

INTRODUCTION

The Promise of Economic Security

WALL STREET, along with the City of London and other world financial centers, has served as the liveliest laboratory for new ideas in all of capitalism. Modern finance—not only securities and banking but also insurance and public finance—grows out of powerful theories, both mathematical and psychological, and has produced economic inventions of the greatest utility. Despite some awful financial scandals that surface from time to time, these inventions *really work*, most of the time. The inventions work because the fundamental ideas are sound and because finance professionals have learned to apply them effectively to real people, with all their psychological biases and quirks.

The primary subject matter of finance is the management of risks. Finance looks at the various forms of human disappointments and economic suffering as risks to which probabilities can be attached. Finance poses arrangements that reduce these disappointments and blunt their impact on individuals by dispersing their effects among large numbers of people. Finance helps us realize our dreams by enabling creators and innovators to pursue their ideas without bearing all of the risks themselves and encourages them to take great risks for good purposes, as when entrepreneurs start new companies financed by venture capitalists.

Unfortunately, the insights of finance have been applied in only a limited way. Risk sharing has been used primarily for certain narrow kinds of insurable risks, such as stock market crashes or hurricanes, or for managing the risks of conventional investments, such as diversifying investment portfolios or hedging commodity risks, benefits that often accrue mainly to the already-well-off members of our society. Finance has substantially neglected the protection of our ordinary riches, our careers, our homes, and our very abilities to be creative as professionals.

We need to democratize finance and bring the advantages enjoyed by the clients of Wall Street to the customers of Wal-Mart. We need to extend finance beyond our major financial capitals to the rest of the world. We need to extend the domain of finance beyond that of phys-

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ical capital to human capital, and to cover the risks that really matter in our lives. Fortunately, the principles of financial management can now be expanded to include society as a whole. And if we are to thrive as a society, finance must be for all of us—in deep and fundamental ways.

Democratizing finance means effectively solving the problem of gratuitous economic inequality, that is, inequality that cannot be justified on rational grounds in terms of differences in effort or talent. Finance can thus be made to address a problem that has motivated utopian or socialist thinkers for centuries. Indeed, financial thinking has been more rigorous than most other traditions on how to reduce random income disparities.

Equipped with modern digital technology, we can now make these financial solutions a reality. Right now we are witnessing an explosion of new information systems, payment systems, electronic markets, online personal financial planners, and other technologically induced economic innovations, and consequently much in our economy will be changed within just a few years. Almost all of our economy will be transformed within just a few decades. This new technology can do cheaply what once was expensive by systematizing our approach to risk management and by generating vast new repositories of information that make it possible for us to disperse risk and contain hazard.

Society can achieve a greater democratization of finance and stabilization of our economic lives through radical financial innovation. We must make this happen, given the economic uncertainty of our future at a time of global change and given the problems and inadequacies of today's financial arrangements. This book presents ideas for a new financial order, a new financial capitalism, and a new economic infrastructure, and further describes how such ideas can realistically be developed and implemented.

Incentives for Great Works without Moral Hazard

Financial arrangements exist to limit the inhibitions that fear of failure places on our actions and to do this in such a way that little moral hazard is created. Moral hazard occurs when financial arrangements encourage people to engage in destructive rather than productive acts, such as phony work done only to impress investors, wanton spending, or accounting malfeasance.

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An entrepreneur may feel discouraged from starting an exciting new business because the risk of failure is too high. Modern financial arrangements can often solve this problem. For instance, this entrepreneur might find a venture capital firm that will agree to bear the risks, paying the entrepreneur a salary yet providing the entrepreneur some incentive for inspired work by offering shares in the upside if the company does well. The risk that might have prevented the entrepreneur from ever launching the business seems to disappear. Actually, the risk does not disappear, but its *effects* virtually disappear as the risks to the individual business are blended into large international portfolios where they are diversified away to almost nothing among the ultimate bearers of the risk, the international investors. International portfolio managers from Kabuto-Cho to Dalal Street to Piazza Affari to Avenida Paulista each take on some of this entrepreneur's risk, but as less than a millionth of their total portfolio—so small a part of their portfolios that they do not feel any of this entrepreneur's risk. The entrepreneur is now protected, at virtually no cost to anyone, and can launch an exciting new business without fear. Thus do financial arrangements foster individual creativity and achievement. This is the essential wisdom of finance and its principle of diversification.

As noted above, this inspirational effect of risk management on the entrepreneur can work very well if the venture capital firm is careful to avoid moral hazard, that is, incentives for the entrepreneur to burn down the plant or to pursue flashy opportunities that have only the *appearance* of potential for success, to postpone dealing with problems for fear of revealing them to others, or to continue too long in an enterprise that is clearly failing.

Finance has not been perfect in containing moral hazard—witness the recent Wall Street scandals in the United States. But it would be absurd to junk the system because of a few failures. We should instead adapt and extend finance's insights by applying its essential wisdom to the management of economic risks faced by everyone, and similarly spread the payoffs to everyone. Financial institutions can be strengthened to short-circuit fiascoes like that at Enron Corporation, where moral hazard escaped the controls, where top management, using some clever financial innovation as a foil, dishonestly ran off with the money at the expense of their employees.

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Six Ideas for a New Financial Order

In this book I present six fundamental ideas for a new risk management infrastructure. The first three are intended primarily for the private sector: insurance, financial markets, and banking, respectively. The risk management concepts in these three ideas are the same, but they are applied to different risk management industries. Each industry—insurance, financial markets, and banking—has evolved its own methods of dealing with moral hazard, defining contracts, and selecting clients. At a time of fundamental innovation in risk management, it is prudent to build on these methods, respecting each industry’s unique body of knowledge and extending and democratizing finance through them.

The next three ideas are designed primarily for development by the government, both through taxation and social welfare and through agreements with other countries. Government has a natural role in risk management because long-term risk management requires the stability of law, because most individuals have limited ability to construct appropriate long-term risk contracts, because fundamental institutions must be managed in the public interest, and because major international agreements require coordination with an array of government policies.

The first idea is to extend the purview of insurance to cover long-term economic risks. *Livelihood insurance* would protect against long-term risks to individuals’ paychecks. In contrast to life insurance, which was invented at a time when deaths of young adults with dependents were much more common than they are today, livelihood insurance would protect against currently very significant risks—the uncertainties in our livelihoods that unfold over many years. *Home equity insurance* would protect the economic value of the home but would go far beyond today’s homeowners’ policies by protecting not just against specific risks to homes such as fires but also against all risks that impinge on the economic value of homes. In the form offered here, first proposed by my colleague Allan Weiss and me in 1994, the problem of moral hazard is dealt with by tying the insurance contracts to indexes of real estate prices.¹

The second idea for a new financial order is for *macro markets*, which I first proposed in my 1992 Clarendon Lectures at Oxford University and in my 1993 book, and that has been a campaign of mine ever since.² It envisions large international markets for long-term claims on national incomes and occupational incomes as well as for illiquid assets such as real

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estate. Some of these markets could be far larger in terms of the value of the risks traded than anything the world has yet experienced, dwarfing today's stock markets. Even a market for the combined gross domestic products (GDPs) of the entire world, a market for the sum total of everything of economic value, should be established.³ These markets would be potentially more important in the risks they deal with than any financial markets today, and they would remove pressures and volatility from our overheated stock market. Individual and institutional investors could buy and sell macro securities as they do stocks and bonds today.

The third idea is *income-linked loans*. Banks and other lending institutions would provide loans that are contingent on incomes to individuals, corporations, and governments. The loan balance would automatically be reduced if income falls short of expectations. Income-linked loans would effectively allow borrowers to sell shares in their future incomes and in income indexes corresponding to their own incomes. Such loans would provide protection against the hardship and bankruptcy that afflicts so many borrowers today.

The fourth idea is *inequality insurance*, which is designed to address definitively, within a nation, the serious risk that income in the future will be distributed among people far less equally than it now is, that the rich will get richer and the poor poorer. It reframes the progressive income tax structure so that over time it fixes the amount of inequality rather than fixing arbitrary tax brackets.

The fifth idea is *intergenerational social security*, which would reframe social security to be more truly a social insurance system, allowing genuine and complete intergenerational risk sharing. Intergenerational social security's defining characteristic would be a plan to pool the risks that different generations hold, risks that today are primarily dealt with only informally and then only to a limited extent within the extended family.

The sixth idea is *international agreements* to manage risks to national economies. These unprecedented agreements among governments of nations would resemble private financial deals, but they would surpass such deals in scope and horizon.

Beyond these six ideas for risk management, this book proposes components of a new economic information infrastructure: new *global risk information databases* (GRIDs) to provide the information that would allow effective risk management, and *indexed units of account*, new units of measurement and electronic money for better negotiating risks.

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Some Scenes from the New Financial Order

Picture vast international markets that trade major macroeconomic aggregates such as the total outputs of countries such as the United States, Japan, Paraguay, and Singapore, or indexes of single-family home prices both in cities—from New York to Paris to Sydney—and in regions, such as shoreline properties on the Riviera or agricultural property in the corn belt or the rubber plantations of Indonesia. Portfolio investors will be able to take positions in a wide array of such markets with little cost. International markets for human capital will emerge as well for occupations from medical and scientific professions to the careers of actors and performers to common labor. These markets will facilitate the creation of livelihood insurance policies on every major career and job category, and home equity insurance policies on the value of everyone's home. Massive electronic databases made accessible by user-friendly designs will enable people everywhere to engage these markets to manage their real risks.

As these markets transform our appreciation of risks, our concepts and patterns of thought will change accordingly. People will set prices in light of the prices in these markets; countries will make international agreements that parallel some of the risk management afforded in these markets and will similarly revise their welfare and social security systems. Our economies will run more efficiently because these markets provide the means to control our risks. The presence of these new markets will make it easier for firms to offer livelihood insurance, home equity insurance, and income-linked loans to individuals.

Our fundamental risks will thus be insured against, hedged, diversified, making for a safer world. By lightening the burden of risk, a new democratic finance will encourage all of us to be more venturesome, more inspired in our activities.

As a thought experiment, consider a young woman from India, living in Chicago, who wants to be a violinist. She finds it worrisome to borrow the money for her training given that her future income as a musician is so uncertain. But new financial technology enables her to borrow money online that need not be fully repaid if an index of future income of violinists turns out to be disappointing. The loan makes it easier for her to go into her favored career by limiting her risk because if it turns out that musicians' careers are not as lucrative as expected, then she will not need to repay as much of the loan. Her risk over the

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years would be measured by indexes of occupational incomes maintained by networks of computers. A good part of the risk of her career is ultimately borne by portfolio investors all over the world, not by her alone.

This same woman worries about members of her extended family in a small town in India, many of whom work in an industry in danger of closing rendering their special skills obsolete. But their company buys a newly marketed livelihood insurance contract intended to protect its workers in the event of untoward economic developments. The insurance company then sells off the risk on the international markets. Moreover, the Indian government makes an agreement with other countries to share economic risks, further protecting her family.

Our young woman worries, too, about the neighborhood in a small industrial town in the United Kingdom where her parents live, a neighborhood that is undergoing economic and social change. She worries that her parents may lose the remains of their savings if their house loses value. But in a new financial order, her parents' mortgage comes with an attached home equity insurance policy, protecting them against such an unfortunate outcome; paying a claim if the resale value of their home declines. Moreover, an intergenerational social security system and an inequality insurance system will further protect them.

New digital technology, with its millions of miles of fiber optic cable connections, can manage all these risks together, offsetting a risk in Chicago with another in Rio, a risk for violinists' income with an offsetting risk in the income of wine producers in South Africa. The result will be the stabilization and enhancement of our economies and our lives.

Risk Management Today

Most long-term economic risks that people face are actually borne by each individual or family alone.⁴ Social welfare exists primarily for the very poor but is limited even for them. In today's world we cannot insure against risk to our paychecks over years and decades. We cannot hedge against the economic risk that our neighborhoods will gradually decay. We cannot diversify away the risk that economic and societal changes will make our old age difficult, and our elderly are left vulnerable to the risk that a stock market crash will wipe out their retirement savings. Many people live in relative poverty today because of a failure to control these risks.

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To the extent that we are aware of these ever-present risks, we tend to be overcautious with our decisions, sometimes avoiding opportunities because we justifiably fear having to bear the consequences of failure. We may tend to work cynically instead, treading water, staying in an unsatisfactory job, pretending to achieve, fearing to venture out into the rapids where real achievement is possible.

Under present conditions, the woman in Chicago thus postpones her career as a violinist, waiting for some better time that may never come. She lacks information about the prospects for such a career and has no way to protect herself economically except to choose an uninspiring career.

Her uncle in India is laid off from his job and is unable to secure a comparable job; he goes into unwanted early retirement with only a meager income. Her parents in the United Kingdom see the value of their house fall as their neighborhood declines. At the same time, the economy in their region slows, and the value of the U.K. stock market where they had stashed their other savings drops. As a result, they lack the wealth to support themselves well in their remaining years. Worrying about the risks to other members of her family can make the young woman's own life more difficult, and dreams of a career as a violinist even more remote.

The risks we face today are substantial, even if we do not easily measure them from day to day because they either unfold only slowly over the course of our lives or descend sometimes quickly but rarely as part of rare cataclysmic historical events. World economic growth over the past century has been terribly uneven, rewarding some extravagantly and leaving others far behind. As a result, the distribution of world income is astonishingly unequal. For example, while per capita real GDP in the United States was \$31,049 in 1998, it was only \$2,464 in India that same year.⁵ This inequality itself causes further social disruptions that can in some circumstances generate even more risks through the forces of resentment, despair, and lost ambitions, which in turn create problems of fear, crime, and social degeneration.

We cannot properly control our most important risks since they are not dealt with by any existing financial institutions. Until now, the focus of almost all financial innovation has been found in traditional stock markets and other financial markets. Only a small percentage of our true aggregate wealth—only that portion represented by the corporate business sector—is tradable in the stock markets around the world. The

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corporate income flows that are represented in the stock markets are not as large as people imagine. In the year 2000, a record year, total after-tax corporate profits (the income left over after companies pay all their employees, their bills, and their taxes, and that is theoretically available to pay out as dividends to shareholders) per person in the United States were only a little over \$2000, only about half the money that state and local governments in the United States spent in that year. Corporate profits represented by the stock exchanges in other countries are even smaller per capita than in the United States. The stock markets are big and important, but not as big and important as we think. Financial perturbations such as the dot-com and tech-stock bubbles suggest that investors have far too much enthusiasm for chasing far too few risk management vehicles.

Far more important to the world's economies than the stock markets are wage and salary incomes and other nonfinancial sources of livelihood such as the economic value of our houses and apartments. This is where the bulk of our wealth is found.

Achieving massive risk sharing—that is, spreading risk among many individuals until it is negligible to any one person—does not mean that the world will live in harmony. History shows, however, that long-term financial arrangements for risk sharing have often been useful despite wars and disruptions of government authority. Indeed, those events themselves are risks that the financial arrangements addressed.

Massive risk sharing can carry with it benefits far beyond that of reducing poverty and diminishing income inequality. The reduction of risks on a greater scale would provide substantial impetus to human and economic progress. Indeed, the progress that our society has achieved to date would not be so magnificent were it not for the kinds of risk management devices that evolved over time. If, for example, insurance did not exist, a vast variety of vital enterprises would have been considered too risky to even consider. Without our capital markets, we would not have many of the corporations and partnerships, large and small, that produce so much of value for us. Again, their work would often have been considered too dangerous to embark upon. Without existing financial technology, we would be living in a much less inspired world.

While we can be thankful for the applications of finance and insurance that make today's level of economic activity possible, great risks still inhibit us from greater levels of achievement. Brilliant careers go untried because of the fear of economic setback. The educations that

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people undertake, the occupational specialties they choose, the ventures they set out on, are all limited by the knowledge that economically we are on our own and must bear virtually all of the losses we incur.

Imagining the social and economic achievement that could come from a new financial order is difficult because we have not seen such an alternate world. We have not yet seen what remarkable things can happen if we remove all unnecessary fear of loss and enable people to embark on the pursuit of their greater potential.

Information Technology

In the past, complex financial arrangements such as insurance contracts and corporate structures have been expensive to devise and have required information that is costly to collect. With rapidly expanding new information technology, these barriers are falling away. Computer programs, using information supplied electronically in databases, can make complex financial contracts and instruments. The presentation of these contracts and instruments, and their context and framing, can be fashioned by this technology to be user friendly. Financial creativity can now be supplied cheaply and effectively. It is critical to pursue such a transformation.

The implementation of some of our most important existing personal risk management devices, including life insurance, health insurance, and social security, was made possible for the broad public by improvements in information technology in the nineteenth century. The information technology that was new then embodied simpler things: cheap paper on which to keep records, printed forms, carbon paper, typewriters, and filing systems, as well as an efficient postal service and more effective business and government bureaucracy.

Consider the old age insurance of social security, which was first implemented by Germany in 1889. That plan, like most modern social security plans today, made payouts to retirees that depended on lifetime contributions, and hence required reliable records for millions of individuals for many decades. The German social security administrators needed to add to the records regularly, retrieve records reliably without losing them, and communicate with retirees around the country while managing a large payment system. The information technology available in the nineteenth century—the paper, the forms, the filing systems, the government bureaucracy—made this possible without prohibitive cost. It converted social dreamers into implementers. This

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particular risk management innovation has long since drastically reduced the problem of poverty among the elderly.

Today's new information technology is orders of magnitude more powerful than that of Germany in 1889. I have seen the kinds of changes our newest technology can make. The new digital technology has made vast amounts of data about people's homes available electronically. Karl E. Case, Allan Weiss, and I founded our company, Case Shiller Weiss, Inc., in 1991 to create new measures of price appreciation by zip code and home-value tier in the United States to facilitate devices to manage the risks to our homes.⁶ Since then, we have witnessed the proliferation of electronic databases about single family homes and have been able to exploit these new measures in ways that we could not have imagined when we began our company.

The emerging information technology in 1990 made it possible for us to launch our campaign to create home equity insurance. We saw then that it was important to base insurance claims in terms of indexes of prices rather than on the selling price of the individuals' homes; otherwise, we would face a moral hazard. Our campaign probably would not have been feasible before the 1990s because no electronic databases on home prices existed to allow computation of neighborhood home price indexes. Now the opportunities for such insurance, and many other financial innovations, are even better: Our data resources are growing at astounding rates.

Financial Theory and Practice

While finance has been progressing for centuries, it has made stunning progress in the second half of the twentieth century, both in theory and in practice. Theoretical finance was advanced to a high level of mathematical sophistication by such scholars as Fischer Black, Eugene Fama, Harry Markowitz, Merton Miller, Robert Merton, James Mirrlees, Franco Modigliani, Stephen Ross, Paul Samuelson, Myron Scholes, William Sharpe, and James Tobin, and by their successors.

An outcome of this research is a comprehensive theory showing how rational individuals ought to decide on their lifetime investments taking account of all the parameters of their uncertainty and the statistical properties of all risk management tools.⁷ No longer is the optimal allocation of people's assets to various investments just an intuitive call or tradition-based rule of thumb. Specific outcomes of this re-

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search include computerized financial planning services—some particularly advanced examples being *esplanner.com*, *financialengines.com*, *morningstar.com*, and *riskgrades.com*—that will improve in the future as theoretical finance and econometrics continues to advance.

Academics have had their counterpart among numerous innovators in real markets. Practical finance has seen many innovations created by exchanges, such as the American Stock Exchange and the Chicago Board of Trade, and electronic communications networks (ECNs), such as Instinet and Island. Dramatic innovation has also come from investment banking firms such as Bank of America, Barclays, Bear Stearns, Citigroup, Deutsche Bank, Goldman Sachs, Hongkong and Shanghai Banking Corporation, JP Morgan Chase, Merrill Lynch, Morgan Stanley, Société Générale Group, and Wasserstein Perella.⁸ More innovation has come from insurance and reinsurance companies such as ACE Group, Aegon Insurance Group, AIG, Munich Re, Skandia, Swiss Re, and XL; from mortgage and consumer finance firms such as Fannie Mae, Freddie Mac, and GE Capital; from pension funds and mutual funds such as CalPERS, Fidelity Investments, TIAA-CREF, and the Vanguard Group; from settlement firms such as the Bank of New York, Depository Trust, and State Street Bank; and from brokerage firms such as Charles Schwab and E*Trade. Central banks, such as the Federal Reserve and the European Central Bank, and development organizations, such as the World Bank, the International Monetary Fund and the Grameen Bank, have contributed as well.

Their strides have made the last few decades the most compelling period in world financial history. We have seen the development of vast varieties of new futures, options, swaps, and other risk management vehicles, new forms of mortgages and consumer credit, new forms of health insurance, and innovative ways of making development loans. Finally, insurance has been extended to cover a wide variety of specific risks, even including weather disasters and other such catastrophes.⁹ Conferences sponsored by professional organizations such as the Association for Investment Management and Research (AIMR), the Global Association of Risk Professionals (GARP), International Association of Financial Engineers (IAFE), and the Risk Waters Group have become major international events.

The 1980s saw the beginnings of a rapid rate of experimentation with financial forms in countries formerly committed to Marxian communist ideologies, notably China and Russia, but also in numerous devel-

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oping countries. This experimentation is potentially valuable for the world at large because it proceeds in varied environments and traditions and is supported by an eagerness to try different approaches. Such experimentation is likely to inform new innovations that will someday be copied elsewhere.

Psychology, Behavioral Finance, and Framing

If society is truly to democratize finance, business must make financial devices and services easy to use by ordinary people and not just by financial experts. People are not computers; they are not capable of doing endless calculations and pinpoint analysis of self-interest, despite what conventional economic theory has said for many years. Practical finance has always known this, but academic finance is only just coming to grips with the facts of human nature.

Most people are not comfortable with financial risk management principles or the contraptions needed to apply these principles. Moreover, many people do not have a solid appreciation of their risks, nor do they even know that they ought to reduce their risks. Gratuitous income inequality is hard to control since many people may not take basic steps to control it, even when they can.

In light of these realizations, the theory of finance underwent a fundamental transformation starting around 1990 with the development of behavioral finance, the application of principles of psychology and insights from other social sciences to finance. Behavioral finance corrects a major error in most mathematical finance: the neglect of the human element.¹⁰

A particularly important lesson from behavioral finance is that psychological framing matters enormously for risk management. *Framing*, as used by psychologists Daniel Kahneman and Amos Tversky, refers to well-documented patterns of human reactions to the context, reference points, mental categories, and associations that influence how people make decisions.

In designing new financial products, appearance and associations not only matter but are fundamental. Some of the ideas for a new financial order that follow have framing at their very core, and our understanding of the power of psychological framing is an important part of the reason to expect that real progress in risk management can be achieved in the future.

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Potential Problems with Financial Innovation

Financial progress has repeatedly encountered several significant problems in the past, which might frustrate our efforts to innovate in the future. First is the problem of excessive speculative activity, which can induce great volatility in financial markets. Notably, as I discussed in *Irrational Exuberance*, the stock market boom in the late 1990s, peaking in early 2000, encouraged wasteful corporate investments, accounting trickery, and risky investment decisions by individuals. After this boom, most of the stock markets of the world fell dramatically. The real inflation-corrected Standard & Poor's Index fell by half by mid-2002. Some other countries' markets fell even further. The amount of wealth that was wiped out in the stock market declines between 2000 and 2002 is measured in the trillions of dollars. In the United States alone, the dollar value of this economic loss from this stock market crash is roughly equivalent to the destruction of all the houses in the country or the razing of many thousands of World Trade Centers. Even though the stock market loss may one day be restored by another bull market, the markets generate ever-present risks.

I have been frequently asked, when giving talks, what should be done about such stock market volatility. I have always been at a loss to give an answer that satisfies my questioners. In fact, the best thing that we can do to reduce such risks is to expand our financial technology so that we can use this technology to cushion against unnecessary instability.

Despite the volatility we observe in speculative markets, no one should conclude from any of my or others' research on financial markets that these markets are totally crazy. I have stressed only that the *aggregate stock market* in the United States in the last century has been driven primarily by psychology and fads, that it has shown massive excess volatility. But many markets for subindexes relative to the market do not show evidence of excess volatility, and the market for individual stocks shows substantial evidence supporting the notion that prices in these markets do carry genuine information about future fundamentals.¹¹

A second problem is that financial innovation sometimes encourages secret dealings, deception, and even fraud. Secretive firms such as Long-Term Capital Management have misled investors and then blown up, mismanaged firms such as Metallgesellschaft have pursued perilous financial strategies at the expense of shareholders, and un-

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ethical firms, such as Enron, have committed malicious fraud that harmed many people.¹² But this should not be viewed as evidence against impressive progress in the field of finance. New technology, with all its power, is always dangerous, and accidents will happen as our society learns how to control it. In the early age of steam, many people were killed by boiler explosions, in the early age of air travel, by airplane crashes. Eventually, technological advances sharply reduced such accidents. So too the challenge in economics is to advance and democratize our financial technology, not reverse progress.

Third is the problem of disruption of government authority. Financial arrangements can be simply canceled or otherwise frustrated by changing governments, and history suggests that long-term financial arrangements have to confront political instability. But financial contracts have usually survived changes in governments. Indeed, they have usually survived the complete transfer of power to hostile forces as a result of war and revolution. The Hague Regulations, adopted at an international peace conference in 1899, specify that victors in war must respect the property and rights of individuals.¹³ And, indeed, even after World War I, despite Germany's total defeat and such anger on the part of the Allies and Associated Powers that extensive reparations were required from her government, German nationals were allowed to keep their investments in Germany and abroad as well as their insurance and pensions.¹⁴ In Iran, after Ayatollah Ruhollah Khomeini displaced the shah in 1979, the new radical Islamic government, despite its profoundly revolutionary rhetoric, made good on the pensions that government employees under the shah had earned.¹⁵ In South Africa in 1994, after a fundamental turnover of the government from whites to a black majority at a time of great bitterness due to a history of repression and apartheid, financial securities, insurance, and pensions were not confiscated.

Of course, one can also find examples of broken financial contracts. Although the world is no longer so impressed by the socialist theory that allowed Vladimir Lenin, Lazaro Cardenas, Mao Tse-Tung, Mohammed Mossadegh, Gamal Abdul Nasser, Indira Gandhi, and other leaders to justify major confiscation of property and nullification of financial arrangements, theories justifying such irregularities have not been forgotten. Financial contracts will not always survive disruptions. But history suggests that they usually will and that risk sharing contracts usually are upheld.

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The Moral Dimension

Throughout this book, I apply the concepts of finance to issues that sometimes provoke moral outrage, such as economic inequality, and to issues of fairness, such as how well society should treat its elderly. The reader may find this application of finance rather odd. Finance is widely viewed as an amoral field, even as an occupation for the selfish and grasping. Indeed, financial deals often seem to highlight the most selfish aspect of humanity, simply because they are so explicit about who gets what. These deals respect property rights through time, and they provide incentives for great work and risky ventures whose rewards come much later. Afterward, when the work is finished and risk successfully navigated, people who did the work and who now demand their contracted recompense may appear selfish and grasping to others who are not aware of the risk and efforts.

But financial theory does relate directly to the problem of achieving distributive justice without creating economic inefficiency or bad incentives. Moral judgments cannot be made without reference to our underlying economic theory.

Philosopher John Rawls, in his influential 1971 book *A Theory of Justice*, developed a theory of distributive justice by reinterpreting concepts of justice advanced by philosophers through the ages.¹⁶ In particular, Rawls reinterpreted Immanuel Kant's Categorical Imperative. And as I reinterpret Rawls, along lines originally advanced by economist John Harsanyi, his philosophical theory ought to help bring the field of finance to the fore as we make moral decisions about our economic institutions.¹⁷

Rawls's theory requires that we consider questions of distributive justice from a viewpoint that he calls the "original position," that is, the point at which our economic status is unknown and hence subject to risks. In other words, society should make ultimate distributive justice judgments as if we were setting up rules and principles before we were born, before we knew which person we would be. Then our judgments will be essentially fair, even if they do not require absolute equality for everyone. Use of Rawls's theory can make justice a principle of risk management by centering on the risk of being born into, and living out, bad circumstances.

Rawls is a philosopher, not a financial theorist, so it is not surprising that he rounded out his theory in a way that would be considered

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rather primitive from the standpoint of finance. He proposed that our moral judgments should follow the “difference principle,” which asserts that our economic institutions should be designed to maximize, considering all issues of economic incentives and possible inefficiency, the minimum possible economic position of people, that is, to make the most disadvantaged class of people as well off as possible, all things considered. The difference principle asserts that we accept rules that allow inequality only insofar as these rules help improve the situation of the least advantaged class. This “maximin” (maximize the minimum human condition) solution is hardly the most natural way to define our goal of risk management. After all, we care about all individuals, not just the most disadvantaged.

I intend to adopt a principle of justice from a “picture window view” of Rawls’s original position. I ask what kind of world, in the broad picture, we would like to live in if we could choose before we were born, assuming we had an equal probability of being born as anyone. We are thus concerned about all people’s lives, not just those of the poorest. In asking this question, we will use our broad sense of tastes for equality and opportunity and the emotional significance of life’s experiences, looking at the whole picture of such a world. Then income inequality, rather than being automatically a bad thing in moderation, becomes an aspect of the picture window view. We will tolerate substantial income inequality. What we surely do not want is gratuitous, random, and painful inequality.¹⁸

Rawls’s theory of justice is important to my argument because it shows that the intuitive sense that many philosophers have had about achieving justice is in fact amenable to an application of financial theory. We will broaden the scope of this financial theory to relate it more deeply to society at large.

Outline of This Book

Part I of this book describes the basic parameters of the problem that financial technology is designed to address—the risk of sharp declines in economic status for many individuals. These risks are very real even if we confidently expect dramatic world economic progress overall. We will see that economic risks are much more substantial than many of us seem to realize—technological innovation is itself an important source of individual economic risks, and many other sources of risk threaten individual prosperity as well.

INTRODUCTION

Part 2 discusses how technological progress promises to alter risk management in the future. Modern information technology offers opportunities to improve risk management that we can only begin to grasp today. Part of this technological progress lies in the science of psychology, which is changing our understanding of how people can interact with risk management devices.

Part 3, the heart of the book, presents the six ideas for a new financial order, one per chapter.

Part 4 discusses other devices to deploy the new financial order: global risk information databases, new units of measurement, and electronic money. Moreover, it describes the kinds of research and advocacy that are needed to implement the ideas for a new financial order.

Part 5 provides an analysis of the history of financial markets and of social insurance, revealing a slow, ongoing process of changes analogous in some ways to those I am proposing. Innovators who achieved similar changes over the last two centuries were cognizant at least at an intuitive level of basic principles of finance and of basic human psychology and made effective use of the new information technology of their day. It is natural to expect that we can carry on such fundamental progress in the future.

The epilogue rounds out a model of radical financial innovation, a view of how our lives can be fundamentally improved by financial institutions that are sharply different from the ones we have today.