SATYAJIT DAS

EXTREME MONEY

MASTERS OF THE UNIVERSE AND THE CULT OF RISK

Praise for *Extreme Money*

"A true insider's devastating analysis of the financial alchemy of the last 30 years and its destructive consequences. With his intimate first-hand knowledge, Das takes a knife to global finance and financiers to reveal the inner workings without fear or favor."

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"This is the best book yet to come out of the financial crisis. Das is a graceful, witty writer, with an unusually broad range of reference. He is also a long-time master of the arcana of the netherworlds of finance and nicely balances historical sweep with illuminating detail. *Extreme Money* is lively, scathing, and wise. "

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Praise for *Traders, Guns & Money*

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—Gillian Tett, Financial Times, London

"…an acerbic expose…Funny, readable and peppered with one-liners from Groucho Marx, "Traders, Guns & Money" offers an ideal primer for anyone tempted to take a walk on the derivative side."

—James Pressley, Bloomberg

"Long before the 2008-09 credit crisis and collapse, one of the strongest warnings about the dangers of derivatives came from Satyajit Das…. it reads more like a crime novel than a financial book."

—Barry Ritholtz

"...a scalpel of a book that pulls back the skin on the derivatives and risk management industry to expose the blood, guts and circulatory system underneath."

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—www. dna.bloggingstocks.com

"…this revealing insider's account …the book is peppered with cautionary tales …Das wittily exposes the mechanisms behind the arcane language…."

—Carol Kennedy, UK Corporate Director

"…given the dramatic impact of derivatives, this book is a must-read."

—NYSSA News

"…contains more than investor advice, with plenty of tales of gluttonous excess and trading floor antics…."

—Cameron Dueck, South China Morning Post

"The murky and complex world of finances and derivatives is scrupulously and frantically told in this brilliant narrative…a collection and recollection of exquisite financial tales well worth your time."

—Convergence

"…an amusing, down-to-earth look behind the scenes of the derivatives market …There were several times I laughed out loud…."

—www.runningofthebools.typepad.com

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Extreme Money

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Extreme Money

Masters of the Universe and the Cult of Risk

Satyajit Das

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For Jade Novakovic

without whom there is nothing

"It is hard to change Gods."
Fyodor Dostoevsky, *The Possessed*

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About the Author

Satyajit Das is an international specialist in the area of financial derivatives, risk management, and capital markets, with a global reputation.

Das presciently anticipated many aspects of the Global Financial Crisis in his 2006 book *Traders, Guns & Money: Knowns and Unknowns in the Dazzling World of Derivatives*. In a speech that year—"The Coming Credit Crash"—he argued that: "an informed analysis of the structured credit markets shows that risk is not better spread but more leveraged and (arguably) more concentrated amongst hedge funds and a small group of dealers. This does not improve the overall stability and security of the financial system but exposes it to increased risk of a 'crash' during a credit downturn." He has continued to be a respected commentator on subsequent developments in the crisis.

He was featured in Charles Ferguson's 2010 Oscar-winning documentary *Inside Job* and a 2009 BBC TV documentary *Tricks with Risk*. He has appeared on TV and radio—ABC and SBS (Australia); BBC (UK); Bloomberg (USA); CNBC (UK and Asia); SABC, Summit TV and e-TV (South Africa); Canadian Broadcasting and Business New Network (Canada); and NZ Radio. He is a frequent interviewee and widely quoted in the financial press in the United States, Canada, UK/ Europe, South Africa, Australia, New Zealand, and Asia.

Between 1988 and 1994, Das was the Treasurer of the TNT Group, an international transport and logistics company with responsibility for the Global Treasury function. Between 1977 and 1987, he worked in banking with the Commonwealth Bank of Australia, Citicorp Investment Bank, and Merrill Lynch.

Since 1994, Das has acted as a consultant to financial institutions and corporations in Europe, North America, Asia, and Australia. He provides advice on trading, pricing/valuation, and risk management of derivative transactions/financial products. He also presents advanced seminars on financial derivatives/ risk management and capital markets for derivatives and finance professionals throughout the world. Between 2000 and 2007, he was a consultant to and Director of Rand Merchant Bank, a division of First Rand Group of South Africa.

He is the author of *Traders, Guns & Money: Knowns and Unknowns in the Dazzling World of Derivatives—Revised Edition* (2006 and 2010), an insider's account of derivatives trading and the financial products business filled with black humor and satire. The book has been described by the Financial Times, London as "fascinating reading…explaining not only the high-minded theory behind the business and its various products but the sometimes sordid reality of the industry." James Pressley at Bloomberg included the revised edition of the book in his list of 50 top business titles published since January 1, 2009.

Das is also the author of a number of key reference works on derivatives and risk management including *Swaps/ Financial Derivatives Library—Third Edition* (2005) (a four-volume, 4,200-page reference work for practitioners on derivatives) and *Credit Derivatives, CDOs and Structured Credit Products—Third Edition* (2005).

He has published widely on financial issues in professional journals and newspapers.

His blogs can be found on a number of online financial sites, including www.nakedcapitalism.com, www.roubini.com, www.minyanville.com, www.eurointelligence.com and www.prudentbear.com.

Das is also the author (with Jade Novakovic) of *In Search of the Pangolin: The Accidental Eco-Tourist* (2006, New Holland), a travel narrative on eco-tourism.

Prologue

Hubris

Hubris—in Classical Greek tragedy, insolent defiance caused by excessive pride toward the Gods.

Subprime Dialects

"Vhat does a poor American defaulting in Looneyville, West Virginia, have to do with me?" Behind his high-tech, titanium composite glasses with an unlikely red-and-white polka dot design, Doktor Flick's anxious tone betrays uncharacteristic insecurity. Looneyville, I learned, was a real town. In 2007, U.S. citizens were falling behind in payments on their mortgages in record numbers in Gravity Iowa; Mars, Pennsylvania; Paris, Texas; Venus Texas; Earth, Texas; and Saturn, Texas.

Since 2000, housing prices in the United States had increased dramatically, driven by a combination of low interest rates, a strong and growing economy, and an innate desire for home ownership. U.S. President George Walker Bush, a Harvard MBA, set out his administration's agenda for "an ownership society in America" clearly on December 16, 2003: "We want more people owning their own home. It is in our national interest that more people own their own home. After all, if you own your own home, you have a vital stake in the future of our country."[1]

Unknown to most, the housing boom was driven primarily by strong growth in the availability of money. Banks and mortgage brokers fell over themselves to lend to new homebuyers. *Innovative* mortgage products enabled people traditionally denied loans to borrow. George Bush was full of praise for the bankers and their new *affordability* products.

During the Puyo hearings into the 1907 stock market crash, J.P. Morgan stated the required qualities of a borrower: "A man I do not trust could not get money from me on all the bonds in Christendom."[2] In the early 2000s, bankers no longer looked deeply into the soul and character of potential borrowers. You filled in a form, usually online. You stated your financial position. The value of a house was assessed using computer models based on comparable properties. Like drive-by shootings, there were *drive-by valuations*, where the valuer literally drove past the property. If the property value was insufficient to justify the loan, then the valuer added the required margin for *curb value*.

By 2006, loans were available to anybody. The borrowers came to be known as NINJAs (no income, no jobs, or assets). In 2006, U.S. house prices began to fall. Borrowers stopped making payments on these mortgages.

"Vhat is this subprime business?" The American Dialect Society voted *subprime* the word of 2007. The term described the suspiciously cheap mortgages that were sold to hapless individuals. It was synonymous with deceitful, cynical sales practices of banks, and mortgage brokers that ended with thousands of people losing their homes.

Exploding ARM was the colloquial description of an adjustable-rate mortgage. The interest rate goes up so fast that borrowers, who could afford the original monthly payments, cannot afford the increased payment (sometimes 40–80 percent higher). *Jingle mail* refers to mail received by banks from borrowers who cannot afford mortgage repayments and so abandon their homes and mail the keys to the lender. *Liars' loans* (known as *no-doc loans*, *low-docs*, and *stated-income loans*) describe loans where potential home buyers do not have to provide any proof of their financial position but state their income and assets. The loans practically beg borrowers to lie about their income. 2007 introduced the *Implode-O-Meter*—a website tracking falling house prices, defaults on mortgages, and ultimately the housing finance débâcle.

Doktor Flick (the title is honorific) was head of international banking for a medium-sized German Landesbank, owned by the state (Lander). Limited growth at home had encouraged aggressive overseas expansion. Now, a bunch of Americans irresponsibly refusing to make their mortgage payments threatened Doktor Flick's empire.

"Finished, it must be nearly finished." Inadvertently, the German has spoken, almost exactly, the opening words of Samuel Beckett's somber and hopeless existential drama Endgame. It was finished, but not quite in the way that Doktor Flick had imagined. Within a few months, the melange of his banks' special purpose vehicles (SPVs) would collapse, with losses of billions of dollars. In a world of global money flows, what happened in America no longer stayed in America.

Best in Show

"Bad?" Mailer breaks the long silence looking at me contemplatively over his Martini. "Very. Very bad." I respond. "Long?" Mailer's turn. "Years. Many years." It is autumn 2007. I am in London to brief Mailer's bank on conditions in credit markets. Mailer ruminates on my gloomy prognostications, drains his drink, and tries to order another. The bartender has trouble understanding Mailer's Bostonian rolled vowels and laryngeal consonants.

When I first met Mailer, he introduced himself as: "Mailer Stevenson. Managing director. Fixed income. Graduate School of Business, Chicago." Mailer then worked at a white-shoe Wall Street firm. Used to describe pedigreed investment banks, "white shoe" is a reference to "white bucks," a laced suede or buckskin shoe once popular among upper-class, Ivy League-trained bankers. Losing out in the internecine wars that break out periodically in investment banks, Mailer moved to London to lead the trading operations of Euro Swiss Bank (ESB), a major European bank. He had recently returned to his old Wall Street employer, heading global bond trading. Forty something, a former star college athlete somewhat gone to middle-aged fat, intellectually agile, liberal in attitude, Mailer is the epitome of the new financial superclass that rules the world.

A small group of men causing a commotion interrupts our reveries. The young men are wearing T-shirts under their jackets—a style made famous in the long-running TV series *Miami Vice* by the actor Don Johnson. A roll of pound notes mollifies the bouncer, concerned about the establishment's dress code. Designer T-shirts, it seems, are not T-shirts in the strictest sense.

Mailer and I know two of the men—Joachim Margin and Ralph Smitz, hedge fund managers who run JR Capital. Everybody assumes that J R are the initials of the first names of the founders. In fact, they stand for *Jolly Roger*. The fund's logo is a stylized skull and crossbones once flown to identify a ship's crew as pirates. Like the original, the logo's background is blood red, and the skull and bones are black.

The next day, JR will be crowned Hedge Fund of the Year and Hedge Fund Manager of the Year at the all-star gala Global Finance Forum. Mailer's bank is also getting an award—Fixed Income House of the Year. Mailer bought that prize of course.

The idea behind industry awards is that clients and peers vote on who is the best. A dealer voted best "something in something somewhere" uses it prominently to solicit clients. Polling is supposedly anonymous and independent. Like democracy, the process is obscure. Mailer "heard" that his bank would be crowned Fixed Income House of the Year. If this were correct, he explained to the magazine arranging the awards, then he would buy a platinum sponsorship of the award event (cost $100,000) and take a full-page ad (cost $40,000). By a strange coincidence, Mailer's bank did indeed win the award.

The black T-shirts are emblazoned with a bold pattern in small diamonds: 10/40. 10 is the $10 billion of money JR now manages; 40 is the 40 percent return that JR earned for its investors last year. The two principals took home a cool $250 million each for their efforts. Margin and Smitz once worked for Mailer at ESB. "Punks!"—Mailer's insults are from a different era.

The Physical Impossibility of Death in the Mind of Someone Living

JR has commissioned a famous architect to design the hedge fund's new offices. "They are going to put sharks in tanks." The piscine predators turn out to be installations, *objets d'art*.

Damien Hirst—the best known of a group of artists dubbed young British Artists (YBAs)—is the artist of choice for conspicuously consuming hedge fund managers. *The Physical Impossibility of Death in the Mind of Someone Living*, Hirst's most iconic work, is a 14-foot (4.3-meter) tiger shark immersed in formaldehyde in a vitrine, weighing more than 2 tons.

The shark was caught by a fisherman in Australia who was paid £6,000—£4,000 to catch it and £2,000 to pack it in ice and ship it to London. Charles Saatchi (the advertising guru) bought the work for £50,000. Over time, the shark decomposed. Its skin became heavily wrinkled and turned a pale green. One of its fins fell off. The formaldehyde solution in the tank turned murky. The threatening effect of a tiger shark swimming toward the viewer was lost. Curators tried adding bleach to the formaldehyde. This only increased the rate of decay of the cadaver. In the end, the curators removed the skin, which was then stretched over a weighted fiberglass mold.

In December 2004, Saatchi sold the work to Steve Cohen, founder and principal of the über hedge fund SAC Capital Advisers, which manages $20 billion. Cohen paid $12 million for *The Physical Impossibility of Death in the Mind of Someone Living*, although there are allegations that it was *only* $8 million.

At one time, Saatchi had explored giving away his collection to a new British museum. Ken Livingstone, later London's mayor, argued that an aquarium built for the same cost would attract more tourism. Author Rita Hatton pointed out that *The Physical Impossibility of Death in the Mind of Someone Living* was both an aquarium and a tourist attraction.[3] JR was rumored to have commissioned Hirst to create an installation for its new offices, using white pointer sharks, a feared large predator.

Retreat

The bad blood between Mailer and JR dates to Mailer's time as the head of fixed income at ESB. Each year, the bank held its Global Strategy Session (GSS) at Versailles. Sceptics referred to it secretly as the **G**od **S**un King **S**peaketh. Eduard Keller, the young, urbane, and snappily dressed chief executive of ESB, was the Sun King.

Keller, a former management consultant, knew little about banking. He spoke of *competitive gaps* (ESB lagged other banks) that Mailer had been hired to *bridge*. There were *voids*, a reference to businesses that ESB were not in. ESB needed to *harness*, *seed*, and *harvest*. Occasionally, it also needed to *cull*. In le Roi Soleil's reign, people met in their *teams*, *formations*, *waves*, *wavelets*, or *currents*. Ideas had to be *socialized* in endless meetings and committees. ESB had grown astonishingly in size and profitability during Keller's period as CEO. No one actually knew why or whether it was the result of his leadership. Nobody cared.

The philosopher Alasdair MacIntyre noted: "One key reason why the presidents of large corporations do not, as some radical critics believe, control the US is that they do not even succeed in controlling their own corporations."[4] Tolstoy had written about the Battle of Borodino in a similar vein: "It was not Napoleon who directed the course of the battle, for none of his orders was carried out and during the battle he did not know what was going on." Keller's reign at ESB was Napoleonic.

At the 2005 GSS, "The state of the world" session turns out to be a journalist with a best-selling book on globalization. His speech is spiced with "When I had dinner/lunch/tea/tamarind juice with such and such." According to him, "global think" will usher in a new age of endless prosperity and wealth for all denizens of the blue planet, driven by free market economics, democracy, and global trade.

"The state of markets" turns out to be a Nobel-Prize laureate economist who reports "sound prospects," "dampened risk," and "subdued volatility." The BRIC (Brazil, Russia, India, and China) economies will power the world with endless demand for commodities and "stuff," interest rates will remain low and stock markets will always go up.

"The state of mind" is Swami Muktinanda, who strides on to the stage in saffron robes finished off with elegant Gucci loafers. He urges the audience to harness the spiritual energy of the cosmos, trying to get everyone to levitate.

Swiss Inquisitions

After lunch, Mailer and I wait in an anteroom to begin serious discussions about the proposal to set up a hedge fund.

Historically, banks took deposits from savers and lent them to companies and individuals to buy things—property, plant, machinery, houses, cars, and so on. Investment banks provided advice to companies and arranged share issues and bond issues to finance their business. In the late twentieth century, the universal bank or financial supermarket emerged. As the nomenclature implies, these banks did *everything*. In the past, banks acted as middlemen standing between borrowers or lenders taking minimal risk. To increase profits, banks now took risks with their shareholders' and depositors' money. The Sun King was turning ESB into a universal banking powerhouse.

A strategy report prepared by consultants concluded: "ESB's risk profile was conservative relative to its peers providing opportunities to enhance shareholder returns by significantly increasing its trading activities." They should "increase risk." To bridge "the gap," ESB should invest in hedge funds, freewheeling shops that traded anything that moved.

Margin and Smitz propose starting a hedge fund. Initially ESB will invest $500 million and lend the fund up to $6 billion secured over its investments. After the fund has a successful track record, the bank's own wealthy customers and institutional clients will be allowed to invest in the fund. Margin and Smitz's company, the manager of the fund, will be paid 2/20: 2 percent of the assets under management and 20 percent of any investment earnings. In return, ESB will receive a 20 percent share of Margin and Smitz's fund management company.

Idea of an Investment

At the meeting Margin and Smitz are joined by Stone (the chief financial officer), Benoit (the chief operating officer), and Woori (the chief risk officer). Amid the chiefs, I am the only Indian.

Margin and Smitz take the audience through the obligatory PowerPoint presentation. "I have done some analysis…." Mailer is prone to the use of the personal singular pronoun *I* where the personal plural pronoun *we* would be more appropriate. In reality, I, not Mailer, had analysed the proposed investment strategy, the script by which a trader or fund manager attempts to make money.

Nonprofessionals are astonished as to how banal all investment strategies are when stripped of the marketing gloss that is used to sell them. A *long-short* strategy is where the investor buys something they expect to go up and short sells something that they expect to go down. It is called *market neutral* or *relative value*. Long-short is differentiated from *long only* where the investor can buy things that presumably they think will go up.

Short selling involves selling something that you don't own but hope to buy back at a lower price when the price goes down. You can sell tickets to a sought-after concert by the latest hot band for $200 for delivery in 1 week. You don't own the tickets but you think that ticket prices will fall before you have to deliver them. If they do, then you buy the ticket for say $160 before the week is out and deliver to the person who bought it for $200, making $40.

The *carry trade* entails borrowing in a currency that has low interest rates. The Japanese yen is a perennial favorite as interest rates there have been close to an anorexic 0.00 percent for many years. You take the money and invest it in something earning more than the interest rate you pay and pocket the difference.

You can lose—that's risk. The thing that you thought would go up comes down, and the thing you thought would come down goes up. Yen interest rates go up, and the yen goes up in value against whatever currency you invested in.

Your instincts and history say that on average the investment strategy works. Details are worked out and tested. You work out which share you think will go up or down. It could be based on tedious fundamental analysis—you pore over financial statements that are out-of-date or fraudulent, and you talk to management who lie to you if they talk to you at all. Alternatively, you use *technical* or quantitative filters to identify stocks. You *buy the dip*—purchases of stocks that have fallen by a certain amount. Your quant, an analyst with several quantitative degrees who is grossly over-qualified for the task at hand, tests the strategy, using historical data.

The process fleshes out the details of the investment idea. In the long-short, it will tell you what you should buy and what you should sell. In the carry trade, it will tell you which currency to borrow in and which currency to invest in. Do you buy and sell stock in the same industry, geography, or currency? In the carry trade, how do you define high and low rates and what kind of investments and borrowing do you do and for how long? The process gives you an idea of the risks. How often will the strategy work? What kind of profits does it produce? How often will it lose money and how much?

Margin and Smitz's answers to my probing are vague, reminiscent of the investment strategy in a prospectus during the South Sea bubble: "A company for carrying on an undertaking of great advantage, but nobody to know what it is."

Ambush

"I have analyzed a number of your past trades in detail." Margin and Smitz look at me, surprised. Dr Woori, the Korean nuclear physicist in charge of risk, has supplied me details of Margin and Smitz's trading, unaware of the reasons for my interest. "Now let's take the gold trade...."

In the gold trade, they purchased shares in MG, a small Canadian gold-mining company, and short sold gold against the position. MG's share price was *undervalued*, not reflecting the value of the gold in the ground that could be mined and sold. The investment strategy benefits from the fact that MG shares are not properly valued based on the gold content. It looks good, at least in Excel spreadsheets.

The short gold position protected any investor from a sudden unexpected fall in the gold price. If the gold price fell, then the shares would also fall, as MG's gold reserves would be worth less. The fall in prices would create profits on the short gold position, as you could buy gold at the lower price, deliver it to the buyer at the agreed higher price and lock in a profit. The loss on the shares would be offset by the gain on the short gold position. The position is hedged, free of risk, at least in theory.

"My analysis shows that the positions were highly risky." Mailer is all smiles at my unrelenting assault—he likes *offense.* The investment strategy is based on the relationship between MG shares and the gold price. What if MG had already locked in the price of the gold by agreeing the price for future sales with buyers? What if MG gold reserves were not as large as supposed? What if MG could not raise the funds to expand the mines? What if ESB could not borrow the gold for the short sales? I pile on the "what if's." Dr. Woori pointed out the very same risks to ESB management in a memo from which I copied liberally.

"Academic bullshit," Margin interrupts. "Gold's there. Independent reserve assessments. No forward gold sales! Management. You're a complete moron." When agitated, Margin speaks in a strange, rapid, barely intelligible staccato.

I keep going. "Even if you are right, how does ESB exit the position? What would happen if MG's share price never aligned to the gold price? What would you do? Buy the company and mine the gold and deliver into the short gold position? You need government approval to buy the mine. Your regulator doesn't allow you to own 100 percent of any company." I move to my killer point. "In any case, the trade lost money—a lot of money."

"In detail we drown." The Sun King has trouble with the order of nouns and verbs in English. "We are drowning in detail," Dr. Woori corrects emphatically in his perfect diction and Oxford-educated English. "Return needs risk," Keller continues. "The returns are insufficient to compensate for the risk." I moan. Like Cassandra I know that no one will ever believe my predictions. Keller's mind is made up. ESB must increase risk taking to enhance "shareholder return" to close the "gap." All I can see are gaps in the strategy. The meeting is over.

Early next morning, waiting for a taxi to the airport at an hour unsuited to the working habits of French taxi drivers, I run into the Sun King. He gets up habitually at 4.30 a.m., starting the day with cardiovascular exercises and a Pilates session. He follows a rigid diet that begins with a breakfast of raw fruit. In earlier times, bankers were better fed and watered. Exercise was considered eccentric. I wonder whether Keller knows that at the 1943 Allied Casablanca Conference, Harry Hopkins, one of Franklin D. Roosevelt's advisers, found Winston Churchill in bed, clad only in a pink bathrobe, drinking a bottle of red wine for breakfast.

"Good for the brain is exercise," Keller states. "Your contribution yesterday. Very interesting. I have asked Dr. Woori to look at your ideas on risk." With that he is gone.

On the way to the airport in a rattling Peugeot taxi driven by a disgruntled North African from the *banlieues*, we drive past the Versailles palace, resplendent in the morning light. A few years later, Ken Griffin, the founder of the mega hedge fund Citadel, will rent Versailles to stage his wedding.

Mega Presentations

Four thousand participants cram into the 2007 Global Finance Conference, staged that year in London. The opening address is from the British Chancellor of the Exchequer. The Chancellor's intellectual signature is a naïve belief in the primacy of finance, banking, and money in general. He has made London money friendly and is lionized by *the City* for it.

Modern economies have long ceased to make anything. The major activity is money: investing it, borrowing it, trading it, making it, and spending it. Money generates derivative industries like property speculation, luxury car dealerships, personal trainers, and company-paid-for lifestyle coaches, butlers, and valets—all essentials of a modern life of conspicuous consumption in the modern service economy.

The Chancellor's allusion to London's superiority over New York as a center of money elicits a negative reaction from the large contingent of American financiers. Mailer bristles with indignation: "If you're good enough to make it in New York, you can make it anywhere."

Government mandarins and academics vouchsafe the contribution of finance to society at large. Bankers talk of innovation and the *golden age of finance*, the money to be made, and the money they are making. Regulators speak of *market responsive* regulations. One bank chief executive notes: "The regulators are finally under control!" There is the dull repetitious quality of minimalist music.

The lunchtime guest speaker—a rock star noted for his charity work—enters to a blast of his hit song from 30 years ago. The audience, which was in nappies when he enjoyed his popularity, looks confused, not recognizing the tune. Unconstrained by anything as restrictive as a lectern or notes, the speaker celebrates his own "humanitarian achievements," and concludes:

"I tell you this—the paradigm for the future century must be a new order or else there will be new global disorder."

Fording Streams

The focus of days two and three of the Global Finance Conference is learning and development—"learning talent." My understanding that talent was innate and skill was acquired is obviously incorrect.

Whereas once a basic business degree or (for those with higher aspirations) an MBA (Master of Business Administration) was sufficient, these days the qualification of choice is the M.Fin. (Master of Finance), M.App.Fin. (Master of Applied Finance), M.Sc. (Fin.) (Master of Science in Finance), CFA (Certified Financial Analyst), CQF (Certificate in Quantitative Finance), and so on. Perhaps there should be a new qualification—MMM (Master of Making Money).

The alphabet soup feeds an industry, providing the training that is necessary to keep up to date or risk losing the qualification. Multiple streams cater for the varied audience—fascists, anarchists, neo-cons, Fabian socialists, Marxist-Leninists, Friedmanites, Keynesians, Roundheads, Cavaliers, and militant vegans.

There are sessions at the conference on structured finance, structured products, structured trade finance, structured commodities—in fact, anything with *structured* in front of it. There are multiple streams on commodities. There are entire floodplains devoted to private equity, hedge funds, and emerging markets (especially the BRIC economies of Brazil, Russia, India, China). A technical session is titled "Combining gamma diffusion methods and eigenvectors within and without Black-Scholes-Merton frameworks for modelling mean reverting energy prices in an emerging market context—a non-technical overview."

Liquidity and Leverage

Mailer invites me to his bank's post-conference soirée at Tate Modern on the south side of the Thames river across from St Paul's Cathedral. The five-story-high, 3,400 square meters of the massive turbine hall that once housed the electricity generators of the former Bankside Power Station have been converted into an entertainment space.

There is a champagne bar, a vintage whisky tasting area, and a Tiffany space displaying expensive jewelry celebrating the occasion. The theme is the roaring twenties—jazz, cocktail waitresses dressed as flappers, and art deco décor, including a scale model of the Empire State Building minus Fay Wray and King Kong. Guests mingle and network while enjoying multiple champagne salutes. Music from Leverage, an amateur, banker-led jazz band, entertains the guests. A French competitor's party features a rock band called La Liquidité.

Tate staff offers private guided tours of artworks dating back to 1900. A highlight of the collection is a massive Joseph Beuys tableau—a collection of sleds, each with its blanket, flashlight, and edible fat, extending out of the back of a Volkswagen bus. Nearby there is a massive suspended felt-covered piano. The obsessive images and totems seem a strange accompaniment for the age of capital.

I leave early to party hop. My Indian heritage has gotten me an invitation to the Indian Bankers' Association party themed "India Shining," a shameless sales pitch for investment in India. A minister extols the virtues of India, citing statistics on growth, resource availability, and opportunities. There is no mention of the fact that the vast majority of the Indian population has no access to sanitation, clean water, education, or healthcare. There is no mention of the aging colonial era infrastructure where inadequate electricity supply results in daily *load shedding* or *brownouts* interrupting power supplies for several hours most days.

An American banker finds India fascinating and full of opportunity. "A billion people, a billion consumers, wow!" He is fascinated that I, an Indian, do not speak Indian but Bengali, one of the hundreds of languages spoken in India. "Wouldn't it be easier if everybody just spoke, you know, Indian?" Dan Quayle, a former U.S. vice-president, once apologized to Latin Americans that he could not speak Latin.

Along the Thames outside the Tate, there is a collection of ice sculptures of men and women sponsored by a broker drawing attention to a new initiative in carbon permit and emission trading—expected to be the next mega profitable field. In the gentrified old streets of London, I notice indigent people wrapping themselves in cardboard and newspaper against the chill of the early spring evening. Near the all-night supermarkets, automatic teller machines (ATMs) and London Underground train stations, the cry of the homeless—"Any spare change, please?"—echoes.

Democracy of Greed

A year earlier, in 2006, I attended the Money Show in America, a massive annual showcase of investments and financial management for ordinary individuals. If the Global Finance Conference is champagne and caviar, then the Money Show is beer and pizza.

In the massive hall, nubile young male and female hucksters shamelessly tempt passers-bys into booths selling investments, financial newsletters, and personal financial advice. The Money Show targets the new democracy of greed—combining the frenzy of an auction and the deep faith of an evangelical gathering. There is, as economist John Kenneth Galbraith observed, a deep "conviction that ordinary people were meant to be rich."[5]

Money managers and hucksters try to separate visitors from their hard-earned savings; in the words of American comedian Woody Allen, "Giving you investment advice until you don't have anything left."[6]

Before the 1929 stock market crash, many systems for predicting the stock market gained currency. One system saw price falls in months containing the letter "r." Another system made stock picks on the basis of comic book dialogue. Evangeline Adams, the famous fortune teller, predicted stock market movements using the movements of the planets. Mark Twain, in his novel *Pudd'nhead Wilson*, probably offered the soundest investment advice: "October: this is one of the peculiarly dangerous months to speculate in stocks. The others are July, January, September, April, November, May, March, June, December, August, and February."

Contrarian investor Victor Niederhoffer chronicled his trading secrets in his best-selling 1997 book *Education of a Speculator* before blowing up his fund with large losses shortly afterward. Ironically, Niederhoffer once observed that it is inconceivable that anybody would divulge a truly effective get-rich scheme for the price of a book.

Pick and Pay

At the Money Show, a bank is publicizing its new home loan product—the *pick and pay* mortgage loan. The borrowers *pick* the amount of the loan, the term of the loan, and what they want to *pay* each month. The repayments selected stay at the agreed level for 2 years after which the bank resets the payments. The product brings expensive dream homes within the reach of everybody.

Repayments do not cover the interest cost of the loan. On any reasonable assumption, repayments will more than double after the first 2 years. The account executive corrects me: "Re-fi! You haven't factored in the re-fi!" At the end of 2 years you *re-fi*, taking out a new loan to repay the old loan. Slick charts and interactive graphics show prices of American houses increasing at 10, 20, or 40 percent each year. Increasing house prices enable increased borrowing to pay off previous borrowing in a spiral of wealth creation. The small print of the loan in the product disclosure statement (PDS) sets out large, punitive early payment penalties and re-fi costs. On a $400,000 mortgage, the account executive stands to make 3 percent or more—$12,000.

There is also *equity access*, where people who own their house free of a mortgage takes on a new loan to access the price appreciation, spending the money on whatever they want. *Reverse mortgage* is where people in retirement borrows against their residence to cover retirement expenses. And there is a *legacy mortgage*, in which the borrowers take out a loan for 99 years and bequeath the mortgage to their progeny to repay.

Black Sea Real Estate

The speaker at the real estate seminar is a 30-something man in a shiny silk suit and a headset. He is big on rhetorical questions:

> Do you know what is the hottest real estate market in the world today? It's the Black Sea coast in Bulgaria. Do you know why? It's the cheapest waterfront in the world today. Just $40,000 gets you prime beachfront property. What would you get for that amount in Florida, Mexico, Spain? Think about it. Prices have doubled in the last six months. Do you know what gains I expect over the next two years? 500 percent. That's right! You will get back five times what you invest. Can you imagine that? Only smart people can imagine that. Are you smart? Do you dare to be rich?

The speaker pauses and looks carefully at his audience. "Or are you a loser? Do you want to stay a loser?"

I grapple with magnificent Black Sea beachfront bungalows overlooking rocky, pebble-strewn beaches, a heavily polluted sea and a smoke-belching Chernobyl vintage nuclear power plant. The speaker's other favored investment destination is the Persian Gulf emirate of Dubai, where prices have appreciated 150 percent over the last 2 years. Soaring oil prices and demand from other property players diversifying their investment portfolios *guarantee* massive gains.

World RE Investment Portfolios, Inc., the speaker's company, is selling seminars not real estate. At the conclusion of the speech, assistants fan out, buttonholing attendees to sign them up for further seminars to gain in-depth knowledge about the path to riches by the Black Sea, in Dubai, and further afield. The cost is $25,000 for a series. If you want a personal one-on-one with the "Divine One," then the cost is $50,000 for a 2-hour audience.

"Best investment I ever made," a fellow attendee tells me. "I'm signing up for a personal coaching session. Just to 'fine tune' what I've been doing." What he has "been doing" turns out to be a portfolio of 200 homes in various countries assembled over the last 7 years. He purchased a property next to his house for his aged parents, but they became seriously ill and died before they could move in. The property appreciated in value. He sold it and was left with a profit on his first *trade*. He reinvested the gain in another property. He now buys property, and as soon as the property rises in value, he increases the mortgage amount to take out his initial investment and starts the whole thing all over again. "Banks are pretty relaxed now about lending these days. They lend you the full amount, no questions asked. You really don't need to have any money to start. Not like in the old days."

He is worth $20 million on paper. “Not bad for a garage mechanic.” It is all tied up in the properties. “I don’t want to sell. There’s so much upside.” If he needs spending money, then he borrows it. He has around $180 million in debt. The consistent message is “Debt is in; debt is good.”

Life on the Margin

In the ST trading seminar, participants are divided into small groups. I share my computer terminal with a couple—Mary, a lively middle-aged woman and her husband, Greg.

She is a homemaker but was a secretary in a brokerage firm. She found juggling a family (two young children) and a job difficult. Mary believes that she can fit stock trading into her schedule and make more money than she would from a job. “One of my neighbors has been doing it for ages and she makes $5,000 a week. It can’t be that hard, can it?”

Greg, a machinist, has worked for the same machine tool maker for more than 20 years. A private equity firm recently bought the company with a lot of borrowed money. “There have been changes,” Greg mumbles. He has doubts about trading but sees the need for more money. “The mortgage, two cars, school fees, college fees, healthcare, holidays,” he ticks them off. They saw a financial adviser who calculated what they needed to retire. It is well in excess of what their pensions and other retirement savings could ever amount to. “That’s when I said we gotta do something! Didn’t I, Greg?” Mary interjects.

The seminar introduces us to trading in *contracts for differences (CFDs)*, *futures* and *options*, *derivatives*—Warren Buffett’s infamous “weapons of mass destruction.” You can bet on fluctuations in prices of any financial asset—share prices, currencies, interest rates, commodity prices, and so on. You put up a mere 2 percent: With $20,000 you can take positions in $1,000,000 worth of shares. If the share price goes up, say 10 percent, then you make $100,000 with your $20,000 investment—a return of five times or 500 percent. That’s leverage.

Normally, if a stock is trading at $100, you outlay $100—the full price. For a $10 increase in the price of the stock (10 percent increase) you make a profit of $10 equivalent to a return of 10 percent (gain of $10 divided by investment of $100). Using leverage you can buy the stock using $10 of your own money and borrowing $90 of other people’s money. For the same $10 increase in the value of the stock, you still make $10, but your return is now 100 percent (gain of $10 divided by investment of $10). Leverage enhances returns in percentage terms. It can also enhance the return in dollars. If you had $100, then normally you could only buy one share. But with leverage, you can now buy 10 shares (investment [$100] plus borrowing [$900] to buy 10 shares at $100 for a total outlay of $1,000), enabling you to increase the amount of any gains in dollars.

But leverage works for both increases and decreases in the value of what is purchased. As the borrowing must be repaid in full with interest, leverage increases the risk. For a $10 decrease in the value of the stock, you lose $10, but where leveraged, the fall wipes out your entire investment of $10 (a return of *negative* 100 percent).

Archimedes said: "Give me a lever long enough and a fulcrum on which to place it, and I shall move the world." In the modern world, money games are based on a similar principle: "Give me enough debt and I shall make you all the money in the world."

Racing Days

The only way to trade successfully, we are told, is to buy ST's computer programs ($995). Then there are training DVDs ($495), manuals ($195), trading newsletters ($350 per year) and trading paraphernalia such as trade blotters for keeping tabs on your trades. You open an account with an affiliated broking firm (2 percent commissions on trades) by signing up and investing $20,000. If you sign up immediately, then you get a free copy of the firm's founding father's cheap self-published work *Trade Your Way to Wealth and Independence*. "You get $199 of value right there."

All I see is the Marx Brothers' *Day at the Races*, in which Chico is a con artist selling racing tip books containing horse racing tips. Chico offers the gullible Dr. Hugo Hackenbush, played by Groucho Marx, a $1 racing tip book. Groucho buys the tip book, which predicts that Z-V-B-X-R-P-L will win the next race. Unable to decipher the text, Groucho consults Chico, who offers a code book to decode the letters. The code book is free but there is a $1 printing charge. Chico also offers an alternative—a *free* master code book, without a printing charge, but with a $2 delivery charge. Groucho is outraged at the delivery charge, as he is standing right next to the con artist. Chico agrees to make the delivery charge $1 for such a short distance. In the end, Groucho spends $6 on the master code book and a set of four Breeder's Guides to decipher the master code book. By the time he has assembled his library of literary material on horses, the race Groucho wanted to bet on is over.

As I leave the seminar, Mary and Greg are signing up for ST's trading system. I think of the famous speculator Jesse Livermore, immortalized in Edwin Lefèvre's *Reminiscences of a Stock Operator*:

> The sucker play is always the same: To make easy money. That is why speculation never changes. The appeal is the same: Greed, vanity, and laziness. The merchant who would not dream of buying and selling stockings or percales on the advice of fools goes to Wall Street and cheerfully risks his money on the say so of men whose interest is not his interest, or tipsters who have not grown

> rich at the game they want him to play. He thinks his margin will take the place of brains, vision, knowledge, experience, and of intelligent self-surgery. Whether the stock market goes his way or against him, his hope is always fighting his judgment—his hope of gaining more that keeps him from taking his profits when he should: his hope of losing less that keeps him from taking a relatively small loss. It is a human failing![7]

Livermore, "the man with the evil eye," was a famous speculator making and losing several fortunes. By 1940 Livermore, once wealthy and owner of a yellow Rolls Royce, a yacht, and a huge sapphire ring, was reduced to poverty. His suicide note read: "My life was a failure."

Dr. Doom

"Only Roubini and Faber agree with you," says Mailer, passing judgment on my analysis of the global financial situation. "Between them they have predicted 12 of the last 3 recessions."

Roubini—Dr. Nouriel Roubini—is *Dr. Doom*. Born in Turkey of Iranian parents, the professor of economics, who runs a private consulting business, has been pessimistic about the finances of the world for as long as most can remember. Faber—Dr. Marc Faber—shares the Dr. Doom title. An investment analyst and entrepreneur, originally from Switzerland, Faber resides in Thailand from where he publishes the *Gloom Boom Doom* newsletter. His website features Kaspar Meglinger's macabre paintings, *The Dance of Death*. They are *perma-bears,* believing that the world is in the grip of a giant bubble, supported by abundant and cheap debt provided by accommodating central bankers.

"The VC [vice-chairman] thought you were seriously depressed. Needed antidepressants. Therapy," Mailer continues. "Your analysis was interesting. We need a 'correction'. Definitely. But it's not serious."

The *analysis* shows a dizzying spiral of debt. Borrowings by the U.S. government, corporations and individuals have reached around 350 percent (three and a half times) of what America produced in a year: gross domestic production (GDP). Consumer borrowing is at a record level. Every man, woman, and child in the United States (a supposedly rich country) has borrowed around $4,000 each from their Chinese counterparts (who are supposedly less well off). Complex, incomprehensible, untested financial products have accumulated unnoticed, outside regulatory purview. Banks are lending money to companies and people who will never ever be able to pay them back. Speculation and games shuffling money are rampant.

But there is no market for bad news. In 2007, I was approached to speak at a conference of fund managers. After selecting someone else, the organizer shared her reasoning. "We are nervous about the gloomy picture you might paint and any messages that wouldn't provide some sense of salvation. As our clients pay to attend our conference; we don't want them to feel that they are paying to be made depressed."

It is difficult to be rational in money matters. Investors and bankers are reluctant to forgo gains that keep piling up in defiance of the perma-bears' perennial doomsday predictions. Only the strongest person or self-sacrificing saint can leave easy money on the table, quarter after quarter, year after year. Irrespective of how much knowledge of financial history you have or how careful you are in your analysis, it is difficult to avoid being caught up in the madness of crowds.

"We are making record profits," Mailer says, as he ticks off new initiatives—hedge funds, private equity vehicles, new derivatives, new structured investment vehicles; expanding and opening offices in India, China, Russia, Brazil, and Dubai. "Heard of Madoff?" he asks. "We may be doing something with him."

Once, Mailer had been skeptical of the things that he now embraced with enthusiasm. All successful financiers have selective amnesia, remembering what fits their current worldview. Walter Bagehot, the famed economic historian and founder of *The Economist*, noted that people are most credulous when they are making money. In 1925, the author F. Scott Fitzgerald summed it up in *The Great Gatsby*: "Gatsby believed in the green light, the orgiastic future that year by year recedes before us. It eluded us then, but that's no matter—tomorrow we will run faster, stretch out our arms farther."[8]

Extreme Money

Alain de Botton wrote that he found "few seconds in life are more releasing than those in which a plane ascends to the sky."[9] It was conducive to "internal conversations."[10] On the flight home, I try to order my thoughts.

The master narrative of the world is now economic and financial as much as social, cultural, or political. Identities are defined and reinvented around money. Individual economic futures increasingly depend on financial success. Businesses and governments define their performance by financial measures.

Ordinary people borrow money to buy houses, cars, and things. They save for their children's education, vacations, or retirement. Financiers invest the savings in markets to make more money. They buy shares, property, and other investments. The money is invested in private equity funds that borrow heavily to buy companies, cut staff, and costs, strip them of assets and then resell them at vast profits to other investors. Hedge funds try to make money by placing complex bets on minuscule price movements or on an event taking or not taking place.

Financiers cut and dice risk into tiny slices according to investor requirements using super computers relying on arcane mathematics that only French bankers understand. Mortgages and toll roads or airports are transformed into securities sold to fund managers and pension funds that provide retirement income for individuals. Financiers colonize new frontiers converting natives to their new religion.

On the plane, I watch a program on *extreme sports*—adventure activities featuring danger, high levels of exertion, or spectacular stunts. *BASE jumping* (**b**uilding, **a**ntenna, **s**pan and **e**arth) involves parachuting off physical structures. Bored skateboarders practice *street luge* going fast downhill in cities. *Buildering* is free climbing up skyscrapers without any safety nets. The *Verbier extreme* requires snowboarders to find daring ways to descend a mountain. *Extreme ironing* involves a skydiver ironing mid-skydive, up a mountain or under water.

Extreme sports are not competitive in the traditional sense. People push the limits of physical ability and fear creating a *rush* as the brain releases dopamine, endorphins, and serotonin to create a temporary feeling of inexplicable euphoria. Money, too, is increasingly an extreme sport. As Gordon Gecko, played by Michael Douglas, tells his son-in-law in Oliver Stone's *Wall Street Money Never Sleeps*, the 2010 reprise of the original, it isn't about the money; it's about the game!

We live and work in the world of *extreme money*—spectacular, dangerous games with money that create new artificial highs in growth, prosperity, sophistication, and wealth. Once used to value and exchange ordinary goods, money has become the main way to make money. To make a billion dollars, it is no longer necessary to actually make anything. The rule of extreme money is that everybody borrows, everybody saves, everybody is supposed to get wealthier. But only skilled insiders get richer, running and rigging the game.

Money and the games played are intangible, unreal, and increasingly virtual. Electronic displays flashing red or green price signals are the distilled essence of the financial world. Traders do not experience the underlying reality directly but only in terms of gains or losses—money made or lost that can be lost or made back in the next few seconds.

The author Tom Wolfe once summed up the world of money by citing the Austrian economist Joseph Schumpeter: "Stocks and bonds are what he called evaporated property. People completely lose touch of the underlying assets. It's all paper—these esoteric devices. So it has become evaporated property squared. I call it evaporated property cubed."[11] Extreme money is eviscerated reality—the monetary shadow of real things.

The Greek word *Hubris* means arrogant, excessive pride that often results in fatal retribution. In Greek tragedy, it describes the actions of mortals that challenge the gods or the laws. It results in the mortals' inevitable downfall. At the Global Finance Conference, at the Money Show, in my conversations with Mailer, I felt the overweening self-confidence and overreaching ambition that comes before fall. Hubris is followed by *Nemesis*. In Greek mythology, she is the god of retribution and downfall.

Mankind mistook money, a lubricant of society and the economy, for an end in itself. It created a cult and worshipped the wrong deity, building ever more elaborate edifices and liturgies dedicated to its worship. It was a one-way street. It is now too late to turn back.

Extreme Money tells that story. It is essentially the story of the modern world.

1

Mirror of the Times

There's old money; then there's new money. Old money is the stuff of storied Mayflower descendants in the Hamptons or hyphenated names and titles in London's South Kensington. New money is the arriviste stuff brandished by Russian oligarchs who buy *Chealski* football club, and hedge fund managers with a taste for modern art works called *The Physical Impossibility of Death in the Mind of Someone Living*.

There's hard money, there's fiat money, and there's debt. Gold, greenbacks, dollars, pounds, euros, loonies (Canadian dollars), aussies (Australian dollars), kiwis (New Zealand dollars), Chinese renminbi, Indian rupees, Russian roubles, Brazilian reals, South African rands, Kuwati dinars, Saudi riyals, and the Zambian kwatcha. In the film *Other People's Money*, Lawrence Garfield, aka Larry the Liquidator, played by Danny de Vito, tells his lawyer that everyone calls it "money" because everybody loves "money."

In truth, money exists only in the mind. It is a matter of trust. With trust, comes the possibility of betrayal. The late Michael Jackson understood money's essence, urging people to lie, spy, kill, or die for it.[1]

Some Kinda Money

There are different sorts of money. Most of the participants at the Portfolio Management Workshop run by a prestigious business school were in their late 20s or early 30s, already managing other people's money. One man did not fit the typical attendee profile. Almost 80 years old—tall, straight-backed, and gaunt—he was there to learn to manage his own money better. He told an interesting story about gold.

He was a boy when the great earthquake struck San Francisco at 5:12 a.m. on Wednesday, April 18, 1906, one of the worst natural disasters in U.S. history. The man and his family survived the earthquake and subsequent fire, managing to get out of the destroyed city by boat. His father paid the boatman, who would not accept money, in gold, secreted away for emergencies. Gold, the *sweat of the god* as the Incas called it, is *hard* money. It is the only money when chaos ensues.

In the 1970s many Indians emigrated in search of a better life. Indian foreign exchange controls prevented legal conversion of worthless Indian rupees into real money—American dollars or British pound sterling. Emigrants resorted to *Hawala* or *Hundi*—an informal money transfer system.

You needed an introduction to a money broker. You paid him your rupees. In return you received a small chit of paper on which were scrawled a few words in Urdu, a language spoken mainly in Pakistan and India. This chit had to be presented to another money broker outside India to receive the agreed amount of dollars. There was no guarantee that you would receive the promised dollars. It was a pure leap of faith. Hawala is paper money, based entirely on trust and honor.

In July 2008, a bank in Zimbabwe cashed a check for $1,072,418,003,000,000 (one quadrillion, seventy-two trillion, four hundred eighteen billion, three million Zimbabwe dollars). In the 28 years since independence, Zimbabwe, the former colony of Rhodesia, progressed from one of Africa's richest states into an economic basket case. The government's answer to economic collapse was to print money until the Zimbabwe dollar became worthless. This is *mad* money—paper money made valueless through inflation and its extreme mutation *hyper*inflation.

Inflation in Zimbabwe was 516 quintillion percent (516 followed by 18 zeros). Prices doubled every 1.3 days. The record for hyperinflation is Hungary where in 1946 monthly inflation reached 12,950,000,000,000,000 percent—prices doubled every 15.6 hours. In 1923, Weimar Germany experienced inflation of 29,525 percent a month, with prices doubling every 3.7 days. People burned Marks for heat in the cold Northern German winter. It was cheaper than firewood. The butter standard was a more reliable form of value than the Mark. The German government took over newspaper presses to print money, such was the demand for bank notes. The abiding image of the Weimar Republic remains of ordinary Germans in search of food pushing wheelbarrows filled with wads of worthless money.

To avoid calculators from being overwhelmed, Gideon Gono, the governor of Zimbabwe's central bank who despised *bookish economics*, lopped 10 zeros off the currency in August 2008. It did not restore the value of the Zimbabwe dollar but made it easier to carry money.

You receive a letter, a fax, or an email. The letter is from the wife of a deposed African or Asian leader, a terminally ill wealthy person, a business being audited by the government, a disgruntled worker, or corrupt government official who has embezzled funds. He or she is in possession of a large amount of money—in the millions—but cannot access the money. You will receive 40 percent if you can help retrieve the money or deal with it according to the *owner's* instructions. You just need to send a little money.

It's a scam. Any money you send is lost. This is *bad* money. Scammers are known as Yahoo millionaires. "Ego" or "pepper" is money. To be fooled in a scam is to "fall mugu." "Dolla chop" refers to the receipt of money from a victim.

Money is pure trust and faith. Money itself can have value—gold. It can have no intrinsic value—paper. Money can be easily debased. It can corrupt and, in turn, be corrupted.

Trading Places

In trade, two parties willingly exchange goods and services. The economist Adam Smith observed that people have an intrinsic "propensity to truck, barter, and exchange one thing for another."[2] Trade originally involved *barter*, the direct exchange of goods and services. If you have two items to trade, then you agree a rate of exchange—for example, five of this is worth one of that. If you have 100 items, then traders would have to remember 4,950 exchange ratios. For the 10,000 different items that a supermarket may stock, you need to remember 49,995,000 exchange ratios.

In the eighteenth century the French opera singer, Mademoiselle Zelie, performed in French Polynesia during her world tour, receiving one-third of the box office—3 pigs, 23 turkeys, 44 chickens, 5,000 coconuts, and considerable amounts of fruit. Unable to consume the payment, Mademoiselle Zelie's fee equivalent to 4,000 francs—a considerable sum at the time—was wasted.[3] When naturalist A.R. Wallace was exploring the Malay Archipelago, he planned to obtain food through barter. But he found that the indigenous people did not want the commodities he brought. Wallace nearly starved as his and the Malays' needs rarely coincided.[4]

The problems of barter are overcome where traders negotiate through a medium of exchange—*money*. Money allows separation of buying and selling in the process of exchange. Any traveler in the Malay Archipelago today carrying cash or an American Express or Visa card is unlikely to suffer the indignities and privations of Wallace.

Barter still exists. During the Cold War era, communist economies bartered for essential goods. The UK exchanged Russian grain for Rolls Royce jet engines that were used to power Soviet MiG fighters in the Korean conflict. "Returned with interest," Glynn Davies, a monetary historian, grimly noted. In 2010, North Korea's cash-strapped totalitarian regime, through its Bureau 39, offered several tons of ginseng, a curly white root claimed to improve memory, stamina, and libido, to settle $10 million in accumulated debt owed to the Czech Republic.[5]

The Invention of Money

Money is universally accepted as payment, a claim on other things—food, drink, clothing, operatic arias, travel, knowledge, or sex. It is a medium of exchange, a measure of the market value of real goods and services, a standard unit of value, and a store of wealth that can be saved and retrieved in the safe knowledge that it will be exchangeable into real things when retrieved.

Commodity money is anything that is simultaneously money but is a desired tradable commodity in its own right—money that is good enough to eat. Humans have experimented with dried fish, almonds, corn, coconuts, tea, and rice.[6]

The ancient Aztec cultures used cacao. The large green-yellow pods of the cacao tree produce a white pulp that, when dried, roasted, and ground, becomes chocolate. Some European pirates seized a ship full of cacao beans—a true El Dorado worth more than galleons filled with gold doubloons. Unaware of the value of the cargo and mistaking it for rabbit dung, the pirates dumped the cacao into the ocean.[7]

Commodities have intrinsic value and their supply cannot be changed easily. But restrictions on the availability of a commodity can artificially limit the amount of money, in turn limiting the volume of activity and trade. If water were used as a form of commodity money, then hoarding it to preserve wealth would reduce the amount available. People might die of thirst, but they would die rich. Commodities are also difficult to store, so inhibiting the capacity to amass and store wealth.

In economic chaos, war or collapse, commodity money reappears. In post-Saddam Iraq, mobile phone credit became a popular quasi-currency, rivaling banks and the Hawala system. Prostitutes asked for payment by way of mobile phone airtime credits, leading to the nickname *scratch-card concubines*. Even kidnappers asked for ransoms to be paid in the form of high-value phone cards.

Over time, more permanent forms of money have developed—massive stone tablets, animal skins and fur, whale teeth, and shells, especially the cowrie shell (the ovoid shell of a mollusk commonly found in the Indian and

Pacific Ocean). Ultimately commodity money focused on precious metals, gold and (to a lesser extent) silver, until superseded by paper.

Fiat or *paper money* is the promise by the government or state to pay you whatever it says on the paper—usually in the form of more paper. It relies on acceptance—the trust of everyone to exchange often dog-eared and toxic notes into real things. Where gold relies on a deep-rooted mythology, paper money relies on a system of trust and faith as well as the sanctity and integrity of the underlying legal system.

Credit money—the last form of money—is a future claim against someone that can be exchanged for real goods and services. The person lending money trusts the borrower to repay the money lent at the agreed time in the future.

British economist John Maynard Keynes once gave his friend Duncan Grant, the artist, money as a birthday gift. Grant was enraged: "The thing is good as a means and absolutely unimportant in itself." Keynes thought of money as "a mere intermediary without significance in itself which flows from one to another is received and dispensed and disappears when its work is done."[8]

Barbarous Relic

Gold—chemical symbol *Au* and atomic number 79—is a dense, malleable, and highly ductile lustrous metal that does not rust in air or water, making it useful in dentistry and electronics. Gold has qualities desirable in money—it is rare, durable, divisible, fungible (each unit is exactly identical and equivalent to other units of gold), easy to identify, and easily transported and possesses a high value-to-weight ratio. The *gold standard* was the basis of money for substantially all of human economic history.

Gold bullion is stored in ultra secure vaults, such as Fort Knox and the Bank of England. The gold is in 400 troy ounce bars—each bar weighs about 28 pounds (11 kilograms). At a price of $1,200/ounce, each bar is worth around $480,000. The bars have an assay mark recording the quantity and quality of the gold and the mint at which it was produced.

The bullion is stored in sealed lockers. At an appointed time, burly men dressed in drab gray uniforms move bars of gold from one numbered locker to another, settling purchases and sales. This movement of gold bullion over a short distance once signaled major changes in the fortunes and wealth of countries and kings.

In all human history, only about 161,000 tons of gold have been extracted, equivalent to about two Olympic standard swimming pools. Gold's monetary role confers extraordinary riches on those who control it and was once the key to wealth and economic dominance.

In the 1890s, the issue of gold became central to the U.S. presidential campaign of William Jennings Bryan. Southern farmers in the United States borrowed from north-eastern bankers to finance their farms, equipment, and crops. The debt had to be repaid in gold. As gold prices rose and the price of farm produce fell, the farmers' earnings fell, and their debt repayments grew, fueling resentment. The farmers wanted more money in circulation and advocated silver as well as gold currency—known as *bimetallism*.

At the 1896 Democratic Convention, Bryan spoke passionately: "You shall not press down upon the brow of labor this crown of thorns. You shall not crucify mankind upon a cross of gold."[9] Bryan was defeated in the 1896 and 1900 election by William McKinley and the United States adopted the gold standard in 1900.

The bimetallism debate spawned Frank Baum's satire on the currency debate, the *Wizard of Oz* (actually the *Wizard of Ounce*—of gold). Dorothy, the Kansas farm girl, represented rural America. The Scarecrow, Tinman, and cowardly Lion represented farmers, factory workers, and Bryan respectively. Dorothy and her companions' journey down the golden road is the 1894 Coxey march of unemployed men (named after its leader Jacob Coxey) to secure another public issue of $500 million of paper money and to obtain employment. Baum's plot has Dorothy and her companions exposing the fraud of evil wizards and witches, representing bankers and politicians, and establishing a new monetary order based on gold and silver. Dorothy returns to Kansas City courtesy of her magic silver slippers. In the film, Dorothy's slippers are red rather than silver, a concession to Hollywood cinematography.[10]

In Ian Fleming's 1959 novel *Goldfinger*, James Bond, Agent 007, is sent to investigate Auric Goldfinger, the mysterious Swiss financier who is smuggling gold. Goldfinger's plot is to boost the value of his gold through an audacious attack on the Fort Knox gold depositary. Goldfinger plans to contaminate the gold by exploding a nuclear device—a *dirty bomb*. Goldfinger's own stock of uncontaminated gold would increase in value astronomically. Bond discerns the plot through dazzling mental arithmetic—Fort Knox's $15 billion dollars of gold equated to more than 400 million ounces, which would weigh over 12,000 tons, making it difficult to carry off.

Thirst for gold fueled war and conquest. The Spanish, who followed Columbus, took approximately half a century to strip the major treasures of gold and silver accumulated by the indigenous people of South and Central America. In the process, the Spanish enslaved and virtually wiped out the native population until they literally ran out of things to loot. Today, armed groups fight for control of gold mines in the Democratic Republic of Congo to purchase weapons and finance wars. As the more easily accessible rich deposits of gold have been exhausted, mining gold in more remote, inhospitable, and fragile environments leads to irreversible damage.

Gold's mythological power has fueled the imagination of mankind for much of its history. Financial historian Peter Bernstein wrote: "Gold has…this kind of magic. But it's never been clear if we have gold—or gold has us."[11]

In India, gold is the ultimate store of wealth that can be pawned or used as security to raise money quickly. A child's baptism or eating of its first solid food, usually rice, requires offerings of gold. Marriage traditions require a dowry of treasure—heavy necklaces, ornate bangles, dangling earrings, jewel-encrusted rings, delicate headpieces, and saris woven with gold thread. For Indian women, gold may be the only real property they own—their only *nest egg*.

Although few believe in its once assumed magical properties, the attachment to gold has persisted into the twenty-first century. In *Goldfinger*, Colonel Smithers explained the monetary role of gold: "Gold and currencies backed by gold are the foundation of international credit…. We can only tell what the true strength of the pound is…by knowing the amount of [gold] we have behind our currency."[12] As the global financial crisis consumed the world in 2007 and 2008, individuals purchased 150 tons of gold in the form of coins. Investors poured money into special funds that bought up 1,000 tons of gold. Gold prices increased from around $800 per troy ounce in December 2007 to more than $1,400 per ounce by early 2011.

Harry "Rabbit" Angstrom, the central character in John Updike's 1970s novels about American suburban life, spent $11,000 on the purchase of 30 gold krugerrands (a South African minted gold coin). Rabbit explained the purchase to his wife: "The beauty of gold is, it loves bad news."[13] John Maynard Keynes famously described the gold standard as "a barbarous relic."

The Real Thing

Adam Smith captured the essence of paper (or fiat) money—the promise that it can be exchanged into real goods and services:

> When the people of any particular country has such confidence in the fortune, probity, and prudence of a particular banker, as to believe he is always ready to pay upon demand such of his promissory notes as are likely to be at any time presented to him; those notes come to have the same currency as gold and silver money, from the confidence that such money can at any time be had for them.[14]

Paper money is now the dominant currency, and the dollar is the dominant form of paper money. The word derives from a large silver coin worth three German Marks—*taler*. American economist John Kenneth Galbraith observed that: "If the history of commercial banking belongs to the Italians and of central banking to the British, that of paper money issued by a government belongs indubitably to the American."[15]

The U.S. dollar is sometimes referred to as the greenback, a reference to the green-inked backs of one of the first currencies authorized by the Legal Tender Act of 1862 during the U.S. Civil War. Greenbacks were not convertible into anything but constituted legal tender, that is, a creditor could not legally refuse to accept them as payment for any debt.

The current dollar, introduced in 1914, is three-quarters cotton and one-quarter linen. Approximately half the bills are one dollar denominations. The average life span of a bill varies—a $1 note lasts a mere 18 months whereas a $100 bill can last several years. Each bill is designed to be folded 4,000 times before it tears. Four hundred and ninety $1 bills weigh 1 pound (454 grams). One million dollars in $1 bills would weigh more than one ton. One trillion dollars in $1 bills would weigh one million tons.

Less than 8 percent of all dollars are in the form of paper money or coins. The vast majority of dollars exists in the form of entries in the accounts of borrowers or lenders. Paper money is an abstraction or, as most of it does not exist physically, the abstraction of an abstraction. Its sole reason for existence is as a medium of exchange. There are no limits to the amount of money that can be created.

Paper money can be easily damaged or destroyed. There is *counterfeit money*—a fake imitation of real money passed off as the real article. The real problems with paper money are subtler. As Baron Rothschild once boasted: "Give me control over a nation's currency and I care not who makes its laws."

In 1716 John Law, a self-taught banker, inveterate gambler, and convicted murderer, established the Compagnie d'Occident (the Mississippi Company) to exploit the wealth of Louisiana, then a French colony. In his pamphlet *Money and Trade Considered with a Proposal for Supplying the Nation with Money*, Law advocated using paper money to create wealth.

Law's Banque General printed money by lending large sums to investors to purchase shares of the Mississippi Company, so driving the price higher. The vast quantities of paper money were supposedly guaranteed by reserves of gold coin. Law, now the duc d'Arkansas, actually issued paper money equal to over twice the gold available in the country. He was using the two companies to create vast fictitious profits for both. The pyramid scheme, where investors in the Mississippi Company received *profits* from subsequent investors, eventually collapsed. Today, governments have a monopoly in printing money.

Fear of reduction in the value of paper money meant that it was backed by gold for much of its history. The strange thing is that gold has almost no value as a commodity and is not itself a great store of value.

In 2009, gold bugs excitedly speculated about gold prices reaching $2,300. Even at that price gold would merely match its January 1980 value, after adjusting for inflation. The holder had earned nothing on the investment over almost 30 years! The gold price in 2010 adjusted for inflation was the same as the price in 1265. Dylan Grice of Société Générale summed up the case for gold as a store of value:

> A fifteenth-century gold bug who'd stored all his wealth in bullion, bequeathed it to his children and required them to do the same would be more than a little miffed when gazing down from his celestial place of rest to see the real wealth of his lineage decline by nearly 90 percent over the next 500 years.[16]

The Hotel New Hampshire

The Hotel New Hampshire, written by John Irving, the author of *The World According to GARP*, is populated with unlikely characters—Egg, Win, Iowa, Bitty Tuck, a Viennese Jew named Freud, and Sorrow, a dog repeatedly restored through taxidermy. In July 1944, a similarly dysfunctional group of politicians, economists, and bankers gathered in Bretton Woods, New Hampshire, at the Mount Washington Hotel, to establish the post-Second World War international monetary and financial order. The pivotal figures were John Maynard Keynes, representing the UK, and Harry Dexter White, representing the United States.

Selected as one of *Time*'s 100 most influential figures of the twentieth century, John Maynard Keynes was the author of *General Theory of Employment, Interest, and Money* and one of the fathers of modern macroeconomics. A product of the English elite and a member of the Bloomsbury group, Keynes was equally at home among academics, politicians, businessmen, bankers, philosophers, and artists. An incorrigible pamphleteer and prolific author, he influenced public policy in a manner that has rarely been surpassed. Keynes was also a successful investor. Managing the endowment fund of King's College, Cambridge, he outperformed the stock market over two decades, increasing the value of the portfolio by around ten times. A study concluded that: "On the basis of modern portfolio evaluation measures…Keynes was an outstanding portfolio manager 'beating the market' by a large margin."[17]

Harry Dexter White, a descendant of Jewish Lithuanian Catholic immigrants, was an economist and a senior U.S. Treasury department official. White may have also been a Soviet spy, who passed confidential information about the negotiations to the Russians.

Bretton Woods took place against the background of a still raging brutal war, the rise of fascism, and the economic experience of the Great Depression. The focus was on establishing free trade based on convertibility of currencies with stable exchange rates. In the past, this problem was solved through the gold standard where the standard unit of currency was a fixed weight of gold. Under the gold standard, the government or central bank guaranteed to redeem notes upon demand in gold.

The gold standard was not feasible for the post-war economy. There was insufficient gold to meet the demands of growing international trade and investment. The communist Soviet Union, emerging as a rival to the United States in the post-war order, also controlled a sizeable proportion of known gold reserves. Keynes' bold solution was a world reserve currency (the *bancor*) administered by a global central bank. White rejected the proposal: "We have been perfectly adamant on that point. We have taken the position of absolutely no."

The United States was the undisputed preeminent economic and military great power as well as the world's richest nation and the biggest creditor. The British and the French, devastated by two world wars, needed American money to rebuild their economies. White's view prevailed.

Bretton Woods established a system of fixed exchange rates where countries would establish parity of their national currencies in terms of gold (the *peg*). All countries would peg their currencies to the U.S. dollar as the principal *reserve currency* and, after convertibility was restored, would buy and sell U.S. dollars to keep market exchange rates within plus or minus 1 percent of parity (the *band*).

The U.S. dollar was to have a fixed relationship to gold ($35 an ounce). The U.S. government would convert dollars into gold at that price. The dollar was *as good as gold*. It was more attractive because dollars—unlike gold—earned interest. The U.S. dollar reigned supreme as the world's currency, taking over the role that gold had played in the international financial system.

Barbarism—gold—had triumphed. George Bernard Shaw would have been pleased: "You have to choose between trusting the natural stability of gold and the…honesty and intelligence of the members of the government…I advise you…to vote for gold."[18] The gold standard would remain in place until 1971.

Collapse

The Bretton Woods system was ultimately undermined by the decline in U.S. power. In 1944, the United States produced half of the world's manufactured goods and held more than half its reserves ($26 billion in gold reserves out of an estimated total of $40 billion globally). Over time, the burden of the Cold War and being at the center of the global financial system weighed heavily on the United States.

In the 1960s, President Lyndon Johnson's administration ran large budget deficits to pay for the Vietnam War and its Great Society programs. This created inflation and increased dollar outflows to pay for the expenditures. The dollar became overvalued relative to the German Deutsche Mark and the Japanese yen. Faced with the choice of devaluing the dollar or imposing protectionist measures, President Johnson argued: "The world supply of gold is insufficient to make the present system workable—particularly as the use of the dollar as a reserve currency is essential to create the required international liquidity to sustain world trade and growth."[19] It was the *Triffin dilemma*, identified by Belgian-American economist Robert Triffin in the 1960s. As the dollar was the global reserve and trade currency, the United States had to run large trade deficits to meet the world's demand for foreign exchange.

By the early 1970s, the ratio of gold available to dollars deteriorated from 55 percent to 22 percent. Holders of the dollar lost faith in the ability of the United States to back currency with gold. On August 15, 1971, President Richard Nixon unilaterally closed the gold window, making the dollar inconvertible to gold directly. The *Nixon Shock* was announced in an address on national television on a Sunday evening. The President risked antagonizing fans of the popular TV program *Bonanza* to make the announcement before markets opened.

Frantic efforts to develop a new system of international monetary management followed. The Smithsonian Agreement devalued the dollar to $38/ounce, with 2.25 percent trading bands. By 1972, gold was trading at $70.30/ounce. Other countries began abandoning the link between their currency and the dollar. In February 1973, the world moved to the era of floating currencies with no link to dollars or gold. It was the final transformation of money. The last link to something tangible was severed. The greenback was no longer as good as gold. It could not be exchanged into anything except identical notes—itself.

Max Weber, the father of social science, defined the state as the agency that successfully monopolizes the legitimate use of force. Now the state, through its monopoly over the printing presses, controlled money and the economy. Money would be henceforth a matter of pure trust. American dollars still bear the words: "In God We Trust." But God was not directly responsible for control of money; it was governments and central banks.

In Lewis Carroll's *Alice in Wonderland*, Humpty Dumpty observes: "When I use a word it means just what I choose it to mean—neither more nor less." Alice responds: "The question is whether you can make words mean so many different things." Unhesitatingly, Humpty Dumpty cuts through to the heart of the issue: "The question is which is to be master—that's all."[20] Governments could create money, making them undisputed masters. Keynes recognized the risk: "By a continuing process of inflation, government can confiscate, secretly and unobserved, an important part of the wealth of their citizens."[21]

Some found the prospect of governments controlling money disturbing. In his study of the human unconscious, Sigmund Freud noticed a striking association between money and excrement: "I read one day that the gold which the devil gave his victims regularly turned into excrement."[22] Many feared that governments would turn their money into human waste.

Former U.S. Federal Reserve Chairman Alan Greenspan once flirted with this problem:

> Under the gold standard, a free banking system stands as the protector of an economy's stability and balanced growth.... The abandonment of the gold standard made it possible for the welfare statists to use the banking system as a means to an unlimited expansion of credit.... In the absence of the gold standard, there is no way to protect savings from confiscation through inflation.[23]

Money Machines

The word *bank* has its origins in the word for the *table* or *bench* on which bankers did their transactions. Originally, the table or bench may have been an altar. The Templars, a military order of religious knights dedicated to the task of liberating the Holy Lands from the Infidels, can lay claim to being the first truly global financial supermarket.

Modern banking practice began in Italy in the Renaissance. Great banking families in Venice, Florence, Genoa, and Pisa profited from financing growing trade. To avoid religious prohibitions on usury, the banks dealt in *bills of exchange*—documents, traditionally arising from trade, that order the payment of a known sum of money to a designated person at a specified time and place. Banks bought and sold these documents, effectively lending (buying a bill of exchange with money) and borrowing (selling a bill and receiving money). Bills of exchange overcame the need to transport gold. They were faster and more secure. The bills circulated as an early form of pure money.

Banks allowed idle gold or money to circulate freely. It would be deposited with a bank or used to buy a bill (a debt collectable at a future date with interest). The original holders of $100 still had their money, but the bank and whoever it lent to also had the $100. The money that was lent would come back to the bank or another bank as a deposit. The money could then be re-lent and recirculated in a continuing, endless process.

This process—*reserve* or *fractional banking*—is the quintessential element of modern finance. Banks keep only a fraction of their deposits in reserve to meet the needs of withdrawals by depositors and lend out the rest. The practice expands the supply of money, allowing merchants, businesses, and investors to increase the scale and scope of their activities. The only limit is the requirement for banks to keep a minimum fraction of their deposits as reserves.

The banking system that evolved in the Renaissance survives remarkably unchanged to this day. It is the basis of money machines—a financial perpetual motion device. John Kenneth Galbraith summed it up:

> The study of money, above all other fields in economics, is one in which complexity is used to disguise truth or to evade truth, not to reveal it. The process by which banks create money is so simple that the mind is repelled.[24]

Not everybody supported these developments. In 1802, Thomas Jefferson in a letter to Albert Gallatin, secretary of the Treasury, warned:

> If the American people ever allow private banks to control the issue of their money, first by inflation and then by deflation, the banks and corporations that will grow up around them will deprive the people of their property until their children will wake up homeless on the continent their fathers conquered.[25]

Debt Clock

Paper money represents a claim on itself. Debt or credit money is a future claim against a person or entity that can be used today for the purchase of goods. Credit is a world of sweet nothings, mere promises. The word *credit* is from the Latin *credere*, to trust. Keynes recognized this aspect of debt: "The importance of money flows from it being a link between the present and the future."[26]

Debt enables borrowers to consume in excess of their earnings or available resources. Credit also provides the essential mechanism for making money from money. The lenders charge for the money borrowed, enabling them to become *rentiers*—people who live from income derived from interest, rent, or gains from trading. The German poet Heinrich Heine understood the significance: "Men can choose whatever place of residence they like; they can live anywhere, without working, from the interest on their bonds, their portable property, and so they gather together and constitute the true power."[27] To Karl Marx, the author of *Das Kapital* and father of communism, this was another "ism"—*parasitism*.

Debt introduces new risks. The person on whom your claim is may be unable to pay. If the interest rate on the borrowing is too low, then the lender will lose, as the money received back will be insufficient to compensate for the effects of the rising prices (inflation). But the ultimate risk of debt is subtler still.

Charles Ponzi, an Italian immigrant, created an eponymous fraudulent scheme that paid very high returns to investors—not from actual profits, but from their own money or money paid by subsequent investors. Originally, Ponzi had the idea of arbitraging international reply coupons (IRCs). Postal reply coupons can be sent from one country to a correspondent in a foreign country to be used to pay the postage of a reply. IRCs were priced at the cost of postage in the country of purchase but were eligible for exchange into stamps to cover the cost of postage in the country where redeemed. After the First World War, the fall in the value of the lira decreased the cost of postage in Italy in U.S. dollar terms. This allowed an IRC bought cheaply in Italy to be exchanged for U.S. stamps of a higher value. Ponzi's company—the Securities Exchange Company—raised money to exploit this difference in prices by offering a 50 percent return on investment in 45 days. About 40,000 people invested $15 million in the scheme.

On July 26, 1920, the *Boston Post* and Clarence Barron, a financial analyst who published the *Barron's* financial paper, revealed that there were only about 27,000 coupons actually circulating, whereas the investments made with the Securities Exchange Company required 160,000,000 postal reply coupons. The U.S. Post Office confirmed that postal reply coupons were not being bought in any great quantity at home or abroad. Ponzi had diverted the investors' money to support payments to earlier investors and to support his extravagant personal lifestyle. Ponzi was indicted for fraud and ultimately deported. He reportedly said, "I went looking for trouble, and I found it."

Debt can be a monetized Ponzi or *pyramid* scheme. To be self-sustaining, the modern monetary system—printing money, reserve banking, and debt—requires a Darwinian scheme in which the only ones who survive are those who can induce others into even greater debt.

Borrowers have to pay interest and ultimately repay the amount borrowed. But the interest and the amount borrowed may not be paid back, therefore requiring more borrowing that continues until the borrower collapses under the weight of debt. The only way out is for borrowers to induce new borrowers into larger amounts of debt to allow them to pay off their own debts. The system works, like any Ponzi scheme, as long as everyone believes the debt can be paid back and the market value of assets bought with that debt keeps rising. The economy inexorably gravitates toward debt-fueled consumerism, inflation, and increasing debt. This leads to a constant cycle of credit booms and bust.

In the second half of the twentieth century, credit money gradually became the primary form of money, leading to an explosion of debt.

In 1947 the directors of the *Bulletin of Atomic Scientists* at the University of Chicago created the *doomsday clock*. The *minutes to midnight* represent the time remaining to catastrophic destruction (midnight) of the human race from global nuclear war. In 1989 Seymour Darst, a New York real estate developer, created the financial equivalent. He installed the *national debt clock*—a billboard-size digital display on Sixth Avenue (Avenue of the Americas) in Manhattan, New York, that constantly updates to show the current U.S. public debt and each American family's share of it.

When this clock was originally erected, the U.S. national debt was under $3 trillion. The clock was switched off from 2000 to 2002 when the national debt briefly fell. Subsequently, as the debt started to rise, the clock was restarted. By 2009, the debt exceeded $10 trillion, requiring Douglas Darst, Seymour's son, to arrange for a new clock with extra capacity.

In the 1950s, Herman Kahn, a strategist at the RAND Corporation, and Ian Harold Brown, a risk analyst, proposed a *doomsday machine*. It consisted of a computer linked to a stockpile of hydrogen bombs, programmed to detonate them and bathe the planet in nuclear fallout at the signal of an impending nuclear attack from another nation. In Stanley Kubrick's film *Dr Strangelove or: How I Learned to Stop Worrying and Love the Bomb*, there is speculation about whether the Russians possess this technology.

Currently, the doomsday clock reads around 5 minutes to midnight. In 2008, as the global financial crisis gripped the world, the financial equivalent of the doomsday machine—an unstable system of money and unsustainable levels of debt—reached midnight and imploded.

Money Is Nothing

At each step of the transition from commodity to paper to credit, money became more unreal, and detached from the real goods and services that money can be exchanged for. Money transformed itself from a mechanism for trade into an object in its own right. Modern technology—digital money—further stripped money of corporeality. Money exists as pure information, with no intrinsic value. It is nothing and everything. Making money, lending it, borrowing money, and making money from money is central to human existence and activity. As the Roman poet Horace noted eons ago: "Make money, money by fair means if you can, if not, by any means money."

Modern money is inherently worthless, but everybody accepts it as real. Paul Seabright, a professor of economics, identified two traits that underpin systems of trust including money: the capacity to weigh up the costs and benefits of trusting others and the instinct to return favors in kind or seek revenge when trust is betrayed. When it is working well, the system enables strangers to deal with each other safely. When the fragile trust fails, people withdraw their money from banks, and they seek the refuge of cash. Ironically, in times of crisis, people seek paper money that has no intrinsic worth, illustrating the power of the monetary illusion.[28]

The trust that underlies money sometimes works in reverse—*alternative* paper money. Irving Fisher, a prominent American economist of the early twentieth century, suggested an alternative currency—*stamp scrip*—which would be periodically taxed with a stamp, forcing holders to spend rather than hoard it. The idea was based on the *Wära*, an alternative currency used in Schwanenkirchen, a Bavarian coal-mining village, in 1931.

Today, Bavaria has the *Chiemgauer*, introduced in 2003, which can be used alongside the euro in more than 600 shops and firms. In England, in

Lewes, Sussex, the *Lewes pound* circulates alongside the pound sterling. (One Lewes pound can be exchanged for one pound sterling.) The notes feature Thomas Paine, the eighteenth-century activist reformer, not the Queen. In the United States there are at least 12 local currency schemes. The largest is the *Berkshares* program in the rural region of southern Massachusetts.

These alternative currencies encourage local business and emphasize community values. They are a gesture of defiance against the control of governments, banks, and global money. At their heart is a quaint but powerful notion of ordinary people supporting each other in a complex and often alien world.

The Mirrored Room

The genius of money made possible the modern economy and the money culture. Georg Simmel, a German sociologist and contemporary of Freud, argued that money imitated the world around it: "There is no more striking symbol…of the world than that of money."[29]

Money is the ultimate Faustian bargain—a pact with the devil in return for earthly power, wealth, or knowledge. In the second part of *Faust*, Johann Wolfgang von Goethe has Faust and Mephistopheles visit the Emperor who lacks the money to pay his retinue of soldiers and servants as well as his lenders. Mephistopheles comes to the aid of the Emperor, obtaining his permission to print paper money. Faust has the Emperor sign a note that anticipates modern money: "To whom it may concern, be by these presents known, this note is legal tender for one thousand crowns and is secured by the immense wealth safely stored underground in our Imperial States." The Emperor is incredulous: "And people value this the same as honest gold?"[30] Mephistopheles arranges for thousands of notes to be printed and uses this to pay off the Emperor's creditors.

Money, ultimately, is the truest mirror for the times and human beings. The benign surface reflects back the image of the world that money can make possible. Money, like a mirror, is nothing but takes on the reality of things it can be converted into. Money reveals something of the original that is not otherwise evident. As William Shakespeare wrote: "And since you know you cannot see yourself, so well as by reflection, I, your glass, will modestly discover to yourself, that of yourself which you yet know not of."[31]

In 1966, the artist Lucas Samaras, in his construction *Mirrored Room*, created the ultimate metaphor for modern money. The work consists of a small room containing one door, a table, and a chair. All surfaces of the room—walls, floor, ceiling, the table, and the chair—are covered with mirrors. Entering the room, the viewer sees their image reflected, fragment by fragment, expanding in number and detail but dwindling in size until it is no longer identifiable. The work is a statement of isolated, narcissistic splendor. Samaras described the feeling as "suspension." The striking feature of the *Mirrored Room* is the feeling of infinity and abstraction.[32]

If money is a mirror of the times, then *Mirrored Room* is the ultimate symbol for extreme money. Money now is endless, capable of infinite multiplication and completely unreal. The world is involved in creating, manipulating, and chasing reflections of real things. Finance is the interplay of the real and its endless reflections. In the end, money would change the real world—*financialize it*.

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