CRACK-UP BOOM — THE END OF A CURRENCY REGIME

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1. **Introduction**

With inflation rates surging into double-digit territory throughout the Western economies and impressive price rallies taking place on the financial markets over the past few years, one expression surfaced once again: "Crack-Up Boom". Oftentimes with a pessimistic undertone, people have been warning of the next Crack-Up Boom being around the corner.[1] However, a more precise definition of what exactly the Crack-Up Boom is about, was usually not given. This paper seeks to seize the opportunity and explore the meaning of the term Crack-Up Boom. In order to do so, this paper first takes a closer look at the phenomenon of *inflation*, its cause and effects as well as its calculated nature. The second chapter examines *prices*. In contrast to inflation, prices are an observable and measurable phenomenon in the economy, providing the market participants with an important framework for action. A necessary condition for *prices* to be measured, is the existence of a unit of account. Thus, in the third chapter, the concept of *currency* as an ephemeral form of *money* is explored. Upon the realization that currencies have a finite life span, in chapter four and five we will examine the phenomenon of *hyperinflation* — the most spectacular symptom of a dying currency triggered by an artificial credit expansion. Finally, after exploring inflation, prices and currency in economic terms we conclude in the sixth chapter with a definition of the Crack-Up Boom as a breakdown in a currency regime.

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[1] See for example: (Deutsche Wirtschaftsnachrichten, 2019).

2. Inflation is not directly observable, and inflation reports by government are not reliable

Inflation is a peculiar phenomenon.[2] With creeping price increases exhausting one's spending capacity, this phenomenon is often compared to a haunting specter and is cause of concern to many people.[3] Today, inflation is generally understood as the "increase in the general price level of goods and services in an economy", or simply, "how much more expensive [a set of] goods and services have become".[4,5,6] The European Central Bank explains: "A general increase in prices is called inflation" while the American Federal Reserve states that "Inflation occurs when the prices of goods and services increase over time".[7,8] And the Bank of England notes: "Inflation is the term we use to describe rising prices. How quickly prices go up is called the rate of inflation".[9]

Already, this notion of inflation exhibits a first peculiarity: only some decades ago, inflation was generally defined as "The act of inflating; the state of being inflated; sharp increase in amount of money and credit causing advances in the price level".[10] This definition is also more closely aligned with the Latin root word *inflatio, inflationis* translating into *expansion, swelling.*[11]

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[2] As Peter Bernholz notes, "inflation presupposes the existence of money" in (Bernholz, 2003, p. 1).

[3] When prices increased significantly in the past years, Google searches for the term "inflation" more than quadrupled, see (Google, 2023).

[4] (Wikipedia on Inflation, 2023). I am deliberately referring to Wikipedia, the online encyclopedia, as a representation of the broad public's notion of this term due to the wide usage of this source of information in the non-academic context. This understanding of the term is shaped by the definition of the current academic mainstream, New-Keynesianism and Post-Keynesianism.

[5] This commonly used definition of inflation is not in line with Mises´ definition as for Mises inflation represents the increase in money supply, and not the subsequent increase in prices. For more detail see (Mises, 1949).

[6] (IMF, 2023).

[7] (Euroarea Statistics, 2023).

[8] (FED, 2023).

[9] (Bank of England, 2023).

[10] (Websters — The New Webster Encyclopedic Dictionary of The English Language, 1970).

[11] (Oxford Latin Dictionary, 2012, p. 991).

Thus, while originally inflation described the expansion (swelling) of the quantity of money in the economy, it was then reappropriated — unsurprisingly so — by the exact people who were swelling the money supply.[12] Thus, subsequently inflation was re-defined as "rising consumer prices" and deflecting all accountability. And as Mises pointed out, this now popular fashion of defining inflation by one of its main consequences, other effects of an increased money supply are thereby mostly concealed to the public.[13] For the sake of avoiding confusion on side of the reader, however, this paper will adhere to the nowadays commonly used notion of inflation as a broad price increase, albeit fully aware of the origins as well as the transformation of the term over time.[14]

In a free market economy, prices can and do continuously change. The reasons for that can vary. If, for example, the demand for a particular item increases, this will be reflected in a higher price. Likewise, if the supply of a certain item is reduced, its price will generally go up as well. Besides a demand increase or a supply shortage, other common factors are higher input costs including higher side costs such as for example delivery costs or wages. However, all those drivers are particular to the price development of a specific item.

Inflation, thus, is a more abstract economic concept, capturing the overall price dynamic in the economy.[15] Importantly, *inflation is the result of a calculation*, it cannot be directly observed and measured in the economy.[16] It can only be approximated via

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[12] In order to understand the original and traditional definition of inflation as "loss of purchasing power of the money which uses the people — who lose economic power — due to the currency corruption or "non-legislated tax that robs the poor in their pocket" according to the Salamanca School or Spanish School of Economics, commencing in the 16th century and constituting a predecessor to the Austrian School of Economics, please see (Sánchez-Bayón, 2002).

[13] (Mises, 1949, p. 950).

[14] *Inflation* is not the only term that has undergone transformations over the course of time. Another highly interesting example is liberal. While the original meaning of the term has now been replaced by libertarian, *liberal* nowadays is used synonymously with progressive.

[15] The term *inflation* is derived from the Latin verb *inflare,* translating to *to blow into* or *to inflate.*

[16] You calculate inflation, you cannot measure it. You can only measure the price increases in goods and services.

aggregating the measured price changes of individual items. Here, inaccuracy becomes unavoidable as taking literally *all* goods and services into account becomes an impossible task. Hence, a common approach is to use a *basket of goods (and services)* and calculate the annualized percentage change the sum of items. The most prominent example is known as the Consumer Price Index (CPI), aiming for a typical basket of consumer goods and services which the average household is assumed to be purchasing. This measurement of positive change is called the inflation rate. In other words, it is the rate at which the general price level of goods and services increases. Symmetrically, a decline in the general price level is nowadays called *deflation*. This corresponds to a negative inflation rate.[17]

Given the fact that inflation is a derived calculation, and not directly observable in the economy, this explains why there exists so much dissension on the topic. Calculating the rising aggregate price level is subject to the discretion of which basket of goods and services is chosen and over which time period. As a consequence, there is much disagreement about the magnitude of inflation, that is, the technical details of its calculation. Therefore, the above mentioned CPI (Consumer Price Inflation) represents just one approach amongst many. Illustratively is the introduction of the concept of the *Core Inflation Rate*, which was a direct response to the rising price levels during the oil crises of the 1970s and from then onwards replacing the CPI as the preferred measure of inflation for the Federal Reserve.[18,19,20,21] Hedonistic adjustments in the government's reported inflation rate, which became common from the 1990s onwards, also provide another tool for statisticians to "adjust" the calculated inflation rate for political means.

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[17] (Blanchard et. al, 2014, p. 47).

[18] Since 2000 the American Federal Reserve Board of Governors delivers its semi-annual Monetary Policy Report to the US Congress in terms of core personal consumption expenditures price index (PCE) excluding volatile factors such as energy and food prices. See (US Federal Reserve Monetary Policy Full Report, 2020).

[19] (Wyne, 2008, pp. 205-28).

[20] The concept of core inflation was first proposed by Robert J. Gordon in 1975 and further refined by Otto Eckstein in 1981. See (Gordon, 1981) and (Eckstein, 1981).

[21] (Luciani et al., 2019).

For example, home prices constitute the single largest monthly cost for the average consumer, and yet, the government statisticians cleverly found a way to disguise skyrocketing home prices with a term of art called "Owner Equivalent Rent".[22] This calculation does not use actual rental prices or transactional real-estate prices available in the marketplace, but instead uses make-believe [equivalent] home and rental prices to dampen the rising and actual cost of housing. Government reports of inflation measures such as the CPI are increasingly deceptive and do not utilize actual prices in the marketplace paid by consumers anymore. Faithful estimates of inflation are plentiful, but these are rarely mentioned in the mainstream media.[23]

When the prices of *all* goods and services in the economy exhibit an increase, this less is an indication for a broad price increase of all purchasable things but rather reflects a loss of purchasing power of the currency. The same amount of currency now buys fewer goods and services than before. In other words, the ratio between the currency and the vendible goods and services has changed: more currency is necessary to purchase the same amount of goods and services — albeit the value attributed of those goods and services remains roughly the same. A haircut or a loaf of bread are worth the same whether two or five years ago, even though their nominal price measured in the currency might have doubled.[24]

At this point, we need to remind ourselves, that currency is simply a medium of exchange that relates to *real* goods and services. Thus, pricing a real good or service in terms of the currency provides an observable and reportable number that expresses its value relative to other real goods and services. A price increase across the broad range of all purchasable goods and services in the economy can hence only stem from a change in the supply of the currency, and not a change in the particular good or service.[25]

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[22] (U.S. Bureau of Labour Statistics, 2023).

[23] (Shadowstats, 2023).

[24] This does not neglect the fact, that the value attributed to goods and services stems from the subjective valuations of the beholder nor that over centuries average valuations can change. One might only think of horse-carts versus cars. Instead, the emphasis lies on the average value associated with real goods and services within a shorter period of time.

[25] (Mises, 1949, p. 416).

It is now well established and without controversy that the cause of inflation originates in the disproportionate growth of the quantity of the currency.[26,27] The origins of this hypothesis can be traced back to Copernicus, who observed in his memorandum *Monetae cudendae ratio* in 1526 that prices vary directly with the supply of the currency.[28] Therewith, Copernicus also preceded the Spanish scholastics, and in particular Martin de Azpilcueta Navarrus, by almost three decades. It was Azpilcueta, however, who elaborated the first comprehensive presentation of what today is known as the *Quantity Theory of Money* in his *Commentario resolutoio de usuras* (1556) in which he advanced the argument that the purchasing power of a currency in terms of goods constitutes the value of this currency.[29] Thus, a currency can never be a fixed measure of value of other goods.

Further contributions were made over the centuries by economists including John Stuart Mill, David Hume, Henry Thornton, Simon Newcomb, Irving Fisher, John Maynard Keynes and Milton Friedman.[30] The name of the latter is perhaps most prominently associated with the Quantity Theory of Money as he successfully refuted challenges to the theory brought forward John Maynard Keynes.[31] In this context Friedmann famously stated:

> "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."[32]

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[26] (Mankiw, 2018, p. 14).

[27] (Oner, 2023).

[28] Copernicus further noted that "We in our sluggishness do not realize that the dearness of everything is the result of the cheapness of money. For prices increase and decrease according to the condition of the money." And more, "An excessive quantity of money should be avoided". In (Rothbard, 1995, p. 165).

[29] (Rothbard, 1995, p. 106).

[30] (Mill, 1848).

[31] This first often referred to as Keynesian Revolution, as Keynes challenged the theory based on the argument that merely the velocity of circulation of currency will be affected negatively. Milton Friedmann however refuted Keynes' criticism, bringing about the counterrevolution and with it the Chicago school / monetarism.

[32] (Friedman, 1970).

The Austrian School monetary theorists are at large in agreement with the Chicago School monetarists on this aspect regarding the importance of the money supply as the principal driver of inflation dynamics.[33,34,35,36,37] At the same time deep and abiding differences persist with respect to methodological calculations of money supply, inflation calculation, time scales to equilibrium and market transparency.[38,39,40]

Mostly neglected in this discussion on inflation drivers has been the quality theory of money.[41] As Bagus highlights, changes in the quality of money [currency] can also directly affect the purchasing power of the currency, in that it enables people to pursue their ends more (or less) efficiently. He thus defines the quality of money [currency] as the perceived capacity of money [currency] to fulfill its

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[33] Mises acknowledges the core statements of the quantity theory of money, however criticized that "its shortcoming was that it resorted to a holistic interpretation. It looked at the total supply of money in the Volkswirtschaft and not at the actions—of the individual men and firms." He further continues "Modern monetary theory takes up the thread of the traditional quantity theory as far as it starts from the cognition that changes in the purchasing power of money must be dealt with according to the principles applied to all other market phenomena and that there exists a connection between the changes in the demand for and supply of money on the one hand and those of purchasing power on the other. In this sense one may call the modern theory of money and improved variety of the quantity theory." In (Mises, 1998, p. 402).

[34] (Salin, 2023).

[35] (Israel, 2023).

[36] Hayek argues that his "chief objection against [monetarist] theory is that, as what is called a "macrotheory", it pays attention only to the effects of changes in the quantity of money on the general price level and not to the effects on the structure of relative prices. In consequence, it tends to disregard what seems to me the most harmful effect of inflation: the misdirection of resources it causes and the unemployment which ultimately results from it." In (Hayek, 1978, p. 215).

[37] For a detailed overview of points of criticism made by the Austrian School with regards to the quantity of money theory, see (Huerta de Soto, 1998, chapter 7).

[38] (Mises, 1998, p. 402).

[39] (Mises, 1949, p. 413).

[40] With regards to money, the two economic schools hold different views: according to the quantity theory money is assumed to be neutral whereas for the Austrian school scholars money is fundamentally not neutral and that monetary disturbances cause discoordination in the economy. See Barry (1981). Mises stated: "I wish to emphasize that in a living and changing world, in a world of action, there is no room for neutral money. Money is non-neutral or it does not exist." See (Mises, 1990).

[41] (Bagus, 2009, p. 41).

functions as (1) medium of exchange, (2) store of value and (3) unit of account. Correspondingly, the quantity of money derives its significance from its consequences on the quality of money.[42]

It is worthwhile to emphasize once again that inflation is a derived calculation, and not directly observed in the economy by consumers or economists. Only prices are observable in the economy, and inflation must be calculated from a broad basket of goods. A decay in the quality (or quantity) of money becomes visible by witnessing a broad increase in the general price level. In other words: *Inflation* constitutes the erosion of the value of currency.

Having taken a closer look at *inflation* in this first chapter, the origins and transformation of meaning of the term as well as various methods and approaches to calculate it, in the subsequent chapter we will examine the importance of *prices* in the economy and also economic calculation.

3. **Prices are an observable phenomenon**

The necessary details of calculating an inflation rate from a large basket of prices raises the question of what *prices* precisely are. Prices, in contrast to inflation, are not the result of a calculation but are directly observable in the economy and the result of real human interaction. They are the result of a bilateral exchange of goods and services in a market environment. Measured in units of currency, prices constitute "special features of a certain state of society's economic organization".[43] In a barter economy, i.e. without money, goods and services are still exchanged, but prices are opaque and not-standardized.[44]

Prices then can be understood as the result of a bi-lateral exchange between two parties, both of which had agreed to the transaction in order to improve their status quo by buying

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[42] (Bagus, 2009, p. 41).

[43] (Mises, 1949, p. 202).

[44] A cow might be worth three sheep, but how does that translate to loafs of bread, butter and eggs? And if the sheep are old?

respectively selling a particular good or service. Thus, a price is always a reflection of a single executed transaction. Moreover, an achieved price reveals the subjective valuations of both parties involved and conveys the information about the ratio at which the transaction was executed. Hence, a transaction necessarily and always presupposes a valuation, and to exchange then constitutes the manifestation of preference of one alternative over an infinite set of possible others.[45] The realized price in currency terms now serves as "common denominator of all exchange ratios".[46] Prices are nothing but exchange ratios.[47] Every instance a multitude of transactions are taking place in the economy with prices being determined and executed. When aggregating a large number of transactions, an average achieved price can be derived providing knowledge about society's valuation of the respective good or service on a relative scale to other goods and services.

Nevertheless, a single price always reflects the particular circumstances of the buyer and seller, and does not convey forward-looking forecasts of future prices, nor the intrinsic value of a particular good or service. In general for a transparent, un-corrupted marketplace prices do not change greatly in the immediate future, and executed prices can therefore serve as a sufficiently good guidance for the anticipation of future prices.[48]

Prices are thus literally "discovered" by market mechanisms, standardization, and exchanges (marketplaces). The importance of transparent and efficient price discovery cannot be overemphasized for market participants, because participants may then transact quickly without the need for laborious calculation of value. Prices constitute the core mechanism of how information is transferred in an economy, and careful attention to the price development of a particular good or service, for a specific location and time, is how market participants (and economists, too) can derive

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[45] (Peterson, 1999, p. 21).

[46] (Rothbard, 1962, p. 235).

[47] In Rothbard's words: "Money [currency] does not measure prices or values, it is the common denominator for their expression. In short, prices are expressed in money [currency]; they are not measured by it." In (Rothbard, 1991, p. 12).

[48] If I paid 10 Euros for a kilo of flour last week, chances are good — absent any dramatic shocks —, that the price today will be realized in that territory as well.

many insights into the state of the economy — including the quality of money.[49]

Prices are crucial for human actors to deal with two fundamental challenges in the world: (1) the *coordination problem* and (2) the *uncertainty of the future*.

What has been named the *coordination problem*, is the problem of how "the spontaneous interaction of a number of people, each possessing only bits of knowledge, bring about a state of affairs… which could be brought about by deliberated direction only by somebody who possessed the combined knowledge of all individuals".[50] Aware of the challenge posed by the dispersed nature of knowledge, Hayek emphasized that the price system constitutes a crucial "mechanism for communicating information" about the scarcity of resources in the economy, and is thus indispensable for overcoming the challenge of the *coordination problem* and to figure out "how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know".[51]

The second fundamental challenge that actors in the economy are facing is *uncertainty*. As nobody knows what the future will bring, each and every market participant can only attempt best estimates of the future. Thus, human actors are constantly forming expectations about the future based on the status quo of the economy and acting upon them. Every individual actor only engages in such undertakings which risks he estimates to be bearable to him, that he ventures only as much into the uncertainty of the future as he feels comfortable with. Prices and the information they convey constitute an elementary pillar for this formation of expectations — albeit oftentimes unconsciously. Thus, prices are the primary vehicle of economic calculation. The main task of which is "not to deal

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[49] Perhaps one of the most important prices is the price of money itself. Albeit not called a price, but interest rate, it a crucial factor in the intertemporal coordination of human interaction. The interest rate expresses the relation of the price of present goods in relative to future goods. This, it "regulates the relationship between consumption, saving and investment in modern societies." In (Huerta de Soto. 2009, p. 284).

[50] (Hayek, 1937, p. 50).

[51] (Hayek, 1945, p. 78; 86).

with the problems of unchanging or only slightly changing market situations and prices, but to deal with change [itself]".[52] While such change is unavoidable and omnipresent, knowledge about current prices do provide a framework about the current status quo.

The challenge of uncertainty is omnipresent in human existence. In all action, the human individual actor faces the uncertainty of the future. With each action, the human actor makes a value judgment and acts upon it, attempting to pursue a best possible outcome. Every Human Action thus constitutes a trajectory from the known presence to the unknown future. The former is determined, safe territory — status quo. The latter is the opposite: total uncertainty — something that has not been created yet. Indeed, as Shackle describes it: "The future is imagined by each man for himself, and this process of the imagination is a vital part of the process of decision."[53]

Every market participant looks at the uncertain future from a different angle and imagines it differently. Only through the coalescence of their individual actions they together create the future present. For that reason, every entrepreneurial act constitutes a "risky speculation" in the most literal sense — it always involves (of course to a varying degree) a departure from the protective order of the present into the scary abyss of the unknown and not yet existing.[54] In turn, the market process is therefore an ongoing materialization of the exploratory actions of the individual market participants. This is the well-spring for entrepreneurial activity in a healthy economy.

From this human condition of uncertainty, market prices and their moving patterns obtain a new dimension. Prices measured in money thus become a *social institution*, understood as "any generalized pattern of conduct or behavior" and which has emerged over a lengthy historical process, incorporation "huge amount of information, knowledge and experience".[55,56] Moreover, prices are the literal

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[52] (Mises, 1949, p. 213).
[53] (Shackle, 1972).
[54] (Mises, 1949, p. 106).
[55] (Huerta de Soto, 2009, p. 24).
[56] (Huerta de Soto, 2009, p. 168).

epitomization (embodiment) of human action — a multitude of value judgments, translated into a numerical framework. This numerical framework seemingly plays a passive role, especially when prices are mostly stable. Yet, prices are crucial for consumers to maintain stable daily lives, and for entrepreneurs to tackle the future.

Adopting and adhering to such a pattern of conduct is a choice made by each individual actor[57], yet as the average person is characterized through a certain intellectual inertia, it this choice is often closer to a passive borrowing of valuations from his environment than being an original and critical deliberation.[58] Many simply adopt certain institutionalized patterns of behavior because "everybody does so".[59] Many are likely to not even pay attention that they are participating and exploring such institutionalized patterns of behavior. Reliable prices in an economy are arguably the most important element of stable human actor.

Nevertheless, like it is the case with any Human Action, integration with an institution is pursued because the actor subjectively believes that it constitutes the most optimal way of attaining his ends. That doing so is beneficial to him. This shared significance confers predictability onto social interactions as well as orientation for the valuation of events. Via this social integration the individual is protected to some degree from the threatening uncertainty of the future. Any kind unprotected exposure to this abyss of uncertainty and disorder produces fear, inhibiting any form of creative entrepreneurial action.[60]

To conclude, prices are an observable and measurable phenomenon in the economy, providing the market participants with a necessary framework for action. *Prices* are real, and they can be measured. Human Action is therefore tied to reality, not an ideology or belief. Prices are the fundamental unit of the economy.

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[57] Mises once stated: "To live is for man the outcome of a choice, of a judgment of value." In (Mises, 1949, p. 20).

[58] (Mises, 1949, p. 46).

[59] Who actually actively and consciously analyses each and every price paid with respect to why it costs as much as it does. For example, Why does a glass of beer cost 5 Euros and why does a ticket to the cinema cost 15 Euros? And do I, on average, really value two hours at the cinema three times as much as a loaf of bread?

[60] (Peterson, 1999, p. 21).

In the next chapter we examine how prices are measured, namely in units of currency, and explore how currency relates to the concept of money.

4. **Currency is an ephemeral form of money.**

"What is Money?"

This is a rarely contemplated question — for something that forms such an integral part of our daily lives. Most people simply take it as a given, like air to breathe, and yet center their lives around making money, spending money, saving money.

Curiously, most laymen sources cannot provide much clarification either, usually describing money laxly as "a medium of exchange by which humans pay for things, or a unit of account or store of value".[61] Occasionally, some more detail might be provided as "any item or verifiable record that is generally accepted as payment for goods and services and repayment of debts, such as taxes, in a particular country or socio-economic context. The primary functions which distinguish money are as a medium of exchange, a unit of account, a store of value and sometimes, a standard of deferred payment. The first three attributes are commonly described in economic textbooks.[62,63,64] Blanchard and Illing are even shorter, defining money as "financial asset, which can be used for the purchase of goods".[65]

What these definitions lack to capture however, is the societal aspect of money: Money as a societal institution. Hence, money should be understood as a communication channel of human interaction, similar to language, beyond being merely a material or financial object. As Menger emphasized, customs and traditions play an important role in the process of certain objects (oftentimes

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[61] Common understanding of money paraphrased.
[62] (Mankiw, 2007).
[63] (Krugman et al., 2006).
[64] (Abel et al., 2005).
[65] (Blanchard et. al., 2014, p. 881).

commodities) taking on the role of money.[66] And Meseguer elaborates further on the spontaneously emerging order of money as a societal institution — on par with the emergence of law or marketplaces.[67] Whichever object will be chosen to temporarily serve this role, it will allow us to obtain the things we need and want in an increasingly specialized world. Money after all is uniquely human and it "allows humans to structure life in incredibly complex ways that were not available to them before the [emergence] of money".[68]

Thus, the introduction of the usage of coins in ancient Lydia almost three thousand years ago, paving the way for the emergence of the mercantile market system, sparked a monetary revolution. With its beginnings in commerce, it quickly spread to all other areas of life from politics to religion and academics as the use of numbers, counting and calculus propelled a new level of rationalization in human thought. And even though the Lydian kingdom under Croesus disappeared after the conquest through Cyrus, the new money system prevailed and made possible the classical civilizations of the Mediterranean. The next quantum leap in the history of money was triggered by invention of banking and paper money in the banks of Renaissance Italy, facilitating the capitalist economy as we know it today.

During those 3000 years in the history of money, not only did human culture undergo profound transformations but multiple currency regimes appeared and disappeared. The longest serving currency in use today is by far the British pound with about 1200 years — albeit at the cost of significant devaluation. While 1257 one fine ounce of gold stood at 0.89 British pounds, today its price is above 1500 British pounds.[69] The second and third oldest currencies in circulation, unknown to many, are the Russian Ruble and the Serbian Dinar that are in use since the 13th century. Over the centuries, both the Ruble and the Dinar have undergone several devaluations and revaluations as well. Comparatively young in comparison is the US-Dollar, which has been introduced only in

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[66] (Menger, 1871, p. 260).
[67] (Meseguer, 2006).
[68] (Weatherford, 1997, p. 43).
[69] (Weale, 2000, pp. 78-89).

1792 under the Coinage Act, passed by the US Congress. The Swiss Franc is even younger, being introduced in 1850 by the first Federal Coinage Act of the new Swiss Federal Constitution. Still in its infancy is hence the Euro, which was launched only in 1999 by the European Central Bank. Nevertheless, since then its currency has devalued by 85 percent when measured against gold. In other words, the price of gold [a form of money] in euro terms has increased by 555 percent since its inception.

The physical form of money can come in various forms: Commodity Money, standardized gold coins, sea-shells, cigarettes[70], or fiat paper money, etc. … A currency is merely one form of money. Albeit in daily life, both terms are often being used interchangeably. A currency, whether composed of paper cash, coins or an electronic ledger is simply a form of money which is popular in a specific location for a limited period of time. Gold, silver and other precious metals are money, too, but a different flavor, often referred to as hard money.

Currency, such as British Pounds or US Dollars, are only an ephemeral form of this more basic societal institution of money. They emerge in and out of popularity or usefulness. The reasons behind their emergence and utility can be manifold. It is critical to note however, that all currencies are mortal, and some have had very short life spans.

The realization of how short lived most currency systems are, leads us to the question of how and why a currency system will not only emerge, but more importantly, will end. For some time, an internet meme was circulating, that the average lifespan of a fiat currency only amounted to 27 years.[71] However, and as critics pointed out, this was only considering currencies that are no longer in circulation. Examining all currencies currently in circulation, their average lifespan as of 2023 amounts to approximately 74 years.[72] In comparison, the life of an average S&P 500 company is much shorter, standing at 18 years only as of today.[73]

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[70] Described in detail by (Radford, 1945).
[71] (Financial Times, 2019).
[72] Own calculations.
[73] (IMD Research, 2016).

Regarding the end or "death" of a currency, three scenarios come to mind. First, upon the conquest through a foreign power, whose currency is subsequently imposed. One example for this is the so called Japanese Invasion Money, officially known as Southern Development Bank Notes, which was introduced to the occupied countries and regions by Japan during World War II. Another example for the end of a particular currency is the introduction of a new currency due to political reasons. Amongst the most recent of such an event is the introduction of the Euro which replaced the existing currencies in the participating countries of the newly established European Currency Union such as the Deutsche Mark, the Italian Lira or the French Franc. Lastly, and perhaps the most infamous scenario, is currency failure — most often dramatically visible in the form of hyperinflation.

Currency, whether composed of paper cash, coins or an electronic ledger is simply a form of money that is popular in a location for a limited period of time. Gold and silver are forms of money too, commonly as metallic standards backing up currency or other forms of credit.[74] The life cycle of a currency is an ephemeral form of money coming in and out of popularity or usefulness. All currencies are mortal, and some have had very short life spans. With the invention of Bitcoin and other cryptocurrencies, we are now witnessing a live experiment where thousands of new forms of money have been invented, and it will be very interesting to observe how it will play out over the course of the next decades.

A currency is commonly understood as a standardization of money in any form, in use or circulation as a medium of exchange, for example banknotes and coins or more broadly, as a system of money in common use within a specific environment over time, especially for people in a nation state.[75]

One great advantage of money is its function as of a generally used monetary unit of account. Economic calculation, encompassing everything that is exchanged against money, becomes

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[74] (Rothbard, 1962, p. 828).

[75] Since 1978 the International Organization for Standardization (ISO) publishes the ISO 4217, a standard encompassing every world currency with their ISO 4217 Currency Code.

possible. Thus, prices of goods and services became denominated in money, either units of gold and silver, or any other prevailing currency. Today, all prices are denominated in the fiat currency, e.g. Euro, US Dollar, Pound Sterling, Yen, with the US-Dollar serving as the reference value for all other currencies, Rothbard pointed out: "Money [currency] does not measure prices or values; it is the common denominator for their expression. In short, prices are expressed in money [currency], they are not measured by it".[76] If a currency becomes too volatile, or has lost its trust as redeemable value, it can no longer serve as money. Or as Keynes phrased it: "Money is only important for what it will (can) procure".[77]

Before taking a closer examination at the most dramatic ending of currencies, namely hyperinflation, we need to gain a deeper comprehension of the special features of fiat currency.

5. Human Temptation as the biggest challenge to Fiat Currency

In this chapter, we will explore the special features of currency, and in particular those of fiat currency based on a discretionary paper standard. As we will see, this kind of monetary system is particularly prone to human temptation via the implementation of artificial credit expansion.

One great peculiarity of our today's fiat monetary system is that the currencies in circulation and used as money derive their value simply from *fiat* — belief and trust. While over many centuries, precious metals and in particular gold and silver have emerged as the preferred form of money due to their highly convenient attributes — hence, called commodity money[78], the introduction of *money substitutes* for sheer practical purposes has at the same time paved the

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[76] (Rothbard, 1991).

[77] (Keynes, 1923, chap. ii, section 1, p. 1).

[78] This legacy of precious metals in our money is still very obvious today: Whether dollars, francs, marks or the pound sterling, all those names were simply definitions for units of weight of silver and gold. See more in (Rothbard, 1991, p. 13).

way to the pure paper standard, as we know it today.[79] With the establishment of money warehouses (banks) to store and safeguard the gold and silver in exchange for a warehouse receipt (bank notes), those receipts have over time come to function as *money substitutes.* Further down the line and as those banks obtained more credibility in society, those paper receipts became transformed into *open book accounts*.[80]

As every receipt and book account reflected a certain amount of gold or silver reserve in the money warehouse (deposit banking), this system is said to be operating on a "100 percent reserve basis". However, given that one can assume that not all depositors request the withdrawal of their deposits at the same time, the temptation to operate on a lower reserve basis is big.[81] As Huerta de Soto points out, once that banks had begun to violate the legal principle around safekeeping of deposits, maintaining less than the full amount of the *tantundem*, they twisted the argument and what used to be a deposit has subsequently become something "as if it was a loan".[82] As long as the banks maintain their customer´s confidence in their services, the fact, that the bank practically lacks the necessary liquidity to meet all its commitments, remains hidden. This set-up is known as *fractional reserve banking* — the dominant form of banking today.

Under fractional reserve banking, the banks retain merely a fraction of all outstanding liabilities as available reserves. Regulated by the respective central bank in each country or currency union, the reserve ratio requirement prescribes the minimum amount. Around 1900 this stood at about 30 percent.[83] Since

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[79] Mises states "People deal with money-substitutes as if they were money because they are fully confident that it will be possible to exchange them at any time without delay and without cost against money. […] Token coins issued by a country's treasury are money-substitutes too […] What counts is whether the money substitute can really be exchanges against money without delay and cost." See (Mises, 1949, pp. 434f).

[80] (Rothbard, 1991, p. 38).

[81] "If the money reserve kept by the debtor against the money-substitutes issued is less than the total amount of such substitutes, we call that amount of substitutes which exceeds the reserve fiduciary media." in (Mises, 1949, p. 430).

[82] (Huerta de Soto, 2009, p. 188).

[83] (Middelkoop, 2014, p. 27).

then, the regulated minimum reserve requirement decreased to today 0 percent in the United States and 1 percent in the Euro Area.[84,85] Importantly, as long as these circumstances prevail, the banks are practically able to finance the creation of new money *ex nihilo*.[86]

This capacity to create additional currency *ex nihilo*, simply by a single key stroke, applies to the entire banking system, thus granting them with a massive power to bring about credit expansion. As Huerta de Soto lays out in great detail in his magnum opus, this creation of new money under a fractional reserve banking system including its infusion into the economy in the form of new loans is completely detached from any natural increase in capital accumulation (saving).[87] As we will see, such credit expansion has dramatic effects on the economic system.

Following the Austrian School's capital theory, saving, via the voluntary abdication of consumption, results in the accumulation of capital goods, thus freeing up resources for other purposes at the same time.[88,89] This is particularly relevant, in that modern economies exhibit highly complex structures of production, both *intratemporally*, that is across different areas of the economy, as well as *intertemporally*, that is across time.[90] The dynamic, ongoing allocation of capital and resources can thus be conceived as a *complex, dynamic and ever-evolving optimization problem*. Of particular relevance for the economies overall sustainability are

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[84] (Federal Reserve, 2023.

[85] (European Central Bank, 2023) and for more detail see (European Central Bank, 2002).

[86] (Huerta de Soto, 2009, p. 192).

[87] (Huerta de Soto, 2009, p. 265).

[88] (Huerta de Soto, 2009, p. 275).

[89] Huerta de Soto highlights "[R]ich nations possess a more extensive network of capital goods wisely invested from an entrepreneurial standpoint. These goods consist of machines, tools, computers, buildings, semi/manufactured goods, software etc., and they exist due to prior savings of the nation's citizens. In other words, comparatively rich societies possess more wealth because they have more time accumulated in the form of capital goods." See (Huerta de Soto, 2009, p. 279).

[90] On production theory and stages of production, see the important works of F.A. Hayek, particularly (1935); and (1939) as well as (Böhm-Bawerk, 1889) and (Garrison, 2000).

therefore the existence of correct, unhampered market-signals (prices, interest rates).[91,92] Consequently, any change in time preference or voluntary saving will have an impact on the overall resource allocation across all stages of the economy. For example, and in highly simplistic terms, an increase in voluntary saving will, *ceteris paribus*, lead to a lengthening of the production structure, a decrease in the market rate of interest and also positively affect the value of capital goods.[93]

Guided by those market signals, as we have already seen in the previous chapters, the market participants in their entrepreneurial endeavors pursue their personal and business projects. The success of their endeavors is ultimately measured by its profitability. Unsustainable projects will sooner or later proof unprofitable and hence, be abandoned. If now the market participants voluntarily increase their saving, made possible by profitable business endeavors, the following effects are provoked: the production processes in the economy (also referred to as capital goods structure) experience both a deepening and a widening. Furthermore, the stages closer to consumption exhibit a relative narrowing while in the longer run consumer goods will display a sharp drop in their market prices, making them more accessible to more people as a significant rise in real disposable income occurs, freeing up resources for other purposes.[94] In other words, *savings facilitate investments*, resulting (if successful) in greater efficiency, thus creating wealth.[95] "Ability in entrepreneurial foresight will be assured as much as possible by

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[91] The intertemporal allocation may be internally consistent and hence sustainable, or it may involve some systematic internal inconsistency, in which case its sustainability is threatened. The distinction between sustainable and unsustainable patterns of resource allocation is, or should be, a major focus of macroeconomic theorizing. See (Garrison, 2001, pp. 33-34)

[92] In a modern economy, present and future behaviors are reconciled through entrepreneurial activity in the market where present goods are exchanged for future goods and the interest rate, the market price of one type of goods in terms of the other, is established. See (Huerta de Soto, 2009, p. 290).

[93] (Huerta de Soto, 2009, p. 325).

[94] (Huerta de Soto, 2009, p. 336).

[95] Hayek describes this as follows: "The final effect will be that, through the fall of prices in the later stages of production and the rise of prices in the earlier stages of production, price margins between the different stages of production will have decreased all round." In (Hayek 1935, pp. 75-76).

the market's process of 'selection' in 'rewarding' good forecasters and 'penalizing' poor ones proportionately".[96] Prudent risk taking by entrepreneurs in light of uncertainty will be rewarded with higher profits, benefitting the overall economy in lower prices and higher productivity.[97] As Huerta de Soto points out "this is the healthiest, most sustained process of economic growth and development imaginable. In other words, it involves the fewest economic and social maladjustments, tensions, and conflicts".[98]

With banks now having the ability to create credit loans unbacked by any prior increase voluntary saving under the fractional-reserve banking system, distortionary effects are being exerted on the productive structure of the economy.[99] This *artificial credit expansion ex nihilo* provides additional supply of liquidity to the economy, effectuating a similar development as described in the previous paragraph, namely the widening and lengthening of the stages in the productive structure. In short, "entrepreneurs decide to launch new investment projects, widening and lengthening the capital goods stages in the productive structure; that is, they act *as if* society's saving had increased, when in fact such an event has not occurred".[100,101]

However, as the credit expansion is not supported by prior savings but the market participants nevertheless behaving *as if,* a process of dis-coordination is triggered. This discoordination expresses itself initially in exaggerated optimism — market participants are suddenly enabled to spend without having had to put prior sacrifice in order to accumulate savings. This is a very comprehensible human disposition. Especially as the refusal to participate in this dynamic will lead to entrepreneurial punishment in the short run:

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[96] (Rothbard, 1962, p. 546).

[97] There is a precise distinction between risk and uncertainty; elaborated by (Knight, 1921, pp. 212-55, especially p. 233).

[98] (Huerta de Soto, 2009, p. 341).

[99] For a deep dive comparative analysis of the effects of artificial credit expansion on the economy, see (Huerta de Soto, 2009, Chapter 5).

[100] (Huerta de Soto, 2009, pp. 350f).

[101] "A lengthening of the period of production is only practicable, however, either when the means of subsistence have increased sufficiently to support the laborers and entrepreneurs during the longer period or when the wants of producers have decreased sufficiently to enable them to make the same means of subsistence do for the longer period." See (Mises, 1953, p. 400).

market competition is distorted by free money/loans being granted to everyone willing to accept it. Hence, across the economy market participants are *misled* into unprofitable investments, resulting in a great *intertemporal discoordination*.[102]

In Mises own words: "But now the drop in interest falsifies the businessman's calculation. Although the amount of capital goods available did not increase, the calculation employs figures which would be utilizable only if such an increase had taken place. They make some projects appear profitable and realizable which a correct calculation based on an interest rate not manipulated by credit expansion, would have shown as unrealizable. Entrepreneurs embark upon the execution of such projects. Business activities are stimulated. A boom begins."[103]

In the long run this artificial economic expansion is not sustainable — as we will examine in the subsequent chapters. Yet, for the effects of the distortion by the artificial credit expansion to permeate the entire economy and reaching visibility, some time will pass.[104] At first, the following six effects of the credit expansion will become visible: (1) A rise in the price of the original means of production (2) The subsequent rise in the price of consumer goods (3) The substantial relative increase in the accounting profits of the companies from the stages closest to final consumption (4) The Ricardo-Effect of disproportionate price rises in consumer goods driving down real wages (5)The increase in the loan rate of interest. Rates even exceed pre-credit expansion levels. (6) The appearance

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[102] Lionel Robbins, in his book, *The Great Depression* (New York: Macmillan, 1934), lists the following ten characteristics typical of any boom: first, the interest rate falls in relative terms; second, short-term interest rates begin to decline; third, long-term interest rates also drop; fourth, the current market value of bonds rises; fifth, the velocity of the circulation of money increases; sixth, stock prices climb; seventh, real estate prices begin to soar; eighth, an industrial boom takes place and a large number of securities are issued in the primary market; ninth, the price of natural resources and intermediate goods rises; and last, tenth, the stock exchange undergoes explosive growth based on the expectation of an uninterrupted increase in entrepreneurial profits (pp. 39-42).

[103] (Mises, 1949, p. 550;553).

[104] The granting of credit is necessarily always an entrepreneurial speculation which can possibly result in failure and the loss of a part of the total amount lent. Every interest stipulated and paid in loans includes not only originary interest but also entrepreneurial profit. In (Mises 1949, p. 536).

of accounting losses in companies operating in the stages relatively more distant from consumption.[105] Hence, new investment projects are realized although neither the amount of available capital goods having increased nor a more restricted consumption behavior brought about.[106] This artificial boom of economic activity will be sustained for as long as additional easy credit is pouring into the economy, driving interest rates further and further down; sending misleading signals to the market participants.

Once, the rate of additional credit supply no longer accelerates, inevitably a reversing dynamic will set in.[107] The reason for that is not only the already visible drop in purchasing power, but also that many market participants are trapped in the financing of their mistakenly launched business projects, and therefore are forced into paying whichever interest rate charged in order to complete their projects. This struggle to obtain additional financing at an ever increasing rate has been depicted "fight to death".[108] As per the writing of this paper, this struggle can be observed in real time, as the rapid increase of interest rates in the aftermath of the Covid-pandemic has driven various banks (including the Silicon Valley Bank, the First Republic Bank and the Signature Bank[109]) into ruin. In other words, "Any real growth in the capital stock takes time and requires voluntary net savings. There is no way for an expansion of the money supply in the form of bank credit to short-circuit the process of economic growth".[110] Once that suspensions of payments and bankruptcies can no longer be avoided, the crisis hits.[111]

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[105] (Huerta de Soto, 2009, p. 375).

[106] (Mises, 1949, p. 556).

[107] "The banks can no longer make additional loans at the same interest rates. As a result, they must raise the loan rate once more for two reasons. In the first place, the appearance of the positive price premium forces them to pay higher interest for outside funds which they borrow. Then also they must discriminate among the many applicants for credit. Not all enterprises can afford this increased interest rate. Those which cannot run into difficulties." See (Mises, 1978, p. 127).

[108] (Huerta de Soto, 2009, p. 374).

[109] This number is far higher than in the previous two years, where zero bank bankruptcies were reported for the United States. See (U.S. Federal Deposit and Insurance Corporation, 2023).

[110] (Moss et al., 2010, p. 555).

[111] "The boom produces impoverishment. But still ore disastrous are its moral ravages. It makes people despondent and dispirited. The more optimistic they were

Indeed, fractional reserve banking permits the granting of loans out of thin air (artificial credit expansion) at a much greater dimension than would be possible under any other monetary system such as for example a gold backed fiat currency.[112] For precisely that reason, currencies have been taken off the gold standard in the past — whether during World War or during the 1970s Oil Crisis.[113] The latter was meant to be a temporary measurement to maneuver the crisis but more than half a century later has yet to be reinstated.

One might wonder, why banks and governments continue to fall for the temptation of easy money. And why the lessons from history are not reason enough to adjust current practices. Mises, in this context, already provides us with an answer for why those attempts are made over and over again to allegedly improve the economic conditions through the creation of credit (currency) out of thin air in spite of the spectacular failures of such strategies in the past: "According to the prevailing ideology of businessman and economist-politician, the reduction of the interest rate is considered an essential goal of economic policy. Moreover, the expansion of circulation credit is assumed to be the appropriate means to achieve this goal".[114]

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under the illusory prosperity of the boom, the greater is their despair and their feeling of frustration." See (Mises, 1949, p. 576).

[112] Alan Greenspan, former Chairman of the Federal Reserve, in 1967 was explicitly explaining: "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. If there were, the government would have to make its holding illegal, as was done in the case of gold. If everyone decided, for example, to convert all his bank deposits to silver or copper or any other good, and thereafter declined to accept checks as payment for goods, bank deposits would lose their purchasing power and government-created bank credit would be worthless as a claim on goods. The financial policy of the welfare state requires that there be no way for the 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 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." (Greenspan, 1967)

[113] A very interesting point made by Huerta de Soto: "If pessimism and the lack of confidence spread, all banks may become insolvent, ending in the disastrous failure of the banking system and of the monetary system based on fractional-reserve banking. *This instability intrinsic to the fractional-reserve banking system is what makes the existence of a central bank as lender of last resort inevitable.*"See (Huerta de Soto, 2009, p. 392).

[114] (Mises, 1978, pp. 135f).

Another, very interesting aspect was made by Keynes, stating that "this progressive deterioration in the value of money through history is not an accident and has had behind it two great driving forces — the impecuniosity of Governments and the superior political influence of the debtor class".[115] The latter point is worth considering in more detail. Given the intrinsically hierarchical organization of society, whether purely meritocratic or alongside other status symbols, e.g. family names, etc.[116] people in general strive to move up within the hierarchy, desiring the alleged status symbols of those they deem superior. If now the opportunity arises to obtain those aspired goals without much effort involved, one might surely get tempted. If now in a democracy, the debtor class can leverage their political power in order to obtain more easily what they strive for, while outsourcing the costs onto someone else, this constitutes a welcomed shortcut, even though the greed and jealousy might be greater than the self-interest into a long-term sustainable economic environment. Especially as a falling purchasing power of the currency will affect each and every one in society.

No matter how great the short-term temptations of artificial credit expansion are, sooner or later, the respective currency becomes too volatile, or loses its trust is society as redeemable value, and thus fails to serve as money. To fulfill its economic function as a medium of exchange, unit of account and store of value, a currency necessarily needs to have a minimum level of trust and stability.[117] There is yet a long-term successful fractional fiat

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[115] (Keynes, 1923, chap. ii, section 1, p. 9).

[116] This fact is based on the individuality of human beings. No human being is the same as another one. Thus, everyone has strengths and weaknesses, as well as the chance to improve and further develop them. Provided, varying features amongst the market participants, automatically an order, that is a form of a hierarchy, is established and can vary based on which criteria it is selected. On person can be ranking high in one dimension (for example cooking) and low in another one (for example playing the trumpet).

[117] Today, most central banks in their role of issuer of the respective national currency have adopted a technique called inflation targeting with a depreciation target of 2 percent. This 2 percent target is widely considered to be low enough in volatility and trust (depreciation/counterfeiting) to keep the currency viable as a form of money. However when the inflation rate rises over 2 percent, it becomes difficult for economic

currency to emerge — all known fiat money systems have failed in the past.[118] In the next chapter we will consider the most dramatic failure of a currency, hyperinflation.

6. **Hyperinflation — Failure of a Currency**

Indeed, the eruption of the crisis can be postponed for a significant amount of time. The strategy for postponement is simply an ever-increasing supply of additional credit — at such a velocity, that market participants are unable to anticipate it fully.[119] Obviously, while the goal of postponement will be achieved in the short run, the subsequent corrective forces (the crisis) will be respectively far more severe. Rothbard states: "[T]he only way to *avert* the onset of the depression-adjustment process is to continue inflating money and credit. For only continual doses of new money on the credit market will keep the boom going and the new stages profitable. Furthermore, only *ever increasing* doses can step up the boom, can lower interest rates further, and expand the production structure, for as the prices rise, more and more money will be needed to perform the same amount of work … But it is clear that prolonging the boom by ever larger doses of credit expansion will have only one result: to make the inevitably ensuing depression longer and more grueling".[120] The longer the delay, the larger the economic damage.

Thus, once the escalation of credit expansion no longer accelerates, the readjustment dynamics will automatically be set in motion. If however the credit expansion is *maintained* at some growth rate, yet at the same time too slow of a rate to keep the boom fueled, the most likely scenario is *stagflation*. The third alternative is a continuation of the credit growth escalation — with the purpose of suppressing any symptom of a looming crises. However, once that the market participants realize that the loss of

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actors to make productive and rational decisions, and central banks fear a bank run on their national currency.

[118] (Middelkoop, 2014, p. 26).

[119] (Huerta de Soto, 2009, p. 399).

[120] (Rothbard, 1962, pp. 861f).

purchasing power in their currency (inflation) is certain to continue growing, a panic will ensue.[121]

In history plenty of examples exist, however, of currencies failing their precise function sooner or later.[122] The most extreme examples fall in the category hyperinflation which following the definition first introduced and still widely used by Philipp Cagan as "beginning in the month before the monthly rise in prices exceeds 50 per cent and as ending in the month before the monthly rise in prices drops below that amount and stays below for at least a year"[123]. A monthly inflation rate of 50 percent is equivalent to an annual rate of 12,975%. For reference, the annual inflation rate at the end of 2022 was 64% in Turkey, 95% in Argentina, 156% in Venezuela, and 244% in Zimbabwe.

Steve H. Hanke, Professor of Applied Economics at John Hopkins University, has further refined Cagan's definition of hyperinflation as "inflation in which the inflation rate exceeds 50% per month for at least thirty consecutive days".[124] Based on this refined definition, Hanke has identified 58 episodes of hyperinflation (as of 2017), usually known as the Hanke-Krus Hyperinflation Table.[125] However, the threshold between inflation, high-inflation and hyperinflation is secondary for understanding the Crack-Up Boom. It is the deterioration of the currency, visible in the detachment of prices from their fundamental value, that is so destabilizing to the market participants activities.

When prices accelerate far beyond any predictability, human actors and entrepreneurs struggle massively in their economic calculation. Prices no longer provide a secure guardrail to explore

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[121] Huerta de Soto (2009), pp. 400ff.

[122] Hayek summarizes concisely the challenges of currencies as a social institution: "[S]elective processes are interfered with here more than anywhere else: selection by evolution is prevented by government monopolies that make competitive experimentation impossible … The history of government management of [currency] has … been one of incessant fraud and deception. In this respect, governments have proved far more immoral than any private agency supplying distinct kinds of money in competition possibly could have been." See (Hayek, 1988, pp. 102;104).

[123] (Cagan, 1956, p. 25).

[124] (Hanke, 2017).

[125] (In Gold We Trust Report, 2019)

into the unknown future, damaging entrepreneurship. How can a business project be successfully realized, when all input variables are constantly and vastly varying? Business projects cannot succeed because predictable prices are necessary for business calculations of risk and reward.

Rapidly rising prices unsurprisingly, beget even more rapidly rising prices, attempting to mitigate price uncertainty and losses. "The process [of hyperinflation] is hastened by its panic-like character".[126] In the end, the social institution of *Prices* is failing. And as mentioned before, any kind unprotected exposure to such an abyss of uncertainty and disorder produces fear, inhibiting any form of creative entrepreneurial action.[127]

The only escape is to expect ever accelerating prices.[128,129] Thus higher prices beget expectations of even higher prices, propelling further price increases.[130] As Mises highlights in his analysis of the "inevitable nonneutrality of money", implying "…that changes in purchasing power of money causes prices of different commodities and services to change neither simultaneously nor evenly, and that it is incorrect to maintain that changes in the quantity of money bring about simultaneous and proportional changes in the ´level` of prices".[131]

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[126] (Mises, 1953, p. 227).

[127] (Peterson, 1999, p. 21).

[128] As (Salerno, 2015) highlights in his chapter "Mises on Inflation" in his book *Money Sound and Unsound*, Mises´ theory on the emergence of the inflationary process has been overlooked to a great deal. One reason for that is certainly the conflation between Mises´ and Hayek´s writings.

[129] Regarding the specific understanding of process of the market participants´ expectation formation, Mises defers us to the method of Verstehen, and more in particular to the discipline of thymology, which he described as a historical discipline, which "…derives knowledge from historical experience [from] observation both of other people´s choices and of the observer´s own choosing… It is what a man knows about the way in which people value different conditions, about their wishes and desires and their plans to realize these wishes and desires. It is the knowledge of the social environment in which a man lives and acts or, with historians, of a foreign milieu about which he has learned by studying special sources." In (Mises, 1957, p. 272;266).

[130] Contrary to Rational Choice Theory, Mises was fully aware of the broad and unpredictably varying range of differences amongst human actors regarding their abilities to anticipate and adjust to change. See (Salerno, 2015, p. 218) and (Mises, 1949, p. 255).

[131] (Mises, 1978, p. 59).

At the same time, as prices run away, all currency is spent upon receipt, with the hope to convert it into goods with a more stable value.[132] This is commonly referred to as "flight from money" and a "flight into goods". Rothbard describes this dynamic very illustratively: "This mad scramble away from [currency], lowering the demand for [currency] to hold practically to zero, causes prices to rise upward in astronomical proportions. The value of the [currency] unit falls practically to zero. The devastation and havoc that the runaway boom causes among the populace is enormous".[133]

7. **Katastrophenhausse — or Crack-Up Boom**

The Austrian School of Economics is particularly well known for their research into money and price theory. Thus, it should come as no surprise that Ludwig van Mises bears responsibility for coining the moniker *Crack-up Boom* or *Katastrophenhausse* in German, although earlier mentions of the German expression can be found, such as for example in Dub 1922.[134] Mises, having lived through the crises years of the 1920s and 1930s in Austria, which were similar and prior to the developments in Weimar Germany, was deeply aware of the distortionary effects of artificial provision of money and credit to the economy.

Artificially inflating the money supply to the economy will result in a drop in interest rates, misleading investors to invest in projects, that appear profitable even though they are not. As banks continue to pour credit into the economy, prices, wages as well as asset prices will rise, giving the false impression of strong economic growth. But instead of economic growth the low interest rates create a large pool of mis-allocated capital and enterprises. And when these value destroying businesses are exposed to reality, the government typically doubles-down on the credit expansion and bails them out, creating zombie companies which are not allowed to fail. These non-productive economic actors are rewarded with zero interest

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[132] (Mises, 1953, p. 227).
[133] (Rothbard, 1962, p. 1020).
[134] (Dub, 1922, p. 5).

rates (free money), whereas value generating entrepreneurs are stymied with increasing regulation. The injection of artificial money supply into the economy creates decay, not growth.

Generally, economist scholars in the tradition of the Austrian School consider the artificial credit boom triggered by central banks' downward manipulation of interest rates as the most worrisome process of bringing an economy out of balance. Austrians in particular believe the ensuing and inevitable recession is necessary to bring the economy back into balance. This wave-like development of the economy however must not be confused with secular growth, which depends on the quantity of real savings available in an economy.

Various scholars have written about the consequences of this distortion. They all arrive at the same conclusion: sooner or later the correction will come. The exact timing or trigger of the correction however is unknowable. For example, it is not a simple debt to equity ratio or loss threshold. Even when outrageous misallocations of capital are exposed, the proverbial "can is kicked-down the road" with brazen bail-outs and special financial trickery. Quantitative Easing at the Fed, and Targeted Long Term Financing Operations (TLTRO) at the ECB are two of the most famous examples. These programs had the explicit goal of "preserving favorable borrowing conditions for banks and stimulating bank lending in the real economy".[135] The unwillingness of both private and government actors to acknowledge an investment loss leads to ever higher levels of absurd credit expansion. The credit expansion continues unabated with the reckless printing of money until the entire economic system collapses in a "Crack-Up Boom".

Mises states that a Crack-Up Boom occurs in the context of a rapid fall in the purchasing power of the currency. This rapid fall (inflation) is triggered by the absurd credit expansion, and a subsequent flight into real goods: "A breakdown occurs. The crack-up boom appears". Elaborating further: "The monetary system breaks down; all transactions in the money concerned cease; a panic makes its purchasing power vanish altogether".[136]

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[135] (European Central Bank, 2023).

[136] (Mises, 1949, p. 782).

Thus, and contrary to common assumptions, for Mises the Crack-up Boom is described as the overall breakdown of the economy caused by "the panic of the currency catastrophe" and goes far beyond a panic rally in the stock market, although this constitutes one of the various symptoms of the currency breakdown.[137] Given our conceptual understanding of money as one of the most fundamental pillars of our human society[138], the breakdown of the monetary system, unsurprisingly so, has massive and far-reaching consequences. In terms of magnitude, the destruction of money is on par with the destruction of Religion, the Justice system or the concept of Family. Losing any of them surely would trigger similar seismic shocks.[139]

As hyperinflation destroys the purchasing power of the monetary unit, and prices apparently sky-rocket that replaces *trust* with *fear*. Instead of prices providing a guardrail in the economic outlook as well as in the economic calculation, they have now become a threat — at any moment they might literally *explode* higher. From a psychological standpoint, the market participants have been pushed dangerously close to the *abyss of uncertainty*. They have been deprived of their framework of value. All action has been pushed to the present — while all future action has been covered with a veil of uncertainty and risk. Economic planning has become impossible, forcing market participants into asset allocations and spending behavior they otherwise would not chose. However, as the currency's purchasing power might be halved within the next days, it is advantageous to convert any liquidity into *real values*. This drives prices further up, while at the same time demand for the currency falls further.

From a moral perspective, a currency breakdown in form of hyperinflation brings about not only a great re-distribution of wealth but punishes prudent behavior (saving) and rewards unfunded spending. Thus, the discussion arises how desirable those incentives are from a cultural perspective for society.

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[137] (Mises, 1949, p. 813).

[138] Money (currency) constitutes a social institution, a fundamental building block of human action and interaction in society.

[139] Nietzsche wrote extensively on the "death of god", hence the loss of religion in society. See for example (Nietzsche, 1882).

In Weimar Germany, the government even had to respond to the ensuing chaos by issuing a *state of siege*.

More generally, the ceasing of the functioning of the economy can be observed in the following areas:

— Loan markets: Interest rates rise rapidly, well above any level of entrepreneurial investment.
— Asset price boom: Inflation of asset prices surges above any historical performance levels of cash-flow.
— Supply chains: Seizure of B2B transactions, the supply chains stop functioning, and intermediate goods become scarce.
— Consumer prices: run-away inflation causing psychological disorientation [hyperinflation] and poverty.

Hyperinflation is the easiest symptom of the breakdown of the currency system to observe and measure. Published consumer prices are much easier to observe and measure than supply chain disruptions, scarcity of intermediate goods and loan denial. Furthermore, everyone holding the currency is directly exposed to it. Therefore hyperinflation is the most common financial symptom associated with a Crack-up Boom, but is clearly not the only economic symptom.

Murray Rothbard described this as follows: "A frantic rush ensues to get rid of money at all costs and to buy anything else. In Germany, this was called a 'flight into real values'. The demand for money falls precipitously almost to zero, and prices skyrocket upward virtually to infinity".[140] At this stage, "the increase in the quantity of money causes a fall in the demand for money", as Mises explained in Human Action. This also indicates the loss of trust in the currency. A further consequence of the rapid fluctuations in prices, other forms of exchange, such as barter, begin to fulfill the former role of a dead currency. Oftentimes, other currencies will be adopted as substitute currencies.

The second most associated symptom of a Crack-up Boom is probably the explosion of asset prices — in particular stock prices

[140] (Rothbard, 2008, p. 318).

— and prevailingly the term Crack-up Boom is used to depict precisely those astronomical and sky-rocketing price increases.

Hence, famous are the representations of the development of the German equity index in the 1920s, which increased from roughly 100,00 at the beginning of the year 1918 to 26.890.000.000.000,00 at the end of 1923. Notably, when measured against gold, the German equity index has in the run-up period to the hyperinflation as well as in the first phase (until autumn 1922) lost value in real terms, and only later slightly gained.

The search for value drives asset prices up, fueled by fear and despite a dire economic environment. All the more illustrative however are contemporary witness reports. Notable are the descriptions by Dr. Moriz Dub, who already in 1920, the aftermath of World War I, observed an inverted correlation between the devaluation of the currency and the stormy upward movements on the German and Austrian stock exchanges.[141] Only two years later, he attests a further intensification of what he described as a "peculiar dynamic". In particular, he emphasizes the general interest in stock market movements, a generally low disposition towards saving, a scarcity of goods and a redistribution of wealth within society from the poor to the rich.

These observations perfectly herald the German hyperinflation — or Crack up Boom — of 1923. While in 1914 the US-Dollar was valued at 4.20 German Reichsmark, by 1922 it had declined to only 1/1000 of its prior value, before in November 1923 trading at 4.2 billion Reichsmark for the US dollar. Behind this absurd and disastrous devaluation of the currency was the Reichsbank, the German Central Bank, which followed suit to the clamor for ever more money in light of the accelerating prices.

Director of the Reichsbank, Rudolf Havenstein stated the running hot of the printing press:

> "The wholly extraordinary depreciation of the mark has naturally created a rapidly increasing demand for additional currency, which the Reichsbank has not always been able to fully satisfy. A simplified production of notes of large denominations enabled us

[141] (Dub, 1922, p. 3).

> to bring ever greater amounts into circulation. But these enormous sums are barely adequate to cover the vastly increased demand for the means of payment, which has just recently attained an absolutely fantastic level, especially as a result of the extraordinary increases in wages and salaries. The running of the Reichsbank's note-printing organization, which has become absolutely enormous, is making the most extreme demands on our personnel."[142]

And Bresciani-Turronidescribes it:

> "It was in the autumn of 1921 that business on the German Bourse reached such a condition as to put in the shade even the classical examples of the most violent fever of speculation. The technical equipment of the German exchanges was insufficient for the increasing mass of transactions."

And Dub observes: "In the price sheets we find shares, which have remained without yield for years and yet have the highest ratings. Imagination takes the place of calm calculation."[143] Less obviously visible is how the unpredictable and risky environment sooner or later affects credit markets and private lenders of money who become more and more cautious, demanding higher interest rates provided they are still willing to lend. Even Karl Marx noted that "the rate of interest reaches its peak during crises, when money is borrowed at any cost to meet payments".[144] As a result the loan and capital markets will shrike in volume and time dimension, further harming the already weak economy. For example in Germany in 1922 "a scarcity of the means of payment began to be felt […] Deposits in the banks diminished rapidly because of the progressive depreciation of German money. That obliged the banks to restrict credits".[145] Also during the hyperinflation in Argentina in the 1980s, credit markets with a duration longer than 14 days simply ceased to exist.[146]

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142 (Havenstein, 1923, p. 25).
143 (Dub, 1922, p. 6).
144 (Marx, 1894, Vol. III, part V).
145 (Bresciani-Turroni, 1931).
146 (Bernholz, 2003, p. 93).

The disruptions and frictions can persist in the economy for a long time. As Mises describes:

> "The wavelike movement affecting the economic system, the recurrence of periods of boom which are followed by periods of depression, is the unavoidable outcome of the attempts, repeated again and again, to lower the gross market rate of interest by means of credit expansion. There is no means of avoiding the final collapse of a boom brought about by credit expansion. The alternative is only whether the crisis should come sooner as the result of a voluntary abandonment of further credit expansion, or later as a final and total catastrophe of the currency system involved."[147]

However, once a threshold is reached "the crack-up boom appears. Everybody is anxious to swap his money against "real" goods, no matter whether he needs them or not, no matter how much money he has to pay for them. Within a very short time, within a few weeks or even days, the things which were used as money are no longer used as media of exchange. They become scrap paper. Nobody wants to give away anything against them." Ultimately, supply chains will be heavily affected by the massive friction throughout the economy as well, although this is much more difficult to measure. A scarcity of goods is the result.

When the currency fails to perform its economic purpose of acting as a form of money, a general breakdown occurs in all sectors of the economy. The economy literally seizes, as all bi-lateral transactions become insecure and uncertain. The damage however is much broader than its narrowly economic impacts because money is more than a financial tool — it is a societal institution. Without the ability to trust strangers who previously had a stash of reliable currency for a transaction, humans turn inward and towards other forms of societal trust, such as tribes, gangs and guilds. All social interaction constricts, language, arts, science and even sports. The entire fabric of society is damaged by the sudden failure of a currency. The Crack-Up Boom is much more than simply an astronomically high stock market index.

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[147] (Mises, 1949, p. 818).

8. **Conclusion**

Money is a societal institution serving as a channel of communication between all market participants, allowing us to obtain the things we need and want in a specialized world. Money is a uniquely human invention and it "allows humans to structure life in incredibly complex ways that were not available to them before the invention of money".[148]

Currencies, in the form of coins and paper bills, constitute the most widely used form of money today — albeit just one form of money amongst multiple. However, the eligibility of currencies for artificial credit expansion makes their economies also highly vulnerable to the resulting economic distortions, such as volatile prices, interrupted supply chains and a dried up market. Eventually, too great distortions will impede the functioning of the economy and lead to the breakdown of the currency. This phenomenon is known as the *Crack-up Boom*.

The most commonly observed symptom of the Crack-up Boom is hyperinflation, although there are many other symptoms of economic malaise, such a seizure of the credit market, investment market and supply-chains of goods and services. The end result is always the loss of trust in a currency, its failure, and typically there is a subsequent emergence of a new currency.

According to Mises, throughout the early stages, the path towards a Crack-up Boom can still be abandoned by stopping all further credit expansion and allowing for the self-correction of the distortions in the economy. Otherwise "hitting rock bottom" can only be postponed but not avoided. On a more positive note, as the Manchester banker John Mills pointed out so perceptively "as a rule, panics do not destroy capital, they merely reveal the extent to which it has previously been destroyed by its betrayal into hopelessly unproductive work".[149] Thus, in the end the Crack-up Boom constitutes not only the breakdown of the failed existing currency regime, but also the *tabularasa* for the emergence of a new money, whether it be another currency or any other form of money.

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[148] (Weatherford, 1997, p. 43).

[149] (Mills, 1867).

> "The more the money supply grows, the more likely it is that there will be hyperinflation and a potential breakdown of money demand: the unfolding of a crack-up boom." (Mises)

Conflict of interest

The author declares it has no conflict of interest.

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