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# The Financial Crisis and the Scientific Mindset

*Paul J. Cella III*

In the last two years, the American political economy has undergone extraordinary transformations. The attempt to understand them will surely occupy economists, political scientists, historians, and many others for decades to come; it will be the work of generations. But already from today's vantage, the shape of what went wrong is becoming clear, and the dangers posed by the U.S. response to the financial crisis are now visible in outline.

Looking back, one of the striking revelations of the past two years of recession is that the pattern of real-estate development and capital investment in America has been driven for two decades and more by a very peculiar system of finance—one that depends on an intricate infrastructure of speculative debt; one that is enabled by modern technology and wedded to abstraction and formula; and one that, it turns out, can only be maintained, in a pinch, by intervention from the state.

And how the state has intervened. Faced with a horrifying cascade of failure in financial markets, much of it related to the bursting of a housing bubble, policymakers chose to substitute for the private capital that once financed real-estate development the public capital of the commonwealth. The schemes by which government managed its rescue of speculative finance bewilder the mind: liquidity facilities and capital injections and quantitative easing, weird acronyms in dizzying abundance—TARP, TALF, CPFF, AMLF—and a thousand other arcane techniques.

Taken as a whole, these interventions constitute a kind of technocratic revolution in capitalism, and a decisive step toward socialism in the United States. But it is a curious socialism, concentrated in the labyrinth of financial engineering, and manifesting itself above all in the socialization of much of the risk associated with this engineering.

So how did we get to the point where the experiment of an advanced capitalist economy suddenly shorn of its finance system was a real and pressing possibility? How did the prosperity and liberty of our land become hitched to the peculiar system of high finance that grew up in the past quarter century, and that nearly flew to pieces before our eyes?

**Paul J. Cella III** *lives in Atlanta and edits WhatsWrongWithTheWorld.net.*



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## The Wreck of Shadow Banking

Partly this is a tale of the failure of a particular system of debt finance. More deeply, it is a narrative of the failure of the modern mind, for much of the reckless grandiosity of modern technological civilization is evident in the peculiar features of the finance crisis. In that sense we might say that shadow banking is a synecdoche for modern technological hubris.

What is shadow banking? It is one of a handful of terms—structured finance is a more technical one, ghostly economics a more evocative one—used to describe the infrastructure of debt finance that provided the conduits for capital from around the world to flow into the American housing sector. It is best understood as a technological innovation amalgamating computing power and probabilistic modeling to vastly expand the various world markets in debt securities. The late journalist Mark Pittman, in an authoritative 2008 report for Bloomberg, called it "the biggest U.S. export business of the twenty-first century," a "made-in-America technology" that world financiers "coveted" and emulated, "much as consumers around the world craved other emblems of American ingenuity from Coca-Cola to Hollywood movies." Shadow banking, Pittman explained,

> funds most of the world's credit cards, car purchases, leveraged buyouts and, for a while, subprime mortgages. The system, which pools loans and slices up the risk of default, made borrowing cheaper for everyone, creating a debt culture that put credit cards in wallets from Seoul to São Paulo and enabled people to buy luxury cars and homes. It also pumped out record profits for banks, accounting for as much as one-fifth of their revenue over the last decade.

A shadow bank is a financial institution operating outside the heavy regulation of the traditional banking sector, but basically doing the same thing that traditional banks do: borrowing short and lending long. The crucial feature is that it mostly functions off balance sheet, outside the regulatory apparatus, and out of sight of those not actively working in it. It is, in Pittman's words, "a method of lending without using capital," which "works by taking anything that has regular payments—mortgages, car loans, aircraft leases, music royalties—and channeling the money to a trust that pays bondholders principal and interest." The capture of these payments by advanced probabilistic modeling is known as securitization, and forms the shadowy or ghostly character of this business. By a wide variety of complicated artifices, future payments are converted into present value, with little capital expended in these machinations, and plenty of fees extracted.



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There is some irony in the fact that this wild and unregulated industry made its best profits by means of facilitating the flow of capital into U.S. housing, a sector of the economy which has for generations featured extensive and elaborate—and largely unapologetic—government meddling. Since at least the New Deal, it has been a sustained policy of both parties to encourage and subsidize home ownership. In a sense, we might say that the debacle of 2008 combined the ruin of both a heavily regulated sector with a history of constant state intervention and a largely unregulated sector with a history of exuberant inventiveness.

So capital generated from a kind of globalized field of *laissez-faire* brashness was plowed into the stolid old housing sector, long the beneficiary of state support. In addition to the usual players in the housing sector—the regional banks, the massive financial conglomerates, the government-sponsored enterprises—this was also accomplished through the shadow banks.

Shadow banking also involves big industrial firms that few would normally think of as finance giants. These institutions make use of their top credit rating to carry on a brisk trade in certain classes of debt security, or derivatives on said securities. By 2008, these corporations had realized such massive profits on their shadow banking operations that it is not too much to say that they had become huge unregulated banks, with auxiliary industrial arms attached to them. According to James Stewart, writing in *The New Yorker*, even the Secretary of the Treasury did not know of the high-tech bank run on one such institution, American International Group, Inc., only three days before a collapse at that firm so calamitous as to force the Treasury and the Federal Reserve to nationalize it at extraordinary cost. A similar high-tech bank run nearly brought General Electric to grief six months later. Neither A.I.G. nor G.E. is a bank in the traditional sense of the term. Yet they played (or, in the case of G.E., still play) an indispensable role in the infrastructure of world bond markets.

Shadow banking compromised the integrity of the ratings agencies—Moody's, Standard & Poor's, Fitch. There may have been flat-out corruption in some cases. These firms are entrusted to rate the credit-worthiness of bond issuers. From their ratings interest rates on debt securities are derived. In the case of structured finance, these agencies in many instances appear to have basically sold their imprimatur in exchange for lucre from the shadow bankers.

Shadow banking also involves the almost impenetrable trade in credit derivatives, instruments confected out of mathematical abstractions and probability models on the credit risk of an underlying bond. The story of



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how a single formula devised by a Chinese-born actuary would be applied by financiers operating in the credit derivatives market with such abandon as to expose the entire infrastructure of high finance to ruin is useful as an exemplar. All of Wall Street—all of world finance, even—hinged on this man's formula for risk assessment, which relied on data from the market for the instrument known as the credit-default swap. The formula appeared truly to bring order out of chaos; by its power, the nettlesome ingredient of uncertainty seemed to retreat toward a vanishing point. In a "brilliant spark of mathematical legerdemain," as finance journalist Felix Salmon put it in *Wired* magazine, the formula "made it possible for traders to sell vast quantities" of new debt instruments, "expanding financial markets to unimaginable levels." From this and other tricks was our new system of ghostly economics constructed—"an imaginary universe of known probability distributions," as business professor Amar Bhidé, a visiting scholar at Harvard, acidly described it in *Critical Review*. This system eventually became the conduit for gigantic sums of global capital flowing into American investments.

Indeed, shadow banking is inextricably tied to globalization. Capital poured from all around the world, from Europe and China and small-town pension funds in distant lands, into (among other things) the U.S. real-estate market, all chasing fractionally higher yields on debt instruments. Losses on U.S. mortgage-backed securities literally bankrupted Icelandic banks and little Norwegian and Australian towns.

The ghostly economics involved a mathematical device called "tranching," whereby massive collateralized securities were sliced into categories of risk, the better for marketing, and repackaged for sale. Throw a handful of investment-grade bonds in with a mass of junk bonds, repackage it as a new security, and the ratings firms could be expected to stamp it a AAA instrument. The layman may perhaps be forgiven for interpreting this as analogous to shaking a bit of sugar over a pile of rotten fruit and selling it as candy.

Shadow banking was conducive, too, to wild and ruthless speculative runs, by permitting a kind of end-run around the regulatory controls on the practice of naked short selling. If investors thought a firm might be on the verge of failure, they could go out into the credit derivatives market and purchase instruments like the credit-default swap, which pays out, as the name implies, in the event of default.

The exotic intricacies of ghostly economics proliferated over the past few decades. Much of it proved, contrary to learned expectation, to be strangely fragile when the going got rough. Wall Street managed to



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develop whole fields of real-estate finance speculation so divorced from actual real estate as to require advanced mathematical training in order to really grasp the connection. The Wall Street mathematicians—or "quants," as they have been dubbed—understood the tenuous connection between their pristine equations and gritty reality, but their managers and employers seemed not to, and built mountains of speculation that could not be borne by private capital. When the formulas failed, when the derivatives trade spun out of control and firms faced collateral calls in excess of a large state's annual budget, public capital would have to ride to the rescue.

All this amounted to an enormous and ruinous breakdown of modern financial infrastructure, from the most basic theory to the latest exotic product. The grandest sophistication of our sophisticated civilization came unglued. For several weeks, the wreck of shadow banking looked like it just might drag the country into a painful depression. To escape this fate, policymakers and central bankers commenced with interventions into the private economy on an unprecedented scale.

## The Error Concerning Property

At the back of the labyrinthine complexities of the financial crisis resides a particular cast of mind. That modern finance failed is plain enough, but it is not too much to say that the modern mind itself broke down. What deeper failures of the mind does the failure of finance disclose?

First, there is an error about property; next, there is an error about man. It will be useful to examine them separately, though in truth they derive from the same source, and together they compose an extraordinary and ruinous instance of the overreach of Rationalism.

At the very heart of the crisis and the subsequent bailouts is the elegant excellence of the engineered abstraction, produced by mathematical brilliance and computing capacity. All the messy variations of human activity in the area of real-estate finance could, seemingly, be brought under the reliable authority of graceful formulas. Every wager could be safely hedged, once the appropriate calculations were run.

The modern mind broke down on account of its infatuation with abstraction. That mind is singularly susceptible to falsely imagining that ideas are more real than men. The power of the lapidary theory over the modern mind has been often remarked. The whole of the twentieth century was marked by calamitous wars driven by the imperial impulse of what Edmund Burke called "armed doctrines." Armies, impelled by their doctrines, rolled over half the earth, leaving behind blood and smolders.



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In finance, this failure of the modern mind, its subjection to the allure of formula and abstraction, took on another aspect: *the reduction of property to mathematical abstraction.* The nature of property itself seemed to transform under the influence of these abstractions. The old and familiar debt instrument known as a mortgage is already an abstraction from real physical property. Pooling these instruments into complicated securities is another step of abstraction. And, in still further steps of abstraction, probabilities concerning default rates on property debt were converted into revenue streams that could be securitized. Credit-default swaps were rolled into new revenue streams and resold. Collateralized debt obligations were "squared." Little fragments of land and housing, from neighborhoods of enormous variety all across the country, were converted by statistical abstraction into an unfathomable infrastructure of debt securities.

The complexity of these securities exceeds the power of the unaided human mind; formulas and models are necessary to apply probability rules to such enormous data sets. Property was transfigured, with help from computers, into equations. It is all very bewildering, this enfolding web of abstraction and statistical capture. A friend of mine who knows it backwards and forwards speaks of it, with a touch of mockery, as "rocket science" finance. Of the week that rocket science failed, he said to me, "Imagine you woke up and the sky was green instead of blue." Or again: "What if you looked, and found that the sun was rising in the west?"

No doubt our ironists, when they manage to get their minds around it, will have plenty of fun at the expense of the quants whose devilish formulas brought finance to its knees. By the end, finance capitalism had produced something awful and enervating—an extraordinary attenuation of the human roots of prosperity, property and capital. It turned property into a ghost, and midwifed the incursion of government into private enterprise on an unprecedented scale.

And so the reckless risks of Wall Street have been socialized, and our economy transformed, due in part to our own intellectual subjugation to the sirens' song of abstraction, by which property is turned into revenue into securities. Absent the mesmerizing power of elegant formula and computational capacity on the modern mind, it is doubtful that a market in exotic abstractions with such attenuated attachment to real property would have even been conceivable, much less that it would grow to such size as to expose world finance to annihilation. The trigger for what is being called the Great Recession was a globalization of the bank run, amplified by the ghostly economics of abstraction, formula, and computing power.



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## The Error Concerning Man

Wall Street trusted probabilistic abstraction in lieu of that older method of investment, which operates, as Professor Bhidé puts it, according to "subjective judgments in the holistic manner of a common-law judge," who considers "all the relevant precedents and features of the case at hand," and anticipates "the possibility of mistake and ignorance." A newfangled machine of "blind diversification," facilitated by the faith in technical mastery, replaced the ancient sanity of humility before the unfamiliar.

Here we touch upon the second error the modern mind evinced in the financial crisis: *a misunderstanding of human being*. It is foolish in the extreme to ever imagine that any mathematical formula, no matter how subtle, can properly capture the mystery that is man. This is the simple wisdom that modern finance forgot. Our mental imaginings and computations, no matter how precise, are but approximations of the real world as it is. Our perception, even aided by machines and computers, is strictly limited. Our technical capacity is considerable, but there is still much that is beyond us.

Wall Street, at the very pinnacle of financial engineering, came to believe that derivatives on statistical abstractions were more real than men—and certainly more real than their houses. The financiers supposed that the economics of man can be perfectly figured by formula, by imitating the computation and abstraction of hard science.

The political philosopher Michael Oakeshott set down a memorable sketch of this frame of mind in his famous essay "Rationalism in Politics." If an inappropriate and extreme Rationalism was pervasive in the late 1940s, when Oakeshott put pen to paper, it is all the more so today—especially given the prestige we have granted to computers and probability modeling. The Rationalist "has no sense of the cumulation of experience," Oakeshott writes, "only of the readiness of experience when it has been converted into a formula." Eschewing "the customary and the traditional," the Rationalist prefers "formalized abridgment"; "the character which the Rationalist claims for himself is the character of the engineer, whose mind (it is supposed) is controlled throughout by the appropriate technique and whose first step is to dismiss from his attention everything not directly related to his specific intentions." The essence of Rationalism is "the sovereignty of technique"; and the history of Rationalism is "the history of the invasion of every department of intellectual activity by the doctrine of the sovereignty of technique."



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Few departments of intellectual activity are more vulnerable to this invasion than finance capitalism. The Rationalist's engineering mindset at the heights of finance fashioned "formalized abridgments" of human activity, which in time came to dominate the infrastructure of finance. These abridgments commanded a deep respect and trust among financiers; and as the empire of finance spread across the economies of the West with remarkable ease, the abridgments became the very undergirding of Western prosperity. At the summit of finance capitalism, the precepts of Rationalism reigned: "The superiority of the unencumbered intellect lay precisely in the fact that it could reach more, and more certain, knowledge about man and society than was otherwise possible."

Nowhere, perhaps, was this trust in "more certain knowledge about man and society" more potent—and ultimately more disastrously misguided—than in the London office of A.I.G., where financiers commenced to write credit-default swaps on everything that moved. As the finance journalist Michael Lewis put it in *Vanity Fair*, "In a financial system that was rapidly generating complicated risks, [the A.I.G. Financial Products unit in London] became a huge swallower of those risks." For a time this business was immensely profitable, but at back of it was the Rationalist faith in formalized abridgments, in experience transformed into formula. No one, it seems, imagined a financial disruption of a scale sufficient to degrade the value of all the underlying securities attached to the swaps, thus forcing the colossal collateral calls and default events which laid waste this titan of American industry. When the abridgments of experience and tradition proved deficient, Rationalism was undone. The Federal Reserve and the Treasury had to construct a rescue under extreme duress; and the result is that now the objective observer will search in vain to discover an aspect of real-estate-related finance that is not in some way supported, cosseted, or protected from disaster by the state.

## The Ruin of Rationalism

But the disgrace of Wall Street did not really discredit Rationalism. To some extent, it has been insulated from popular critique by the very complexity of its machinations: it is extraordinarily difficult for the layman to pick apart the arcana of high finance, and indeed, even initiates often fail to grasp the whole. But just as importantly, the fullness of the failure of Rationalism, the breakdown of the supposed sovereignty of technique, has been masked by government intervention. Flailing finance availed itself of the instruments of the state, having learned from lesser crises



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that it could expect rescue. Charles Gasparino of CNBC has written of "three decades of subsidized risk," by which he means that for a generation and more finance capitalism has rested on the coddling support of government. As he puts it, "nearly to the minute he was forced to file for bankruptcy, former Lehman CEO Dick Fuld believed the government wouldn't let Lehman die. After all, government largess had always been there in the past."

The industries of banking, investment banking, shadow banking, structured finance, mortgage finance, securitization, commercial paper, whole swaths of the simpler bond markets—they are now, *in effect*, socialized. Even when the exceptional Federal Reserve and Treasury operations roll to a stop, as they have already begun to, can anyone in his right mind doubt that they will rev back into motion the moment a new crisis calls for them?

This symbiosis of speculative finance and state bailout—the expectation that, off at the end, the government will be there to save us from our folly—is fairly labeled a kind of technocratic despotism. Has there ever in history been such an astonishing dedication of public resources to rescue what is, at base, a misapprehension about what it means to own property and what it means to be man? Economics blogger Steve Randy Waldman has given this dreary despotism perhaps its most concise articulation: "When credit expansion reaches its natural limit, let the debtors default, but make creditors whole with new money. 'Moral hazard,' rather than a problem, is the goal of the operation."

Without the reckoning of full failure—the public acknowledgement that abstraction and abbreviation overreached—the fundamentally mistaken mindset that undid Wall Street has not been discredited. That mindset, unchastened, will again dominate finance capitalism. It will crowd out that spirit of free enterprise that has been the glory of our Republic. For having once been so massively bailed out by the American taxpayer, Wall Street will know that its next breakdown, too, will be relieved by the rapid intercession of the benevolent state.



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