Part One

Past Successes and Disasters

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Introduction

Towards the end of his *General Theory of Employment, Interest and Money*, published in 1936, John Maynard Keynes wrote that:

> "… the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas."[1]

In this book we suggest that the key to understanding the recent financial crisis is to appreciate the impact of two belief systems, at first sight unconnected. Both of these belief systems originated from economic theories propounded by "defunct economists."

The first of these is Modern Finance. At its broadest level, Modern Finance consists of a set of attitudes and practices, perhaps best understood by comparing it to what went before. In the past, finance emphasized old-fashioned values: the importance of trust, integrity and

[1] Keynes, 1936, p. 383.

saving; the need to build long-term relationships and invest for the long term; modest remuneration for practitioners and a focus on the interests of their clients; and tight governance and a sense of harmonized interests and mutual benefit. All of these dovetailed together into a coherent whole.

Modern Finance emphasizes the opposite: a focus on marketing and sales, form over substance, and never mind the client; an obsession with the short-term and the next bonus; a preference for speculation and trading over long-term investment; stratospheric remuneration levels for practitioners, paid for through exploitation of clients and taxpayers, or "rent seeking"[2]; the erosion of the old governance mechanisms and out-of-control conflicts of interest.

Underpinning much of Modern Finance is a vast intellectual corpus, the formidable mathematical "Modern Financial Theory." This includes Modern Portfolio Theory developed in the 1950s; the Efficient Market Hypothesis and the Capital Asset Pricing Model developed in the 1960s; the weird and wonderful universe of financial derivatives pricing models, including notably the Black-Scholes-Merton equation for valuing options, developed in the early 1970s, and its many derivatives; and financial risk management or, more accurately, the modern quantitative theory of financial risk management, which emerged in the 1990s.

Modern Financial Theory soon became widely accepted; those who questioned it were, for the most part, drummed out of the finance profession. It became even more respectable with the award, to date, of no fewer than seven Economics Nobels, ample proof of its scientific respectability.

Modern Finance was big on promises. We were assured that it would provide us with the ever-expanding benefits of "financial innovation" and sophisticated new financial "services," and not just at the level of the corporation, but trickling down to the retail level, benefiting individual savers and investors in their everyday lives. The evidence for this was, allegedly, the much greater range of choice of financial services available and the expanding size of the financial serv-

[2] The phrase "rent seeking" is economists' jargon for self-serving activities that capture resources without providing any economic benefit in return, such as the activities of the Mafia or of crooked politicians. Unlike most economic jargon, this term is actually useful: rent seeking is one of the main themes of the book.

ices sector as a percentage of GDP. At the same time, improvements in financial risk management meant that we could sleep easily in our beds, knowing our hard-earned money was safe in the hands of financial institutions working on our behalf. Or so we were led to believe.

Yet, intellectually impressive as it is, most of this theoretical edifice was based on a deeply flawed understanding of the way the world actually works. Like medieval alchemy, it was an elegant and internally consistent intellectual structure based on flawed assumptions.

One of these was that stock price movements obey a Gaussian distribution. While the Gaussian distribution is the best-known distribution, it is only one of many, and has the special property that its "tails" are very thin – i.e. that events from outside the norm are truly rare, never-in-the-history-of-the-universe rare. History tells us that's not right; markets surprise us quite often.

Among some of the other common but manifestly indefensible claims of Modern Finance are that:

- modern "free markets" ensure that financial innovation is a good thing, which benefits consumers and makes the financial system more stable;
- risks are foreseeable and, incredibly, that you can assess risks using a risk measure, the Value-at-Risk or VaR, that gives you no idea of what might happen if a bad event actually occurs;
- highly complex models based on unrealistic assumptions give us reliable means of valuing complicated positions and of assessing the risks they entail;
- high leverage (or borrowing) doesn't matter and is in any case tax-efficient; and
- the regulatory system or the government will protect you if some "bad apple" in the financial services industry rips you off, as happens all too often.

The invention and dissemination of Modern Financial Theory is a startling example of the ability to achieve fame and fortune through the propagation of error that becomes generally accepted. In this, it is eerily reminiscent of the work of the Soviet biologist Trofim Denisovich Lysenko, a man of modest education whose career began when he claimed to be able to fertilize fields without using fertilizer.

Instead of being dismissed as so much fertilizer themselves, Lysenko's claims were highly convenient to the authorities in the Soviet Union, and he was elevated to a position of great power and influence. He went on to espouse a theory, "Lysenkoism," that flatly contradicted the emerging science of genetics and was raised to the level of a virtual scientific state religion. Those who opposed his theories were persecuted, often harshly. Lysenko's theories of agricultural alchemy in the end proved highly damaging and indeed embarrassing to Soviet science, and Lysenko himself died in disgrace.

Of course, the analogy is not perfect: proponents of Modern Financial Theory did not rely on Stalin to promote their ideas and silence their opponents, nor did they rely on the prison camps. Instead, their critics were sidelined and had great difficulty getting their work published in top journals, so ending up teaching in the academic "gulag" of less influential, lower-tier schools. But what the two systems share in common is a demonstrably false ideology raised to a dominant position where it inflicted massive damage, and an illusion of "scientific" respectability combined with a very unscientific unwillingness to listen to criticism.

For its part, the financial services industry eagerly adopted Modern Financial Theory, not because it was "true" in any meaningful sense (as if anyone in the industry really cared!) but because the theory served the interests of key industry groups. After the investment debacles of 1966–74, investment managers wanted a scientific-seeming basis to persuade clients to entrust their money to them. The options and derivatives markets, growing up after 1973, wanted a mechanism to value complicated positions so that traders could make money on them. Securities designers wanted mechanisms by which their extremely profitable derivatives-based wrinkles could be managed internally and sold to the public. Housing securitizers wanted a theory that reassured investors and rating agencies about the risks of large packages of home mortgages, allowing those packages to get favorable credit ratings. Back-office types and proprietary traders wanted models that would provide plausibly high values for the illiquid securities they had bought, allowing them to be marked upwards in financial statements and provide new profits and bonus potential. Most of all, Wall Street wanted a paradigm that would disguise naked rent seeking as the normal and benign workings of a free market.

With this level of potential support, it's not surprising that Modern Financial Theory was readily adopted by Wall Street and became dominant there, even though crises as early as 1987 demonstrated that it was hugely flawed. It didn't hurt that, in parts of the business, the universal adoption of Modern Finance techniques tended to validate them, as options prices arbitraged themselves towards their Black-Scholes-Merton value, for example. After 1995, the loosening of monetary conditions for a time created an apparently eternal "Great Moderation" bull market environment in which Modern Finance techniques appeared to work well, but then broke down completely when they were really needed.

Nevertheless, for those with open eyes, it has been apparent for some time that Modern Financial Theory wasn't delivering what was promised on its behalf. The industry was benefiting, to be sure: its remuneration skyrocketed, and perhaps that had something to do with its expanding share of GDP. But what about everyone else? What exactly were these new financial services that were benefiting us all? More credit than we could afford to repay? Subprime mortgages? Unwelcome cold calls at dinner time from our bank pestering us to buy expensive "products" we didn't want? Or, at the corporate level, credit derivatives perhaps? And if risk management was working so well, why were there so many risk management disasters over the last two decades? Something was going wrong.

For a long time the problems were explained away or swept under the rug, and critics were dismissed as coming from the fringe: if you held your nose and didn't look too hard at what was going wrong, you could perhaps still just about persuade yourself that it really was working. Occasional problems were, after all, only to be expected.

But there eventually came a point where denial was no longer an option: as institution after institution suffered unimaginably unlikely losses in 2007 and 2008 and much of the banking system simply collapsed, the edifice of Modern Financial Theory (and especially Modern Financial Risk Management) collapsed with it.

And, to any flat-earther who denies what is self-evident to everyone else, we would ask: if the events of 2007–08 do not constitute a failure of Modern Financial Theory, then what exactly would?

Yet, even after this debacle, Modern Financial Theory remains in daily use throughout Wall Street. Its models are still used to manage investments, value derivatives, price risk, and generate additional profits, just as if the crash had never happened. Needless to say, this refusal to recognize reality is deeply unhealthy, although the costs will probably be borne yet again by taxpayers and the global economy in general rather than by Wall Street's denizens themselves. A new paradigm is urgently needed.

The second belief system that led to financial disaster is one which celebrates the benefits of state intervention into the economy. Of course, there are many such belief systems, but the one most directly relevant when seeking to understand the current financial crisis is Keynesian economics. The "defunct economist," in this case, is Keynes himself.

Keynesian economics came to dominate economic thinking in the 1930s, as people tried to come to terms with the calamity of the Great Depression. It maintained that the free market economy was inherently unstable, and that the solution to this instability was for the government to manage the macro economy: to apply stimulus when the economy was going down, and put on the brakes when it was booming excessively.

In his *General Theory*, Keynes explicitly put himself in the dubious tradition of the monetary cranks, the "funny money" merchants of old, who had been dismissed before then. He sneered at the Gladstonian notion that the government should manage its finances like a household and instead offered a macroeconomics founded on paradox – in particular, the "paradox of thrift," a notorious idea infamously espoused by Bernard Mandeville in his *Fable of the Bees: or, Private Vices, Publick Benefits* (1714) that caused great offence when it was first suggested and was aptly described later as a cynical system of morality made attractive by ingenious paradoxes. The gist of it was that we can somehow spend ourselves rich. Keynes not only resurrected the idea and made it "respectable," but enthroned it as the centerpiece of his new theory of macroeconomics.

Keynes liberated us from old-fashioned notions about the need for the government to manage its finances responsibly, inadvertently perhaps also paving the way for the more recent belief, widespread before the current crisis, that we as individuals didn't need to be responsible for our own finances either.

Keynesianism ruled the roost for a generation or more. In practice, Keynesian policies almost always boiled down to more stimulus, typically greater government spending and/or expansionary monetary policy.

The result was inflation, low at first, but by the late 1960s a major problem. Keynesianism never really came to terms with this problem, and its most significant attempt to do so – the treacherous Phillips curve, interpreted by Keynesians as a trade-off between inflation and unemployment – was refuted by Milton Friedman in his famous presidential address to the American Economics Association in 1967. In the long term, no such trade-off existed.

Yet policymakers were reluctant to embrace Friedman's position that bringing inflation down required tight monetary policy – lower monetary growth and higher short-term interest rates – which was likely to produce short-term recession as a side effect. Policymakers were hooked on "stimulus." In any case, if inflation ever did get out of hand, they could always apply brute force or wage and price controls to contain it, and they ignored the warnings of Friedman and his monetarist followers that controls wouldn't work either.

Keynesian economics reached the apogee of its influence after World War II in both the United States and Britain, then ran into serious trouble in both countries after 1970. After the 1970s' Keynesian-driven stagflation, a move towards much tighter money eventually worked. Inflation was brought down and seemed to be conquered for good.

Yet slowly, quietly, Keynesianism made its comeback. Most economists and policymakers had never entirely given up on the idea that policy should have some element of "lean against the wind," even if they acknowledged that "old" Keynesianism had gone too far. Moreover, as the memories of past inflation horrors began to dim, the Federal Reserve in particular slowly began to squander the inflation credibility it had earned with such difficulty and cost in the Paul Volcker[3] years of tight money in the late 1970s and early 1980s. In the meantime, Volcker had been replaced by Alan Greenspan,[4] who began in the mid-1990s to pursue the easy-money policy demanded by politicians and the stock market. For over a decade the Fed pushed interest rates down, and its 'accommodating' – that is to say, expansionary – monetary policy fueled a series of ever more damaging boom-bust cycles in

[3] Federal Reserve Chairman, 1979–87.

[4] Federal Reserve Chairman, 1987–2006.

asset markets, the worst (so far) of which culminated in the outbreak of crisis in the late summer of 2007.

More ominously, the policy response to the most acute crisis since the Great Depression was massive stimulus – deficit spending on an unprecedented scale; even more accommodating monetary policy, with interest rates pushed down to zero; and massive taxpayer bailouts of financial institutions and of the bankers who had led them to ruin. Keynesianism was now back with a vengeance. Thus, in another one of those Keynesian paradoxes, the Keynesian medicine that had helped fuel the crisis was now, in huge doses, the only solution to it. The irony was lost on most policymakers.

One of the few exceptions who didn't lose his mind in the panic was the social democrat German finance minister, Peer Steinbrück. In December 2008, he expressed the bewilderment of many when he observed how

> "The same people who would never touch deficit spending are now tossing around billions [and, indeed, much more]. The switch from decades of supply-side politics all the way to a crass Keynesianism is breathtaking. When I ask about the origins of the crisis, economists I respect tell me it is the credit-financed growth of recent years and decades. Isn't this the same mistake everyone is suddenly making again …?" [5]

Indeed it is.

Both these ideologies, Modern Financial Theory and Keynesian economics, have proven themselves vulnerable to the revenge of the gods of the Copybook Headings, in the words of Rudyard Kipling's poem. Kipling wrote it in 1919, at a time of sadness and disillusionment after losing a son in World War I. Its central theme is that whatever temporary beliefs we may acquire through market fluctuations or fashionable collectivist nostrums, eventually the old eternal truths of the children's copybook return to punish us for having departed from them:

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[5] *Newsweek* interview, December 6, 2008, in magazine dated December 15, 2008.

> "Then the Gods of the Market tumbled, and their smooth-tongued wizards withdrew
> And the hearts of the meanest were humbled and began to believe it was true
> That All is not Gold that Glitters and Two and Two make Four
> And the Gods of the Copybook Headings limped up to explain it once more."[6]

Kipling was an instinctive economist; this verse of the poem describes exactly how the wizards of the tech boom and the housing boom withdrew at the peak of the market, when the gods of the Copybook Headings reawakened and took their revenge. Traditional truths about the market that had been thought outdated and irrelevant were then revealed to have been in control all along.

Copybook Headings whose gods have already come back to haunt us include the following, out of many others:

"Speculation always ends in tears." This is the oldest Copybook Heading of all, and we have all known about this since the foolish Tulip Mania in Holland in 1636–37, when at one point 12 acres of prime farmland was allegedly offered for a single tulip bulb – needless to say, a painful crash followed. A recurring feature of speculative manias is how, as the market peaks, those involved reassure themselves that some new paradigm is now in control that guarantees that, this time, the laws of economics no longer hold and the market can only go up and up. We saw this at the peak of the tech bubble when "new economy" proponents assured us that internet stocks obeyed a different set of rules, free of the constraints of old economics. The central premise of Pets.com, that money could be made by express shipping catfood around the US, was so risible that a moment's reality therapy should have exposed it, but there was no reality in that market. We saw it again in 2006–07, when believers in the Great Moderation fallacy assured us that the vagaries of the business cycle had finally been conquered, shortly before a very immoderate crisis broke loose. The god of this Copybook Heading is particularly powerful and vengeful, with a long memory.

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[6] First published in the *Sunday Pictorial*, October 26, 1919.

"Whoever makes a loan has responsibility if it goes wrong afterwards." One of the most important gods of traditional banking, this one was widely flouted in the securitization markets, in which loan originators were able to escape responsibility for poor credit decisions. The result was an orgy of poor housing lending, involving not simply poor credit decisions but outright fraud, connived in by loan originators who collected their fees and passed the fraudulent paper on to Wall Street and international investors. In this disaster, Wall Street was self-deluded, drunk with excessive money supply, aided and abetted by mortgage brokers whose ethics would have made used-car salesmen blush.

"Don't take risks that you don't understand." Flouted openly in most bubbles, this god was drugged during this one by perverted science, most egregiously, by "Value-at-Risk" risk management methods, which controlled risk just fine provided that the markets involved were not in fact particularly risky.

"The maximum safe leverage is 10 to 1 for banks and 15 to 1 for brokers dealing in liquid instruments." This Copybook Heading was widely ignored, most openly by investment banks operating at leverage ratios of over 30 to 1 by the end of 2007, the sin made worse by banks hiding their risks by pushing assets off their balance sheet by use of "structured investment vehicles" funded by commercial paper that was apt to become illiquid when most needed. This god's revenge is traditionally very painful and is proving so again.

"Investments should be recorded in the books at the lower of cost or market value until they are sold." This time around the accounting profession adopted "mark-to-market" accounting, which allowed investments to be "marked up" on rises in value, with mark-up earnings reported and bonuses paid even when the investments had not been sold. Wall Street is now bleating about "mark-to-market" because it requires mark-downs of investments that have fallen in value; the real reason why it should be dropped is its enabling of spurious mark-ups, of which the Street took full advantage. Mark-to-market is highly pro-cyclical and provides counterproductive incentives to fallible and greedy bankers. But as this Copybook Heading god is rather young and junior, it is not yet clear how severe his revenge will be.

"Don't inflate broad money much faster then real GDP." This very mild version of the Sound Money Copybook Heading seeks to ensure stable prices and suppress asset bubbles. It was followed by Paul Volcker and by Alan Greenspan in his first seven years in office, then abandoned in early 1995, since when money supply has soared ahead of real GDP. Its abandonment resulted in series of asset bubbles, the more dangerous of which was that in housing because of the debt involved. Its god is something of a Rip Van Winkle, having allowed 12 years of misbehavior whilst he slept soundly from 1995 to 2007, but is exceptionally powerful and malignant when roused, as we discovered in 2008, but may need to learn again.

"Save for a rainy day." One of the oldest and most venerable Copybook Headings, this articulates the notion that long-term prosperity requires that we restrain our impulse to spend everything today, and be especially careful about living on credit. Keynes and his followers took particular delight in teasing its god with their arguments that prosperity required spending rather than saving. This god is famously slow to anger, but his revenge is devastating when it comes: his specialty is a disappearing act, when all that credit-fuelled prosperity suddenly vanishes and those who defy him discover to their dismay that they are thrown out on their ears, stark naked, like Adam and Eve expelled from the Garden of Eden.

As well as the above gods, whose revenge has already become partly or fully apparent, recent events have flouted further Copybook Headings that will in due course no doubt produce further retribution:

"Allow capital to flow to its most productive uses." This Heading is always flouted during bubbles, when capital is allocated to innumerable unproductive dotcoms or ugly undesirable McMansions. It is sometimes also flouted during downturns, when the government rescues failing industries, devoting capital to the dying and unproductive. Examples abound, notably in Britain in the 1960s and 1970s and in France in the 1980s and 1990s. In the present crisis, there is not just the $700 billion debt bailout, but the $400 billion rescue of Fannie Mae and Freddie Mac, the $50 billion rescue of the automobile industry, and the clearly impending bailouts of overseas governments and various states and municipalities in the US to be considered. In downturns, capital is especially scarce; hence flouting this Copybook Heading during a downturn produces a much nastier revenge by its god, killing off far more new and productive investments than it would in a boom and slowing long-term economic growth to a crawl.

"Keep the fiscal deficit to a level that prevents the public debt/GDP ratio from rising." This, originally propounded by Gordon Brown, when UK Chancellor of the Exchequer and before his recent apostasy, for which he will certainly be called to account, is the wimpiest possible version of the Copybook Heading warning against budget deficits. The stricter and more substantial versions of Gladstone's time mandated low levels of government debt and prohibited deficits altogether. The Brownian version is the bare minimum, and even that is defied now more than ever before, both in the short term through $1 trillion plus deficits from recession and bailouts and in the long term through the actuarial problems in Social Security and Medicare. The revenge of this god is exquisitely cruel; he turns the country into Argentina.

We can speculate why the last decade has seen such a record level of Copybook Heading flouting. Maybe the Baby Boom generation, who have been in charge, were affected so badly by the permissive theories of Dr. Spock and the "flower-power" 1960s that rejecting conventional wisdom in the form of the Copybook Headings became second nature to them. But be that as it may, the gods are clearly not happy and, as the Chinese might say, there are interesting times ahead.

In the remainder of this book, we will begin with history, move on to financial analysis, show how the theory intersected the reality, add the element of monetary policy, and demonstrate how the result was market chaos and meltdown. Having anatomized the disaster, we will suggest some solutions, theoretical, institutional, and practical, as well as examining the financial services business's likely future.

The next two chapters are historical. Chapter 2 looks at the traditional financial system, in London and New York, and discusses why it worked, in particular what mechanisms it had to ensure its long-term continuance and the financial system's overall stability. Chapter 3 anatomizes previous market meltdowns, drawing lessons as appropriate that throw light on recent events and on our current situation. Current difficulties have their reflections in past crises, and anatomizing a broad range of such crises is the best way to analyze the present. Useful past history is *not* limited to the Great Depression.

Part Two is the analytical core of the book. It begins (Chapter 4) by setting out the principles of Modern Financial Theory, along with a light-hearted gallery of the financial alchemists involved, seven Nobel prizes and all. It then (Chapter 5) examines the assumption flaws underlying the theories, why they were unrealistic, and why their lack of realism caused the theories themselves to be hopelessly fallible when applied in practice. Finally (Chapter 6), this section examines the theory of risk management, that new science, whose principles were derived from Modern Financial Theory, which gave practitioners and regulators alike a spurious sense that all was rationally controlled. Since the theories underlying risk management techniques were themselves flawed, risk management likewise broke down. Indeed, commonly practiced modern risk management turned out to be a perfect paradigm of error, focusing risk managers' attention away from the periods during which major risks arose, and failing utterly when it was most needed.

Part Three examines the interaction of theory and practice, how modern financial theory migrated to Wall Street, and why it was given vastly more attention and resources than is granted to most professorial maunderings.

The first chapter (7) details changes in the business environment from the 1960s that both accompanied the introduction of Modern Finance and made the financial services business especially receptive to it. Chapter 8 details the process by which sector after sector of Wall Street found elements of modern theory exceedingly useful, whether as sales techniques, as spuriously precise valuation methodologies, or as generators of new opportunities to make remarkable profits producing "products" that had little or no social value or were just downright dangerous. Chapter 9 looks at the other side of the coin – how the adoption of Modern Financial Theory modified Wall Street itself. It looks at how the incentives of Wall Street interacted with the techniques of Modern Finance and captive regulators to produce a system that enlarged risk rather than controlling it, and led to unprecedented levels of rent seeking and crony capitalism. Chapter 10 then takes a closer look at the litany of financial disasters that have occurred in Wall Street's wake.

Part Four looks at how policy, captured by Wall Street during these years, interacted with the financial markets to make matters worse. Chapter 11 looks at monetary policy, and how it metamorphosed in the last three decades, and how the long period of excessive monetary expansion since the mid-1990s fuelled a series of boom-bust cycles, so creating the perfect environment for Wall Street's excesses. Chapter

12 looks at how the regulatory system not only failed, but actively contributed to these excesses.

Part Five, Chapters 13 and 14 looks at the events of 2007–09, the bursting of the bubbles and the market, and the public reactions to that bursting. Chapter 13 also suggests alternative steps that could have been taken at various points during the crisis, which might well have mitigated the losses for taxpayers and would certainly have reduced the crisis' overall costs to the global economy. In the official responses to crisis, remnants of belief in the Modern Finance chimera mingled with anti-Wall Street populism, but there were very few practicable suggestions of how we might move towards a financial system that would actually work. In Chapter 14 we outline the nightmare scenario that will unfold if no substantial reform steps are taken.

Finally, in Part Six we turn to possible solutions. Chapters 15 and 16 return to first principles and discuss how financial alchemy might be turned into reality-based chemistry, the first chapter dealing with quantitative risk management methods, and the other with the needed institutional changes for the finance industry. Chapter 17 suggests some policy reforms to provide a legal and monetary framework within which the finance industry especially and the economy generally can be returned to health; underpinning this is the need to rein in rampant cronyism and restore the moral authority of the capitalist system. The last chapter offers some final thoughts on what we might learn from the dreadful experiences of recent years.

This book details how a misguided alchemy-like corpus of Modern Financial Theory combined with a wishful-thinking Keynesian mindset, ever present greed, and inept monetary and regulatory policy to produce a "perfect storm" of financial meltdown. Global prosperity, endangered in any case by the inexorable rise in population and the not unreasonable demands of the new billions for Western living standards, mandates that we learn deeply and permanently how to avoid a similar comedy of errors in the future.