the best authority that the Treasury securities we elected to declare null and void match, dollar for dollar, the Government's past deficit spending.

Now the question is, may we in effect confiscate all that counterfeited wealth without violating the Constitution of the United States, which provides in the Fifth Amendment: "No person shall be... deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." And the answer is: Yes, we may, because it is a counterfeited wealth. When you are found in possession of a counterfeited 100-dollar bill, that bill is subject to confiscation without compensation, notwithstanding that you received it in the course of regular commerce, for value, and without notice that it was in fact counterfeited.

The stock exchanges will remain closed indefinitely, and proposed legislation shall be submitted to Congress tomorrow morning to close them for good, and to establish a rule that corporate stock shall from time now on be always purchased directly from the issuing corporations, subject to express warranties as to its book value, and redeemed by the issuing corporations in a manner similar to redemption of shares of money market mutual funds. Internet technologies provide sufficient instrumentalities for executing such stock transactions instantaneously. The rigged casinos, known as stock exchanges, will never reopen. They are history.

An amendment to the Constitution of the United States abolishing personal income, estate, and gift taxes and prohibiting the United States Government from engaging in the business in competition with its citizens will be resubmitted in Congress tomorrow morning. The present system of taxation shall continue temporarily until it is overhauled in accordance with the new tax legislation.

Effective immediately, Social Security Administration shall be placed in receivership, and all Social Security payroll deductions shall be deposited in the special departments of the local banks, to the individual accounts of the beneficiaries from whose paychecks they were withheld. Maintaining such departments shall be the public service of the local banks in consideration for yearly renewal of their banking charters. All these departments in aggregate shall constitute new National Pension Fund. NPF shall pay interest on all pension deposits at the rate not lower than 1 basis point per day (3.65% per annum), and shall charge interest on mortgage loans at the rate not higher than 2 basis points per day (7.3% per annum). Net annual
Tlaga’s ultimate objective is to develop a uniform worldwide monetary system running on a bimetallic gold and silver (physical) standard. Tlaga’s proposal asks for the abolishment of the central bank(s) and the abolishment of fiat paper money and thereby fractional reserve banking.

“The public knows perfectly well that hardly any step in knowledge or advance in thought, however commonplace to-day, has ever been made without those deeming themselves authorities in the matter being hostile and opposed to it when first made. To regard money as made for man rather than man as made for money would, to the money expert to-day, be as great a heresy as it was at one time to believe and teach that the earth went round the sun and not the

profits of NPF operations shall be distributed as dividends to individual depositors in proportion to their deposits maintained at the NPF.

There shall be no compulsion for anyone to maintain his/her pension money at the NPF. Once the payroll deduction is deposited at the NPF, the beneficiary will be free to write a check against it at any time. It shall be each citizen's own responsibility to provide for his/her retirement. The NPF will only provide banking infrastructure to make it easier to accomplish.

The government will of course assume responsibility for continuing Social Security benefits now due, and for equalizing benefits to new retirees in the coming years, for whom NPF system will not be able to produce adequate pensions in time for their retirement. These benefits will be paid from the Treasury's general fund. To assure that the purchasing power of people's savings will remain undiminished, the orderly transition to silver and gold money shall be arranged.

One gram of standard monetary silver .900 fine shall be the new currency unit that will circulate parallel with new cents. US Mint shall promptly begin production of the new 5 grams and 10 grams silver coins, and the old silver coins shall also be accepted as payments at the following "gram" values:

<table>
<thead>
<tr>
<th>Old Silver Dime</th>
<th>2.50 grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Silver Quarter</td>
<td>6.25 grams</td>
</tr>
<tr>
<td>Old Silver Half</td>
<td>12.50 grams</td>
</tr>
<tr>
<td>Old Silver Dollar</td>
<td>26.73 grams</td>
</tr>
<tr>
<td>New Silver Eagle</td>
<td>34.56 grams</td>
</tr>
</tbody>
</table>

How many new cents for one gram? That will be determined over time at the marketplace. US Mint will also begin production of the new 5 grams and 10 grams gold coins, made of standard monetary gold .900 fine, and their value in new cents and in grams of silver will also be determined by the free market. Already existing gold coins, domestic or foreign, will of course be accepted at their gold content in grams .900 fine.

The ultimate objective is to develop uniform worldwide monetary system where 1 gram of standard monetary silver will be the unit of account in daily commerce, and 1 gram of standard monetary gold for big ticket items and in international commerce.

Well, you will have plenty to think about tonight. For the benefit of those who missed it, or who need further clarification, this address will be re-broadcast every hour tonight and tomorrow. This reform only appears overwhelming and earth-shattering. In reality, it is very simple, and it will change your life very much for the better. Thank you for listening. Good Night!”

sun round the earth. But if Galileo and Copernicus had lived to-day, and had upset the theories of the authorities regarding the nature of money rather than of the universe, they would have had far more difficulty in getting their new views impartially discussed than they had from the Medieval Schoolman and the Courts of the Inquisition. 275

May the further scientific discussion help to understand today’s economic and financial system better and act accordingly.

May this essay with its radical change in basic assumptions find awareness, which is a prerequisite for a change in theory and acting.

Money upside down – A paradigm shift in economics and monetary theory?

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIS</td>
<td>Bank for International Settlement in Basle</td>
</tr>
<tr>
<td>CFR</td>
<td>Council on Foreign Relations</td>
</tr>
<tr>
<td>CPI</td>
<td>consumer price index</td>
</tr>
<tr>
<td>ECB</td>
<td>European Central Bank</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>EUR</td>
<td>euro</td>
</tr>
<tr>
<td>Euroland</td>
<td>group of European nations with euro as official currency</td>
</tr>
<tr>
<td>Fed</td>
<td>Federal Reserve</td>
</tr>
<tr>
<td>forex</td>
<td>foreign exchange</td>
</tr>
<tr>
<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>IOU</td>
<td>promissory note (“I owe you”)</td>
</tr>
<tr>
<td>LBMA</td>
<td>London Bullion Metal Association</td>
</tr>
<tr>
<td>LTCM</td>
<td>Long Term Capital Management</td>
</tr>
<tr>
<td>NAFTA</td>
<td>North American Free Trade Association</td>
</tr>
<tr>
<td>NASA</td>
<td>National Aeronautics and Space Administration</td>
</tr>
<tr>
<td>OTC</td>
<td>over-the-counter</td>
</tr>
<tr>
<td>TMT</td>
<td>telecom, media, technology</td>
</tr>
<tr>
<td>US/USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>USD</td>
<td>U.S. dollar</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
</tr>
<tr>
<td>$</td>
<td>dollar</td>
</tr>
<tr>
<td>€</td>
<td>euro</td>
</tr>
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Festschrift für Otto Roloff zum 65. Geburtstag, Marburg: Metropolis-Verlag, pp.51-84.


# APPENDIX CV

## Curriculum Vitae

**Name:** Harald Haas  
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### Employment

**ThyssenKrupp AG, Duesseldorf/Germany**  
04/1999 - today  

*Project Manager, Corporate Department Finance, Project and Trade Finance*  
- corporate finance for group of companies  
- risk management

**Preussag AG (today TUI AG), Hannover/Germany**  
03/1997 - 02/1999  

*International Trainee Programme*  
- Hapag-Lloyd Asia, Singapore/Hong Kong  
  o controlling in container shipping company  
  10/1998 - 02/1999  
- Representative Office of Preussag AG, Beijing/China  
  o assistant to chief representative officer  
- Project and Export Finance, Preussag AG, Hannover/Germany  
  o export and project financing  
- Preussag Wasser & Rohrtechnik, Hannover/Germany  
  o project development and structured finance  
  07/1997 - 12/1997  
- Berliner Grossverzinkerei, Preussag AG, Berlin/Germany  
  o assistant to general manager of galvanising company  
  03/1997 - 07/1997

*Others*  
- second place in MARGA 1998 (annual management game of USW and Handelsblatt)
Money upside down – A paradigm shift in economics and monetary theory?

Education

- University of Bremen, Bremen/Germany  07/2000 - 08/2003
  - dissertation “Money upside down – a paradigm shift in economics and monetary theory?”
  - doctoral degree Dr. rer. pol.

- University of Trier, Trier/Germany  10/1993 - 12/1995
  - graduate studies in “Money, Credit, Currencies/Financial Management”
  - grade Diplom-Kaufmann (Prädikat)

- University of Reading, Reading/England  10/1992 - 06/1993
  - Master Programme in International Business and Finance
  - ERASMUS scholarship

- University of Trier, Trier/Germany  10/1990 - 08/1992
  - under-graduate studies of business administration

- Gymnasium Goetheschule, Essen-Bredeney/Germany  08/1980 - 06/1989
  - finalised by Abitur with an 2,0 average

- Grundschule, Essen-Stadtwald/Germany  07/1976 - 07/1980

Training

- National Chengchi University, Taipei/Taiwan  01/1996 - 12/1996
  - intensive training in Mandarin Chinese
  - post-graduate scholarship of DAAD (German Academic Exchange Service)

- Internship, Thyssen Steel Group, Thyssen Inc., The Budd Company, Detroit/U.S.A.  07/1993 - 10/1993

- Internship, ANT Bosch Telecom, Offenburg/Germany  06/1990 - 10/1990

- Military service in Bundeswehr, Wuppertal and Düsseldorf/Germany  06/1989 - 06/1990
  - radio operator, representative of the ranks

Skills

- Languages:  1. German (mother tongue)
  2. English (fluent)
  3. Chinese (basic)
  4. French (basic)

Sports

- windsurfing
- snowboarding
- horseback riding