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Real Economies and the Illusions of Abstraction

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The yawning gap between the real world and the discipline and profession of economics has never been wider. The ever-increasing abstractions in finance and its models based on "efficient markets" and "rational actors": capital asset pricing, Value-at-Risk, Black-Scholes Options Pricing have been awarded most of the Bank of Sweden prizes since they were founded in the 1960s and foisted onto the Nobel Prize Committee. Most of these abstract models, based on misuse of mathematics, contributed to the financial crises of 2007-2008. Now, the family of Alfred Nobel, led by lawyer Peter Nobel, has disassociated itself from the Bank of Sweden Prize in Economics In Memory of Alfred Nobel.[1, *] They point out that Nobel never would have approved of a prize in economics since it is not a science – and would have disapproved even more that most of the prizes were given to Western, neoclassical economists using mathematized, abstract models – far from Nobel's wider concerns.

Nowhere is this abstraction more devastating than in the mathematical compounding of interest rates on borrowed money, now sinking individuals, companies and nations in unrepayable debt as explored in lawyer Ellen Brown's Web of Debt (2007).

In The Politics of the Solar Age (1981, 1988), I warned that compound interest violated the Second Law of Thermodynamics:

> *"Much confusion arises because economics inappropriately analogizes from some of these models from the physical, social, and biological realms. For example, the best example of a "runaway" can be found in the hypothetical model that economists have imposed on the real world: compounded interest. Here, they have set up an a priori, positive feedback system (based on the value system of private property and its accumulation), in which the interest earned on a fixed quantity of money (capital) will be compounded and the next calculation of interest added on cumulatively. But this "runaway" accumulation process bears no relationship to the real world – only to the value system. However, it has profound real-world effects if enough people believe it is legitimate and employ lawyers, courts, etc., to enforce it!" (p. 228)*

I also pointed out that Frederick Soddy, Nobel laureate in Chemistry, decided that economists' dangerous drift into pseudo-scientific abstraction must be halted before they destroyed industrial societies, because their uninformed ideas contravened the first and second laws of thermodynamics. (p. 225)

* See http://www.ethicalmarkets.com/2010/10/22/the-nobel-family-dissociates-itself-from-the-economics-prize/

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The mathematical fantasy that money is wealth and can reproduce itself is revealed again in the US housing and foreclosure crisis. Money is a useful information system for tracking our use of nature's resources and scoring the games we humans play, but it gradually became mistakenly equated with the real wealth of nations. Similarly, too often economists and politicians describe money flows in economies as analogous to the human body's circulatory system. Yet human blood's hemoglobin cells do not charge money or interest for the life-giving oxygen they deliver to every other cell in our bodies.

Charging interest for lending money was frowned on by our ancestors and considered a sin in Christian, Judaic as well as Islamic and other religious traditions. This view survives today in Sharia finance where lending at interest is shunned in favor of requiring the investor or creditor to share risks of any enterprise with the entrepreneur.

Generations of scholars since Aristotle's treatises on "just prices" have examined the myths and human experiments in creating money and systems of exchange, from mutual fund manager Stephen Zarlenga's "The Lost Science of Money" (2002) and Prof. Margrit Kennedy's "Interest and Inflation Free Money" (1995) to lawyer Ellen Brown's "Web of Debt" (2007). In my "Creating Alternative Futures", I posed the question: Is there any such thing as profit without some equal, unrecorded debt entry in some social or environmental ledger or passed on to future generations? My answer was "yes," provided all costs of production were internalized and thermodynamic, not economic, measures of efficiency were calculated.

The mismatch is between the real-world economies, where real people grow food, make shoes, clothes, shelter and tools in real factories, versus the human mind's tendencies toward abstraction. Understanding the real world in which we live requires us to recognize patterns and to abstract reality into mental models. The map is not the territory, as we have been reminded by many epistemologists. The danger is that we routinize our perception through these models, forgetting the need for constant updating and course-correcting as conditions change around us. Thus our mental models are memes that crystallize into habits, dogmas and outdated theories such as those in conventional economics and finance. These led to collective illusions: about "efficient markets," "humans as rational actors" and the lure of "compound interest" that still guide the decisions of too many asset managers. New models of triple bottom line accounting for Environmental, Social and Corporate Governance (ESG) have been adopted by responsible investors and institutional investors, including those engaged with the UN Principles of Responsible Investment, managing $22 trillion in assets. The current US mortgage and foreclosure mess provides a new teachable moment where we can re-examine the obsolete beliefs still at the core of economics and now refuted by physicists, endocrinologists, brain and behavioral scientists.[2]

The computerized efficiency of digitizing mortgages for rapid securitization in the Mortgage Electronic Registration System (MERS) is at the root of the foreclosure and toxic assets dilemma. We must examine how computers, when introduced into Wall Street, financial and housing markets, drove economic theories further into mathematization, led by the Arrow-Debreu modeling of national economies in the 1960s, beyond earlier attempts by Leon Walras. Bank of Sweden Prizes in Memory of Alfred Nobel were given to Arrow and Debreu and others for mathematical models inappropriately applied to economics and

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finance.[3] Similar mathematical models on which economists still rely, accept Arrow-Debreu's assumption of a process of "market completion" where markets could be extended to enclose ever more of the global commons: air, carbon emissions, water, forests, biodiversity, ecological assets and their productivity which supports all life. The newest commons are global communications infrastructure, the internet, the electromagnetic spectrum and space, all of which require massive public investments and underpin global finance and its extensive bailouts. The report of the Global Commission to Fund the UN, "The UN: Policy and Financing Alternatives", proposed taxing all commercial uses of the global commons and fines for misuse, including a tax on currency speculation.[4]

For any market to efficiently allocate resources, buyers and sellers must have equal information and power, while their transactions should not harm any innocent bystanders. These conditions identified by Adam Smith in "The Wealth of Nations" in 1776 are now violated everywhere due to the scale and technological reach of global corporations and finance. Examples include the earliest forms of industrial pollution and exploitation of workers to today's toxic sludge dam failure in Hungary; BP's Gulf oil contamination and the growing costs in lives and ecological destruction of coal mining; the Wall Street volatility due to program trading; the financial meltdown of 2007-2008; the May 6, 2010 "flash crash," and the new revelations of US mortgage and foreclosure frauds. An ingenious enterprise, the Open Models Company (OMC) founded by Prof. Chuck Bralver at the Fletcher School of Tufts University, based on Linux principles, provides an open-source platform for global experts and critics in finance to examine the assumptions underlying derivatives and risk models – a huge help for underfunded regulators.[5] Mervyn King, head of the Bank of England, called for restructuring beyond Dodd-Frank, Basel III and other recent reforms of today's unsustainable "financial alchemy."[6] King reflects most of the issues identified by experts in our Transforming Finance statement of September 13, 2010.*

The scale of industrial and financial operations becomes global and ever more computerized and digitized, accelerating the abstraction of management, global supply chains, risk assessment, calculations of accountants for profits and losses, strategies of national governments and central bankers using defunct models such as NAIRU (non-accelerating inflation rate of unemployment) to set interest rates, along with subsidies, tax policies, and quantitative easing to "manage" their economies. All are based on levels of aggregation in statistical indicators akin to assessing national economies while over-flying a country's territory at 50,000 feet. The digitization of Wall Street and security analysis is cancelling out strategies for diversification of portfolios. In the post-Bretton Woods turbulent global casino, the $3 trillion plus daily electronic trading of currencies and sovereign bonds are driven largely by speculation, credit default swaps, and high-frequency trader's algorithms. The proliferation of electronic trading platforms, credit cards and digital payment and credit systems bypass regulatory models of governments and central banks.

Today's ad hoc global financialization cannot be described as a system since it is still driven by the long-outdated assumptions and models in economics and the sloppy generalizations and categories that underlie economics and its theories: "capital" (not clearly defined); "growth" (GDP is the output of goods and services measured in money without

* See http://www.ethicalmarkets.com/2010/09/12/transforming-finance-groups-call-recognizes-finance-as-a-global-commons/

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subtracting social and environmental costs or adding the unpaid services in families and communities which support official paid production); "innovation" (does not distinguish between new brands of dog food, potato chips, credit default swaps vs. computer chips, gene sequencing or renewable energy); "productivity" (if measured as output per worker, this leads to further automation and technological unemployment); "free trade" (which led to the hollowing out of the US economy, outsourcing of jobs in manufacturing and services, trade deficits); "inflation" and "deflation." Statistical illusions: CPI, "core CPI" (which excludes energy and food), drives Fed policies, Social Security, taxes as well as employment and macroeconomic policies.[*]

Perhaps the most obvious policy errors were the models used by Alan Greenspan to describe the global economy in the dot com boom and by Ben Bernanke during the period from 2003-2006 as "The Great Moderation" (economic cycles had been tamed) and then, as the global imbalances grew, labeling them "the Global Glut of Savings" (China, Japan and other countries supposedly saved too much). Instead, I and others labeled this a growing global bubble of fiat currencies, led by the US dollar, acting as a global reserve currency. The crisis was one of macro-economic management – sinking under mounting deficits, debt and compound interest, while facing growing systemic risks due to deregulation in the global casino.

Nassim Nicholas Taleb pointed out all these conceptual errors in "Fooled by Randomness" (2005) and "The Black Swan" (2007), digging even deeper into the fallacies of the human mind, including confirmation bias, herd behavior and excessive optimism verified by behavioral psychologists. Mathematician Benoît Mandelbrot warned of the limits of statistical models of probability and risk informed by Gaussian normal distribution "bell curves." Fat tails, black swans and perfect storms entered the language, but instead of examining these human perceptual errors, they became excuses for Robert Rubin and his protégés, Larry Summers, Tim Geithner, as well as central bankers, Wall Street CEOs and asset managers – all claiming that "no one could have predicted the financial crises." As Richard Bookstaber described in "A Demon of Our Own Design", Wall Street's financial models were bound to fail.

The truth is that thousands of critics, scholars and market players, including the author accurately predicted and warned of the coming debacle – but were ignored by the leading elites in business, government and academia.[7, 8] Mainstream media accepted conventional wisdom, funded by advertising from incumbent industries and their financial allies while their lobbyists took control of Congress. After the half-hearted reforms of Dodd-Frank, the IMF, the World Bank, the BIS and the G-20, how can a paradigm shift allow new voices, new models and more accurate modeling and control of systemic risk to emerge in the global financial system?

First, we must recognize the crises we face are not black swans, fat tails or perfect storms, but symptoms of our limited perception, fragmentary reductionist mindsets, models, research methods and academic curricula, particularly in economics and business schools. Second, we must move beyond economics to capture all their "externalities" in multi-disciplinary frameworks, systems models, multiple metrics and pluralistic research, such as that pioneered by the US Office of Technology Assessment (OTA) on whose founding

* See http://www.calvert-henderson.com/current.htm

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Technology Assessment Advisory Council I was honored to serve from 1974 until 1980. This useful messenger, with its ground-breaking research, now copied in many countries, was decapitated by Congress in 1996 by Speaker Newt Gingrich and his Republican colleagues. Luckily, OTA's studies are still highly relevant and archived at Princeton University and the University of Maryland. Signs of awakening include new memes, including describing fragmented approaches as "silos" and narrow research as "stovepipe information" with frequent calls to "connect the dots."

Equally urgent are the phasing out of all the hundreds of billions of dollars of perverse subsidies propping up obsolete, incumbent companies and industries still blocking the emergence of cleaner, greener information-rich technologies and new companies. Governments' conceptual confusion over climate issues is evident in still subsidizing carbon-based industries while at the same time trying to cap and price carbon emissions. This Green Transition to the Solar Age is underway as we gradually exit the earlier, fossil-fueled Industrial Era. Ethical Markets Media measures private investments since 2007 in solar, wind, energy efficiency, renewables and smart infrastructure worldwide in our Green Transition Scoreboard®.*

Meanwhile, a below 1% financial transaction tax on all transactions can curb high frequency trading and currency speculators, limit positions by hedge funds and other institutional investors – while sparing legitimate hedging by commercial firms. Such long-debated taxes proposed by James Tobin in the 1970s and Larry Summers in his 1989 paper are now supported by the EU and are on the G-20's agenda. [9, 10]

To finally correct our money-creation ceded to private banks by Congress in 1913 through the Federal Reserve system, Congress could enact the Monetary Reform Act long proposed and vetted by seasoned market veterans of the American Monetary Institute. This would entail a rolling readjustment in money issuance – now obviously dysfunctional under the Fed and private banks, and return it to a public function as in the US Constitution. Meantime, many states could adopt state banking as in North Dakota, the only state with a surplus and full employment – unharmed by the depredations of Wall Street extractions from Main Street.†

I agree with others from E.F. Schumacher, author of "Small is Beautiful" (1973), Simon Johnson, author of "13 Bankers" (2009), Laurence Kotlikoff, author of "Jimmy Stewart is Dead" (2009) to Nassim Nicholas Taleb: if systems are too large and interconnected to manage and banks are "too big to fail," then they need to be carefully dismantled and decentralized to restore diversity and resilience following nature's design principles. Monetary monocultures now on a global scale have demonstrably failed. Healthy, homegrown, local economies need protection from global bankers and their casino. Complementary local currencies and peer-to-peer finance are flourishing.‡ Bloated financial sectors can be downsized and returned to their role of serving real economies. In the USA, small non-profit community development finance institutions (CDFIs) are growing to fill the needs of micro-businesses.[11]

Trickle down economics has failed utterly, even as the politicians and central bankers still believe that pouring taxpayers funds and printed money into big banks and bloated

* See http://www.greentransitionscoreboard.com/
† See http://www.ethicalmarkets.com/2010/01/08/escape-from-pottersville-the-north-dakota-model-for-capitalizing-community-banks/
‡ See http://www.ethicalmarkets.com/2009/03/31/democratizing-finance/

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financial sectors will somehow trickle down to Main Street and local businesses. Instead of creating US jobs, the rest of us see the Wall Street traders and big asset managers investing these funds in China, India, Brazil and other emerging markets where US multinationals have shifted their plants, jobs and research. Worse still, big banks take the Fed's funds and rather than lending to Main Street, use it for gambling on currencies, oil, interest rates and other derivatives. All this money-creation is fueling currency wars. Hopefully, all this together with ballooning debts, deficits and un-repayable compound interest, the foreclosure and mortgage securitization scandals and auditing Fannie, Freddie and the Fed, will provide enough evidence to Washington and voters in many countries of the needed paradigm shift and new policies.

Calls in the USA for facing up to these painful truths are coming from all sides, from Republicans including Congressman Ron Paul to Democrats including Congressman Dennis Kucinich and Independents including Senators Bernie Sanders and Byron Dorgan. Indeed, Republicans and Democrats are now both minority parties as most voters are now Independents.

Exposing all the statistic illusions, inoperative models, dysfunctional economic dogmas – including their unsustainable offspring: debt-based money and compound interest – can begin the Green Transition to the emerging economies of the 21st century. The new coalition is now visible: responsible and green investors and companies, environmentalists, Millennials, progressive labor unions and their pension funds, students, independent media and voters, systems thinkers, futurists and academics pioneering new courses in sustainability, as well as dispossessed homeowners, jobless workers, professionals and veterans eager to put their skills to work – all are ready to help grow the green economies of the future.

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Notes

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