Money and Sustainability: Appendix A

“Money is the crowbar of power”
Friedrich Nietzsche

“The only people who claim that money is not an issue are those who have sufficient money that they are relieved of the ugly burden of thinking about it.” So thought the American writer Joyce Carol Oates. This Primer will explain why now even those fortunate few should think about it.

Have you ever wondered where your money comes from? How the value of your money is determined? Who is really in charge of your savings?

To start answering these questions, we need to understand the rules of the global money game, know who the players are and why they act the way they do. In this Primer, you will meet the key actors in our money system, and learn the essentials of the map of the current system that we will refer to later, when we explore the fundamental changes taking place in the system. Never before have monetary issues had such an influence on public policy worldwide, so this is a good time to educate ourselves about what is at stake. All of this will dramatically affect your money and your own future as surely as a radical climate change would affect the flowers in your garden.

The starting point is to become aware that “your” money really represents a partnership between you and your country’s banking system. In this chapter, you will learn how banking originated and how any form of storing value (real estate, stocks, bonds and currencies) can be transformed into additional new money by banks.

Because banks have proven historically to be very fragile institutions, specialized emergency “firemen” or intervention organizations have been created: a Central Bank in each country, and on
a global level the International Monetary Fund (IMF) and the Bank of International Settlements (BIS). Their role in managing the growing instability of the global money system will be assessed. We will then return to the initial questions on how all this affects your own money and future.

“Your” Money

“When I was young, I thought that money was important; now that I am old I know that it is,” was Oscar Wilde’s view. Perhaps you have come to the same conclusion. Whatever you want to do with your life, you will invariably require some money to achieve it. Money is a most convenient medium of exchange, certainly more convenient than its barter alternative, as the story of Mlle Zélie illustrates (see box). However, your money is never really “yours” in the same sense that you own your eyes, your hands or your car or home, once all the payments have been made. “Your” money is more like “your” marriage: another party—your husband or wife—is intrinsically involved in the arrangement. Modern money is also a bipartisan agreement. It is an asset to you only because it is someone else’s liability. And the modern banking system has been the necessary counterpart of such “credit-money.”

How does Banking Work?
The first party to whom you need to be introduced is therefore your bank, not because that is where you keep your money, but because that is where your money is created.

How Did Banking and “Modern” Money Start?

During the late Middle Ages, gold coins were the highest denominated currency. Goldsmiths were considered most qualified to check the purity of these coins. Even more important, they owned strongboxes for keeping the gold safe from thieves. So it became a prudent practice to give gold to the goldsmith for safekeeping. The goldsmith would give a receipt for the coins and charge a small fee for the service. When the owner needed to make a payment, he or she would cash in the receipt and the goldsmith would pay out the coins. After a while, it became more convenient and safer to make payments by just using the receipts. If the goldsmith was known by everybody to be a trustworthy fellow, why take the risk of moving the physical gold? The goldsmith receipts soon became tokens for a promise to pay. So that whenever someone accepted the token as payment, they were implicitly entering into a loan agreement with the goldsmith. Thus we gradually shifted from money based on commodities, in this case gold, to money based on credit or a bank loan. This is the arrangement that remains today.

Soon the most successful goldsmiths noticed that the bulk of the coins stayed in their strongboxes most of the time. Thus, one enterprising goldsmith observed that he could issue receipts in excess of the gold coins he stocked, because the depositors would never retrieve all their coins at the same time. In this way, he could increase his income without having to increase his gold reserves.

Mlle Zélie’s paycheck
Mlle Zélie, a French opera singer on a world tour during the 19th century, gave a recital in the Society Islands. It was a great success, and for her fee she received one-third of the proceeds. By the way, some things do not change: this is still what Placido Domingo takes home from a performance. But Mlle Zélie’s share consisted of three pigs, twenty-three turkeys, forty-four chickens, five thousand coconuts and considerable quantities of bananas, lemons and oranges. Unfortunately the opera singer could only consume a small part of the total and (instead of declaring a public feast as would be local custom) found it necessary to feed the pigs and poultry with the fruit. A handsome fee ended up going to waste.
So it was that European paper currency and “modern” banking were born simultaneously on the goldsmith benches of 13th century Italy; and why the word bank derives from banco, the Italian bench where those early transactions took place.\(^1\)

All the key ingredients were already there: paper money as a counterparty’s liability, the importance of a good reputation for that counterparty and, what is now called “fractional reserve system.” The latter’s intimidating label belies the simple process it represents of enabling the banking system to create more money than the deposits it holds.

**The Secret of “Modern” Money**

The secret to creating money is being able to persuade people to accept one’s IOU (a promise to pay in the future) as a medium of exchange. Whoever manages that trick can derive an income flow from the process (e.g., the medieval goldsmith fees, or, today, the interest on the loan that creates the money). Such income is called “seigniorage,” a word derived from the right of the Lord of the manor (“Seignior” in Old French) to impose the use of his currency on his vassals.

As the nation-states became the powers-that-be, a deal was struck between the governments and the banking system. The banking system obtained the right to create money as “legal tender”\(^2\) in exchange for a commitment to always provide whatever funds the government needed. The longest surviving agreement of this kind can be traced back to 1668 with the license of the “Bank of the Estates of the Realm” in Sweden (whose name was changed in 1867 to Riksbank as the Swedish Central Bank is still known). The model was copied in Britain, a...

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2. “This note is legal tender for all debts public and private” is written on every US$ bill. What this means in practice is the following: if you owe someone money and she refuses your offer to pay with US$ bills, you can walk away and simply declare the debt void. If needed, the courts will back you in such a declaration.
For the US, this same deal--money as bank credit for the guarantee that governments would always get the money they want--was part of the Federal Reserve Act of 1913. That is why the US Federal Reserve Bank accepts any government bond that the public does not buy, against which it issues a check for the corresponding amount. This check pays for the government’s expenses, and in turn the recipients deposit it in their own bank accounts.

That is when the magical “fractional reserves” come into play. For every deposit that any bank receives, it is entitled to create new money, specifically, in the form of a loan to a customer of up to 90% of the value of the deposit. That new loan—for example, a mortgage that will enable you to buy a house—will result in the seller of the house making a new deposit somewhere else in the banking system. In turn the bank receiving that deposit is entitled to create another loan for 90% of that new deposit; and so the cascade continues from deposit to loan down through the banking system. What started as a $100 million check issued by the Federal Reserve (called “high powered money”), by the time it works its way through the commercial banking system, has enabled banks to create up to $900 million of new money in the form of loans (see box).

Money Alchemy
Modern money alchemy (officially called “fractional reserve multiplier”) starts with the injection of say $100 million “high powered money” into the banking system, for instance, by having the Fed pay government bills for that amount. These funds end up being deposited somewhere in the banking system by the recipients, which enables the bank that received the deposit to provide a loan for $90 million to someone (the other $10 million becoming “sterile reserves”). The $90 million loan will in turn lead to a deposit for that amount, enabling that next bank to provide another loan for $81 million, etc.

100 million (High Powered Money)

<table>
<thead>
<tr>
<th>Loans (millions)</th>
<th>Deposits (millions)</th>
<th>(no’s rounded)</th>
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<tr>
<td>90</td>
<td>100</td>
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<td>81</td>
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<td>etc.</td>
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Total: 900 million. 1000 million

This is how what started as $100 million Fed “high powered money” can create $900 million in “credit money” as it trickles down the banking system.

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3. To be more accurate, while the Charter of the Bank of England dates from 1688, the monopoly of emission of paper money was assigned by King William of Orange to that institution only in 1694, when he urgently needed an additional 1.2 Million Pound for a war against the French. In the case of Sweden, the power of emission had similarly been transferred to the Bank of the Estates of the Realm when the crown needed urgent money to fund a war against Denmark. While the introduction of paper money made the transfer of the power of emission of money from sovereigns to banks possible, the proximate cause of that process was war.


5. Because the regulations specify that only 10% of a deposit need to be kept as “reserves” in case the customer withdraws the funds. Therefore up to 90% is available to make new loans. Changing that percentage is one of techniques whereby the Fed controls the quantities of credit money the banks will be able to create. The exact percentages also vary with the kind of deposit made: the longer the term of the deposit, the lower the percentage of “reserves” are required. The 90% rule of this example, enabling a “multiplier” of about 9 to 1 is an illustrative average.
If you understand this “money alchemy” you have understood the most arcane secret of our money system.

According to this theoretical scheme, however, it appears that banks can make loans only to the extent they have sufficient reserves. In practice, however, “banks do not wait for excess reserves before making loans and creating deposits. Rather, if faced with a credit-worthy customer and a request for a loan, a bank makes the loan. It then operates to obtain reserves as necessary to meet legal requirements. If banks in the aggregate are short of required reserves, the central bank automatically must supply them.” In spite of rhetoric about Fed policy to discourage such borrowing it is simply impossible for the Fed to refuse to supply the reserves needed by the system.” As a consequence, the quantity of “high powered money” created is in reality controlled by the banks themselves as the central bank has not really the possibility to refuse providing the necessary reserves. Its influence is limited to the interest rate that it charges on those additional reserves.

It is even more impracticable for a central bank to get banks to make more loans if they are not inclined to do so. When central banks try to push banks to lend, as was the case after the crash of 2007-2008, it is as if they were trying to “push on a string.”

This is the convoluted mechanism by which the deal struck between governments and the banking system is implemented, and why “your” money ultimately involves the entire banking system of your country. Money and debt are therefore literally the two sides of the same coin. If we all were to repay all our debts, money would disappear from our world, because the entire process of money creation illustrated in the “money alchemy” would reverse itself. Reimbursing all the loans (the left side of the graph in the sidebar) would indeed automatically use up all the deposits (on the right side). Even the Fed’s high powered money would evaporate if the government were able to repay its debts.

“Old” and “New” Banking

In his classic book, The Bankers (1974), Martin Mayer recounts the following true story. A man was honored for 50 years of loyal service to a Virginia Bank. At the party celebrating his long service, he was asked what he thought had been “the most important change that he had seen in banking in this half century of service?” The man paused for a few minutes, then went to the microphone and said “air conditioning.” In his follow-up book The Bankers: the New Generation, Mayer notes: “Twenty years later, this story is prehistoric. It’s still funny, but it’s incomprehensible. In these twenty years, banking has changed beyond recognition. ….Almost nobody who has a job in a bank today works as his predecessors worked as recently as twenty years ago.”

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6 If a bank is short on reserves, this “short” is in fact an overdraft on its reserve account with the central bank. This overdraft is, for all purposes, a loan from the central bank. So there is no way that a central bank could deny credit to a bank.

7 L. Randall Wray, Understanding Modern Money, op. cit., p. 118.

8 This is one of the reasons why central banks are even more worried about deflation than about inflation. To reduce inflationary pressures, they can make loans more expensive by increasing interest rates. But when central banks are facing deflation, interest rates can only go as low as zero to convince people to borrow (although the Bank of Japan has even gone as far as charging a negative interest rates to the banks to stop deflation, without much success).

9 Mayer, Martin The Bankers (New York: Weybright and Talley, 1974) p. 16

Banking has indeed changed more in the past 30 years than it has in hundreds of years. The 1970 US bank holding company law still defined a bank as an institution which “agglomerates the transaction balances of a community to lend it at interest to its commercial enterprises,” a definition quite consistent with Adam Smith’s two centuries earlier. It is also, at its core, the same “banking” business that the Babylonians and the Italian goldsmiths had started on their benches when they too gathered local savings and lent them out to businesses for a fee.

Today there are few such banks. Most surviving banks are involved in different businesses. By 1996, almost 85% of the banking industry’s resources came from sources other than insured deposits. Instead of loans to businesses, credit card loans to consumers are the lifeblood of the largest banks. In short, banks take their money where they can find it and use it for whatever activity the law allows that looks profitable. They have abandoned traditional banking and entered the “financial services” business. The deeper reason for this unprecedented shift is the impact of the Information Age. It has fundamentally transformed competitive factors in the credit markets.

**Credit Markets**

Mayer notes that in the “olden days” of 20 years ago, “banks used to fancy themselves as advisors to their clients.” In actuality, they simply took advantage of the monopoly they had over financial market information. When computers suddenly made it possible for anybody to have direct access to financial market quotes, the ground shifted under their feet. Many corporations used this access to issue their own commercial paper, bypassing the commercial banks in the process. For instance, General Motors Finance Corporation (GMFC) issues its own “commercial paper” (i.e. short term borrowing in the form of notes that raise capital directly in the capital market), and then lends it out to consumers who buy General Motors cars. The largest financial lender in the US today is not a bank; it is General Electric Capital which completely finances itself without a penny of bank loans.

Traditional banks did not cope well with this massive change. Since 1980, over one-third of US banks have merged or disappeared in the turmoil that ensued. Even those that remain have shrunk their staff dramatically. “Banking hours” are now history. The proliferation of Automatic Teller Machines (ATMs) has taken care of that and eliminated more than a third of a typical bank personnel over just one decade (1983-1993). Even all of this does not fully take into account the impact of the second wave of computerization which has just begun--the Internet revolution--the creation of a new cybereconomy and a whole new world of Open Finance.

**Credit Cards**

Credit cards started as a convenience for the purchase of gasoline, frequent oil changes and repairs needed in the early automobiles in America. They were issued by oil companies to encourage brand loyalty--exactly as the airline industry is doing today with Frequent Flyer miles.11 In 1949, I will show that Frequent Flyer Miles are gradually becoming a private currency [“corporate scrip” in the jargon]. Are frequent flyers one of the currencies of the future?

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Diners Club created the first modern “charge card” on the back of which it proudly listed all 27 restaurants “the finest in the country” where the card was accepted. As in Bellamy’s time trip, they were in pasteboard (see sidebar). In 1955, Diners Club switched to plastic. By 1958, the Bank of America and the American Express Company, which had already established itself as “the traveler’s check company,” each launched their own plastic credit cards.

BankAmericard was relaunched as the VISA card alliance after a major reorganization in 1971. Twenty years later, VISA involves no less than 20,000 financial institutions all over the world, 400 million card members and an impressive $1.2 trillion in annual turnover. Although it is the biggest, this is only one of the thousands of credit card systems that have proliferated around the globe. Most significantly, a whole new way of lending money into existence has been created.

Interest rates applicable to credit card loans are much higher—often a multiple—of what banks would be able to obtain from normal business or consumer loans. This is what made this form of creating money irresistible to the issuers. However, making it so easy to obtain credit has predictably also reduced the standards of credit-worthiness, i.e. the verification that the card-holder will have the income flow necessary to service that debt and those high interest rates.

Money can go wrong in different ways, the worst one being hyperinflation, the extreme form of inflation when currencies become practically valueless. Social disorder, even collapses of Empires have been the outcome whenever the cost or prestige of an Empire made it issue too much money, thereby provoking hyperinflation in its currency.

Sumer, the oldest city empire historically well documented, collapsed when continuous warfare with its neighbors provoked hyperinflation in 2020 BC. After Alexander the Great’s death, as vast treasure looted from Persia was brought back home, hyperinflation resulted and destroyed the once-mighty Greek Empire. The same thing happened 2000 years later, with the Spanish Empire, when the gold and silver looted from the New World was imported back to Spain.

Hyperinflation is still a scourge in many countries. Among the more extreme examples during this century: Germany in the 1920s, Latin America in the 1970s and 1980s, Yugoslavia in 1989-91 and Russia in 1991-92 and again in 1998. In all these cases, hyperinflation invariably provoked serious social and political disruptions.

Contrary to what some people believe, money itself is not a good store of value. At best it is “a temporary abode of purchasing power,” a way to keep value in the short-term between the moment you receive income and when you spend it. If you stuff money under your mattress as savings, or even leave it in a bank account, the following inflation scorecard should warn you.

Your Savings: Storing Value

Now that you have obtained your hard-earned money, how can you preserve it for the proverbial rainy day? This is important not only for you personally. Whatever form the storage of value takes, it also becomes potential collateral for any additional bank-debt money that can be created, as seen above in how the banking system works.

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A Scorecard

The clearest way to see what has happened to the value of your money is to look at what it purchases on a day-to-day basis. In recent years, most major currencies have kept enough of their value so that some people even claim that currency depreciation (“inflation” in the jargon) is now dead forever. However, before accepting such a conclusion, it is worth examining this issue over a longer time period, say twenty-five years.

Let us look at the scorecard. For example, consider the performance over two decades of the Deutsche Mark, the world’s most “stable” currency since the World War II. If you had kept 100 Deutsche Mark since 1971, its purchasing power would have shrunk to about 40 DM by the time that the Euro replaced it. In other words, even the best performing currency in the world lost more than half of its value in that period.

Similarly, 100 Swiss Francs, the second best performing national currency would be worth only 39.79 SF from 20 years earlier. The purchasing power of 100 US$ shrunk to just over 24 US$; 100 French Francs to about 19; 100 British Pounds, to 12 Pounds; 100 Italian Lira to about 8; and so on.

In practice, this means that a house bought in 1971 for $247,200 and valued two and a half decades later at $1 million has not appreciated by one penny. Its price merely kept pace with inflation. Sometimes, inflation can get really out of hand, with devastating consequences for the societies which experience them (see sidebar).

Managing savings intelligently therefore boils down to allocating cash between the three classical major asset classes: real estate, bonds, and stocks. Over the past decade, another major asset class has appeared that is of particular interest to us: currencies. A few words about the changing role of each asset class over time puts this development into perspective.

Real Estate

From the beginning of the Agricultural Revolution until last century, real estate, particularly land, was the dominant form of savings available in the world. The wealth of individuals could usually be evaluated by the quality and the size of the real estate they had accumulated. This all changed with the Industrial Age when stocks and bonds in commercial enterprises became a favorite investment vehicle. Today, most people’s real estate holdings are limited to their house, and typically even that is mortgaged.

What stock is new under the sun?

The earliest stock offerings date back to seafarer and caravan trips lost in the mist of time. They were already practiced among the Phoenicians in antiquity, and became openly tradable among the general public in Venice and Genoa by the 13th century. “Men and women from all ranks of life owned shares. ...They were regarded as particularly good security for one of the favorite forms of investment across the sea, the sea loan...which was repaid only if the ship arrived safely.” The oldest currently still functioning public stock exchange, dealing in all manner of corporate stocks, is the one in Amsterdam, dating from the 17th century.

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Stocks

A stock is a fraction of ownership in a business. Contrary to most people’s perception, it is a very old investment instrument. (See sidebar). More recently it has become the norm for even small savers to have the bulk of their liquid assets in the stock markets. Notably, the only other period during the 20th century in which this was prevalent was in the 1920’s. However, during this past decade, all stock exchanges around the world have become much more intimately interlinked. There used to be a theory that by diversifying geographically it was possible to decrease stock investment risks. This theory was blown out of the water in the simultaneous global stock market panic of 1987 which demonstrated that it has become harder to reduce risks through global diversification. Even if you only invest in domestic stocks, today the message is: think globally and act globally, for everything is impacted by global events.

Bonds

A bond is a loan to the organization on whose behalf it was issued. It is a promise to pay the loan back at maturity. By purchasing a bond, one gives up liquid cash in exchange for that promise. The key feature that justifies doing so is the payment of interest on a periodic basis. “Usury,” or charging interest, has been frowned upon since their founding by all three religions (Judaism, Christianity and Islam) that have followed the Book of their beliefs as revealed by God. Only Islam has remained true to the tradition of non-usury to this day. Henry VIII, after his break with Rome, legalized interest in Britain for the first time in 1545. But it was not until the 18th and 19th centuries that this investment option displaced real estate in people’s portfolios. This was true even in Protestant countries. The Catholic church “forgot” about the sin of usury only towards the end of the 19th century, thereafter including bonds or any other form of interest-bearing loans even in ecclesiastical portfolios.

Currencies

Historically, for some specialists, such as moneychangers and banks operating internationally, currency has always been a significant type of asset. Any modern global portfolio has also, by definition, a currency component (e.g. holding a Japanese bond or stock means automatically having a position in Japanese Yen). So holding positions in currencies by themselves has become a logical extension.. It has now become a significant factor in most professional investors’ portfolios.

Something extraordinary has been happening over the past decade: the currency market has become the biggest single market in the world. Foreign exchange transactions (purchases and sales...
of currencies) today dwarf the trading volume of all other asset classes, even of the entire global economy. As a result, currency markets are becoming vitally important to almost everyone for the first time in recorded history—although it is probable that the majority of people are still quite unaware of this.

**Foreign Exchange Markets**

If you have traveled anywhere abroad, you have dealt in the foreign exchange market. You went to a bank or money exchange office and exchanged your little bits of paper against more exotic looking local bits of paper. The day after someone invented money, her neighbor must have started a money exchange. So what could be new in foreign exchange markets? Actually, quite a lot.

The first sign that something different is afoot is the sheer volume of currency transactions. Back in the prehistoric days of the 1970s, the typical daily volume of foreign exchange transactions, worldwide, fluctuated between $10-$20 billion. By 1983, that had risen to $60 billion. By 2010, that daily volume had reached a staggering $4 trillion.\(^{15} \)\(^{16} \)

The main reason for this is that currencies have now become the ideal speculation tool (see sidebar).

What has taken place to provide such a stimulus to speculation on currencies? This extraordinary build-up of speculative activity can be explained by three cumulative changes over the past decades:

1. **A Structural Shift**: On August 15, 1971, President Nixon disconnected the dollar from gold, inaugurating an era of currencies whose values would be determined predominantly by market forces. This gave rise to a systemic change in which currency values could fluctuate significantly at any point in time. This was the beginning of the “floating exchanges” and a market that would prove highly profitable for those who know how to navigate in it.

2. **1980s Financial Deregulation**: The governments of Margaret Thatcher in the UK and Ronald Reagan in the US embarked simultaneously on a massive financial deregulation program. The Baker Plan (a reform package named after the then US Secretary to the Treasury, Mr. Baker) imposed a similar deregulation in 16 key developing countries in the wake of the developing

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\(^{15}\) Bank of International Settlements (BIS): Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity (September 2010)

\(^{16}\) None of the above. 4 trillion seconds mean more than 126,839 years. That means somewhere in the Paleolithic time. Neolithic period started about 10,000 BC; while Cro-Magnon emerged around 45,000 years ago.
countries’ debt crisis. These deregulations enabled a much larger array of people and institutions to become involved in currency trading than would have previously been possible.

3. **Technological shift**: In parallel to the above, the computerization of foreign exchange trading created the first 24-hour fully integrated global market ever. This shift raised to a whole new level the speed and scale with which currencies could be moved around the world.

During his survey of 5,000 years of money’s history, Glyn Davies identified electronic money as one of only two exceptionally important technological innovations in money. “There have been two major changes, the first at the end of the Middle Ages when the printing of paper began to supplement the minting of coins, and the second in our own time when electronic money transfer was invented.”17 We know in retrospect that the first change enabled banks to take away from ruling kings and emperors the lead role in money creation, but what will the second change create?

A titanic struggle has begun in relation to the control of emerging forms of money. Banks are now acting mostly like computerized telecommunications companies. But companies involved in telecommunications, computer hardware and software, credit card processing, Internet shopping, even cable television, have also discovered that they can perform many of the services of the banks. Whoever wins control over the new electronic money systems will ultimately be endowed with the power to issue money. As the banker Sholom Rosen claimed: “It’s definitely new, it’s revolutionary - and we should be scared as hell.”18 If well-informed bankers get scared of the scale and speed of money changes, what should the rest of us do?

**Derivatives**

Besides revolutionizing banking and accelerating the movement of currencies, computers have also played another role in the foreign exchange markets: they made possible the explosive development of a whole new wave of financial products, generically called “derivatives.”19 Derivatives make it possible to unbundle each piece of financial risk, and trade each one

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17 Davies, Glyn *A history of money from Ancient Times to the Present Day* (Cardiff, University of Wales, 1994) p. 646

18 Quoted by Weatherford, Jack *The History of Money* (New York: Crown Publishers Inc.) p. 264

19 The main types of currency derivatives are futures, forwards and options, whose technical definitions are:

- **Futures**: A currency futures contract is an agreement to buy or sell a currency at a specified time and place (a commodity exchange) in the future at a specific price agreed to today.

- **Forwards**: Similar to Futures, except that the price is today’s price and the contract is not traded on an exchange but directly with one specific financial institution (“Over the Counter”).

- **Options**: A currency option is the right, but not an obligation to buy (“call”) or sell (“put”) a currency at a specific price. The development of the options market is credited to the theoretical breakthroughs by Professors Robert Melton and Myron Scholes in option pricing, for which they were honored by a Nobel Prize in June 1997. These instruments are the building blocks whose combinations enable the transfer of many risks. Some of these combinations (“exotics”) can become quite complex.

All these instruments also exist for commodities other than currencies, but the volume of currency derivatives particularly of “Over the Counter” trade, now dwarfs those of all other commodities.
separately. Charles Sanford, ex-chairman of Bankers Trust and one of the pioneers of the business, described derivatives as building a “particle theory of finance.”

For example, a Japanese Yen bond can be unbundled in at least three pieces of risk: a currency risk (the risk that the Yen drops in value against your own currency), an interest rate risk (the risk that Japanese interest rates go up after you purchase your bond), and an issuer risk (the risk that the company issuing the bond defaults on the bond). Derivatives enable an investor to select exactly which component of those risks they want to include or exclude from their portfolios.

Imagine that, instead of buying a ticket to a concert or opera, you are suddenly able to separately select and combine for yourself your favorite soprano, your favorite tenor, your favorite violinist, conductor, and so on, all interpreting your favorite compositions. If you know what you are doing, the result of this new freedom could be quite extraordinary and superior to what you can get in a normal “pre-packaged” performance. But, if your knowledge is limited, your personal creation also could turn out quite catastrophic. Derivatives provide that kind of freedom for financial portfolios, but similarly require a lot more knowledge than average investors have mustered.

Shifting risks from one place to another is fine as long as the party that ends up with the risk is both knowledgeable and strong enough to bear it. However, Martin Mayer made a law of the fact that “Risk-shifting instruments ultimately shift the risk onto those less able to deal with them.”20 Although I think this is too sweeping a generalization, there are many institutions that have been badly burned without understanding what it was that hit them. Barings, a top name in the City of London for 233 years, became one of the first spectacular victims of this process (see sidebar). Since then, similar problems have emerged in various banks around the world.

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20 Mayer, Martin The Bankers: the New Generation (New York: Truman Talley Books/Dutton, 1997) p. 324. His argument: “The obvious illustration is the S&P 500 futures pit at the Chicago Mercantile Exchange, where a couple of hundred ex-taxi drivers working as “locals” were expected to carry the dynamic hedging of “portfolio insurance” when the stock market broke on October 19, 1987.”
Derivatives are nevertheless here to stay, primarily because, when used correctly, they can be both useful to society and profitable to the financier. So we should get used to the idea that they may also provide us with some startling surprises, just like some of the amateur orchestral combinations in our earlier musical metaphor. As Dr. Jekyll turned into Mr. Hyde, so the blip on a computer screen can change the nature of a derivative position at the drop of a hat.

**Capitalism’s Central Nervous System**

It is insufficient to look at currencies as just another asset class. A country’s currency is indeed also much more. It plays the role of the *central nervous system that commands the values of all asset classes* in that country. This becomes clearer when we look at how all the other three traditional asset classes are affected directly by what happens to money. We have seen already that bonds are an attractive investment only to the extent that the currency in which they are denominated keeps its value (i.e. when inflation is low or dropping). It is also well known that stock prices drop when interest rates rise, and interest rates tend to shoot up when a currency gets in trouble. The last asset class, real estate, presents a more complex situation. On the one side, real estate is the best protection available against inflation. On the other side, however, it is also very illiquid (i.e. difficult to sell in a hurry): so when serious financial problems arise, people who cannot meet their mortgage payments may have to liquidate their real estate at undervalued prices. This makes real estate investing a double-edged sword.

For instance, after the stock market collapse of 1929, real estate got just as depressed as stocks. Government bonds turned out to be the best refuge at that time, because the government could not go bankrupt (it just printed money when needed) and everything was cheap to buy. A currency collapse today could potentially be worse than that, because it would bring down not only the stock market and real estate, but even the last refuge of government bonds. That is why I agree with Professor Robert Guttmann that a money meltdown is the only way a true depression could manifest again in our lifetimes.21 Money as the Achilles’ heel of the capitalist system is not a new idea: “Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency.”22

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22 Keynes, John Maynard *The Economic Consequences of Peace* (London, 1920) p. 220
When we discover that all our eggs end up in one money basket, I suggest *keeping a close eye on that basket*. Some well-qualified people are paid to do exactly that. Let me introduce you to them, and thereby complete the picture of the world’s key money players.

**Central Banks and Other Firemen**

The financial sector has always been “special.” Even today the finance industry is not treated as just another service industry. There are positive and negative reasons for this:

- On the positive side, financial institutions—even the private ones—are really performing the vital *public* function of providing, hopefully, a stable currency for use by the participants in the economy.
- On the negative side, financial institutions have often proven the most *fragile* component of any society (see sidebar). And it has been demonstrated time and again—from Sumer to Yugoslavia—that whenever money gets into trouble, whole societies can crumble.

**National Level**

Fires are rare, but when they occur they can be devastating. Entire cities have burned down because one single person has been careless, hence the invention of fire brigades and fire inspections. So it is with money: because financial institutions have proven so accident-prone, Central Banks were invented.

**Whence Central Banks?**

In the 19th century, the name “Central Bank” referred to a bank, head-quartered in a nation’s capital, that enjoyed the monopoly of issuing paper notes in the national currency. Once in a while, these banks would provide some simple mutual support to each other. Such was the case in 1825, when the French helped the Bank of England by swapping a shipment of gold for silver when there was a run on gold in London; a favor which the English returned in 1860, when the Banque de France was in dire straits. But such cases of mutual help were rare, little publicized and certainly would not have been considered part of the official duties of a Central Bank. When the US Central Bank, the Federal Reserve system, was created in 1913, it was inspired by that model.

All this changed with the Bretton Woods agreement, which set up the framework for the post World War II global environment (see sidebar). Central Banks now play much more complex roles.

- They serve as “emergency firemen” whenever a bank or the whole system gets in trouble. This is called respectively “lender of last resort” and “systemic risk management” in the jargon.
- They carry the ultimate responsibility for controlling inflation in the country. Over the past decades, this last task has been the one most closely identified by the general public as a central bank function.
- They achieve this inflation control mission through various mechanisms that influence the quantity of money that the banking system can create. They do not give direct orders to achieve this, but only provide “signals” such as changes in key interest rates, or purchases and sales of government bonds (called “Open Market” transactions) and currencies in the foreign exchange markets (called “interventions”).
- Central Banks are also banks, although they don’t have retail customers: their customers are the banks of their country, for which they settle payments.
“Money’s Family Tree”

The following chart shows a “family tree” of how all the main monetary players relate to each other. It forms a kind of inverted pyramid, with thousands of commercial banks on top, a layer of 170 Central Banks in the middle (regrouped here in three types according to who owns them), and two supra-national organizations at the bottom.

I have placed banks in each individual country on top of the chart, as they are the front-line issuers of credit-money. The Central Banks were initially only their backstop, their fire extinguishers, in case of trouble. Until 1936, almost all Central Banks were directly owned by the main private banks in each country. To this day, nine of the Central Banks are still private corporations owned by private banks, including the US Federal Reserve, the Swiss National Bank, the Bank of Italy and the South African Reserve Bank.

By the 1950s, there were 56 countries with Central Banks. Now there are 170, with most of the newcomers being government controlled. But there are also Central Banks whose ownership situations involve both government and banks (e.g., Belgium or Japan). Contrary to expectations, there has been no evidence that the various ownership arrangements have made any significant difference to either Central Banks’ actions or effectiveness. Some of the most prestigious and effective Central Banks can be found in all three types of ownership, as have some at the bottom of the league.
Finally, there are two important family members who represent the main supra-national coordinating tools among Central Banks:

- One is a policeman—the International Monetary Fund (IMF).
- The other a private club—the Bank of International Settlements (BIS).

Created in 1945 as the enforcer of the rules of Bretton Woods, the IMF is the auditor of Central Banks around the world, and is the official political arm of the global money system. As of 1997, 182 countries are members. A 24-member Executive Board supervises a staff of about 2,300 professionals, mostly economists. The IMF is the “lender of last resort” from whom member countries can obtain loans in case of emergencies from a pool of $210 billion obtained as “quotas” from all member countries. Typically, such loans are conditional upon strict economic austerity measures, hence its reputation as a global economic policeman. The US has a dominant influence at the IMF. Not only does the US have veto power on decisions, but it also happens to be physically “close at hand” in Washington DC.

The BIS has a more peculiar history. It was created in 1930 ostensibly to deal with German war reparation payments. It was to become a private club owned and operated by the key “10+1” Central Banks. The “10+1” are so-called because there are 10 founding Central Banks on one side, plus Switzerland as host country on the other side (as a result of its “active neutrality” strategy, Switzerland is often “in” and “out” at the same time; it still does not “officially” belong to the IMF or the UN, for instance). The mission of the BIS was to address any important issues that would best be handled with efficient discretion. No politicians, no Treasury officials, no Ministers of Finance, not even Presidents or Prime Ministers are welcome.

One almost forgets that the BIS is also a bank, although its only customers are Central Banks. Hence its nickname as “Central Bank of Central Banks.” It even has a substantial currency-dealing room recently installed to enable it to monitor the global money system in real-time, and to provide wholesale market transactions for its member Central Banks. It remains a modest institution for the influence it wields: even today it has only 450 staff members including a research team of about 50 economists, who bring forth, among other things, a well-respected annual report on the state of the world financial system. The BIS has made its name in fire extinguishing operations in the past; it undoubtedly will be part of any future fire brigades as well.

We have seen a snapshot of the key players in this piece. However, any notion that this money game is a static one is dispelled as soon as we put all the pieces of the money puzzle together.

Money as a System

The monetary game is indeed mutating in front of our very eyes. The changes that are occurring involve unprecedented speed, scale and complexity. Two different perspectives illustrate that point: the one of the “firemen,” and the one for the rest of us.

The Firemen’s Viewpoint

From the perspective of the Central Banks, the world is definitely becoming tougher and more complex year after year. The explosive developments in the currency markets in particular have a series of implications that I divide under three headings:

- Power Shift
- Increased Volatility
- Stable or Unstable, that is the Question

**Power Shift**
A major power shift in the world system has already occurred. Every government in the world, including the most powerful ones, such as the US, is actually being policed by the global foreign exchange markets. If a government anywhere in the world dares to challenge these financial “diktats,” capital flight will almost instantaneous force it back into orthodoxy. President Mitterand in France in the 1980s; John Major in Britain and the Scandinavians in 1992; the Mexicans in 1994; the Thai, Malay, Indonesian, or South Korean governments in 1997; the Russian in 1998 – have all paid the hefty pound of flesh that is extracted under such circumstances.

Even *Business Week* concludes: “In this new market...billions can flow in or out of an economy, in seconds. So powerful has this force of money become that some observers now see the “hot-money” (funds that move around quickly from one country to another) becoming a sort of shadow world government--one that is irretrievably eroding the concept of the sovereign powers of a nation state.”

The trickiest times occur when power shifts. They are by definition times of uncertainty. The form of uncertainty that Central Banks and other guardians of monetary order fear most is currency volatility.

**Increased Currency Volatility**
Currency volatility is a measure of change in the value of one currency against all the others. Central Banks predictably do not like volatility in their currency, and volatility happens to be one of the unexpected consequences of the massive increase in speculative activities. Back in the 1960s, the proponents of freely floating currency exchanges used to argue that currency volatility would drop as soon as a free market was established. Foreign exchange markets are certainly now a lot more open and free than they were in the 1960s, when the Bretton Woods fixed exchange rate system was operational.

However, an OECD (the Organization of Economic Cooperation and Development based in Paris) statistical study brought up some sobering conclusions, directly contradicting the theoretical forecast. The past 25 years of floating exchanges have revealed an average foreign exchange volatility four times higher than under the Bretton Woods fixed exchange rate system.

It does not require a statistical rocket scientist to understand why the volatility increases with the speculative volume of the trades. Simple common sense explains it just as well. Let us assume that your currency is under pressure, and that a modest 5% of the major currency traders “take a negative view about that currency.” This means in practice that those who own your currency will sell it, and those who don’t own it sell short. In 1986, when total daily volume was around 60 billion dollars, such a move by 5% of the market volume would have represented a $3 billion move.

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23 *Business Week*, “Hot Money” (March 20, 1995), p. 46
25 In foreign exchange, all positions are always simultaneously long one currency and short another. In our example, people could buy Deutsche Mark or Dollars (go “long” in the jargon), while selling French Francs (go “short”).

against the currency in question, certainly a challenge to a Central Bank, but a manageable one. Today, with volumes of $4 trillion per day, the same proportional move would generate an overwhelming $200 billion transfer against your currency, which no Central Bank would be able to withstand.

**Stable or Unstable, that is the Question**

From the above, we can surmise that Central Bankers are becoming increasingly uncomfortable. Not only are they dealing with a world of increasing uncertainty and currency volatility, but they themselves are getting out-gunned in the currency markets as well.

Even people who profit from explosive speculative activity are becoming seriously worried. For instance George Soros, widely considered one of the biggest players in this game states: “Freely floating exchange rates are inherently unstable; moreover, the instability is cumulative so that the eventual breakdown of a freely floating exchange rate system is virtually assured.”26 Joel Kurtzman, business editor of *The New York Times*, is even more damning. He titles one of his books *The Death of Money: How the Electronic Economy has Destabilized the World’s Markets* 27.

A master of understatement like Paul Volcker, ex-governor of the Federal Reserve, goes on record expressing his concern about the growth of “a constituency in favor of instability,” i.e. financial interests whose profits depend on increased volatility.28 Just to illustrate this last point, a typical comment by a foreign exchange trader quoted in the *Washington Post* reveals how a period of relative stability is perceived: “You can’t make any money like this. The dollar ...movement is too narrow. Anyone speculating or trading in the dollar or any other currency can’t make any money or lose money. You can’t do anything. It’s been a horror.”29

The net effect of the actions of these “constituencies for instability” are the monetary crises that regularly make the front-page headlines. The question nobody dares to ask is: Who is next? When will the US, the largest debtor country in the world, become a target? What would that mean?

**Back Full Circle to You**

We started this Primer with the questions: How is the value of your money determined? Who is really in charge of your savings? We can now answer these questions:

1. The value of your money is ultimately determined in an increasingly volatile global casino where 98% of the transactions are based on speculation.
2. Whether your nest egg is your house, some investment portfolio, or even the cash in your wallet, your savings are all highly interconnected within the money system. Therefore,

whatever form you will give them, the future of your savings will depend significantly on what happens to your currency.

3. Even if you believe that you don’t have anything to do with “global finance”, because you haven’t invested yourself in the international money game, this is usually an illusion because your pension fund or your bank is directly or indirectly involved in such activities.

4. Even if you have no investments or savings of any kind, your life will be touched because your country as a whole will be affected when money gets in serious trouble somewhere in the world.

The stakes are enormous. Ultimately money is trust, which lives and dies only in human hearts and minds. Money systems, including our current one, are mechanisms and symbols that aim at keeping that trust alive. Historically, entire civilizations have been built on trust, because it is at the core of the self-confidence required for a civilization to grow or even survive. On the negative side, when a society loses confidence in its money, it loses confidence in itself.

“The debate about the future of money is not about inflation or deflation, fixed or flexible exchange rates, gold or paper standards; it is about the kind of society in which money is to operate.”

This is Appendix A to Money and Sustainability: The Missing Link. To read more about the book or to order a copy, visit: www.triarchypress.net/money-and-sustainability

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