The GREEN-MARKET SYSTEM

A Second Currency for a Parallel Economy

A study of parallel currencies in past and present times

Vincent LANNOYE

Parallel economies to reduce inequalities

Many parallel economies (with their currencies) have flourished in the past and still exist today. Their principles and benefits – often overlooked by economists – are worth learning through historical and modern examples. In continuation, could an innovative parallel economy fit in our society?

to reduce inequalities... and contain global warming

As the middle class is hurting, especially in rural America, could a parallel economy help the underprivileged and win over everyone?

Could the last chapter's Green-Market System work? To be successful, such a System must create jobs with good wages... and convincingly cut down CO_2 emissions. Would this System be too good to be true?

The Green-Market System

References for the data:

References for the data can be obtained by searching the Internet for the keywords in the text. It should allow an easy cross-checking of the facts. Otherwise, the author can be contacted through the website findtheflaw.com, although some of the author's references may be in French.

Acknowledgments:

Editing and feedback about text accessibility: Margaret Strubel.

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A Second Currency for a Parallel Economy

Essay

First Edition

Vincent Lannoye

The Green-Market System: A second currency for a parallel economy

ISBN-13: 978-1515309093
ISBN-10: 1515309096

This present book is based on:
The History of Money for Understanding Economics (2nd edition)

ISBN-13: 978-1507845905
ISBN-10: 1507845901
(Half of this book is freely available on findtheflaw.com.)

In memory of my mother.

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Foreword

It's the economy, stupid! (This phrase was core to the 1992 election of Bill Clinton.) Yes, the main subject of the book is the economy, and especially the parallel or alternative economies.

Based on historical and contemporary examples, this book focuses on alternative financing to unlock a paralyzed core economy by financing a parallel economy... and indirectly, to reduce inequalities.

The next few chapters will illustrate such parallel economies stemming off of the main economy:

- Chapter 1: The Industrial Revolution came out of nowhere, aside from stagnant farming and small workshops. It happened around a Financial Revolution with an innovative currency at its heart.
- Chapter 2: Attempts to copy the alternative currency of the Industrial Revolution had different fates, which are worth learning.
- Chapter 3: Parallel economies still exist, although often overlooked. With their alternative currencies, they have eased the struggle of the main economy, and the reasons of their success must be understood.

Based on these examples, the final chapter presents a similar yet original monetary solution in order to reduce inequalities and prevent the Earth's global warming:

- Chapter 4: The original Green-Market System and the creation of its parallel currency. Is this System too good to be true?

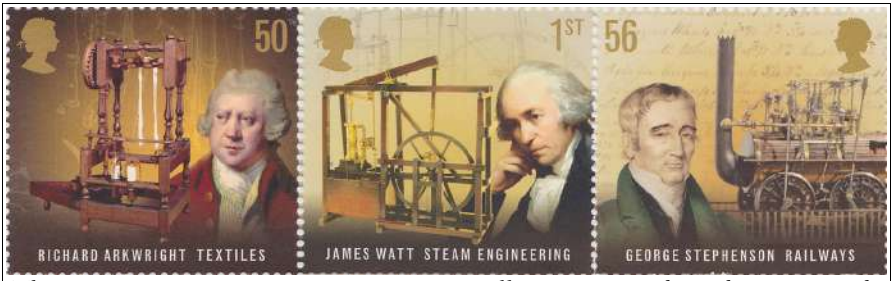
THE GREEN-MARKET SYSTEM

(FROM PARALLEL CURRENCIES

TO THE GREEN-MARKET SYSTEM)

Chapter 1

From the New Parallel Currency of the Banknotes to the Industrial Revolution



The economy matters. A strong economy will generate goods and services to be redistributed (hopefully fairly) according to the wages of the people. On the contrary, no output means not much to redistribute, even not much to tax and pay for infrastructure, healthcare, defense, and other governmental projects.

What drives economic output? Well, the most successful system has been capitalism, despite its flaws. It should mix free-enterprise, fair regulations, and funding of new ideas. And, it is wise to understand it before criticizing it.

To explain capitalism, the best illustration happened in the 18th century, when the British economy dramatically increased its output, and unexpectedly sparked a revolution of a new kind: the Industrial Revolution. Moreover, it is important to understand the financing of the Industrial Revolution in order to understand how to fund a Green Revolution.

This Industrial Revolution was made possible by new monetary tools that avoid deflation (which is explained in free half book on findtheflaw.com/free).

Indeed, the monetary system predating the Industrial Revolution, i.e., until the late 17th century, was often tied up with deflation linked to the lack of currency:

• Gold and silver coins, with 1 ounce of gold worth around 15 ounces of silver. It was hardly possible to multiply coins by debasing their precious content, which people could verify with touchstones and other techniques in use since the middle ages; people were quick to reject debased coins or to move their trade to a neighboring country with better coins.

• Token coins, or small denomination copper coinage. Token coins were fractional equivalent of gold or silver coins. Token coins were accepted as payment because they were convertible on demand into gold or silver. Due to the slow circulation of token coins prior to any conversion into gold or silver, it was pure profit in gold or silver for the token coin issuer, which was often the Mint or sometimes private institutions. Token coins had to be issued in limited quantities to guarantee conversions into gold or silver at the issuer.

• Bills of exchange. They were certified checks for merchants. Merchants could safely deposit their coins in a bank and use such bills of exchange as means of payment in place of their coins. After payment, merchants could even endorse the

received bills of exchange for further payments. In the meantime, as the merchants were not withdrawing their coins for some time, banks could loan the coins left in deposit during the same time, and cash in juicy interest. However, the use of these bills of exchange was limited to trusted acquaintances within the circle of merchants and bankers.

(More details about the monetary system, inflation and deflation, can be found in the first half of the book "The History of Money for Understanding Economics", which is freely available online.)

Scarcity of coins in the 17th century

Deflation in Europe

From 1650 to 1730, a stagnation – at best – followed the previous economic expansion. Its reasons were partially political. First, Catholic kings fought to fend off the quest for broader liberalism rising up since the Renaissance and the Reform. Second, nations of the European continent clashed in order to complete their formation. Confrontations for Europe's hegemony were constant. The period was violent.

Other explanations were economic. Essentially, Spain fell from its pedestal as Europe's dominant economy. Spain was highly dependent on its silver and gold mines from the Americas, but smugglers, pirates, buccaneers, corsairs and privateers brutally pillaged Spanish galleons and stole the noble metals. Spain's economic downfall disrupted international trade. In the rest of Europe, some progress and success were visible, but they were heterogeneous; meanwhile, mercantilist monopolies supported only established factories and industries with merchants and producers growing richer while pauperism characterized European masses.

In addition to mercantilism, coin scarcity stressed economic tensions. The lack of gold and silver resulted from the dwindling production of noble metals. Notably, the silver extractions of the Americas dwindled after 1650. Also, stashing increased in those violent times. Finally, gold and silver leaked out toward India and China with the resuming maritime trade around Africa. Trade with these countries, still not substantially interested in European production, was balanced with gold and silver. The lack of coins was marked. It generated the fall of prices, or deflation, and accentuated the economic recession. From the price data, historians have confirmed that there was a deflation from 1650 until 1730.

Less recession and deflation in the Netherlands and in Great Britain

To dodge the deflation of the 17th century, the governments couldn't simply debase their coins. At that time, the people were quick to assaying suspicious coins with new technologies. The only remaining solution was to attract gold and silver at home. Two countries achieved this end. They were the Netherlands, still called the United Provinces before 1795, and Great Britain. Both countries absorbed silver and gold by trade. Their trade and banks were thriving, albeit without compensating the trade collapse with Spain. Thus, the Netherlands and Great Britain resisted deflation better than the other European countries. This fact was remarkable considering the demographic growth, which was always voracious for currency, and which was higher in the Netherlands and in Great Britain that in other countries.

The economic policy of the Netherlands and Great Britain was inspired by the new school of liberalism opposing mercantilism. Liberalism originated from the Renaissance and especially from the Reform, whose most prominent thinkers, Luther and Calvin, deeply influenced mentalities. Liberalism broke down the medieval model of authority. Liberalism diffused throughout society, including in the economy. It loosened the ban on interest on loans, condemning it only when it was in excess. It attenuated the traditional religious restrictions imposed on trade. Liberalism welcomed the financial tools born with the Renaissance in Italy. Finally, it fostered financial innovations in Northern Europe.

New financial concepts

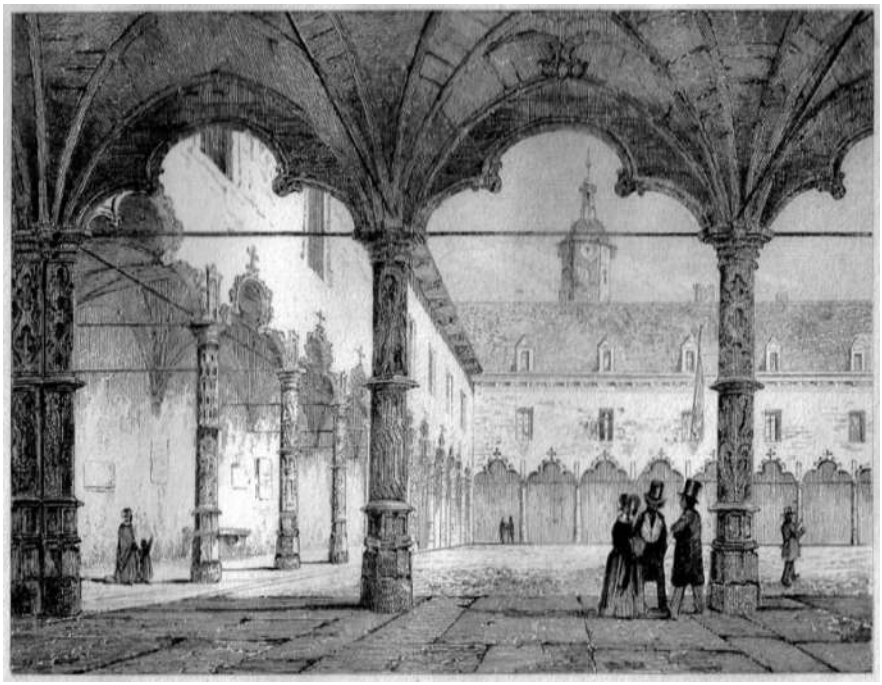
New forms of trade and financial practices spread with the Renaissance. Italian merchants and their advanced banking structure radiated over Europe. Their bills of exchange disseminated over Northern Europe. But maritime trade demanded other financial tools, because boats had tacked from coastal traffic to intercontinental voyages. In the late 15th century, the Portuguese sailed around Africa to reach the Far East, in order to circumvent the Turks who controlled the roads of silk

and spices since they conquered Constantinople in 1453. Later, Christopher Columbus tried to reach Asia by the West and discovered instead an uncharted continent, which extended trade over the Atlantic.

In the 16th centuries, ***corporations*** were legally defined in order to sustain large projects such as sailing to India. Corporations were "juridical" persons. Thus, they had a legal personality – distinct from "natural" persons in the flesh –, a date of birth (the creation date of the corporation), a legal residence (the building of the corporation), duties, liabilities, lawsuit possibilities, and properties or assets. Those assets were initially a sum of coins received from the owner of the corporation. It represented the ***stock*** or the ***capital*** of the corporation. With these assets, the corporation could start buying, hiring, building and selling.

Setting up a corporation had two main benefits. First, the owner of a corporation could sell the entire business by simply selling the stocks of the corporation. Second, a bankruptcy of a corporation limited its owner's loss to the capital itself. The owner wasn't personally wiped out and punished for his endeavor and his risk-taking. Such clemency inspired the legislative essence of corporations. The liquidated corporation would disappear by a simple written cross on its name, and its assets were split amid creditors, providers and other holders of unpaid debts, and only the leftover, if any, was returned to the corporation's owner.

To increase its capital, the corporation could collect money by selling ***shares*** or stocks, which were a title of joint ownership of the corporation. The corporation was then a ***joint stock company*** controlled by the ***shareholders*** or ***stockholders***. They decided how to run the company by a simple majority in pro rata of the number of shares. They also split between them the profit of the corporation, or the "earnings per share". Often shareholders of the corporation approved a partial distribution of the profits to preserve funds for new activities without resorting to a bank loan with heavy interest. The remaining fraction of earnings per share distributed to the shareholders was the ***dividend***.



Surging capitalism in the 16th century. Stock markets helped to finance projects deemed too risky by banks. Banks were avert to excess of risk, although they would grant loans to corporations, once they had raised capital usable as guarantee for the bank loan. If the risky project failed, the shareholders would lose it all, while the bank would recover at least the corporation's capital. In 1531, the first building ever dedicated to host a stock market was erected in Antwerp (nowadays in Belgium). It is depicted in this engraving of 1858 just before a fire burned down this original building.

To facilitate the sale of shares or stocks, ***stock exchanges*** were created. Stock exchanges were private companies that organized markets to sell and buy shares within their walls. In the stock exchange, new joint stock companies met with potential investors, instead of raising funds through inefficient door-to-door sales. With the money raised by selling shares, corporations could expand their business.

The stock exchange was also a market to resell shares by their holders who were in need of liquidity. Shares were ownership docu-

ments and were not refundable by the company, but only transferable to another private individual for a sum of coins.

The selling price of a share was estimated on the base of earnings per share expected in the coming years. If a share promised to pay 10 coins per year, the market conceded to buy it at 100 coins if it expected a profit of 10% per year (the share is said to have a ***price-earnings ratio*** of 10). The profit was not simply the dividend, but could be the actual profit, or even the potential profit after restructuring, which could be valued by another larger corporation taking over the smaller corporation by buying a majority of its shares.

The final prices were fixed by a system of quotation similar to normal bidding, but with many sellers and many buyers. This system of quotation invented in the late Middle Ages was adopted by the stock exchanges to avoid comparing prices in each corner of the market. Instead, sellers and buyers of a share agreed once a day on a transaction price to satisfy a maximum of buyers and sellers. This operation was repeated daily and gave the ***share quotation*** day after day at the stock exchange.

In the early 17th century, stock exchanges started to trade bonds issued by corporations and even by the Treasury of regional or national governments. New bonds could be sold to raise cash. Also, people in need of immediate cash could resell their bonds before the end of the bond's term and its full repayment with interest by its issuer. Stock exchanges had expanded as ***bond markets***. The stock exchange of Amsterdam was one of the first to trade bonds on its floor.

Shares, bonds and stock exchanges helped to collect funds to finance new ideas and long-term projects. Later, the nonrefundable shares or the bonds could be used as a guarantee to obtain an additional short-term bank loan.

Corporations, shares and stock exchanges came to supplement the role of banks, insurances and bonds. The panoply of such financial means entrusted by individuals to corporations composed the "capital". ***Capitalism*** was born in the 16th century, even if its roots went down to bank loans.

In Northern Europe, those means manipulated by financial people,

mainly Jews, Protestants and other banished Europeans, attracted coins from abroad to finance trade expansion. In the 16th century, the town of this revival was Antwerp. In the 17th century, Amsterdam took over Antwerp's success after the Treaty of Westphalia in 1648, when the Northern Netherlands obtained their independence from Spain, while the Southern Netherlands, or Flanders, remained under control of the Habsburgs. At the same time, this newly independent nation, the United Provinces, later called the Netherlands, organized the maritime blockade of Antwerp, which relegated the city to a secondary economic role.

Nicolaes Ruts commissioned Rembrandt to paint his portrait in 1631, as every affluent man wished to do. But he was not a noble, neither an industrial magnate. He was a rich fur merchant buying from Russia – thanks to the numerous coins of Amsterdam's financial system – and reselling in Europe.

In the early 17th century, the United Provinces spectacularly developed. In particular, the Bank of Amsterdam was innovative. This state bank achieved unifying coinage in circulation with quality coins that made Amsterdam famous as center of exchange. It empowered the Bank to accumulate deposits of coins and to convert them into loans for Dutch municipalities. Also, remarkably, the Bank financed the fleets of the Companies of the Indies, thanks also to the stock exchange snatching the coins that accumulated in Amsterdam due to a liberal tax-free mood. However, this liberalism related only to influx and

outflow of currency from the country. Monopolies protected financial and industrial establishments from internal competition. For this reason, the Dutch economy stagnated without broadening its industrial base. In the late 17th century, the Netherlands were in decline.

In the second half of the 17th century, London came to rival Amsterdam with its stock exchange, banks and financial know-how. To attract ingots and coins from abroad, the mint of the Crown of England abolished seigniorage in 1666. They declared ***free minting*** with the mint only charging the bare cost of restrike of precious metals. But unlike the Netherlands, Great Britain was to succeed to industrialize. Great Britain was to extend bank loans to finance new industries, despite the lack of silver and gold coins. Such industries mass-produced textile, glass, paper, clocks and metals. The audacious British model of financing will now be explained from the 17th century until the rise of a new kind of revolution: the Industrial Revolution of the 18th century.

In the 17th century, trade activities were the first to take large-scale advantage of such financing from stock markets. The main example was the Dutch "United East India Company (Vereenigde Oost-Indische Compagnie, VOC), established in 1602. This corporation traded spices with India, but also established colonies, negotiated treaties, and even coined token money convertible into precious coins (see picture).

In the 18th century, production burgeoned with this funding combining with other financial novelties, as explained later. This was the ignition of the Industrial Revolution.

In the 1990s, high tech also benefited from stock market financing, although the system needed to add extra funding from venture capitalists and from the new NASDAQ when high tech projects were deemed too risky to be listed on the NYSE.

Appearance of the banknote in England in the 17th century

Birth of English banks

London banking was born around 1640, when King Charles I openly aspired to seize gold deposits left in the Tower of London. Anxious merchants transferred their deposits to the goldsmith-moneychangers of London. The movement accelerated during the civil war that exploded in 1642; goldsmith-moneychangers took the jewels and coins from their regular clients as deposits.

With those deposits, goldsmith-moneychangers became bankers who offered possibilities of loans in coins. Bankers also granted loans to accounts when enough clients left the coins from their loans in the bank and instead used checks or transfers between accounts. To increase volumes of deposits equal to more loans, banks began to remunerate deposits with interest after 1660. Interest on loans covered the interest on deposits, as well as administrative expenses, safes' costs, and turned a copious profit.

Charles I of England (on this fourpence or groat) had Catholic sympathies and advocated for the divine right of kings. The English people reacted with half a century of Civil Wars, the Bill of Rights, and last but not least, the monetary creation shifting in the hands of the new financial "City of London".

Appearance of banknotes

A receipt from the bank testified a deposit, or a loan of coins granted and left in the safe. For security reasons, coins were often left in the safe in exchange of a nominative receipt. With such practices, clients avoided carrying coins in their pockets, and simply endorsed the receipt for payments. In fact, Englishmen simply imitated the Italian or Dutch practices.

English banks simplified the receipt. A receipt labeled exclusively with the bank's name was given, instead of labeled with the name of the account holder. With this receipt said "to the bearer", the modern ***banknote*** was born. The banknote was exchangeable in coins at the bank stipulated on the note. There was no more need to endorse it, because only the bank's name mattered. The banknote passed from person to person until the sum of coins written on the note was claimed at the bank having issued the note. In 1668, the first banknote was accepted in England as payment instead of coins. In 1704, the legality of these paper notes was ratified in England, which established the foundations of banknotes in the early 18th century. Still, in the England of the early 18th century, only merchants, bankers and the government could appreciate the services of the banks and their banknotes. Popular classes were excluded by the banking structure. Most people only handled coins, especially token coins.

Banknotes were labeled in silver weight, as most coins, and were ***convertible*** in silver coins or in gold coins through the bimetallic ratio. The label of the unit of banknotes was often the ***pound sterling***, rather than the ***shilling***; the shilling was too low a value for merchants who handled banknotes. Numbers stipulated on banknotes were rounded to hundreds, tens or a single unit of pounds sterling, which could combine to replace inadequate banknotes of, for example, 637 pounds sterling.

For their part, coins were struck and labeled as shillings rather than as bulky pounds sterling of silver. Pounds sterling were mostly used in accounting, until banknotes visualized pounds sterling for the first time.

A shilling was worth a 1/20 of a pound sterling, and a silver penny

was worth 1/12 of a shilling, with the penny being the English translation of the silver denier of Charlemagne. The silver "sixpence" of 6 pennies and the silver half-crown of 30 pennies circulated likewise. Coins of lower value were copper alloy token coins such as the half-penny or "halfpence". Finally, the principal gold coin was the ***Guinea***, which fluctuated around 20 shillings as dictated by any adjustment of the bimetallic ratio. The name of "Guinea" came from the African origin of the gold at that time.

All the coins were of a high fineness known as ***sterling*** that was of 92.5% for silver and 91.6% (22/24 or 22 carats) for gold. It should be noted that, since Elizabeth I in 1601, 62 shillings were worth precisely one pound of sterling silver in weight measured in the ***troy*** system used for precious metals. One troy pound weighs 12 troy ounces or 5,760 grains (± 373 grams), while the traditional "avoirdupois" pound is 16 "avoirdupois" ounces or 7,000 grains (± 453 grams). Therefore, one shilling was worth 1/62 of 373 grams of sterling (92.5%) silver, or 5.6 grams of pure silver. Of course, gold coins were linked to silver coins by the bimetallic legal ratio. With a ratio of 1:15, a pound sterling was worth 112 grams of pure silver or 7.46 grams of pure gold.

Issues of banknotes restrained by convertibility

In the 18th century, banknote usage spread. The people accepted those printed banknotes payable to the bearer because they depended on a renowned bank with stamps and signatures; not on a bank account of a mysterious customer paying by endorsing a bank receipt with a blurry signature. Trusting the bank, the seller could later exchange the banknotes for precious coins, without concern about the liquidity of the bank account of the buyer who paid with the banknote. This way, payments in banknotes extended outside of the circle of trusted and solvent acquaintances. These new practices attracted new clients to the banks. Also, common sense dictated the use of flat paper banknotes instead of bulky coins, especially for high sums. Overall, these banknotes were welcomed with trust in the bank to convert its banknotes into coins. There was no ***legal tender*** character (obligation

to accept the currency as payment for a sale) for banknotes at that time.

Technically, banknotes were issued through loans, which were progressively granted, not in coins, but in banknotes. And, loans in banknotes were equivalent to crediting in account without coin withdrawal. So, with banknote usage spreading, loan volumes granted by banks could increase. Especially, the competition between banks rich with coins… and banknotes, encouraged lending with lighter interest charges.

Banks limited quantities of banknotes loaned to their clients, even if borrowers were satisfied receiving loans in banknotes that would be accepted to make payments. Banks knew that these banknotes used in payment could return quickly to the bank for conversion into coins. Banks could possibly curb the conversion of banknotes into coins by enticing banknotes to be deposited in the bank. But, every deposit account holder believed to have coins in the bank whether he had deposited coins or banknotes. Banks had to ensure the withdrawal of each depositor that could claim his coins anytime. For this purpose, banks lent only in proportion to coins in deposit in their safes. Banks had to preserve a sufficient level of ***required reserves*** in gold or silver coins to cover deposit withdrawals and conversion of banknotes. Banks were to ensure the silver or ***gold-convertibility*** of its banknotes.

In the early 18th century, the various forms of paper money (personal receipts and banknotes) already exceeded the quantity of coins in circulation. The English banking structure had stoked money circulation without gold or silver. Banknotes and token coins had alleviated the lack of silver and gold, and therefore deflation. As already specified, England suffered less from deflation than most countries.

First bank runs

In Europe, the first issue of banknotes happened in Sweden in 1661. The banker in question multiplied loans visible through banknotes. A few years later, he couldn't repurchase his banknotes with silver and gold coins, and went bankrupt. The first try, the first failure. Perhaps the Swedish banker escaped the death penalty, unlike coin forgers,

because the judge didn't consider his banknotes as false coins. Still, this banker stagnated in jail for the rest of his life.

Around 1710, only two British bankers had survived since 1640 and the early times of banknotes. All the other banks had gone under due to the lack of coins in vault which could have allowed withdrawals by depositors, or for failing to convert banknotes that expressly mentioned "pay to the bearer on demand" in coins. The failed banks had granted too many loans, which had been withdrawn in banknotes that had been eventually converted to too many coins. Bad loans not being paid back on the due date squeezed even more the coin reserves, until bankruptcy became inevitable.

Sometimes, simple rumors of bankruptcy had spurred a sudden spike of coin withdrawals or banknote conversions. It was a ***bank run*** with people storming in to yank their deposits of coins or to claim the conversion of their banknotes in gold or silver. Bank runs appeared in the 17th century, when banking was becoming a common practice in the society unlike in medieval times. Bank runs were without pity. Especially, they could spill over into other banks and bankrupt anyone, even sound banks that had loaned to creditworthy clients.

100 dalers silvermynt, banknote issue by the Stockholms Banco, 1666. For such a banknote, unlike a bill of exchange, the signature of the bank account holder isn't required. Here it is replaced by the bankers' signatures and other printed details against counterfeiting.

Obviously, a bank run could bring a bank down as soon as the bank had granted its first loan. This was true, because the vault didn't contain the totality of coins in deposits after the first loan had been

granted by the bank. The threat persisted even if the loan was granted in banknotes, because the banknotes meant a conversion equivalent to a withdrawal of coins from the vault. The banknotes could also have come back into a new deposit account after their use in payment, but the new deposit was considered like coins by the account holder. So, the volume of deposit accounts always exceeded the volume of coins in the safe of the credit institution. In conclusion, the bank run, the suspension of payments and the bankruptcy could happen as soon as the first coin was lent or the first banknote was issued.

To quiet rumors and stave off bank runs, banks refused servicing bad clients who were unlikely to repay regularly. Banks could also ask for more guarantees before granting a loan. In the case of low gold and silver reserves, banks increased interest rates to encourage deposits and to discourage loans. These interest rates could sometimes reach 20% during a bank run and necessity to rebuild the reserves of silver and gold coins by attracting deposits and dissuading loans.

Despite the sporadic crises, banknote usage spread. The need for currency was a strong incentive. Better a banknote in payment, rather than no sale at all.

Convertibility of banknotes restricted to gold coins after the "Great Recoinage"

In the late 17th century, coins were altered after a long period of clipping by dishonest souls and a dry spell of restrikes by the authorities. Hanging counterfeiters hadn't frightened other forgers to enrich themselves illegally. As always, silver coins were the most deteriorated by day-to-day handling and being the focus of counterfeiters, while gold coins – increasingly preserved in banks – were intact.

In 1689, another war broke out between England and France of Louis XIV. The English army and especially the navy needed presentable silver and gold coins to ensure provisioning on the European continent. Thus, the English Parliament voted for a generalized restrike of coins. The "Great Recoinage" started in 1696 and was completed in 1699. This time, the restrike was brought to bear with the power press. It was supplemented by the mechanized marking on

the rim of coins to testify the absence of clipping. Different rim markings have systematically enhanced coins since that time. Rim marks was obtained by pressing the coin against a grooved marking wheel to form a ***reeded edge***. The marking could also press letters into the edge for an ***incused edge***. Finally, an ***upsetting mill*** machine could press the edge of a blank to enhance the rim on both faces and allow marking the edge of the faces.

Unlike coins of the 17th century, such at the thaler on top, the blanks from the 18th century were struck in two phases: striking and edge marking, as on the George II shilling and on the Maria Theresa thaler. Later came the raising of blank's rim before the strike in order to enhance edge details such as a chain of dots, as on the gold half-sovereign at the bottom.

The operation revalued silver coins, or rather it brought them back to their legal weight. Long debates had led to this decision, which ruled out a devaluation of deteriorated silver coins at the level of their average silver weight. The eminent philosopher John Locke himself argued in favor of a revaluation. Also, another silver reduction would have antagonized the English people who were wary of monetary abuses that had taken place since Henry VIII and Elizabeth I. Circu-

lating coins, deteriorated or not, were to be exchanged for new coins legally equivalent. The quantity of silver in the new coins was to be realigned with the current legal weight, therefore to the face value. The Treasury financed the purchase of the missing metal with a new tax based on the number of windows in a building, which was supposed to be proportional to wealth.

The revaluation indirectly modified the bimetallic ratio. By law, the official bimetallic ratio was still near 1:16. However, the streets of London and the European continent were changing silver for gold at a ratio close to 1:15 since 1680 when silver demand increased from countries such as the Far East or Brazil. To adapt, each country had modified its coins and therefore its ratio. Otherwise, overvalued silver coins were exported to the Far East or Brazil, unless clipped as in England. Moneychangers have always leveled the discrepancies between national bimetallic ratios.

With the Great Recoinage, all of Europe suddenly sold its gold to England to obtain 16 ounces of silver for one ounce of gold. The profit was an ounce of silver per ounce of gold exchanged. Gold flowed from every country to England, and in the opposite direction, silver disappeared from England. The anomaly was rectified in 1717 by fixing the gold Guinea coin at 21 shillings of silver instead of 20. This modification set the ratio close to 1:15. This measure was faster and cheaper than another restrike of gold coins to lighter standards. The master of the mint of England was at that time the illustrious Isaac Newton.

The overvalued ratio involuntarily clarified the currency circulation in England. Gold coins dislodged silver coins from English ground, with banks ensuring the convertibility of banknotes essentially in gold coins. Following this casual gold over-estimation, only gold convertibility – omitting silver – of British banknotes would be enacted in the 19th century. It will be the renowned "Gold Standard". This monetary watershed will be described later.

Other changes for British currency

Most of the English silver coins disappeared from Britain until the bimetallic ratio was rectified in 1717. Later, silver barely came back. It stayed in continental Europe that was trading with Spain, enrich with silver from Bolivia and Mexico. Rather, England traded with allied Portugal, rich with gold from Brazil. It resulted in a shortage of low value coins – such as this George II silver shilling from 1758. To alleviate the coin shortage, the Royal Mint struck half and quarter gold guinea, silver sixpence, silver threepence and token coins. And, despite the numerous fake coins of the 18th century, the people accepted the new coins, as well as they accepted the new banknotes.

The Royal Mint had suspended the strikes of token coins from 1648 to 1672. The Royal Mint had declared itself unable to produce sophisticated token coins that were impossible to counterfeit. The Royal Mint feared to lose its silver or gold stocks from converting a profusion of undetectable fake token coins into precious coins.

To fill the void, thousands of private corporations struck private token coins. These token coins were convertible by these same corporations, on the model of the convertible banknote system.

In 1672, the Royal Mint finally resumed the strike of token coins taking advantage of the mechanization progress for an acceptable quality of coinage. Notably, those token coins were untouched by the Great Recoinage of 1696.

Around 1707, the Mints of Scotland and England unified their coinage. It happened when Scotland united with England to create "Great Britain" and to end the ceaseless wars of Scottish independence. For its submission, Scotland accepted a huge sum of silver coins. At the

time, Scotland was in dire need after going broke in a failed attempt to colonized Panama (Darien scheme). Since then, the monetary systems of Scotland and England have been bound by the same standards of coin weights in pounds sterling. A pound sterling from Scotland was worth a pound sterling from England. Even in the twenty-first century, the "pounds sterling" indicate the currency union of Scotland and England.

By the early 1700s, Great Britain was well on its way from a bimetallic system in silver and gold coins to a system of banknotes and token coins convertible exclusively into gold coins at bank counters. And, Great Britain had arrived at mono-metallism almost involuntarily.

Loan multiplication and the Industrial Revolution in the 18th century

Loans with guarantors in Scotland

In Scotland of the 18th century, coin scarcity was more pronounced than elsewhere. Banks had few deposits in coins. Such a lack of deposits to ensure silver or gold reserves squeezed volumes of loans. Banks only granted loans to the rich who were sure to repay and who held solid assets in guarantee. This restrictive access to loans forced the Scots to mull over their banking system.

Around 1730, the Scottish banks found ways to foster lending by capitalizing on the rising usage of paper banknotes. Scottish banks issued inventive rules to grant loans. From then on, interest charges were to be paid only in proportion to the amount that was actually withdrawn, which was a fraction of the total loan. By this measure, withdrawals of banknotes were limited to immediate needs for liquidity. With fewer banknotes in circulation, conversion into coins diminished and reserves in coins obviously increased.

The banks added another rule. Any potential borrower, even penniless, could obtain a loan if he was sponsored by two guarantors who

were deemed creditworthy by the bank. The bank ensured loan repayment with those wealthy guarantors. With this system of loans with guarantors, the supplier could build up sales, because he could be the guarantor of his customer. He could help his customer to borrow in banknotes, synonymous with scriptural money. He was certainly more dedicated to his customer than the bank. The cautious bank still demanded a second guarantor, who could perhaps open a deposit account of gold coins at the bank.

With his loan granted, the happy customer cashed in the banknotes received from the bank while the seller-guarantor took the payment in banknotes from the customer-borrower. Rather than not selling in coins, one might as well sell something paid in banknotes while assuming partly the responsibility of the debt… with the banknotes. With such loans, the customer-borrower acquired matter to work, produce, sell and repay his debts. To sell, the borrower sponsored for his part his own customers, also avoiding the lack of coins. He accepted payments in paper banknotes with which he could pay back his loan with interest.

Banknote usage brought new clients to the bank. The incomes of banks increased from interest on judiciously granted loans. The interest was perhaps paid in banknotes, but banknote usage spread to make purchases. Eventually, the banker wasn't richer in gold coins, but he grew richer in goods paid in banknotes. There was real wealth, not the illusion of inert gold coins! Wealth always came from work, never from gold coins that only could buy tangible assets produced by hard work.

The Industrial Revolution financed by the rise of capitalism

For the first time in history, the loan with guarantors of the 18th century made bank loans available to clients rich only in technical knowledge. Loans, until then restricted to merchants and governments, were available to skilled Scottish people; this system was rapidly imitated by their English neighbor. The multiplication of loans in account or in banknotes helped to supplement corporations' capital. Capitalism reached industry with the British people financing new

ideas for improvements. Such capital financed the purchase of machines, the construction of buildings, and pay for the workers' wages to expand a project. A smaller amount, called ***working capital***, could provide the minimal supplies to operate factories or shops, and thus increase the competition. Of course, such development had a major influence on the economy, even if it had happened almost unconsciously.

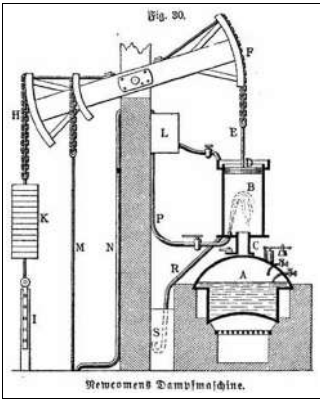
Simultaneously, ingenious technologies emerged in Europe, especially since inventions could be patented ever since the 17th century. In the 18th century, everything was in place to ratchet up quantitatively and qualitatively in industry and agriculture. The most emblematic progress was the steam engine channeling the power of steam to rotate pumps, mills, textile machinery and an uninterrupted succession of innovations that increased productivity. Industry transformed agriculture as well with stronger types of steel for deeper plowshares or longer scythes that replaced short sickles. Throughout the 18th century, peasants and craftsmen sold their increasing production to each other, empowered by the series of technological improvements.

Lastly, in the 18th century, a challenging ideology influenced decision-makers. It was the liberalism, which promoted liberty and equality. Liberalism was itself closely linked to the birth of the parliamentary system from the "Bill of rights" in 1689 when Empiricism and Enlightenment were burgeoning. In the wake of political liberalism, economic liberalism of the Enlightenment challenged the mercantilism of the Renaissance. The "laissez-faire" attitude of economic liberalism gained ground supporting competition within the free market at the expense of monopolies and subsidies that were protected by mercantilist ideas.

The synthesis of financial developments and technological creativity freed by spreading liberalism was the Industrial Revolution. It started in Scotland and England around 1750. Among explanations for the spark of the Industrial Revolution, monetary and banking developments are not to be underestimated. In fact, underdeveloped financing and monetary tools would explain the stagnation of industry on the European continent, despite similar technological knowledge and

rising liberalism. The European continent was in fact to wait until the 19th century to start its Industrial Revolution with the adoption of the British financial model.

The benefits of the Industrial Revolution were contested. Certainly, the British people appreciated more income. But, the population of the eighteenth century grew by 80%, thanks to better knowledge (crop rotations, water management, etc.) and also to the effects of the industrial revolution on agriculture. Unfortunately, this abrupt population rise swelled the ranks of the industrial proletariat, which didn't enjoy its fair share of the output of the Industrial Revolution. In comparison, the demographic rise was 30% in France, although France also observed the emergence of an urban proletariat before the start of its Industrial Revolution.



The Newcomen engine of the Industrial Revolution. In the 18th century, only Britain spread such technology by financing it with "pieces of paper". The European continent and its archaic financial and monetary system was unable to keep up with the pace of Britain, even if coal and ideas were available.

Multiplication of paper money without inflation

In the Great Britain of the 18th century, the multiplication of loans in accounts or in banknotes meant the creation of scriptural money. This currency of paper substantially supplemented metal coins. Was there a risk of inflation? No, because a counterpart in goods accompanied the increase in money supply. Loans were granted to invest, but not to spend. Each investment was intended to produce new goods or to be more efficient in producing existing goods by saving coal, raw materials and the workforce per unit produced. Monetary creation stayed proportional to the increase of goods and services. Monetary creation

by loan multiplication wasn't inflationary, and rare episodes of inflation followed. Only profits or wages increased because production costs per unit shrank and sale prices remained stable. Money multiplication stayed in proportion to the production of goods; a fact that left prices stable.

There was still some inflation from 1730 to 1775, but it marked the European continent as much as Great Britain. That inflation coincided with the influx of noble metals. In the 18th century, gold input was three times higher than in the 16th century. Between 1720 and 1790, the world gold stock doubled with deposits discovered in Brazil and the Ural Mountains in Russia. For its part, silver production increased with the extraction by mercury amalgamation, which could rely on a steady production of mercury from the mines of Spain and Slovenia. Mines also took advantage of the Newcomen's steam engine to pump the rainwater flooding the shafts, in order to dig all year long.

All over Europe, the inflation after 1730 rather meant a trade and economic revival. The swelling flows of silver and gold into the continent were certainly welcome with the population on the rise. The needs for silver and gold coins for mercantilist hoarding were again satisfied.

Nevertheless, the recovery on the European continent happened at a slower pace than in Great Britain. In the 18th century, perhaps satisfied with coin circulation, the countries of the European continent didn't feel the need to copy the British example. Some tests of issuing banknotes also proved disastrous, as explained in the next chapter. The European continent remained dangerously dependent on silver and gold coins. When deflation returned after 1780, the European continent was to suffer more than Great Britain from this dependence. This fact will be detailed in the next pages.

Thaler of Maria Theresia, the "dollar" of the 18th century. This fine silver coin was recognized and accepted even in the Arab world. After the death of the empress in 1780, Joseph II permitted the Mint of Austria to continue striking this coin to satisfy the demand from the Middle East.

Diameter= 40mm, thickness= 2.4mm.
Above: Five arabesques on the rims of different thalers of post-1784 strikes (authorized to foreign Mints). These details allowed their identification. In order: Brussels, London, Paris, Vienna post-1900 and pre-1900.

Scriptural money outnumbers coins

In the early 18th century, paper banknotes constrained withdrawals of coin deposits. With more coins in deposit, bankers granted more loans in banknotes. Loans in account withdrawn in banknotes were replacing loans in coins. Banknotes were not systematically converted into coins after the payment, because they returned in a bank account after the payment. A smaller reserve was needed to handle deposit withdrawals and banknote conversions into coins. Thus, loan volumes could generously increase.

At one point in the 18th century, the loan volumes exceeded the deposit volumes in coins. Coins left in deposit were lent a second time

into loan accounts. Loans in accounts or in banknotes started to outnumber the volume of coins. At last, banks were creating scriptural money by writing entries in clients' accounts and by issuing paper banknotes.

Within the course of the 18th century, the exact date when the volume of loans exceeded the volume of deposits is difficult to pinpoint. In other words, historians lack data to verify when scriptural money appeared precisely.

In the late 18th century, the situation in London became more established. In 1776, Adam Smith observed it and historians confirmed it: loan volumes granted by banks were higher than volumes of gold and silver coins in circulation or in deposit. Loan figures were such that the volume of scriptural money created by banks equaled the volume of coins struck by the mint. At that point, there was a banknote for each coin in bank, which attenuated deflation. Then, there was a second banknote that bankers had issued discreetly. This second banknote was pure scriptural money. For the first time in history, money was multiplied, not exclusively by the government and its mines, but by the market of private individuals who borrowed from banks. Where alchemists had failed, bankers and their clients succeeded: changing valueless lead or paper into gold. Banks and banknote issues were a remarkable transfer of power, marking an authentic revolution. Indeed, the private banks could lend to whom they liked, nobles or commoners, merchants or engineers, arsenals or newspapers, defenders or opponents of the Crown.

The Bank of England and its banknotes in the 18th century

The Bank of England created to fund the government

At the end of the 17th century, England was at war with the France of Louis XIV. This war had already ignited the Great Recoinage to provide quality coins for the army and the navy. The war also required

a huge expenditure that exceeded tax incomes and loans secured by the Treasury of the Crown. But the Treasury had trouble selling its bonds. Since 1672, people were cautious, mindful of the crisis of the royal loans under King Charles II. This king had dragged his feet honoring his debts when bankers refused him extra loans. This royal history still worried the people considering a recurring sale of Treasury bonds.

In 1694, the government of England circumvented sales of bonds by creating a semi-private bank for its own needs. This bank was given royal privileges in exchange for faithful service to the government. The acknowledged ambition of this bank, named the ***Bank of England*** or the ***BoE***, was to finance the government, copying the model of the Bank of Amsterdam.

A public subscription was launched to collect the capital for the creation of the BoE. Sales of shares paid in coins composed the capital. King William and Queen Mary subscribed to the capital as did many private individuals. The success of the subscription astonished observers. Despite the risks, banks were very profitable. After all, the BoE was almost like any other bank with its safe, its counters, its clients, its loan or deposit accounts. Moreover, the government was behind this bank, a fact that perhaps could reassure some. Lastly, there was at the time a speculative boom to buy shares of private corporations, and after all, the BoE was a corporation among others.

The newly created BoE could grant an original type of loan to the government: a perpetual loan. The Bank granted to the Treasury a perpetual loan in coins from its capital obtained by subscription. After all, the BoE was a corporation with its shares sold to the public, which were not refunded as long as the company was continuing its activities. If in need of liquidity, a private shareholder could resell his shares at the London stock exchange to buyers willing to pay a price in relation to the expected dividends per share. Without capital to pay back, the Treasury only paid interest. Such a perpetual loan made it possible not to burden the people under heavy taxation as with a normal loan. To cover the interest of this perpetual loan, an extra taxation on boat tonnage and on alcohol was to endow the Treasury.

The popular banknotes of the BoE

The BoE collected coins in deposits and granted loans in accounts withdrawn in its own banknotes, which were convertible into coins at its counters. Some perceived the BoE as an intolerable and unfair competition to private banks. People dissatisfied with this attack on personal freedom wanted to bankrupt the BoE. They spread rumors of lack of coins in deposit in an attempt to destabilize the BoE. They tried to corner the BoE with a concentrated withdrawal of coins, as in 1696, when the stock quotation of the BoE plummeted amid nervous investors.

To strengthen the BoE, a few advantages were granted to its banknotes. First, the death penalty was applicable for counterfeiting banknotes of the BoE as they were for coins from the Royal Mint. Second, the Bank accumulated a reserve in gold after 1722 to guarantee its solvency. Third, a monopoly on banknote issuing was conceded to the Bank, but it was largely circumvented by private banks.

Newton honored on a modern banknote of the BoE. It wasn't his first link with the currency, as he had been Master of the Mint for 27 years. That made Newton an economist, aside his other activities as a scientist, a philosopher, a theologian. A curious mind, not confined to a single field.

As time went by, the popularity of the banknotes of the BoE surpassed that of other banknotes. Clients accepted them in place of gold coins when withdrawing their deposit at a private bank. Eventually, most private banks opened a loan account at the BoE. For private banks, reserves to handle deposit withdrawals and conversion of their private banknotes were partly made up of banknotes of the BoE. In a few decades, the conversion of private banknotes into coins was superseded by the conversion into banknotes of the BoE. For private banks, reserves of pounds sterling to cover deposit withdrawals and banknote conversions were counted in BoE banknotes as much as in precious coins.

Progressively, clients demanded to withdraw their loans in BoE banknotes instead of banknotes of the private bank. So, issues of private banknotes dwindled. Yet, it was only in 1844 that the BoE was garnered the exclusive right to issue banknotes, except for those banks that were previously founded. From then on, the number of private banks having a prior right to issue banknotes diminished. Finally, the last license for an English private bank to issue banknotes was canceled after a bank merge in 1921.

BoE under supervision

The BoE continued to ensure gold convertibility of its own banknotes. By this simple fact, banknote issues were under public control through swift gold conversion of banknotes, and the BoE couldn't flood the Treasury by printing as many banknotes as it wanted, because the mint couldn't match the pace by coining enough silver or gold bullion. Mining remained necessary to provide enough gold and silver to ensure the convertibility of BoE banknotes. However, conversions were slowed by the absence of branches of the BoE outside London. Gold withdrawals were then limited by distance to London and the counters of the BoE. Only private banks were present outside London. It resulted in a monetary system composed in “layers”: private banknotes convertible into banknotes of the BoE, themselves convertible into gold coins in London. This system partially stopped deflation that was linked to gold coin scarcity.

Aside from the public control of convertibility, the BoE needed the approval of the Parliament to lend banknotes to the Treasury. The BoE promised repeatedly to limit loans to the Treasury. These pious vows were forgotten more than once, despite the tensions aroused by these practices.

Stabilization of private banks

In the 18th century, new rules were introduced to suppress exuberant banknote issues by banks gambling for fast interest on easy bank loans. Requests for coin conversion of banknotes of a few shillings were rare, and therefore banks imprudently made many loans with these small banknotes. In Scotland, a minimum of one pound was imposed on banknote amounts. In England, a minimum of five pounds was enacted for BoE banknotes, while private banks remained free to issue banknotes of any amount. Also, the phrase "pay to the bearer on demand" became mandatory, ending delayed conversion of banknotes with a phrase such as "pay to the bearer in a few months". Such delayed conversions had precipitated banks to over-issue their banknotes for risky loans. Except for these amount restrictions, all other practices were tolerated and sometimes legally confirmed for payments and contracts.

The BoE was also the lender of last resort for insolvent private banks. Under certain conditions, the BoE granted loans in its own banknotes, to calm the nervous clients of a faltering bank. Several constraints were to be agreed upon in order to obtain such emergency loans. The first was a sufficient level of gold reserves for the BoE. The second was the honesty of the private bank on the verge of failing. As with any creditor, the BoE demanded honesty from its clients, which included private banks. Henceforth, the BoE was in charge of stabilizing the banking structure.

The government conceded this stabilization service as a compensation to private banks created after 1720. Unlike older banks, they had to abide by a strangling regulation of 1720 for corporations, which harshly limited them to six shareholders. With that, new private banks were held back from raising capital by issuing shares. The initial and

compressed capital debilitated the activities of the bank. This restriction on share issuing had been voted on after a traumatizing experiment with a "speculative bubble" in 1720. That year, the stock exchange quotation of "South Sea Company" shares peaked unrealistically before deflating steeply in the wake of rumors of the shortfall of the "Company". The dive of the share's quotation at the stock exchange ruined many investors. Legislators wished to avoid any repetition of such a synchronous ruination of thousands of shareholders of a single corporation as well as a similar shock wave that was likely to jitter the entire economy. This shortsighted law restricting the number of shareholders was only eased in 1826 for banks in the area of London, and was finally repealed nationwide in 1865 for reasons explained in the next chapters.

The first recorded speculative bubble wasn't the "South Sea Company" case in 1720. It was the famous "tulip mania" in 1637 in the United Provinces (now the Netherlands). At the time, the quotation of contracts on luxury flower bulbs soared to over-inflated prices driven by the hope to buy and resell with profit. Did they say "never again"?

Historical Correlation

Industrial Revolution and banknotes

Historians have studied money supply created by banks. Their results showed the fundamental ability of banks to finance the Industrial Revolution. This Industrial Revolution could not have happened without the Financial Revolution in Great Britain.

Already in the 18th century, some thinkers clearly analyzed the situation. Countries during this century, less violent and infused with the Enlightenment, weren't trying to accumulate gold, in order to pay for mercenaries in case of an invasion. Abuses of mercantilism, such as unjustified monopolies or a senseless accumulation of gold, were criticized. Commodities started to be perceived as the true wealth, replacing illusory silver and gold coins. Both famous philosophers Berkeley and Hume noticed that real prosperity resides in material goods, such as food and lands, not in the distorted value of symbolic silver and gold coins. Hume's analysis was that quantities of money in circulation had to be proportional to quantities of available goods in order to avoid imbalances marked by inflation. In France, Quesnay and the physiocrats called for an economic policy freed from mercantilism. Quesnay was a doctor fascinated by blood circulation and nature's healing powers. From his observations, he reasoned that there existed a “natural order” opposed to the mercantilist interventionism. Quesnay is considered the father of economics, who broke out of an exclusive philological view of society. Later, Adam Smith more convincingly presented mercantilist institutions as a means to preserve the privileges of the rich. According to Smith, it was necessary to let markets freely determine prices and wages rather than monopolies granted by governments. Competition, called “the invisible hand” by Smith, would organize the “open market”. Adam Smith was also analyzing capital accumulation in private hands as a necessary step to create a wide competition to shake up productivity. The government shouldn't monopolize or seek accumulation of silver and gold coins, as with the mercantilist model. Mercantilism deprived factories of capital that would have created true wealth in goods. Smith's analysis was that

banks could help with capital accumulation. His works also approached the scriptural aspect of money and he advised the use of paper money in place of gold and silver to alleviate coin scarcity.

The philosopher David Hume was a friend of the economist Adam Smith. They were both from Edinburgh in Scotland, heart of the finance of the Industrial Revolution. This economic success helped strengthening the peace between Scotland and England in the new nation of Great Britain.

In the twenty-first century, many historians who were not well versed in economics had false explanations about the origins of the Industrial Revolution. It's time to debunk such popular beliefs. Great Britain did not start its Industrial Revolution with the money of gold and silver harshly extirpated from other continents. On the contrary, the scarcity of silver and gold currency encouraged British financial innovations that ultimately accelerated the economic activity. Moreover, the origin of the Industrial Revolution cannot have sprung from in the exploitation of colonies. In fact, the cradle of the Industrial Revolution was Scotland, which had neither colonies nor slave trade. If the Industrial Revolution was only linked to the exploitation of the colonies, it would have blossomed in Spain that imported up to 300 tons of silver per year during the 16th century. For its part, England had much fewer colonies than Spain. They were all in the Americas in the 18th century, with 13 of them declaring their independence. This was due to a question of taxes without parliamentary

representation; this led to the creation of the USA. It's only in 1763 that England received Canada and most of the trading ports of India from France. These were Great Britain's compensation after the Seven Years' War. Yet, by that time, the Industrial Revolution had already started in Great Britain. Only later, in the 19th century, Great Britain colonized India before the rest of the Empire, with its thriving industries strengthening its armies and its Royal Navy.

The industrial revolution was a turning point for the better more than it was for the worse. Nations were wealthier, although the benefits weren't shared equally. Certainly, women have improved their life compared to pre-industrial times, when they were gleaning in the fields, having many children or dying during childbirth. Going back to a life without mass-produced high-tech health and provisioning would only be bearable... for men in perfect health.

Last observation, but not least: Great Britain is the first example of industrialization. It did it with the mix of the Enlightenment, of ingenious machines, of investments financed by monetary creation in the hands of private individuals and their banks, and of bank loans and banknotes releasing the power of the British people from the yoke of deflation in coins. Only with such a mix, could the Industrial Revolution emerge in Great Britain.

Meanwhile overseas, other Western nations couldn't follow the British front-runner and failed to develop their monetary system, even if they tried...

Chapter 2

Parallel Currencies: Hiccups of the 18th century

Deflation, in the sense of a shortage of coins in circulation, was a recurrent problem since the middle ages. To circumvent this monetary trap, people tried many tricks. The goal of the people, although mostly unconscious at the time, was to keep the economy rolling, away from the impediments of deflation, when the lack of coins was blocking transactions, taxation, even benefaction.

For example, they struck charity tokens not convertible into gold or silver (Picture: charity token of saint Martin parish in Liège, Belgium.). Such tokens had often a very local circulation and often changed graphics to prevent fraudulent imitations. These tokens would be donated to the poor for assisting at the Sunday mass. Later, these tokens could be converted in hard cash of gold and silver coins, but only for approved bakers, not for beer taverns.

In fact, many other monetary experiments, i.e., with parallel currencies, happened throughout the 18th century to avoid deflation, to perk up the economy, and even to try to copy the success of Great-Britain and its burgeoning Industrial Revolution. These experiments were not always successful, far from it.

Banknotes discredited in France after 1720

The system of John Law

In 1715, the death of the King of France Louis XIV represented the end of an era. It left France unified politically and religiously, but also broke. Countless wars between Catholic France and Protestant neighbors had emptied the royal Treasury. Moreover, the government couldn't obtain additional loans from French banks short of coin deposits. Coins were the only form of money in circulation and French subjects had to preserve them in order to make payments. No other form of money existed in circulation, because French banks were not yet issuing banknotes. The French banking system was lagging behind British developments.

The Regent Philippe d'Orléans, ruling until the young Louis XV had reached the age of majority, listened carefully to the banking ideas of John Law. A few months earlier, John Law had immigrated in France, disgruntled that the Parliament of Scotland had rejected his banking ideas. The Scots had spurned his idea of a bank issuing banknotes guaranteed not with gold coins, but with real estate. Law was right, though, to highlight the possibility of fighting unemployment with loans and paper money, when Europe was effectively in deflation, as explained previously. A thriving economy needed cash for trade. Also, a flourishing trade could fill the coffers of the Treasury through taxation.

In 1716, the Regent authorized Law to open a bank with capital funded by Law's assets and other shareholders' inputs. The capital contained silver and gold coins, because prudence ruled out capital prematurely composed of lands. With this capital, the new bank of John Law was granted the exclusive license to issue convertible banknotes in Paris. The bank had the capacity to carry out some financial operations with its banknotes. Mainly, the discount of bills of exchange – thus the repurchase before the end of the term of bills of exchange, as previously explained – was to be carried out in banknotes instead of coins. Of course, the bank deducted some fees to cover its

expenses and profit margin. Also, the bank guaranteed to convert its banknotes into the sum stipulated in precious coins. These banknotes were made out are 10, 50 or 100 French pounds ("livres tournois"), which was the monetary unit for bookkeeping and for coinage.

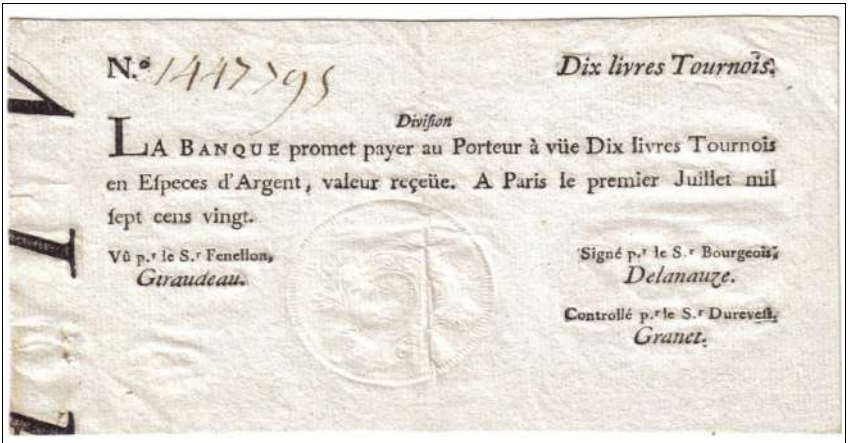
Law passed a few measures to enhance the banknotes' attraction, and to stave off their fast conversion into coins after their injection into circulation through the discount of bills of exchange. The first measure forced tax collectors to accept banknotes in payment. This measure applied especially to tax collectors who were lenders recovering their loans from the government by tax farming. The second measure concerned the rest of the taxes; they were to be sent to Paris in the banknotes of Law's bank. The circulation of banknotes increased with the long distances between the provinces and Paris. This measure lessened the cash shortage in the provinces by dodging useless conveyance of coins to Paris. Eventually, the bank was the single collector of all public incomes.

In addition, Law realized that the vast French territories of Louisiana stagnated due to lack of investments. In 1717, Law created his Company ("Compagnie d'Occident"). This Company was to invigorate trade with Louisiana, essentially by purchasing ships. The Company quickly obtained monopoly over the fur trade with Canada, as well as over the entirety of Louisiana. Shares of this promising Company were to be purchased exclusively with banknotes from Law's bank. Those shares were quoted at the Paris' stock exchange at Quincampoix street. With the Company expecting large profits, banknotes became attractive to buy shares promising juicy dividends. Requests for banknote conversions into coins became rare by the temptation to use the banknotes to buy shares. The bank saw its reserve in coins increasing. It was hoped that the business of the Company would also replenish France in coins obtained by foreign trade.

Chromography of John Law from a chocolate box with some comments on the reverse: "At the advent of the duke of Orléans as regent, the financial business of France was in an embarrassing situation. The duke listened to Law. In 1716, Law established with the patronage of the duke a bank supported by the royal authority. He also founded the company of Mississippi with the aim of profiting from the French possessions in North America. In the fever which followed, this company's shares went up to 35 or 40 times their face value. But the decrease of profits and the continual issue of banknotes by the government, destroyed the company and Law had to flee. He was always an honest man whose purpose was only to improve the people's situation..."

Chaotic issues of banknotes and speculation on shares

In 1718, Law's bank became royal property when the government repurchased all shares of the bank. Crediting, issuing and printing banknotes were then carried out after orders of the Council of State. For the Council, the temptation of multiplying paper banknotes proved too strong, despite warnings from Law. It deviously yielded to printing banknotes to cover some charges. The banknotes were welcome in payment of the charges, because they were synonymous with shares of the Company and marvelous dividends. The situation of the Company was brilliant with its fleet, its monopolies, and its first encouraging results. The use of the banknote spread in the kingdom as much as the share quotation rose with fanfare at the stock exchange. Witnesses reported people attempting to convert silver coins into banknotes in order to buy shares, although the bank would have turned them down.


N.° 1447595 Dix livres Tournois.

Division

LA BANQUE promet payer au Porteur à vüe Dix livres Tournois en Eſpeces d'Argent, valeur reçeüe. A Paris le premier Juillet mil ſept cens vingt.

Vû p.r le S.r Fenellon, Giraudeau.

Signé p.r le S.r Bourgeois, Delanauze.

Controllé p.r le S.r Durevell, Granet.

Banknote from John Law's bank, valid to buy stocks whose quotation climbed from 500 to 18,000 pounds. French people were discovering the joy of speculation in the stock market.

Law had lost control of the bank, however he still administered the Company. In 1719, the Company absorbed the other companies of trade with the Indies and China, although the French government sold them with huge trailing debts. Nevertheless, Law governed the entire maritime trade of France. In the same year, the Company absorbed the enormous debt of the French government for the promise of incomes on some recurring taxes. The Company reimbursed the numerous creditors by issuing another wave of shares. Lenders to the government switched status, becoming shareholders of the Company. Instead of repayments with interest on the old debt, they hoped for humongous dividends generated by the activities of the Company. The national debt had been converted into a type of perpetual loan in the same way as the loan to the English government by the BoE.

In 1720, a last wave of speculation carried the quotation of the share of the Company to its peak at the stock exchange. French subjects were still beginners in term of stock exchange practices. The share price was also quoted in over-issued paper banknotes, which dazzled the feverish buyers. But that year, the Company underperformed expectations. Profits weren't as stellar as anticipated. The anti-

climax was ferocious. At the same time, malevolent rumors stoked vigilantism. Lastly, people realized that prices in banknotes increased in comparison to prices in coins. Inevitably, the wads of banknotes were leading to some inflation, while the shopkeepers were eager for payment in coins.

Collapse of the system

In 1720, the quotation of the shares of the Company plummeted. With the share's downfall, banknotes were losing their appeal and payments in banknotes were increasingly rejected. Quickly, many people were ruined by the depreciation of the share, and moreover by the discredit on the banknotes. The suspension of the conversion of the banknotes into gold or silver was inevitable, and the bankruptcy inescapable. Banknotes could be shredded by those who possessed them, because the government washed its hands of them. The bank was perhaps royal, but John Law had created the system, and he was the evident scapegoat for the plunge of the share quotation of his Company. The slump of the quotation at the stock exchange was to excuse the discredit of the banknotes and the bankruptcy of the royal bank. Detractors of John Law forced the Regent to revoke the Scot. Thereafter, the Company saw its fleet, monopolies and assets confiscated, and was reduced to an empty shell in 1721. The failure echoed all over Europe and Law was held singly responsible.

Without question, Law's system made it possible to clean up governmental debts on the back of the people. For this reason, some claimed that the government had masterminded the system to achieve such funding disguised by a bankruptcy at the expense of the new debt owners. Generations of historians studied the Law's system with diverging conclusions about its motivations. If the government canceled its debts without scruples, did Law grow rich personally? In any case, he hastily left France after the ruin of his system. He died in poverty a few years later. Nothing could prove that the system of Law was inevitably doomed. Law was removed from his charge before having time to restore the situation. Law was probably as brilliant as he was rash. He was also stabbed in the back by rumors carried by detrac-

tors, and was betrayed by the government who had seriously mismanaged the bank.

Aftermath of the failure

The valueless paper banknotes haunted memories for generations. The fiasco eliminated any banknote issuing in France, which was to remain under the threat of the scarcity of coins. By lacking loan in banknotes, France was also likely to miss out on the Financial and Industrial Revolution. By this fact, the French people were to pay a second time for the corrupt practice of their government that had already canceled its debt by way of the bankruptcy of the Company. Finally, it was only the return of noble metals from 1730 to 1775 that spared France from deflation. This return even generated some inflation, as already explained.

In 1776, the French government did re-implant a second entity to issue banknotes. This bank followed the model of Law's bank. This "Caisse d'Escompte" proposed the discount of bills of exchange for some fees. The discount was paid with banknotes convertible on demand into coins to the bearer of the banknote. The "Caisse" also granted some loans. The "Caisse" grew, as taxes were payable in its banknotes. Also, in 1778, tax farmers were urged to accept banknotes. The last explanation of the success of the "Caisse" was the lack of currency that was again marked after 1780. This experiment of a bank issuing banknotes lasted successfully for 10 years. Eventually, the bank was dissolved and its banknotes were exchanged for other paper banknotes that will be studied later: the Assignats of the French Revolution.

Debacle of the "continentals" in the US around 1780

Issues of credit notes

Throughout the 18th century, the lack of silver and gold frustrated the English colonies of America. The lack of currency could be reflected by deflation, although no data is available on the subject during that time. Consequently, the American colonies neither had gold nor silver to fund banks that could issue banknotes, which were convertible into coins. For the same reason, the colonies could not create a public bank inspired by the model of the BoE.

To circumvent the lack of currency, some colonies issued ***credit notes***. The credit note was small piece of paper issued by the authorities that acknowledged a small debt from the government to the bearer of the note. Such credit notes could be considered as Treasury bonds of a small value printed by the authorities, which used them to pay for their expenses. The debt that the notes represented was to be reimbursed in coins or in small lots of land, but in the long term and with interest.

The credit notes had sometimes legal tender in particular to pay taxes. However, the main reason to receive them in payment was the severe lack of currency of the time. Without gold or silver coins, the credit notes had to circulate in the colonies of America. Lastly, the notes were labeled in values of the rare coins in circulation: in English pounds and especially in Spanish dollars.

Altogether, the monetary creation was in the hands of the government. The monetary creation didn't come as it did in England from the synergy between private individuals and their banks, which resulted in scriptural money to invest.

Continental note labeled seven Spanish dollars, February 1776, just before the American declaration of independence.

The "continentals" of the American Revolution

In 1775, the colonies decided to govern themselves, and war broke out with England. To finance itself, the new confederal or "Continental" Congress didn't want to resort to taxation. Taxation in-kind or in coins was hated by most Americans. Taxation was the strong reason to rebel against England. For a long time, the thirteen colonies had exclaimed, "No taxation without representation" at Parliament in London.

The Continental Congress of the States of America had no choice but to finance itself by printing credit notes called the ***continentals***. The acceptance of these continentals remained voluntary. The artifice to justify their use in payment was the exchange over the long term with an interest paid in gold or silver.

Toward inflation

The confederal Congress kept printing bundles of continentals and used them to cover its expenditures. On their side, the States of the confederation issued their own credit note: the "state note". Both, the confederal Congress and the States multiplied continentals and state notes. All these credit notes were quickly issued in excessive quantities. The printing press had surpassed the physical limitations of the laborious strike with a hammer.

Continental note of 60 dollars, 1778. Note printed undoubtedly... by the British to devalue even more the Continental money of the American rebels. First example of a new war practice. And early 1781, American soldiers mutinied for being paid in valueless paper money. Some American troops almost disbanded, despite previous victories. "Hold on", said France, and Louis XVI sent more warships, soldiers and, of course, precious silver coins to be delivered to Yorktown for a decisive battle.

Inevitably, prices in credit notes climbed. In a few years, inflation became vertiginous. The depreciation of the continentals and state notes was fast. Merchants were refusing the face value labeled in silver

or gold on the notes. Eventually, the accelerating price inflation in notes led to the categorical refusal of notes. If the notes were accepted, it was at prices in notes that reached exorbitant and speculative numbers. Inflation was whirling when the currency wasn't out-and-out rejected. With the continentals of the Revolution, the American colonies had spun from irritating deflation to abusive inflation.

The loss was almost total for whoever had stashed his credit notes. In 1781, continentals fell to 1/100 from the face value in silver or gold coins labeled on the notes. American soldiers paid in valueless paper money mutinied, leaving the American army on the brink of collapse. Only France saved the day sending warships, soldiers and, of course, precious silver coins to be delivered at Yorktown. Thereafter, the continental fell to 1/1000 of its labeled value. Financial chaos spurred violence, despite the victory of the War of Independence.

Liquidation of credit notes and the aftermath

In 1783, continentals issue ceased with the war over and the treaty of independence ratified. Yet, the promise to repurchase the "continentals" couldn't be honored at face value in silver or gold coins. Eventually, in 1791, the continentals were "generously" exchanged at 1/100 of their face value in gold or silver, and only for new but solid Federal Treasury bonds. The federal government repurchased the state notes in the same way and compensated the most virtuous States, when others heavily indebted had continued to issue state notes after 1783. For example, Virginia was compensated by receiving the new federal capital of Washington D.C. on its territory (with Maryland).

The new Treasury bonds were labeled in a new currency legally defined to replace Spanish dollar coins and English sterling schillings in circulation. It was the coin of the American dollar of silver (371.25 troy grains) or gold (24.75 troy grains), which represented a bimetallic system with a ratio of 1:15. The dollar was itself subdivided into 100 cents in the form of token coins. Such a legal value definition of the money for the interest in gold or silver helped to sell the bonds. Also, Alexander Hamilton, the first "Secretary of the Treasury" of the USA, had favored the creation of a financial market to increase the

bonds' liquidity. This new stock and bond exchange place was opened in 1792 under a tree in New-York... on Wall Street. Last but not least, these bonds opportunistically served as a complement to money to settle payments in an economy still lacking in precious metals.

The Continental dollar coin in 1776 was supposed to be struck in noble metal to buy back Continental paper money issued to finance the war. By lack of silver, strikes fell back on brass and tin which gave rise to the expression: "Not worth a continental". On the reverse: "Fugio" (Time goes by) and "Mind your business" words attributed to Benjamin Franklin.

Each financial crisis left major traumas in the monetary system. The confusion between States and the confederal authority for both issuing state notes and continental notes was also traumatic. The new federal Congress learned the lesson. As written in the Constitution of 1787, Congress took over the power to coin money from the States, with the new dollar coins soon struck by the federal mint inaugurated in 1792 in Philadelphia.

Finally, the story of the continentals is regarded as history's first large issue of ***fiat money***, which was paper money exclusively backed by the government – i.e., inconvertible notes issued by the government, or at least inconvertible "on demand". That fiat money neither had an intrinsic value like gold or silver coins, nor a guaranteed convertibility into silver or gold by its issuer like banknotes.

Collapse of the assignats of the French revolution around 1795

Creation of the assignat in 1789

The lack of coins was manifest before the Revolution, with deflation afflicting Europe since 1780. In 1789, the revolutionary turmoil made things worse due to the rich hoarding massive amounts of silver and gold coins escaping toward foreign safe havens. A substitute currency was required to compensate for the disappearance of coins.

In December 1789, the first paper notes of the "assignats" marked as French pounds ("livres tournois") were printed on order of the new French parliament ("Assemblée nationale"). For the moneychangers, one pound in silver or gold was worth an assignat of one pound. The assignats represented a bond or bill payable to the bearer in assets of lands and buildings previously confiscated from the Church. The term "assignat" came from old written laws when a lot of land could be "assigned" as pawn for a loan. However, assignats were exchangeable for lands and buildings, but only after a term of six months, that was to say in July 1790. An interest of 5% was added on those lookalike Treasury bonds. Although, more than the interest, the pervasive deflation helped the diffusion of the assignats. Also, some speculation perceived them as shares of land. Overall, the assignat was halfway between fiat money and banknotes. The assignat resembled fiat money because it was inconvertible – at least "on demand" – but the assignat was also similar to a banknote because it was convertible in lands over a term, copying the model imagined by John Law before 1720 or for the Ayr Bank in Scotland in 1772.

At first, the French parliament printed assignats in ratio to lands in pawn. During the first two years, the printing of assignats compensated honorably for the disappearance of coins, even without inflation. With expenditures paid in assignats, the French parliament also compensated for the fall of consumption by those who stashed coins. Finally, the assignats fortunately balanced the meager tax collection

linked to the ill-conceived fiscal reform. The French parliament had precipitately replaced the unpopular sales tax with a new tax that was proportional to incomes. But the tax department was inexperienced at estimating the incomes of the citizens, and thus, the tax collection had brought in little money.

At the end of the six-month term, the payment of the assignats in lands was canceled under the pretext of the generous 5% of interest. The assignats were declared inconvertible. These paper notes were officially simple fiat money. The revolutionaries had discovered a paper mine in the place of a gold mine.

Assignat of 15 "sols" (1 pound = 20 sols) printed in 1793 with the promise of payment in land over term. Overprinting of these notes contributed to the economic debacle followed by the bloody "Terreur".

Inflation and economic crisis

In April 1792, war was justified to preempt an invasion, as much as to distract the people from internal political and economic tribulations. For historian François Crouzet, monetary motivations perhaps weighed in on the warlike evolution of the Revolution. These motivations related to the loss in exchange value of the pound in assignat in comparison to foreign coins. For the French parliament, enforcing the face value of assignats abroad was an additional justification to persuade Louis XVI – still on the throne until August 1792 – to wage war against Austria and its allies. A short and victorious war would galvanize the growth of factories, would solidify the prestige of the assignat abroad, would suppress any need for the return to convertibility of the assignat, and would allow the sale of national assets freed from any promise linked to the assignat.

Reaching a crescendo, the volume of the assignats exploded, in particular to support the war effort that emptied the coffers of the Treasury. After August 1792, multiplied assignats spurred inflation for prices in those notes drifting away from prices in coins. The face value of a pound in assignat detached itself from the value of a pound in gold or silver. The value of the assignat was tumbling while hoarding of coins increased. In April 1793, the prohibition of dual pricing in assignats or coins only witnessed coin disappearance.

Inflation thoroughly disorganized markets and intensified the economic crisis resulting in insurrections, uncertainty and smuggling. Production was seriously disrupted. Factories, farmers and merchants were discouraged to produce, if they had to sell in assignats, which couldn't hold their value. This fact reinforced the imbalance between quantity of goods for sale and quantity of currency. The vicious circle of inflation, degradation of production, and more inflation accelerated.

The loss in value of assignats was such that inflation was perceived as confiscation. Many forms of disguised refusal of assignats appeared: high prices, smuggling abroad or black market, unless under the threat of a gun. Buyers had to pay in coins, or starve. Occasionally, assignats were accepted, but as pure speculation. Finally, the economy was pared down exclusive production of the bare and agricultural minimum. The

purchasing power of the people was severely cut and anger was exacerbated.

Some historians insist that inflation stressed the radicalization of the Revolution. During that time, the need to pay for the armies accelerated the printing of assignats. Overshooting inflation contributed to more and more resistance to the Revolution's authorities. Dissent was perceived as betrayal of the Revolution. In September 1793, the most acute phase of the Revolution started: it was the Terror with its constituents, the infamous Terrorists, unleashing their horrible repression with many heads rolling in the name of the defense of the Revolution.

Even after fending off the foreign menace, assignat printing and inflation continued. At least, peace ended the political extremism of the Terror. The French people had had their fill with the numeous executions by guillotine. Robespierre and the political factions of the Terror were decapitated in their turn, in July 1794.

Nevertheless, inflation kept growing, reaching its peak in 1795, when assignats were still printed under the rule of the new government (the "Directoire") that had succeeded the rule of the Terror factions. Assignats were worth nothing compared to pounds in silver or gold coins. At that time, the economy fell with inflation. The collapse of food supply led to rioting hungry Parisians in May 1795. Meanwhile, the only reform was the appearance of assignats in "francs" of the Revolution with one franc equaling 4.5 grams of silver – with the metric system replacing the old measures. However, there was absolutely no silver within the assignat.

Liquidation of the assignats

In February 1796, the printing press of the assignats was eventually destroyed. The assignats still circulated for a few months, although they were often refused as payment. When the assignat was accepted in payment, its value fell to under 1/300 of its face value in silver or gold coins. The assignat was finally absorbed as authorized payment to pay some tax in August 1796.

In 1796, the official currency was back to silver and gold coins.

Deflation was dodged with the help of improvements of the economy that attracted precious metals from abroad. Deflation was also avoided with the input of coins struck from the spoils of gold and silver bullion from French conquests in Europe. This gold and silver paved the road for the military to seize power in 1799 with a coup by a young general whose name was Napoleon!

The Napoleonic Wars and banknotes

Few issues of banknotes in continental Europe

Napoleon may have conquered most of continental Europe; however, he had not enough industrial base to crush Great Britain strengthened by its industries and its Royal Navy. France's weakness could be found in the limited use of banknotes as loans were concentrated within the circle of merchants. This circle handled bills of exchange, personal checks and written transfers between accounts to trade. Similarly, public bank loans were directed toward governments, not the people. Scriptural money, if it was ever created at that time, was concentrated in hands of privileged people. Issues of banknotes by private or public banks were the exception and not the rule on the European continent. It excluded large-scale investments for production development. In the early 19th century, the expansion of bank loans that was linked to banknotes remained a British practice. The financial and Industrial Revolution had started only in Great Britain.

In Germany, it was only in 1770 that the royal Bank of Prussia issued banknotes for the first time in the country. In the Netherlands, the Bank of Amsterdam created a substantial amount of scriptural money, without issuing banknotes to make payments. But as already evoked, since the late 17th century, the Netherlands were regressing, with industries lagging far behind its trade growth.

In France, people hung on to silver and gold coins, while avoiding paper currency due to the memory of Law's failure reinforced by the collapse of the assignat. Private banks lent in coins as in the past, seldom in banknotes. In practice, a strong reserve in coins was required

to cover deposit withdrawals and banknotes. Private banks had to limit their issues of banknotes.

In 1800, Napoleon stepped in the financial arena and founded the Banque de France. To avoid monetary disorders, the Banque de France received the monopoly to issue banknotes in the Paris area. Banknotes couldn't be lower than 250 francs, a high value equal to a worker's monthly wage and thus too large for most transactions. Under the Empire, the Banque de France didn't exceed the volumes of banknotes and loans of the "Caisse d'Escompte" under the king's rule (the "Ancien Régime"). Other banknotes of private banks circulating in the provinces were to be printed under governmental control. Banknotes circulated modestly compared to Great Britain.

Overall, Napoleon played a cautious monetary game. He didn't misleadingly issue fiat money inconvertible into gold or silver. He knew too well what happened with the assignats. There had never been a war without debasing the currency in gold, silver, token coins or paper notes. Napoleon was the exception to the rule, even when converting banknotes of the Banque de France into gold or silver was put to a hard test. The bank runs were constrained only by incomes in gold and silver from military victories or from the USA for the Louisiana Purchase. Napoleon never debased his franc "germinal"; he left its weight untouched at 4.5 grams of fine silver or gold, which was equivalent with a bimetallic ratio of 1:15.5.

Napoleon put his face on the coins in place of the reigning king... in the name of the Revolution and of the people, of course. Worse, Napoleon kept his French subjects from creating money by restricting banknote issues. Also in the monetary sense, Napoleon was a dictator.

Great Britain strengthened by its banks

Facing the powerful French armies, Great Britain could count on its banking system to finance its industries to support its Navy and its armies.

Already after 1780, the British private banks had jumped into monetary creation with their banknotes to compensate for the lack of coins slowing trade and the economy. Eventually, around 1786, Great Britain escaped deflation before the European continent. Since 1787, merchants, companies and quasi-banks also struck token coins that were convertible into equivalent gold coins or BoE banknotes. It was the first blush of private token coins of the industrial era. Altogether, paper banknotes were printed for high values, while everlasting coins were struck for lower values that had to withstand the wearing out of daily manipulation.

Token coin of 1792 "payable at" the Birmingham Mining and Copper Company. It was a true monetary creation in hands of corporations who were not focused on the banking business. The only limitation was that these token coins circulated not far from their issuer, due to the fear of counterfeiting.

In 1793, the war broke out with Revolutionary France. Paradoxically, the threat of a French invasion supported the economy, because the stationing of troops on the coasts brought coins, creating minimal reserves for "country banks" startups that stimulated the countryside

economy. This was the "proliferation of the country banks" outside London, as described by historian François Crouzet. Such bank access was doubly crucial for companies in need of financing. First, banks and their monetary creation put coins in hands of consumers. Second, banks allowed corporations to raise capital from the people, when deflation had long obstructed the sales of shares, as did the legal limitation to six shareholders previously spoken of. Finally, corporations complemented their capital with loans in banknotes.

The Industrial Revolution truly exploded between 1783 and 1802. The first historical self-sustained growth bloomed at the turn of the century. Financing of production led to consumption by wage earners, and led to investments and savings. Eventually, incomes from consumption and investments spun a virtuous circle of production and consumption. Great Britain, which was a mostly agricultural nation in 1750, quickly grew into a country of factories and industries.

Temporary inconvertibility of banknotes of the BoE

During the wars against France, the BoE was concerned by its stock of gold. As during every war, the yanking of coin deposits and the conversion of banknotes into coin was increasing. The fear of a French invasion made things worse. Moreover, around 1795, transfers of gold toward France intensified due to a favorable gold exchange rate. This rate was due to the imminent fall of the French assignat. France's return to bimetallism became inevitable; the premium was on gold because silver was still circulating in France. Finally, the BoE had loaned gold to the government to subsidize the allies and to pay for the troops stationed on the European continent that demanded gold to obtain local supplies. The BoE was teetering. Around 1797, France was hoping for a bank run and the bankruptcy of the BoE as it was unable to handle conversions of pounds sterling in paper into pounds sterling in gold or silver.

In 1797, the BoE dodged bankruptcy by suspending the convertibility of its banknotes. Withdrawals could only be in banknotes. This temporary inconvertibility proved a successful weapon and saved the British Treasury. It could ensure local payments not in coins, but in

banknotes that were granted through loans from the BoE. The suspension was to last 25 years. The eventual return to gold or silver convertibility was the only reason not to qualify the pound sterling as simple paper-money.

Private banks continued to grant loans and to issue private banknotes. Their loan limit was tied to the reserves in BoE banknotes, rather than in gold coins that were withdrawn from circulation; this was to ensure the convertibility of their banknotes. The BoE banknotes were readily accepted instead of gold coins. The essential was safeguarded: a sustained economy with production of goods, which are the only true wealth – not the illusory gold coins. The financing of the British Industrial Revolution steamed ahead.

In 1797, there was a desperate shortage of coins. The Royal Mint started to strike penny and twopence coins in pure copper, unlike previous pennies struck out of silver as they had been since medieval times. To face this shortage of official (Mint) currency, people dealt in barter and with foreign silver coins, but the most effective alternatives were the private tokens and the private bank money in the form of scriptural money or in banknotes. For its part, the BoE was far from being inactive with its banknotes, especially the ones labeled under 5 pounds. Money was clearly shifting from minting to banking, until the authorities decided to reverse the trend a few years later.

The English government didn't resort to the usual multiplication of sesterces because of the war. The recent French cataclysm of the assignats was the mistake not to repeat. The government mainly financed

itself by raising taxes to support the cost of the war. Taxes were the only alternative to money multiplication in order to shore up the Treasury. The government also took measures to avoid over-issuing of banknotes by private banks. For example, a license for issuing banknotes was required for private banks after 1808.

This tax strategy avoided inflation. Its advantage was that incomes were taxed once and once only. So, savings were spared from the never-ending and grinding inflation, which would discourage work and production. Certainly, inflation wasn't zero, but it remained reasonable in the early 19th century. Prices of 1810 were perhaps 75% higher than those of 1790, but that meant inflation at less than 3% annually. Quantities of currency and goods were kept in check, although no systematic price level measurement existed. Still, the rise of prices disconcerted people of the time who were accustomed to stability. However, they didn't complain excessively, perhaps because their savings were remunerated by banking interest and thus preserved their value that way. Overall, the depreciation of the pound sterling of paper was moderate compared to the street price of gold and silver between 1797 and 1821. Eventually, the monetary system of the inconvertible banknotes held steady all the way to the final victory at Waterloo.

Historical Correlation

Monetary mismanagement and their effects on the Crowns of England and France

For a long time, France shied away from the use of banknotes as it remembered the failure of the Bank of Law, which was partly sunk by the initiatives of the Crown. The lack of banknotes hampered the financing of new activities, which left ideas, energy, and hands unemployed. France continued to lack endogenous forces to synthesize an Industrial Revolution.

With the return of deflation in 1780, the kingdom of France relied on one single entity to issue banknotes: the "Caisse d'Escompte". Inaugurated in 1776, the "Caisse" was a late sign of progress. The kingdom didn't have any decent banking structure to rely on. In line with the philosophical blaze of the Enlightenment, people's political demands were fulfilled with the Constitution of 1791, which still preserved hereditary monarchy. These political reforms were hoped to cure economic woes. But political factions and religious resistance poisoned the Revolution. Heiress of depleted finances of the Crown, revolutionary France stumbled on the financial and monetary vexations of the assignats that scuttled the economy with inflation. And, the Terror put an end to the prestige of the Crown of France, ultimately a victim of the financial embezzlement of its ancestors.

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The Crown of England had not been less convoluted than its French counterpart regarding monetary issues. Involuntarily, England benefited from the errors of Charles I that gave rise to private banks that printed banknotes. Later, the Crown underwent the after-effects of the impertinences of Charles II. These aftereffects forced the Treasury, controlled by the minister of finances, the famous Chancellor of the ***Exchequer***, to fund the BoE to finance itself. This BoE largely stabilized the Treasury, as well as the currency and the private banks. This monetary stability resisted the effects of the Napoleonic wars. Deflation was overcome for the entire time of inconvertibility of the pound sterling of paper of the BoE.

This dangerous toss of the coin had fallen on the good side for the Crown of England. During the major part of the 19th century, Great Britain was about to rake in windfall profits from the Industrial Revolution. Simultaneously, the BoE held steady between deflation and inflation. To this end, the British Empire was to extend its economic hegemony over the world, hoisting the Union Jack on five continents. The resulting and so-called Pax Britannica was to transcend a century for the prestige of the Crown of England that owes much… to the financial embezzlement of its ancestors.

Chapter 3

Alternative Currencies in Modern Times

As in previous centuries, alternative currencies do circulate nowadays. Sadly, they are often overlooked by economists.

One of these currencies is gold. Gold can still be used as alternative currency, if both parties involved in the transaction agree on it, as they trust gold's intrinsic value on metal exchange markets. Officially, gold can't be used for tax transactions as it is not part of the monetary system since the suspension of gold coins as currency in 1933 (nationwide), and in 1971 (internationally).

This intrinsic value of gold also means that gold still plays a role in the monetary system: it somewhat prevents a full control of the authorities over currency. Indeed, some want to suppress banknotes and force payments through bank accounts (with credit cards or checks). They claim that such a suppression would allow the traceability of transactions for the IRS or the FBI. Realistically, this suppression of banknotes would be ineffective, because people can always use gold coins for transactions under the table to buy illicit drugs or avoid taxation. The money laundering of these coins would happen by selling gold "found" in a nearby river to reintegrate bank accounts in dollars. The suppression of banknotes would have the same fate as the Prohibition of the 1920s.

Other parallel currencies circulate aside from the main currency (e.g., bitcoins, small size commodities such as rare stamps or silver coins, etc.) in order to escape bank control by the authorities. With all these parallel currencies, the black market can't be squeezed easily.

The $2 trillion black market

The illegal black market

The "**black market**" exists in parallel to the regular economy and aside from governmental control. It is also called the "underground economy", the "informal sector", or "smuggling" (in the case of bypassing customs at the borders).

The black market has existed since antiquity, despite all attempts to shut it down. Even brutal dictatorships (e.g., Soviet Union) have not managed to suppress it. Democracies had not better luck to deal with it, and only aimed at reducing its size.

The black market has one single goal: avoid the regulations of the government. The transactions of this market are deemed illegal, are unreported to the IRS or the authorities, and do stay aside from the regular economy's accounting.

These regulations refer to:

• Taxes and custom tolls: Products or services paid under the table avoid taxation or custom tolls, such as any regular product or service without billing.

• Ban on products and services: Products and services prohibited by the government, such as illegal drugs, prostitution, etc.

The participants of the black market are not all gangsters dealing with large sums. They are also unarmed no-so-criminal people and small businesses – rather stricken with incivility – who are paying in cash without bills and taxes. Their motivations range from occasional drug consumption, to people bypassing controls when the government is unpopular as in some European or African countries, or when struggling with poverty. Yes, it is a reality: the black market can alleviate the pain of the poorest.

The cheap black market

The black market offers – at least – a price for banned products, and – certainly – a cheaper price for untaxed goods or services compared to the regular economy.

As always, these prices vary according to the law of supply and demand, which will be influenced by the following factors:

• High taxes will motivate black market transactions with prices much lower than regular transactions subject to taxes.

• High repression will diminish the supply from black market, and prices will rise – due to the lesser competition between black market participants and gangsters – for prohibited products or services.

Despite the low curiosity level over the black market, shouldn't the subject be studied? One must consider the overflow from the regular economy into the black market consequently to any economic decision enacted by the government.

The $2 trillion US black market

Measuring the size of the black market is difficult. Without any reporting, only rough estimates of this illegal economy can be carried out.

Such estimates attempt to detect anomalies with economic indicators that can be compared between countries with more or less black market. For example, monitoring anomalies can refer to the coherence between official production figures versus over-estimated losses (i.e., categorized as wastes in accounting), or electricity's abnormally high consumption in some areas, or other indicators of hidden production.

These estimations fathom the black market up to around 35% of the gross domestic product (GDP) of developing nations, and down to 13% of most developed countries' GDP. In the US, such an estimation values the black market up to $2 trillion.

Traditionally cash based with its own accounting

The money flows of the black market have the following characteristics:

· Payments are often settled in banknotes from hand to hand, "under-the-counter" without a trace in a bank account. Approximately 70% of the payments within the black market are made in banknotes. The rest of these hidden payments are completed in untraceable manners such as through blurry foreign accounts or through opaque alternative currencies such as silver coins or cryptocurrencies.

· Payments are completed without billing in order to dodge controls (over sale receipts, employee contracts, etc.).

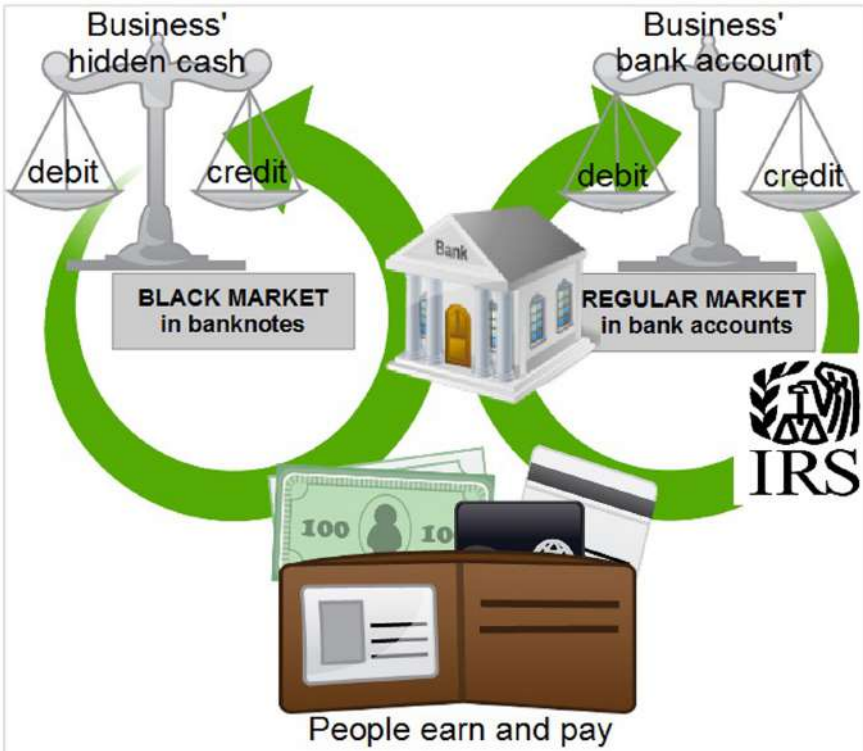
· Its illegal transactions (e.g., purchases, sales, wages, loans) tend to circulate within the underground economy and outside the bank accounts of the declared economy. Otherwise, any transaction overlapping between the underground and the declared economy can be caught by the IRS by monitoring bank accounts.

· Accumulated cash will be the only source for loans to finance activities and investments on the black market, unless familiar parties accept a small cash loan in the absence of a legal contract. Of course, in the event of a dispute, there is no possible recourse in the legal system.

The accounting of the black market has the following characteristics:

· Its accounting is noted in a secret book of accounts. Definitely, there is a double accounting for some corporations, i.e., for official and underground activities. Al Capone was jailed because of such a secret book of accounts.

· Payments of goods and services are often split between the regular accounting and the hidden ledger. The entry with billing in the regular accounting will justify the transaction in case of a control. Even double-billing exists. Scandals of double-ticketing for soccer games, with half of the tickets bypassing the IRS and paying under the table for the players' bonuses, and many other examples have unveiled that regular billing can hide black market transactions.



With hidden ledgers and with untraceable currencies, no bank control is possible to restrict the size of the parallel black market. Transactions can only be reported if they are recorded on films, photos or other evidences. This way, the black market can be shrunk... and ignored by economists.

Nevertheless, could a third market exists aside from the regular and the black economies, and benefit society?

Monitoring of bank accounts to hamper the black market

To restrain the black market, authorities demand that banks report all large transactions (i.e., $10,000 or more in the US) suspected to be illegal to the authorities.

This partial control is deemed sufficient. After all, a full control would not annihilate the black market, because untraceable banknotes would simply avoid bank accounts for underground transactions in case of a full control. Moreover, a full control would be a threat for privacy if the authorities obtain full access to banking data in order to

trace the legality of transactions from origin to destination, or would be costly if banks must report any suspicious transaction of a few dollars through a heavy bureaucracy.

With this control, large illegal transactions will be hampered as they must be carried in cash, which is not easy. For example, buying a house in cash becomes difficult, because most sellers won't accept a payment in banknotes that can't be deposited in a bank account without a justification of origin.

For their part, small underground transactions will thrive in activities in uncontrollable sectors, such as those providing services for private individuals (e.g., construction, retail, maintenance and repair of motor vehicles).

A total control of money in bank accounts would not be an efficient solution, even if banknotes were removed from circulation. The underground economy could use foreign banknotes or silver coins (as on the picture) or any intermediate commodity. Thus, it seems useless to remove national banknotes.

The lessons learned around the prohibition of alcohol or drugs remind the legislator about the limits of police control. The black market economy can only be partially contained by banking control, but it is impossible to eliminate it, unless restricting the personal freedom of all citizens.

Fighting money laundering

Money laundering of profits has been a crucial illegal activity for any large-scale black market. Money laundering tries to inject paper banknotes into regular electronic bank accounts to facilitate the spending of profits away from barriers around cash.

Money laundering happens often through the deposit of cash in

bank accounts in fiscal paradises in the Caribbeans, which turn a blind eye to the origin of the banknotes. However, the rise of international terrorism has forced many fiscal paradises to collaborate with the tax departments of the most industrialized nations, which are ramping up the fight against criminal banking transactions.

With the rise of international terrorism, the fight against undeclared banking transactions has forced many fiscal paradises to collaborate with the tax departments of the most industrialized nations.

Nevertheless, organized crime has plenty of creative tricks to recycle its banknotes into regular bank accounts, especially through cash based businesses (e.g., nightclubs, restaurants) overvaluing their turnover as well as their expenses to lower the tax on profits.

The black market can be kept small by police action. But, the most famous black market: Prohibition during the 1920s – with confiscated alcohol in the picture – still haunts politicians, because it boosted organized crime. The lesson was dire: laws cannot solve all ills of the people.

In the US, the black market is rather kept small by low tax rates or low regulation. Low tax rates for the American people (income tax, social security, etc.) always make black market less appealing.

In Europe, countries like Greece, Italy or Belgium have an ample black market due to high tax rates and inefficient control. Only France has heavy taxes, and nevertheless, a rather light black market. But, France must support the cost of a plethora of expensive administrations, including one of the strictest tax authority in the world, in order to limit its black market. This unproductive control system is costly, not only in wages for the administration, but also in paperwork burden for the French people. And, France suffers from administrative excess, which contributes to drag down its economy.

Cryptocurrencies and the black market

Bitcoin: the first cryptocurrency based on the blockchain

In 2009, the bitcoin followed the conception of the blockchain technology (2008), which was itself developed to conceive the creation of a decentralized internet currency.

The blockchain algorithm permits a secure currency in the internet without a central computer. It had found an alternative to single centralized computer, as with a bank's computer software and administrators who must remain under expensive auditing by the authorities (Fed, FDIC...) to prevent fraudulent crediting of bank accounts by the computer's administrators.

The blockchain algorithm was a secure way to replicate (in chains) the blocks of data between all peer computers of the network, which run the same open-source software. Any change of any block of data would be encrypted in a permanent and secure way, and it can be decrypted to be read, but it can never be modified and re-encrypted without being rejected by the other peers. The blockchain can be seen as a ledger automatically notarized by software.

With the blockchain, the people could trust a decentralized system where every server monitors every other server, even without an army of auditors to monitor each peer computer of the network.

In 2009, the bitcoin's open-source software (i.e., the source code in a text file) was completed using blockchain technology by volunteers, including programmers, cryptologists and mathematicians. Then, it was published on an internet website.

This bitcoin software could be installed (i.e, compiled and executed) on internet servers to create 21 million pieces of software (blocks of the bitcoin and its subdivisions) which each retains the history of the usernames of each owner. Initially, the mining rights were sold to newcomers in the peer server system at an initial price of $1 for 1309 bitcoins.

Bitcoin: a payment system

The administrators of these peer servers started to sell or buy bitcoins in exchange for dollars or any foreign currency. They became some kind of "moneychanger" web-servers. (This fact reminds that the bitcoin still faces a security issue at the interface peer server between credit cards and bitcoins. For example, private keys of the servers were stolen by the bitcoin moneychanger Mt. Gox, which when bankrupt.)

The bitcoin exchange rate in dollars or other currencies is simply published in function of the last exchange value between a seller and a buyer. Some bitcoin moneychangers such as BitPay or Coindesk even use an algorithm that determines the spot price of the bitcoin by using multiple exchange websites. Other moneychangers websites even publish the bidding and asking prices.

Owners of a bitcoins could send it to another user of the bitcoin network, i.e., pay with a bitcoin. The bitcoin receiver could resell it in dollars or in his local currency.

Transactions in bitcoin had become an international money transfer system for much lower fees than regular banks, especially in countries with poor banking facilities, while a bitcoin peer server could be easily installed and linked to the local banking system. For international transfers, banks are effectively bypassed by bitcoin transfers, but they may still charge credit card fees between bitcoin exchanges and end users.

The value between two exchanges (i.e., between the first currency vs the bitcoin and between the bitcoin vs the second currency) should not be influenced by the relatively stable price of the bitcoin, and by the bitcoin payment network supposedly fast. Nevertheless, surprises have happened with slow bitcoin moneychangers.

Congress regulated cryptocurrencies to prevent black market

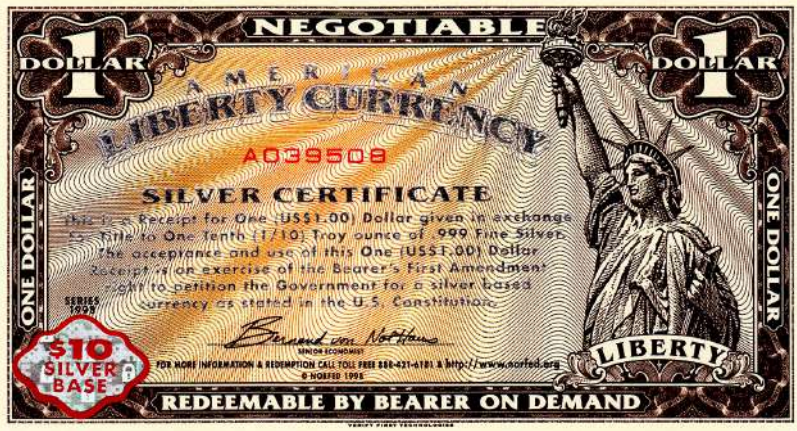
In the US, the digital currency of the bitcoin was classified as a commodity (i.e., not an illegal currency) by Congress, which has the monopoly on monetary creation according to the US Constitution.

Like gold or silver, the bitcoin is a commodity with a fixed number of bitcoins (i.e., 21 million without any new monetary creation possible by the bitcoin software).

The same decision applied for the numerous cryptocurrencies that have been created in the wake of the bitcoin success. They had to abide by the same regulations. At least, these regulations apply as long as the digital currency exchanges are established in the US or in most developed country, as most countries are following the same path as the US.

Under the Commodity Exchange Act, cryptocurrency trading servers had to register by the authorities. Also, the U.S. government requires financial institutions – including digital currency exchanges – to enforce anti-money-laundering regulations to prevent black market from funding criminal and terrorist activities.

However, cryptocurrencies such as Monero or Zcash modified the bitcoin software to blur the tracking of the digital currency. These cryptocurrency networks are currently the ones favored by the organized crime, which erase its path in case of an inquiry. One day, the government may force US banks to block any digital payment towards networks such as Monero or Zcash.



The US authorities are cracking down on parallel currencies (such as this now banned liberty dollar). The US Constitution gives the monopoly over the currency to the Congress. It's illegal to use parallel currencies without Congress approval.

It is as much illegal to avoid the IRS for transactions in barter or in any parallel currency. People must fill in an IRS form with fair value estimation in legal dollars for each barter transaction, or each sale completed in a parallel currency.

Blockchain all over the banking system?

The future of the blockchain is announced to be bright. In fact, the blockchain may apply for any notarized information, while much lower auditing would be required. Not only, will the blockchain spread throughout the world of units of money, but also in the world of notarized data such as a few pages of a contract.

Still, cryptocurrencies and blockchain technology have many downsides before taking over the world of secure transactions.

The main downside of the current blockchain version is the heavy computer power that is needed for any peer computer to retain all the data of the blockchain, especially once transactions are being added at high frequency. However, "scaling" will allow to retain only a fraction of the data with lower computer power and without loss of security. Scaling will be added in the next versions of the blockchain algorithm, but the best method is still being discussed.

Also, cryptocurrencies of the current version will not replace credit cards soon, as credit cards represent a loan with monetary creation, while the current cryptocurrencies are only commodities with limited creation (e.g., 21 million units for the bitcoin).

Nevertheless, banks are working on the new features to be added to the next generation of cryptocurrencies for the decades to come. For example, the interbanking ACH network (Automated Clearing House), with its heavy auditing and expensive fees, is announced to be replaced by a blockchain solution by 2025.

The five currencies of Argentina after 2001

Origin of the 2001 Argentinean crisis

Argentina is an interesting nation relative to strange currencies circulating in parallel markets. It is worth studying this case for a better understanding of alternative currencies and their potential to tone down economic crises or beef up the black market.

Indeed, Argentinians found some relief in parallel currencies and

their respective markets when their country underwent an economic crisis in 2001.

The crisis found its origin in the early 1990s when the authorities decided to peg their national currency, the Argentinean "peso", to the US dollar. The people, tired of years of hyperinflation, applauded the proclamation of this new measure. From then on, a peso was equivalent to a dollar. The Argentinean Central Bank promised a rigorous monetary policy in order to ensure the convertibility between the peso and the dollar.

As the economy was in tatters after so many years of monetary anarchy and hyperinflation, the IMF had to grant a loan in dollars to the Argentinean Central Bank, so it could keep honoring its promise of convertibility of the peso toward the dollar. On these healthy and well-grounded monetary bases, the Argentinean economy could recover.

Later, Argentina started to struggle with its trade balance. Two main factors explained this imbalance. First, the authorities failed to reduce the public deficit – always politically sensitive – to balance the budget, and consequently, they had to borrow pesos, which had to be covered by more loans in US dollars. Second, the value of the dollar rose with the rise of the NASDAQ and the New Economy, so the pegged peso ended to be overvalued compared to the currencies of economic neighbors. The overvalued peso weakened exports, favored imports and finally pushed the economy into recession after 1999. With the trade deficit climbing, the Central Bank had to obtain loans in dollars to ensure the peso-dollar convertibility despite low exports in ratio to imports.

At one point, the national debt that fed the peso-dollar convertibility became intolerable. The IMF and other banks couldn't continue to grant loans indefinitely. Obviously, the promise of peso-dollar convertibility couldn't be kept for long, and rumors spread. Deposits were being emptied in order to convert pesos into safe investments such as gold or dollars. With the first banks going bankrupt, the authorities had to act to prevent a breakdown of the banking system. In December 2001, the authorities imposed financial measures to

restrict withdrawals from bank accounts. These measures were designed to prevent a massive bank run. They were informally called the "corralito". A few days later, the economic crisis suddenly broke out. Argentina was precipitated into a violent crisis by lack of money in circulation reflected by deflation, by devaluation of the peso previously overestimated, and by the paralysis hitting consumers and investors.

New currencies to circumvent the deflation of the "corralito"

To circumvent the lack of pesos blocked by the "corralito", several alternative currencies spread alongside of the "peso", still the official currency of the country.

The new "patacon" was issued by regional authorities as a credit note to the bearer, with 7% interest and to be paid back in pesos… but only at the end of the year. The "lecop" was a credit note similar to the patacon, but was issued by the federal Treasury. At the end of the crisis, the patacons and the lecops were to be exchanged for pesos.

These currencies somewhat helped the Argentinean economy through the crisis and the deflation following the "corralito" measures. Patacons and other banknotes ended up accepted in shops and even in banks for payments. Certainly, their acceptance was not as wide as real pesos or dollars, which were the only currencies accepted abroad. After all, parallel currencies have thrived in deflation since time immemorial, from the Industrial Revolution to Buenos Aires in 2001.

Also, dollars-banknote kept circulating in the country. Dollars have always been appreciated for hoarding, because they were spared from high inflation. Dollars have long circulated in many countries in order to avoid any exchange in the national currency, which was often destabilized by national inflation linked to irresponsible authorities.

With the numerous moneychangers in the street of Buenos Aires, there was a monetary system similar to the ones of the Middle Ages or of the American and French Revolutions. Also, counterfeits and spurts of inflation showed up after the short deflation of 2001 (40% inflation for prices in pesos in 2002 before a stabilization in 2003). All these

currencies were accepted (although the dollar was preferred), because they kept the advantage of easing transactions in the market place. All was accepted rather than an economy without currency, or barter.

Five banknotes in Argentinean wallets. Not easy to handle, but Argentinians coped with it because it helped to rotate goods and services between people. One restriction: this patacon (picture) was rejected as payment for imports.

"El crédito": kicking off an economy among the poorest

The last banknote introduced was the "crédito". It was an Argentinean banknote created by a bank funded by a network of individuals of the informal economy. The network was described as a "network of barter". Membership to this barter network was a few pesos. The pesos were deposited in the "crédito" bank in exchange for "créditos".

The "crédito" facilitated trade between poor people deprived of pesos. This trade spread in parallel to the regular economy, so this barter escaped taxation. The use of the "crédito" transformed the barter of goods into a true parallel trade with its own currency.

The "crédito" survived inflation consequent upon initial issuing rules that were too generous and also to counterfeiting. Other countries of South America, dragged down by the Argentinean crisis, imitated the model of the "créditos".

Argentinians had many misunderstandings around money. A historical mix of inflation, Catholicism and political struggles explains it. Probably for these reasons, they preferred to classify their "crédito" as a "barter ticket" despite the fact that the "ticket" was a true form of money that applied to its own economic market.

End of the "corralito" and alternative currencies

To conclude the Argentinean crisis, the measures of the "corralito" were suspended in 2003. The promise of equivalence of a peso with a dollar was eventually forgotten. The peso was officially devalued.

Argentina could again issue its pesos freely and buy back previous patacons or lecops and others. The last patacons were bought back and paid in pesos at the end of 2006.

After waves of hyperinflation in the 1970s and the 1980s, after a hazardous attempt to control inflation in the 1990s that ended with the 2001 crisis, Argentinians could finally enjoy relatively low inflation (below 10% from 2005 to 2009). As for other South American countries, such moderation in the monetary policy is one of the main reasons for the economic revival of the continent.

The US patacon: the IOU. Issues have happened from the Civil War all the way to the California of Governor Schwarzenegger. The US, like Argentina, has a long history of issuing IOU-like money, worth a cent "soon".

Historical Correlation

Economists overlook parallel economies and their currencies

Economists often overlook the black market and the parallel currencies in their studies. They may talk about parallel markets in the news, but rather as a curiosity.

In the US, this underestimating trend can be explained because the black market is considered low in the US. Also, US economists, who are often linked to the academic world rather than the dusty US streets, are remote to underground or parallel economies.

In Europe, countries with a large black market don't brag about it. Some European governments tend to underestimate the existence of the black market. The reason is that national contributions to the European institutions and subsidies are calculated on the basis of the official GDP, not the underground GDP. Some countries (e.g., Greece, Belgium) are notoriously permissive about the black market, while they don't mind cashing in European subsidies due to a lower GDP.

Despite the under-reporting of parallel currencies, what if a solution to the economic discontent of the Trump constituents is not political (i.e., people agree on taxes and regulations), but monetary (i.e., nobody understands the new monetary regulations as the monetary system is essentially misunderstood). Could a parallel economy be created with a parallel currency and be beneficial for the struggling middle class?

Chapter 4

A Parallel Economy to Reduce Inequalities (and Fight Global Warming)

Those who blame the election of Trump on a "basket of deplorables" are ignoring economic indicators humiliating some.

The official unemployment rate may have dropped from a dramatic 10% following the 2008 crisis, to less than 5% after 2015. But this U-3 rate measured by the BLS (US Bureau of Labor Statistics) is only pointing to "unemployed people actively looking for a job".

However, the reality of unemployment still affects many, as other indicators show it:

• Other unemployment rates reveal higher underemployment than the official rate. For example, the U-6 – also from the BLS – is double the U-3 rate. The U-6 is the U-3 plus people too discouraged to look actively for a job, and postponing their job search until better times, and thus excluded from the official unemployment rate.

• The "labor force participation rate" in 2017 discloses a low 63% of active workers compared with the population in age of working. This figure is the lowest since 1977.

• The disparity between age groups is also disturbing. The employment of the category 25-54 years old – the main pool of post-college work skills of the future – stagnates around 80% despite the recovery. Only the 55 and older have progressed since the 2008 crisis, while the 16-24 age group has declined.

• Other disparities exist about states, counties, age groups, race, or sex, are also disturbing. They can also result in social tensions.

Moreover, stagnant wages have cursed the middle class. Despite the steady improvement in the job market, another critical economic indicator has remained stuck: wage growth. Wage levels should rise, as unemployment falls, and make the economic engine roar with the demand following the wage hikes.

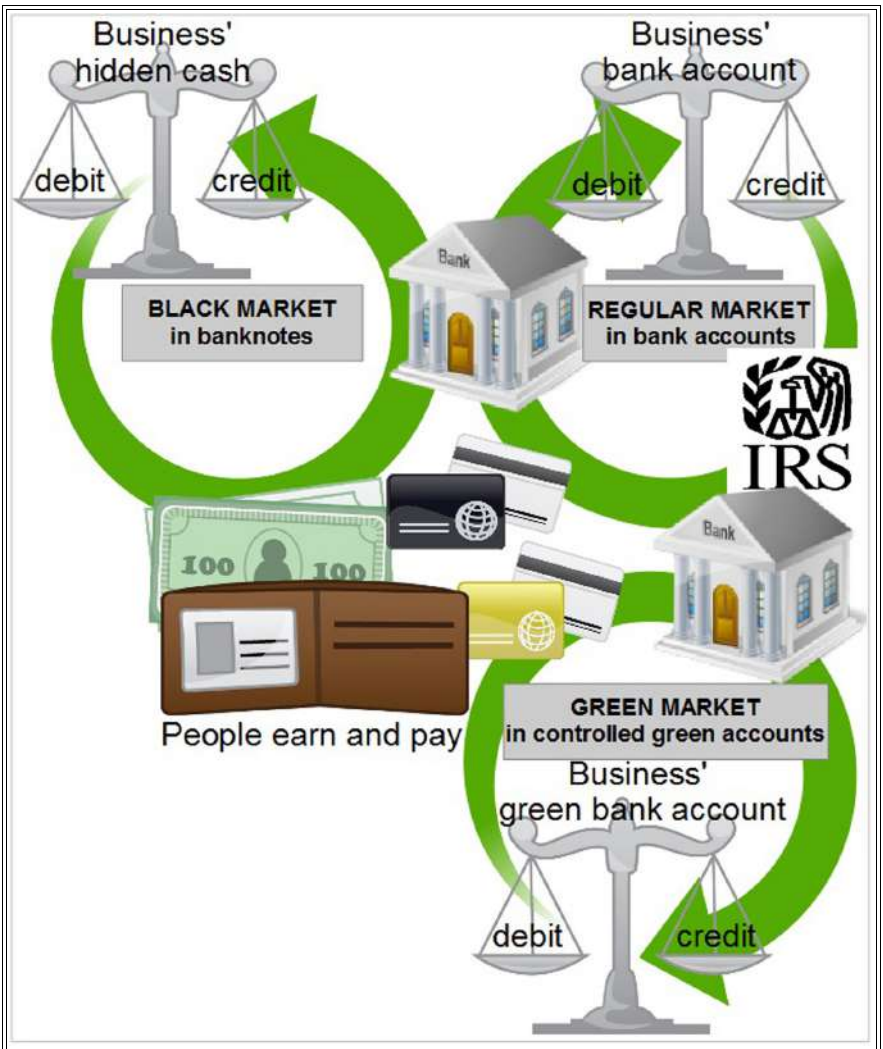
Sadly, nominal wages have grown just around 2%, only a bit higher than inflation, with the post-2008 recovery. Since the 1970s, the figures are even worse: the middle-class wages are stagnant, while lower-class wages are down, and only high wages saw a significant increase.

Economists are puzzled by such a stagnation of wages compared to past recoveries. They can't explain how a tightening unemployment hasn't led to a wage growth acceleration. They claim to lack data to agree about the root causes among the potential culprits (e.g., wages pressured by low productivity gains, wages kept low by the pressure from foreign countries, with imports or with foreign relocation, etc.)

In conclusion, Trump was elected, as least in part, by the discontent about the job market. Yes, some Trump supporters have a job, but with miserable wages and little chances of improvement. Maybe, some swing states have a low unemployment rate, but Main Street can be angry if wages don't allow to make ends meet, while others are thriving in Wall Street.

A black-market-like system to reduce inequalities

A new parallel market



The next pages, based on this drawing above, will examine the feasibility to add a new market aside from the regular economy and the black market.

Like the black market, could a new market exist aside from both the regular economy and the black market? Without overlapping with the existing markets, could this new market provide better jobs to the struggling middle class and reduce the inequality gap?

The new market would need to fulfill three conditions to be as viable as the black market:

• Spur people to participate in the new market.
• Constrain the new market onto its own accounting without costly bureaucratic control.
• Incite the government to legalize the new market.

Tax-free green-products manufactured in struggling areas

To benefit the struggling middle class, a new black-market-like parallel economy could be allowed to develop on its own, in the most struggling areas of the country.

To attract participants (i.e., businesses, workers and buyers) in the new parallel market with its products made in struggling areas, the market should be entirely tax free as the black market is, without taxes on wages, without sales tax, without taxes on corporate profits, even without social security's payroll tax.

This new market could be called the "**green-market**", in reference to the black market. All its components (e.g., workers, products) could be labeled as "**green**". It would include legally tax-free activities to be located in struggling areas and to be chosen in a nonexistent field in order to leave the regular economy untouched.

This range of activities could be selected in the (yet) underdeveloped green economy, which intends to curb global warming.

Examples of tax-free green-products produced in struggling areas could include:

• building solar panels or windmills;
• fixing CO_2 by planting forest to produce wooden beams for housing;
• implementation of the electrical super-grid going through poor areas;
• electrical battery plants;
• nuclear energy power plants.

Machines and components to build green-products to be included in the green-market

To dodge even more taxes, machines and parts needed to build windmills or solar panels could be approved as green-products.

In this case, regular corporations providing goods to build green-products would create a branch in the green-economy, as they do it in foreign markets, or as they can hide some activities in the black market's ledger. This tax measure would lower prices in the competitive market of green-products.

The earnings by the green-branch would pay for green-workers and components, and profits could be reinvested to diversify and produce tax-free green-electricity to be sold to the parent regular corporation.

Cheaper costs and prices for green-products

As in the black market, no tax of any form would be imposed in the green-market, not even social security. The Social Security and its payroll taxes must stay within the regular economy, which should remain much larger than the green-market. Why should the poor stay unemployed and receive social security checks rather than work in the green-market?

Net wages of the regular economy will be the reference for green-wages. Green-workers will accept green-wages if the pay is good (hopefully increasing) compared to the net-wages of the regular economy. Yes, as in the black market, green-wages must be tax-free. Also, like unemployed workers and black market's workers, wages must be exonerated from contributions to the Social Security. The burden of financing the government and the social security should not discourage the expansion of the green-market in the struggling areas.

Altogether, prices of green-products would be roughly 40% cheaper than in the regular economy. This figure comes from observing that taxation by all levels of government (i.e., federal, state, local, social security) accounts for around 40% of the GDP.

Approving other green-products

Other green-products and green-services could be approved for entering the green-market, and thus entitled to a tax-free status. The government would verify that certified green-products are made in struggling areas and diminish the greenhouse gases emitted into the atmosphere.

In case of contestable efficiency to deal with reduction of greenhouse gases, the green-product or green-service could be partly paid in green-currency and partly in regular currency following ratios to be devised by the administration. These ratios would be computed in relation to the ton of carbon reduction: e.g., a quota of the cost of hybrid cars could enter the green-market, in relation to their mileage per gallon of gas compared to non-hybrid cars.

The administration should keep in mind that it's the overall health of the green-market that matters, not the traceability of every cent of tax avoided in relation to the ton of greenhouse gas. The administration can be lenient when admitting products or services into the green-market. No need to punish any green-job with the taxes of the regular economy.

Once full employment has been achieved throughout the country, the accreditation of new products in the green-market could be stopped. By then, the green-market may have integrated 10% of the workforce.

No tax loss as green-products are nonexistent

As green-products built in struggling areas are still scarce, no tax shortfall is to be expected if new factories become tax free. Moreover, people accepting a green-job may be out of the job market and not paying taxes. The goal remains to provide jobs to the people, rather than taxes to the government.

Still, some tax incomes would persist as green-money reenters the regular economy, in the same way as black money can pay taxes through the money laundering process. First, green-workers would spend their tax-free wages in the regular economy and pay for the sales

tax. Second, their spending would be declared as income by the providers of goods and services in the regular economy.

The US tax code is not encouraging people to go green.

Renewable energy, such as solar energy, is heavily taxed, with sales tax on the purchase of the solar panel, and also with income tax on workers building the solar panel, which ends up in the final price. Moreover, people can only buy solar panels with after-tax money. Is it justified, even if taxes pay for education or roads?

Maybe the government can design new tax breaks (e.g., tax-free zones, tax credits, tax exemptions, subsidies), but the complexity of the tax code confuses the free market, which can hardly compare post-tax prices involving burdening and costly bureaucracy. Unlike rich corporations, households can't always hire a lawyer to fill in the paperwork for the tax breaks.

Worst of all, there is little taxation on gas for popular reasons, even if a large chunk of petroleum is imported (60% in 2014), which doesn't create many US jobs.

Households will pay a lot of taxes for consuming renewable energy from power plants built by US workers. Meanwhile, petroleum is under-taxed. Not only, going green is not so profitable, it is often punished by heavy taxes and by unfair competition from the lower taxed petroleum industry.

Especially, low wage workers would have to pay taxes in order to buy renewable energy, although they already pay more taxes than one may think. Not only, these workers pay for federal taxes, state taxes, but also sales taxes and social security taxes. Finally, taxes on the wages of doctors or other services may raise the price of the consultation as taxes bring distortions on the prices of such services. There is no guarantee that a tax-free price of such a consultation would be equal to the net price, by the economic law of supply and demand. It means that the doctor's income taxes can be paid in part by the patient, not entirely by the doctor. For the same reason, the cost of an electric car purchased by the struggling middle class will include the taxes of the well paid engineers that contributed to develop the car.

A new currency to isolate the green-market

A green currency circulating between green bank accounts

To constrain the green-market onto itself and prevent a mix up between green-market, regular market and black market, the green-market would need its own currency, which should be named green-currency or green-money or green-dollar.

This green-currency would only be written electronically in bank accounts, without the possibility of withdrawal in banknotes. Thus, this cashless (bank only) parallel currency could be controlled, as bank accounts can be controlled today.

This feature would empower the legal supervision of banking transactions from green accounts by savvy computer algorithms, legally restricting the trading to green-products and green-services. This control would separate the traditional and taxed economy from the tax-free green-economy, as specified in the next section.

This control would concern only the voluntary users of the green-currency, not producers and consumers of taxable traditional goods paid in regular currency.

To avoid this control, any criminal or underground transactions will stay within the realm of the regular dollar banknotes. For its part, the IRS would continue to tax traditional incomes, and would keep detecting black market transactions in regular bank accounts.

Control of the green-bank accounts

Green-accounts would be scrutinized to verify that tax-free green-payments and green-incomes are linked to struggling areas and to carbon reductions.

Green-corporations would be tax-free, but under strict scrutiny. Tax-free is a privilege, but it will only be obtained and maintained in exchange for tight controls regarding operating within the perimeter of the green-market.

Strict controls would check if green-corporations exchange their green-money into regular dollars only to buy their supply of traditional goods from regular corporations in order to produce valid green-products and green-services. Green-corporations would use their green-accounts under strict scrutiny to buy raw materials, with gas or coal excess being monitored, and to pay wages in green-currency. Regulating authorities would compare reference ratios with input and output in green-accounts.

Such a transparent control already exists for corporations going public as they raise money by selling stocks (i.e., IPO) and become listed in the stock market. This process requires frequent auditing by accounting firms such as Deloitte or KPMG.

Criminal activities would continue to use banknotes or gold coins, not green-money, in order to escape any banking oversight from the authorities (with the FBI or the IRS looking for unpaid taxes even in Caribbean banks).

Limiting the black markets by controlling the currency – by banning banknotes and limiting circulation in bank accounts – is still an illusion, due to the circulation of foreign banknotes, due to the existence of gold coins, or due to privacy laws. Thus, matching in-and-out flows between bank accounts during an investigation becomes difficult.

However, this observation does NOT apply to a secondary and voluntary tax-free green-currency entirely written in bank accounts, because crime and privacy will stay exclusively with the primary currency. This is a KEY idea for the green-market.

The creation of a parallel currency would permit the parallel accounting of this new black-market-like economy. This currency would fence this new market off the regular and the black markets. Separate economies can coexist like neighbor countries with currency exchange at the border.

Rather than aiming at integration of the green economy, separation could bring better results with much simpler bureaucracy in order to leave the regular market untouched. The green-currency would dramatic simplify an environmentally friendly tax code, which would be... almost blank, and certainly simpler than a bureaucratic taxation-regulation-subsidies system. The green currency will be the key element to make the system work in a simple and efficient way, within a free market without distortion from overreaching regulations or taxation.

Throughout history, regulations in a socialist-style should have worked in theory, but they baffled the economy in reality. People prefer to handle a currency in a free market, even multiple currencies, as in Argentina in 2001.

Individuals can earn green-money and exchange it into regular dollars

Green-workers and shareholders of green-corporations in the green-market could spend their tax-free wages or incomes in green-currency to buy green-products. Green-workers and green-investors will also have the possibility to convert their green-currency into regular currency if they prefer, but spending in regular dollars would incur the sales tax, as it happens when black money reenters the regular economy.

Households could also earn green-dollars tax-free on their own, e.g., if they install solar panels on their roof and resell electricity.

Other individuals will have to exchange their regular currency into green-currency, in order to buy tax-free green-products. Also, individuals may be part-time green-workers, with an extra income in green-currency to buy green-products or invest in green-corporations.

For consumers using regular credit cards, banks may also convert the green-costs into regular dollars, especially for consumers being stubbornly reluctant to use a green-currency credit card.

Starting point of the green-currency

The green-dollars would come from exchanging dollars for green-dollars, at the Fed's counters, like the Fed was converting paper dollars (banknotes) into gold dollars (coins) in the past. This way, the quantity of money (sum of dollars and green-dollars) won't initially vary.

An exchange fee may apply between regular dollars and green-dollars by the Fed. This exchange fee would cover the costs for the Federal green-market administration.

With green-dollar supply, banks could grant loans in green-dollars to their customers in the green-market, as it is done in the existing economy of the dollar. Banks themselves would participate in the monetary creation process by granting loans of green-currency.

Implementing green-money shouldn't be too complicated for banks already used to dealing with dollars as well as foreign currencies. Banks

have the expertise to loan in US dollars, in British pounds or in euros, as they already do in London.

If approved to enter the green-market, banks' green-business could be handled exclusively by green-banks, which could be organized as divisions of traditional banks. These green-bank would hire tax-free green-employees to manage green-accounts.

Regulation of the green-currency by the Fed

The Fed shouldn't regulate the green-market as long as it stays small. Once the green-market reaches a good share (e.g., 10%) of the GDP, the Fed may start regulating to limit inflation imported from the currency exchange between the regular economy and the green-market.

At that moment, the Fed would have to control both regular and green-money quantities and inflation. The Fed would achieve this goal with the usual manipulation of interest rates.

Normally, the Fed would not create green-money. The Fed would delegate this task to private banks, as it is already done with regular dollars. Only during a crisis, would the Fed create green-money through its balance-sheet, and loan it to private banks on the verge of collapsing.

Limited spending in green-money into the regular economy

As the black market percolates some (small) cash payments into the regular economy, e.g., paying for restaurant in cash remaining undisclosed to the IRS, the green-market could allow similar payments.

For example, buying health insurance with green-currency could be imagined.

It would lower some costs for green-workers, and permit lower green-wages by the rule of the competition, which could force wages to rise if the spending balance tilts in favor of the green-workers.

It would remunerate doctors and nurses with green-money to be spend, but only for green products, not for other products as it would be controlled by computers analyzing the transactions between green bank account.

Large profits taxed outside the green-market

Large profits from the green-market could be reported to the IRS and taxed, but only after their exchange in regular dollars, i.e., outside the green-market. This taxation on large profits may be required to have the green-market system enacted, when the wealth gap is a hot political subject.

Similar taxation can apply to the black market when the government grants a temporary amnesty with a low tax rate to repatriate black money into the regular economy. Usually, nothing is taxed for the black market when coming in the regular economy, where only the sales tax may apply. Yet, the black market still has to bear the cost of the money laundering.

Of course, politicians who care about global warming know that any taxation measure could hurt investments in the green-market. They may grant a 10-year exemption of any taxation on large profits, and a permanent exemption for small profits.

A carbon tax in green-money to crank up the green-market

A carbon tax in green-currency

A carbon tax in green-money could be imposed on the sale of oil or coal products (measured in a gallon of gas, ton of coal, cubic foot of butane, etc.). Oil and coal producers would start an accounting in green-currency aside from their regular accounting, in order to cash in the carbon tax in green-money. They would bill every gallon of gas or coal equivalent in two currencies as many businesses often do it with the black and the regular markets, as explained previously.

Coal and oil industries would repay the initial green-payment to the green-market administration for each gallon of gas or pound of coal sold. This administration would have to spend the green-money in the green-market for projects reducing emissions of greenhouse gases.

Regular corporations would pay for green-costs on energy after

exchanging dollars in green-dollars. Then, corporations can simply pass on to customers the green-costs on top of selling prices in regular dollars. Alternatively, corporations could invest to reduce their dependence on hydrocarbon energy. They may even purchase green-products in order to reduce the green-costs linked to their energy bill. These green-products will be delivered by green-producers, which should be cheaper due to their tax-free status.

Households would also pay the carbon tax in green-money, although they may be spared for a grace period of a few years. After that, they will need to balance their spending in green-money with their income in green-money or by changing dollars in green-money.

People could react to dual prices. They could choose the cheapest by summing both prices, or they could select the cheapest in green-currency if they care about global warming. Corporations would have to adapt in function of the choices of the people.

A carbon tax in symbolic green cents at first

Initially, the collect in green-money by oil or coal producers could be about symbolic green cents for each gallon of gas or coal equivalent in carbon. Later, the collect could be gradually scaled up to higher numbers as the green-market will be rolling.

This strategy would avoid an economic shock. Cranking up the system slowly would allow the green-market to anticipate the trend with the visible green-prices, and compete toward cheaper green-products. Overall, the green-currency shouldn't alienate private individuals, households or corporations.

Price of green-products: not a CO_2 emission gauge

The price in green-money cannot be seen as a punishing cost linked to a gauge of carbon for consuming fossil energy to produce the final goods. Instead, the green-money is only intended to be tax-free in order to favor the consumption of green-products.

Nevertheless, a carbon footprint indicator per household is possible. It would just be about summing up the carbon tax paid in green-

money, which could have a special green-product code in bank accounts and be added up by computer.

To cope with COP21, the international community is counting on a carbon tax to alleviate the burdening of the traditional taxation-subsidies-regulation policies.

The carbon tax is the least worst in theory, but still includes complex regulations, as it tries to keep the following principles in mind:

• Tax neutral: replacing existing taxation with the carbon tax, without increasing the total amount of taxes.

• Inequality issue: studies find that poor consumers spend a greater proportion of their income on gas, heating-fuel, or other energy-intensive goods. Thus, a cost increase on energy tends to affect the poor more than the rich. Subsidies may be distributed to re-balance the scales between rich and poor, although it will require additional regulations and bureaucracy.

• Taxation to involve everyone, not just the largest emitters of greenhouse gases: Otherwise, some emitters, who are below the threshold, may refuse to grow their business, which is obviously bad for employment. Also, carbon tax exemptions for individuals can't endlessly forgive households' emissions, especially since individuals have a large carbon footprint, including house heating, car usage, food production and distribution, which represents around half of the energy consumption.

So far, foreign experiments of market-based mechanisms (i.e., carbon pricing with carbon tax or cap-and-trade) have shown mediocre results, as in Europe. These experiments tripped on many hurdles: Regulations are more complex than ever, are slow to be accepted, and are thorny to implement without disconcerting the economy.

A low carbon tax showed poor results of behavioral change. In most instances, corporations consider the tax as a cost, and they simply pass it onto their consumers. The response would not differ with carbon tax rates cranked up progressively, bit by bit, in order to limit economic disturbance, as well as price inflation. Such a slow approach wouldn't shock people to spark a change in consumer behavior toward using renewable energies.

These experiments outline that carbon taxation would need an abrupt hike, at the probable cost of an economic crisis, in order to spark serious action against global warming. Economists argue about how to hit the economy with a carbon tax. Either one blow with a sledgehammer of carbon tax (big bang approach), or many strokes with a small hammer (ramp up approach). There isn't yet a consensus on this question, but it may be clarified soon with the undergoing carbon tax experiments of some countries.

If carbon taxation is so difficult to implement, would there be a missing link?

Road-map to legalization

Convincing potential green-market workers

A successful economic system must reduce inequalities before it can regulate the economy to contain global warming. The economic system must adapt to the choice of the people, not the reverse.

To support the green-market, one key idea can be put forward: people can earn green-money. Donald Trump's constituents, even if they refute global warming, could be hired by the green-market to earn better wages.

• Workers would compare net pay and green-pay before accepting a green-job, in a similar way as wages of the underground economy tend to equal the net pay. Later, they could change their green-dollars in regular dollars, if it pleases them.

• Workers could negotiate higher wages, thanks to a low unemployment rate pushed down by a thriving green-market cranked up by a carbon tax in green-money.

• The green-market could even be protected from foreign competition. (This option would not be ideal but needed to obtain support of Trump's supporters.) No other privileges of the regular economy should be transferred into the green-market, because a future without excessive global warming is at stake. Neither monopolies for corporations, nor privileges for trade-unions should be granted, although trade-unions would certainly exist for green-workers. In fact, more than trade-unions, it is low unemployment that will favor higher wages as the green-economy would compete with the traditional economy to hire workers.

People don't want charity as on this hobo coin. They don't want humiliating unemployment checks. They don't want a lecture about purchasing power, or about condescending subsidies to buy an electric car.

They want money in any form, in any color, through fair wages abating the inequality gap.

Convincing other green-market participants

Other people, not hired by the green-market, must be convinced about the reality of inequalities disheartening the poorest areas of the country, as much as of a man-made lethal global warming, which translate in exchanging green-money for purchasing green-products or pay carbon tax payments in green-money.

Yet, these other people will be able to earn some green-money by reselling electricity produce by windmills or solar panels installed in their gardens, unless the government excludes them from the green-market. They could also earn dividends if they own shares of green-corporations.

Finally, they will have to be convinced that the regulations surrounding the green-market will be lighter than the traditional regulation approach – with subsidies, tax breaks, carbon tax and cap-and-trade schemes – that is plagued with bureaucratic controls.

For the regulation of the green-market, efficiency will be brought about by:

• Simpler control. The control of the green-market will be easier due to traceability in green bank accounts.

• A narrower scope of regulation. It will essentially be about allowing green-products to enter the green-market, fully, partially, or not at all.

• Fair regulations to involve everyone. Tax credits don't effect the

poor in the lowest tax brackets, but the poor don't have the right to pollute as much as they want. An additional regulation with subsidies would have to compensate for this limitation of the tax credit strategy. On the contrary, the green-market would include fewer exceptions in a simpler program to cut CO_2 emissions. Everyone, every household, every small business, every corporation would be involved.

• More coherent. If it is conceivable to tax a desire or a need to consume, it is absurd to tax mandatory carbon reduction tasks, even if subsidies are granted later. If there are tax constraints in addition to the mandatory character of carbon reductions, going green will be more disputed.

Will these grandpas resist a surcharge of green-dollars added on top of dollars to pay for gas? Their grandchildren may convince them to do so by giving them a few options.

These grandpas may install solar panels on their roof and buy other green-tech green-products if they are built by their children.

These grandpas will exchange their dollars for green-dollars to invest them in profitable green-startups, which will pay dividends in green-dollars to be exchanged back into dollars, and all that tax-free!

Throughout the entire country, green-products may revive the economy. Indirectly, low unemployment may give the grandchildren leverage to negotiate higher wages.

Finally, exemptions on green-costs on hydrocarbon products can be considered for retired grandpas, in order to gain their support, within quotas to prevent abuse or smuggling by reselling to non-exempted people.

No political approval for green-money as a CO_2 footprint gauge

Volunteers could start the green-market in their area. They would start it with the belief that the green-market may eventually trigger investments and job creation in green high-tech as the system expands.

The first step would be to create green-money, which would be

issued in green-accounts opened by a new private (Fed-like) central green-bank. Such monetary creation already exists with currencies like the crédito, as explained previously. Even traditional banks could participate by changing some dollars into green-dollars at this Fed-like bank and by opening green-accounts. After all, banks can already deal with accounts in different currencies, and their internal software efforts should be limited to changing the traditional dollar sign of the "$" to a new green-dollar sign.

The second step would be to determine a low fraction or the green-cost to be added to the existing cost of hydrocarbon products, i.e., a few green-cents per pound of CO_2 emissions linked to gas or coal consumption.

The third step would be to encourage corporations to join this voluntary green-market, and add the green-money cost to the dollar pricing. Boycott or divestment could be enforced against non-participating distribution shops, gas stations, or coal-based electricity producers refusing to join the ranks of green-market participants.

The fourth step would be for households and corporations, to sum up their green-money spending in their green-money accounts, and to convert it back into carbon units, in order to analyze their carbon footprint. This symbolic monthly green-cent balance should not hurt the corporate or household budgets.

Cranking up the green-market at the state level

A state, such as California, could implement a green-market on its own. In that situation, the majority must be reached in California without having to convince the entire country yet. A Californian green-market would cut the cost of renewable energies and green high-tech by as much as 9% on income tax, 9% on sales tax, 9% on the corporate tax rate (California rates).

First, green-products, ranging from solar panels to batteries, would be allowed to enter the green-market one-by-one, under the rules of the Californian green-market administration.

Second, a carbon tax in green-money could be progressively intro-

duced to observe the reactions to the system and anticipate the behavior of every economic agent.

For out-of-state economic partners, they will have to compete with California-tax-free green-products made in California. Imports of green-products will be authorized to enter the green-market, although they will be disadvantaged by high-wage costs due to taxation in their home state. Exports of green-products will be favored as no tax would be due in California, and they would be billed in regular dollars, which would be changed into green-dollars by the bank in charge of the transaction.

The US government will listen to the voice of the people

Congress must carry on. It must enact the green-market for the whole country, if the majority elects Congress to do so.

The control of green-money through bank accounts is obviously a crucial element of the green-market. The Supreme Court shouldn't oppose it, as opening a (tax-free) green-account will be a free choice, and reluctant people will always be able to pay with their after-tax dollars.

The US progress will sway foreign nations. They know that the US will set the trend. If the US goes one way, others will follow. Only the US, with its high-tech exports and its imports so crucial for other economies, can pressure other countries to sign and abide by post-COP21 international agreements to cope with global warming.

Finally, the US government may have a new tool to stabilize the economy with a faster velocity of money, as explained below.

A faster velocity of money to circumvent lowflation

Problematic QEs

In regards to the famous QTM (Quantity Theory of Money explained in the next paragraph). The authorities are focused on increasing M

(i.e., the money supply within QTM) in order to increase Q (i.e., the production or the economic activity determining employment). Such monetary creation M could come from a new QE (Quantitative Easing) from the Fed, as applied after the 2008 crisis.

As a reminder, the equation of QTM is "MV=PQ" which stands for: Money supply (M) at constant Velocity (V) will increase in proportion to Price levels (P) for Quantities (Q) steadily produced. (More detailed explanations can be found on the Internet.) In this equation, the "Velocity" of money is defined as the ratio of money income (into deposit accounts) to the money stock (sum of all bank accounts etc.). This definition allows to measure the variations on how fast the hot money circulates – instead of sleeping in bank accounts – between bank accounts of consumers, shops, corporations and finally of workers. The velocity of money is not always constant, as explained in the last chapters. Still, in this equation, MV is the Money supply times the Velocity, and can also be called "money in circulation" in comparison to the money stagnant in bank accounts. Other publications prefer to equate money in circulation to coins and paper banknotes.

Nevertheless, pushing more money in circulation doesn't always manage to keep Q growing. In the US, the last QE resulted only in a GDP growth well below the golden dotcom years.

The authorities are nervous about such an endless monetary creation by the government or the Fed. They fear a Wall Street bubble pumped up by too much easy money. They also regret to see such a government involvement in the markets supposedly free.

Aside from increasing M, the authorities don't seem to have any alternative in case of a slowdown, because P, Q and V can't be regulated easily, at least in a free-market society where people produce and consume only as they like.

The only accepted strategy to accelerate V is through a fiscal reform, which would lower the tax bracket of the middle class. This middle class is more eager than the upper class to spend and keep the economy running. But, such a move hasn't happened in the last tax reform of 2017. In fact, many are skeptical that this last tax reform will

have much impact on the economy, which is growing rather on its own than with the help of the government.

Can the velocity of money be accelerated?

With the green-market, dodging deflation or lowflation could come from a faster velocity of the new parallel money, because of the mandatory green-money spending with a carbon tax in green-currency.

V would be measured as the average of the velocity of both currencies from the regular and the green-market.

This time, QTM could be re-balanced by V, not by M. In other words, the government could speed up the economy with mandatory spending by increasing the carbon tax in green-money or by a quick introduction of new green-products during a slowdown. This green-products could be related to any type of pollution, not just greenhouse gases. Such growth and stability could ease unemployment for long, which is the main factor that favors strong wages in both the traditional and green-economies and diminishes income inequalities.

Historical Correlation

A monetary solution to diminish inequalities and contain global warming?

Is the green-market system too simple to impress, too original to sway, too trivial to function, too daring to reassure? Or, could the green-market be the panacea to diminish inequalities, and contain global warming? Where is the flaw after all?

I am unaware if this system could be accepted, but I hope to get feedback from open-minded readers. Hopefully, they can study new ideas from dreamers, rebels, and other fools... who may not be so fool. If they admit the influences of the monetary system on history, if they accept the possibility of a secondary currency, if they understand the existence of parallel markets such as the black market, if they believe that solutions to inequalities and global warming need a drastic change away from heavy regulations enacted by the government, then they may consider the feasibility of the full-fledged force of a tax-free green-market.

And, if they don't find a flaw, they may spread the word around that the monetary system is a versatile instrument that could reduce inequalities within a green economy.

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