This is the sixth chapter of "WORDS ON THE STREET" ("Language and the American Dream on Wall Street"). In the published version, these pages appear at pages 174-248.

VI. The SEDUCTION of SCIENCE and the ROMANCE of RATIONALITY

"...it would be very unwise to consider anything else than the pursuit of our problems in the manner which has resulted in the establishment of physical science." (Section 1.2.3, p4). "Since we want to theorize about rational behavior..." (Sec.4.1.2, p31). "For economic and social problems the games fulfill- or should fulfill- the same function which various geometrico-mathematical models have successfully performed in the physical sciences." (Sec.4.1.3, p32). John von Neumann and Oskar Morgenstern, "Theory of Games and Economic Behavior"

"The actual price at which any commodity is commonly sold is called its market price. It may either be above, or below, or exactly the same with its *natural price*." Adam Smith, "Wealth of Nations", Volume 1, Book 1, Chapter VII (p56; my italics)

"Fundamentally, the crisis [the worldwide financial one that emerged in 2007] was caused by a failure of financial engineering." Speech by James Bullard, President of the Federal Reserve Bank of St. Louis, "Containing Risk in the New Global Landscape" (19th Annual Hyman P. Minsky Conference on the State of the U.S. and World Economies, "After the Crisis: Planning a New Financial Structure", New York City; 4/15/10, p5)

"It is Adam Smith's greatest contribution that he glimpsed in the social world of economics what Isaac Newton (1642-1727) had recognized in the physical world of the heavens: a self-regulating *natural order*. Smith's message said:... No one need plan. No sovereign need rule. The market will answer all things." Professor Paul A. Samuelson, Nobel Prize Winner in Economics, "Economics" (Samuelson's italics; 10th Edition, p840; my underlining)

"The stock market [United States] is not behaving rationally right now." Comment to author; similar remarks made regarding various stock, debt, currency, and commodity marketplaces

"Man is no less a natural object than the sun or the moon, and his actions, too, in their metrical occurrence, are subject to analysis. Human activities...if approached from the rhythmical bias, contain a precise and natural answer to some of our most perplexing problems....[The United States stock marketplace; Dow Jones Industrial Average] "has its law [Wave Principle]" and "this law behind the market can be discovered only when the market is viewed in its proper light and then is analyzed from this approach." R.N. Elliott, "The Wave Principle" (pp40-43); see also Elliott's "Nature's Law: the Secret of the Universe"

"Of particular concern, the global economy is now facing a widespread deleveraging as mechanisms for credit creation have been damaged in both the banking system and the securities markets- that is, both of the financial system's twin engines are faltering at the same time (Tucker, 2007). Moreover, further broad erosion of financial capital in a climate of uncertainty and caution could cause the present credit squeeze to mutate into a full-blown credit crunch, an event in which the supply of financing is severely constrained across the system." International

Monetary Fund, “World Economic Outlook”, “Housing and the Business Cycle”, Chapter 1, April 2008 (pp6-7)

“No one can predict with any certainty which way the next 1,000 points [presumably the Dow Jones Industrial Average] will be.... The United States historically has had a perfect record when it comes to rebounding from the most difficult times. In the past 50 years, we’ve had 9 recessions. And we’ve had 9 recoveries...But if you’ve set aside adequate funds for your short-term needs, time is on your side and the stock market has historically been the place to be. And when I say long term, I don’t mean three weeks from Wednesday. I mean a minimum of 5, 10, or 20 years...Which way the next 1,000 to 2,000 points in the market will go is anybody’s guess, but I strongly believe that the next 10,000, 20,000 and 40,000 points will be up...If you believe in the strength of the American resolve, hard work and innovation, then take a long-term view and believe in our economic system. I certainly believe.” The renowned investor, Peter Lynch, in a Fidelity Investments advertisement, NYTimes, 9/30/01 (pA31)

[The Friday 9/28/01 DJIA close was just under 8850. Unless equity prices can fall below zero, the strong belief about the next 10,000 or more points may turn out to be accurate.]

“Is your portfolio built to withstand today’s market? ...No one can predict the direction of the market [footnote refers to S+P 500, though ad’s photograph depicts a commodities marketplace]. But history shows that over the long term, the market rewards those who stay the course. At Fidelity, we encourage investors to take a long-term view when building a portfolio...investors [can] delegate decisions for all or part of their mutual fund portfolio to a team of seasoned Fidelity professionals. The team determines an investment strategy based upon an investor’s own goals...We help you invest responsibly.” A small drawing that resembles the eye/pyramid design on the back of the US one dollar bill rests between the words “Fidelity” and “Investments”. (emphasis in original). NYTimes, Money&Business, 10/15/00 (p25), 10/22/00 (p5)

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Wall Street’s would-be Newtons, Einsteins, Darwins, Edisons, Fords, and their academic allies marshal the language of the natural physical sciences to woo the public into entering and staying within Wall Street stock, debt, currency, and commodity marketplaces. The various threads of scientific wordplay constitute major sections of the tapestry of Wall Street rhetoric. Wall Street worships and banks on the persuasiveness of natural physical science, so it applies natural physical science words in comprehensive fashion to Wall Street participants, viewpoints, strategies, locations, and outcomes. Opinions and metaphors inspired by natural physical science have become deeply rooted in Wall Street, especially within the securities investment community.

Real scientists of course can study Wall Street traders or other cultural participants objectively from the natural physical science perspective as biological, chemical, or physical entities. Neurologists or biochemists could perform brain scans or blood chemistry tests on gamblers, lovers, warriors, priests, politicians, poets, and traders during so-called typical and unusual conditions. But can natural physical science extend its explanatory realm beyond this, and objectively (with scientific rationality) explain Wall Street and other economic (and political and social) phenomena and create truths for all? Can economists and Wall Street participants and observers objectively employ the scientific method of real sciences like physics, chemistry, and biology in their viewpoints, studies, and strategies?

Most economics teachers and Wall Street professionals have faith that one can apply natural physical science principles and methods objectively- in the demonstrably true for all, rational sense of a real science like physics- to explain economic phenomena, including Wall Street. Economics professors and Wall Street leaders and experts- including "rocket scientists", "financial engineers", and sage "students of the market"- want their pupils in Wall Street and among the general public to believe their scientific ambitions and vocabulary make them real (or very much like real) scientists. Federal Reserve Board Chairman Ben S. Bernanke proclaims: "*Economic science* concerns itself primarily with theoretical and empirical generalizations about the behavior of individuals, institutions, markets, and national economies. Most academic research falls in this category. *Economic engineering* is about the design and analysis of frameworks for achieving specific economic objectives. Examples of such frameworks are the risk-management systems of financial institutions and the financial regulatory systems of the United States and other countries." (Bernanke's italics. Speech, "Implications of the Financial Crisis for Economics", at the Conference Co-sponsored by the Center for Economic Policy

Studies and the Bendheim Center for Finance, Princeton University, Princeton, New Jersey, 9/24/10).

However, such natural physical science pretensions and language nevertheless do not create genuine scientific fields, perspectives, procedures, arguments, or conclusions. In cultural domains, the scientific method is never objectively embraced or applied. Though cultural observers of course often employ formal logic and mathematics, such use is subjective. It is a science fiction that the viewpoints and analysis of economics and Wall Street are or can be like (even approximately or partially) the hard sciences of Nature. Simulated science is never authentic science. Cultural faith is never science. The principles and methods of economics and Wall Street are not and never will be objective (scientific). Perspectives on and within Wall Street are subjective (cultural). More on these issues follows in later chapters.

Of course not all imports of scientific vocabulary into Wall Street intend to create and promote an objective viewpoint. Recall language from games, love, war, politics, religion, the fine arts, and elsewhere. Some scientific wordplay has no scientific ambitions, yet still seeks to interest, entertain, educate, and persuade audiences. Nevertheless, most economists and a great many Wall Street speakers believe they are thinking, talking, and acting scientifically (objectively), or at least mostly or approximately so. They have faith they have entirely- or at least in large part- escaped subjectivity and rhetoric. Some may admit they speak with metaphors and similes at least some of the time, but most believe these metaphors still reflect their objective perspectives and thought processes. So although metaphors are subjective and reflect subjectivity (culture), such supposed scientists implicitly or explicitly believe in a fable that these metaphors are themselves objective or reflect objective (scientific) viewpoints and reasoning.

Respected authorities throughout history have defined "science" in various ways. Science in general, or a given science, may have several branches. Some contrast science with the "arts", "humanities", and "philosophy". At present, both professional academics and Main Street call disciplines such as physics, chemistry, and biology that study Natural phenomena like stars, molecules, or plants according to the objective scientific method real, hard (positive) sciences. Mathematics and statistics also are true sciences. So are applied sciences such as mechanical or electrical engineering.

In a real (true) science, scientists tend to agree on important definitions. Also, there are relatively few perspectives on the phenomena of the field, and these are objective. As "The War of the Words and the Triumph of Investment" shows, Wall Street observers (including participants) disagree on how to define key terms such as investment and speculation. Because definitions differ, so do propositions and conclusions involving them. Not only are there various economic theories, but also economists do not even agree as to how to define "economics". As chapters such as "The War of the Words" and "Seeing, Saying, and Herding" display, marketplace definitions, perspectives, methods, and actions of participants (including so-called outside or neutral observers like economists) are subjective and diverse. Experiments that discover the true for all laws regarding planets, particles, and chemical compounds are objectively replicable. Applied sciences such as mechanical and electrical engineering likewise replicate their results. In practice, are applications of economic theory scientifically replicable? Trading results are not replicable.

Wall Street, unlike a true scientific arena, values more than knowledge for its own sake. As the cultural goal of making money is good and desired, emotions and character traits inescapably permeate the reasoning of marketplace warriors.

To discover or express or apply their objective truths, the various natural physical sciences do not need metaphors. Science is sufficient. Suppose a scientific perspective and vocabulary could adequately and definitively describe and explain Wall Street. Then why does Wall Street also import words and viewpoints from diverse fields such as games, love, war, politics, religion, and the fine arts to create metaphors that educate and persuade itself and Main Street?

Anyway, why do so many Wall Street professionals and their academic and media friends choose natural physical science metaphors and similes to seduce people to trade stocks, bonds, currencies, and commodities? Why do these storytellers devotedly struggle to adopt natural physical science viewpoints?

As a preliminary, keep in mind that scientific language and subjective natural physical science perspectives are an important part of the culture of the American Dream. "Selling the American Dream: Money, Politics, Nature, and God" discusses this in detail. Scientific vocabulary and supposedly scientific approaches therefore particularly appeal to and influence the rhetoric, perspectives, and actions of the American public and others with faith in the Dream.

The natural physical science rhetoric to which much of Wall Street (and economics) is married aims not only to describe and explain Wall Street and other economic phenomena. This eloquence, directed at both professionals and Main Street, often seeks action. In giving people (especially Main Street dwellers) confidence that Wall Street is not too strange or alien, that it is a real scientific arena (or closely resembles one), such talk persuades many that Wall Street is a suitable (reasonable) arena for seeking financial security and wealth.

Numerous Natural phenomena are obvious to everyone. To survive, we must have some common sense understanding of Nature. For specific scientific disciplines, such Main Street comprehension usually falls well short of the scientific understanding of professional scientists. The public comprehends that at least over the very long run, most Natural phenomena represent ordered regularities or processes. Not only objective certainties but also Natural probabilities (including persistent chaos) are forms of order. The Earth and other planets rotate around the Sun, the Sun rises and sets, flowers bloom and die. The human body has certain anatomical characteristics; people are born, live life, and pass away. Numbers such as one, two, and three exist (though some say numbers are cultural, not Natural), and one can add and subtract them. The majority of the public understands the basics of everyday scientific language, whether from grade school or college study, reading newspapers or the internet, watching scientific television programs, or other sources. Nature and natural physical science significantly interest most of the public. Many people follow weather forecasts, are curious about engineering feats such as bridge building and the space shuttle, talk about their health and visit doctors, and have pets.

Wall Street coaches obviously know the public understands and uses numbers and formulas in everyday life, whether in Main Street shopping, paying taxes, building a home, or keeping score in games. Wall Street and economics, like natural physical sciences and everyday life, speak with the language of numbers and statistics. Wall Street and economics, like real sciences, trust numbers and statistics.

A security price is a number. Marketplace time is measurable. Economic releases like the consumer price index are calculated numbers. Supply and demand statistics and balance sheets and income statements are packed with numbers. Wall Street pictures and graphs display

numbers and formulas. Wall Street emphasizes its understanding of numbers and formulas. Traders and other analysts wield them to achieve their beloved money making goal. They develop and apply mathematical and statistical formulas to analyze their subject matter and express conclusions. Wall Street participants enlist mathematics and statistics to measure their profits and losses, compare themselves with their competitors, assess and predict price action, and take and manage risks.

Real ("hard") scientists like mathematicians or physicists unearth objective (Natural) truth. Most of us label genuine scientific rationality as good. If enquirers can obtain truth for all (science), that objective knowledge is superior to subjective viewpoints (opinions). Attaching the label of science to cultural subject matters often aims to make that subjective field and perspectives regarding it seem truly objective.

Seekers after universal truth are not confined to natural physical science or religion. Some scholars in humanities such as philosophy and history and many artists yearn to discover and declare profound, unchanging verities, not subjective ones true only for their faithful adherents.

The cultural prestige of the natural physical science profession is very high. Scientific lions in physics, chemistry, and medicine have won Nobel Prizes since 1901. The eminence and successes of natural physical science encourages many people in cultural precincts to attempt to adopt worldviews and courses of action associated with the various real theoretical and applied sciences.

Various academic disciplines study individual and group thought, behavior, and institutions. Think of economics, politics, cultural anthropology, psychology, and sociology. Many teachers and practitioners within these arenas call themselves scientists. They identify their fields as sciences (or social sciences; "soft" sciences). They adore the scientific method and hunger for universal truth. Many social scientists cherish dreams of establishing a rational tower of objective knowledge like (or very similar to) that of natural physical sciences.

The fraternities of economics, finance, and business schools hustle to enjoy natural physical science's reputation. Why not? Prestige brings opportunities and income. In his extremely influential textbook, Professor Paul A. Samuelson speaks of "economics as a scholarly discipline" and "objective science", and the "evolution of economic doctrines" ("Economics"; 1976, 10th edition, p839). The initial Nobel Prize in "Economic Sciences" was awarded about 40 years ago (in 1969), and Samuelson won it in 1970. Samuelson "did more than any other theorist to turn economics from a scattered selection of insights into a social science" (Financial Times, 12/14/09, p2). Affixing a badge of science or claiming objectivity nevertheless does not prove that economics is an objective (scientific) field.

Scientific ambitions branch beyond academic classrooms and Wall Street marketplaces into policy making circles. United States Federal Reserve Board Governor Frederic S. Mishkin remarks: "Then I will explain how the science of monetary policy can help provide a conceptual framework for a systematic approach to managing these risks [of "financial market disruptions" "to the macroeconomy"]." (Speech at the Federal Reserve Bank of New York, "Monetary Policy Flexibility, Risk Management, and Financial Disruptions", 1/11/08). Charles I. Plosser, the President and CEO of the Federal Reserve Bank of Philadelphia, underlines: "the science of monetary policy is not stagnant. Thus it is important that the best policy rules may evolve as our

understanding of the economy evolves." (Speech to the National Association for Business Economics, Washington (DC) Economic Policy Conference, "The Benefits of Systematic Monetary Policy", 3/3/08).

Social "scientists" in any given academic or other playground differ in their subjective perspectives regarding what they fondly hope is truth for all. Yet most hold tightly to the faith that their particular opinion is objective (scientifically rational) even if they attack alternative or opposing views as less rational or irrational.

Natural physical sciences employ terms such as "observation", "fact", "hypothesis", "experiment", "test", "number", "formula", "proof", "theory", "natural", "environment", "law", "rules", "principles", "cause", "system", "objective", "rational", "science", "value" (in the numerical sense), "probability", and "uncertainty". Natural physical science shares many of these words with the cultural arenas of games, love, war, politics, law, religion, the humanities, and the social sciences. As most of the public is acquainted with such terms in both natural physical science and other fields, Wall Street's use of them helps to make Wall Street more familiar and interesting. However, to many natural physical scientists and much of the public, one or more of such words really are "scientific". Moreover, when many of these words are enlisted together in a persuasive effort, this ensemble tends to make that discourse appear scientific. Consequently, in cultural domains, these words associated with natural physical science often are integral to the natural physical science rhetoric of supposed scientists.

Real theoretical sciences such as physics or an applied one such as mechanical engineering do more than employ most or almost all of such shared terms in an interrelated and systematic fashion. In contrast to cultural investigations, such genuine sciences use words like

experiment as well as other scientific ones (and numbers, statistics, and formulas) in the context of an objective application of the rational scientific method of definition, observation, hypothesis, experiment, and replicable proof that generates truths for all. In the objective discussions of genuine sciences, natural physical scientists and most of the public perceive the shared terms as scientific (permeated with science).

Wall Street warmly embraces many of these shared terms, lovingly attaches itself to other specific hard science words (more of these are discussed below), and ardently tries to objectively espouse natural physical science viewpoints and the scientific method. To convince themselves that they really are objective scientists (or very, very much like them), most economists (including finance and business school professors) engage in a similar practice. Wall Street and economics wordplay thus creates an aura of science, a pretense of scientific objectivity. Having persuaded themselves, the bards of Wall Street and economics sing a romantic rhetoric of rationality to enrapture the public.

The pageant of natural physical science language from Wall Street and economics seeks to manufacture public faith that observers and participants (especially experts) can objectively (with scientific rationality) study "economic" phenomena. Economic phenomena supposedly are objectively "out there". In hopes of escaping subjectivity (culture), economic Einsteins and Wall Street Newtonians attempt to analyze prices and other marketplace information (variables) as if they were Natural things, objects, powers, energies, or forces. They invent a natural physical science version of the fiction "The Market"; this parallels the religious creation discussed in the preceding chapter. Many in Wall Street and economics strive to define terms such as economics, investor, speculator, supply, and demand in true for all fashion, not as mere opinion.

Wall Street's charming array of scientific metaphors is bound up with its faith that it can objectively incorporate and apply natural physical science viewpoints and methods. Wall Street thereby misleads itself and others about its ability to be rational. They want the public to perceive Wall Street as or very much like a natural physical science environment. In any event, Wall Street speakers of scientific rhetoric hope to persuade listeners that they possess- or have something very close to- scientific (objective) perspectives, procedures, and judgment. These eloquent messengers believe their viewpoints and thought processes are clear (objective, not just good); at most only a minor amount of personal bias and emotion infects them. Scientific propaganda enables a Wall Street speaker or economist to present itself to eager audiences as a discoverer or teacher of real, genuine, true for all truth.

A given natural physical scientist may want prestige, fame, money, and influence. It may desire to control Nature in order to help humanity. However, scientists seek and acquire scientific understanding primarily for its own sake. Knowledge is far more the ultimate goal- not just a stepping stone- in objective science than in Wall Street trading or sales, games of skill, love, politics, and war. In Wall Street and these other arenas, players passionately seek a valued cultural end beyond information and truth; knowledge is only a means, not an end in itself.

Wall Street employs scientific vocabulary, creates scientific metaphors, and tries to embrace scientific viewpoints for motives that intertwine with its intent to explain Wall Street and make it familiar and enticing to spectators. Though it acts in good faith, Wall Street erects its allegedly scientific edifices for reasons beyond education and entertainment.

Adorning itself with scientific rhetoric boosts Wall Street's self-image and confidence. Wall Street's scientific language masks (or at least helps understate) Wall Street's primary goal-money.

And Wall Street's scientific pretensions aim at action. Borrowing the prestige of real sciences enhances Wall Street's influence. Don't scientists really know about the world? All else equal, a Wall Street professional or economist seems more authoritative (and perhaps more honest) to others in Wall Street and Main Street if it employs natural physical science rhetoric. Shouldn't one follow these Wall Street luminaries who allegedly utter objective truth, not just listen to them? Suppose such an evangelical would-be scientist made a ton of money or guided others to financial triumph.

Though numerous Wall Street orators strive to wear the convincing robes of natural physical scientists, the rocket scientists, financial engineers, and quantitative gurus of Wall Street are not all alike. Neither are they all closely or almost alike. Wall Street has assorted communities of industrious would-be scientists armed with diverse and competing doctrines and strategies. These differences in perspectives result in a wide range of behavior. However, all their lessons emphasize it is wise to adopt and have faith in a Wall Street natural physical science viewpoint.

Most of the public will not walk into or stay in Wall Street if profitable outcomes are too uncertain. Winning matters. Sciences like physics not only discover and understand many Natural facts, including Natural processes. Objective sciences get important things done. In their applied forms, hard sciences accomplish impressive, often awe-inspiring results that control or influence Nature and thereby benefit us. We all know that engineers construct highways, bridges,

dams, and skyscrapers. Automobiles, trains, boats, and airplanes transport us. Doctors and medicine prevent and cure illnesses and extend life. Aren't radio, television, and the internet wonderful? Computers transmit information and perform analysis with lightning speed.

Streetwise professors know scientific rhetoric sells a vision of success and expertise. Such Wall Street wordplay makes many people more willing to enter a Wall Street playing field, and to reside there in the hope of eventual financial victory. Wall Street and its allies want audiences to see Wall Street as a good "environment" to conduct successful, money making experiments. Scientific poses and language battle to create and cement public faith that Wall Street guides and guardians understand marketplace phenomena, and that in practice one can manage or control Wall Street outcomes sufficiently enough (at least in some marketplaces such as US stocks) to make money (enough of the time). The natural physical scientists of Wall Street want those lusting for financial security or riches to believe they will, or probably will, make money- if they follow so-called objective ("rational") principles, strategies, experts, and leaders.

Recall that other fields have experts, leaders, and loyal followers. Sports teams have inspirational stars; skilled coaches guide players. Fans devotedly cheer their team. Love has experts that teach seductive techniques and secrets. War's generals devise battle plans and give orders to troops. Political leaders have partisans. Religious faiths have high priests, guiding lights, and wizards that assist devoted disciples. Why should natural physical science be any different? Natural physical science has professors and other classroom teachers- including discoverers and inventors- that educate and train pupils. Real natural physical scientists enlighten public students via popular writings, television, and the internet. Extensive natural physical science training generally is an emblem of expertise. However, in any given natural physical

science field, some theorists and practitioners possess more talent than others. Scientific geniuses like Einstein and Edison have superior brain power.

Since natural physical science has experts, Wall Street's comprehensive and sustained barrage of scientific language alongside its battles to espouse a scientific approach inspires much of the public to believe that Wall Street has experts. If Wall Street is akin to the realm of Nature, Wall Street should have objective experts. Wall Street dignitaries and their deputies instruct both pros and amateurs that such expertise within Wall Street corridors is rather widespread. They point out people with superior intelligence. They often underline the important role of academic training and professional experience in developing supposedly scientific marketplace expertise. Some of these supposedly scientific experts of course are more skilled than others. In any event, as in other realms, many experts and their trained pupils should be helpful! It is good and reasonable to learn from and follow such talent. As natural physical scientists engineer worthwhile results for us in Nature, insightful Wall Street experts, leaders, and their suitably educated professional followers can escort us to profitable results and in managing financial risks. Faith in supposedly scientific Wall Street money making perspectives makes people want to be in bed with this Wall Street breed of smart money.

Wall Street and economic outposts are loaded with "think tanks" and "research departments". The Wall Street world is a "universe" or "laboratory". Professionals study the economic "environment", "landscape", "soil", "galaxy" (perhaps from an "observatory"), and "cosmos". Brilliant "rocket scientists" and "financial engineers" working on and for Wall Street develop theories and perform "research". They "discover" marketplace facts, laws, and opportunities. They "invent" and "design" trading strategies, "structure" deals, and devise

complex “structured products”. Traders and such scientific wizards use analytical “microscopes” and “telescopes” to study and “experiment” on price history and other financial variables.

Many Wall Street rocket scientists and financial engineers study years to develop their brand of expertise. Some own Ph.Ds in sciences such as mathematics, statistics, physics, and engineering. Masters of Business Administration swarm throughout Wall Street and much of the corporate world. Like the Ph.D award, the MBA certificate intimates that Wall Street professionals possess practical understanding of and some degree of power over Wall Street financial outcomes. Master implies mastery, right? Administration alludes to some degree of control of business results. The NYU Stern School of Business and the Amsterdam Institute of Finance, “because the world deserves better risk management”, advertises: “A unique degree granted by NYU Stern School of Business in partnership with Amsterdam Institute of Finance”. This is the “Executive Master of Science in Risk Management”. “The financial crisis demonstrates that risk management is fundamental for the survival of every organization.” This program is “Taught by the world’s leading experts in risk management.” (Financial Times, 12/14/09, p2).

Spending hundreds of millions of dollars annually on computer hardware and analytical software manifests Wall Street’s faith that its viewpoints are genuinely scientific (or at least mostly or approximately so). Wall Street’s scientific advocates inform the world of these impressive expenditures. Like hiring employees or consultants trained in natural physical science, such advertising assists Wall Street in its quest to persuade onlookers that its scientific pretensions are justified and will (or probably will) manufacture money making results. Two physics Ph.Ds, “Dr. Norman Packard...and Dr. Doyne Farmer once tried to use computers to gain an edge at roulette and are now applying the techniques to financial markets.” Their firm, the

Prediction Company, whose partner is the Swiss Bank Corporation, is "trying to make a much bigger killing by using information technology to outsmart the glitziest casino of them all- the financial markets." "Dr. Farmer and Dr. Packard say that their methods are more scientific. 'We tend to look at the same kind of stuff as technical traders, but we use careful statistical evaluation as opposed to intuition,' Dr. Packard said" ("Sifting Hidden Market Patterns for Profit"; NYTimes, 9/11/95, ppD1, 8).

Suppose Wall Street is (or is very much like) a field of Nature, as well as a domain in which one has substantial control over one's financial outcome. Scientific eloquence from Wall Street oracles of objectivity and respected scholars in economics and business schools inflames some listeners to try to develop and display their individual ability. That professional or Main Street player can demonstrate to itself and others how smart it is by making money in Wall Street. Why not try to imitate the strategies and actions of and compete with successful Wall Street rocket scientists and engineers?

However, many other potential traders with faith in the entrancing natural physical science sermons of Wall Street and economics believe they lack the ability, training, or time to adequately adopt or apply a supposedly scientific trading approach. Like the rhetoric developed from the words of games, love, war, politics, and religion, Wall Street's natural physical science language underlines that one does not have to be a leader or a loner to make money on Wall Street. It is good, intelligent, and logical to follow and belong. Wall Street not only offers advice for others to follow. Wall Street profits from managing money. Natural physical science gospels induce numerous members of the public to hand over their money and delegate their marketplace decision making to Wall Street shepherds.

Besides, scientists know far more about their Natural field of study than most of us. It seems irrational to question the genius and expertise of world-renowned physicists and chemists. At some level of explanation, the challenge of deeply understanding any given natural physical science causes most laymen to defer to the understanding and guidance of the scientific expert. How many people, even scientists, understand relativity theory or quantum physics well? Experts on Nature do more than educate us about theoretical issues. The public has faith that natural physical scientists know what is best for us in the Natural environment. Isn't it reasonable to obey the practical advice of genuine natural physical scientists?

Many that learn from and follow the advice of such scientific leaders thereby deem themselves as relatively intelligent and harbor some degree of pride. After all, only ignorant unbelievers or stupid or delusional people reject proven natural physical science truths.

Wall Street's natural physical science romances develop widespread faith that Wall Street and economics objectively can- or very nearly can- embrace scientific principles and methods. Its beautiful serenades indicate it is reasonable and good to believe that the right individual and institutional Wall Street leaders can provide scientifically rational and profitable marketplace analysis and advice. Isn't it logical and sensible to chase after such experts, especially those who've grown wealthy in Wall Street pastures? Isn't it a good bet we can make money (at least eventually) by doing so?

In war, it is good to belong to the right army or camp. Many religions stress the crucial importance and goodness of belonging to the right, correct, and true- or at least the better- faith. Wall Street science teachers chalk another rule on their blackboards. Since it is good to pursue Wall Street's supposedly scientific perspectives, strategies, and leaders, it is bad- or at least less

good- to follow paths where the principles, methods, and guides are less objective or unscientific.

A natural physical science persistently attempts to identify, analyze, and resolve theoretical and applied problems. Hard sciences such as physics make objective progress- they discover and accumulate scientific knowledge over time. However, everyone knows that not all scientists are equally talented, that not all experiments succeed or yield useful information, and that a given challenge may take many years to solve.

Would-be scientists in economics and Wall Street similarly search for theories on how to view marketplaces. Many persistently seek to unearth or improve money making perspectives and techniques. But suppose a given Wall Street viewpoint, strategy, system, or formula loses money or fails to harvest enough profits. How do Wall Street's true believers in science respond?

First, natural physical science rhetoric holds out hope that economic rocket scientists may improve the seemingly flawed financial doctrine or method or learn how to apply them better. Since real sciences advance in theoretical and practical dimensions, Wall Street missionaries and economic evangelists declare progress is possible in economic knowledge and practice. So hope and wait: "Stick with the basic financial theory and strategy a while longer!" Suppose those with faith in the given financial perspective- such as buy and hold United States stocks for the long run using fundamental analysis- elect to hold on to that belief. In many marketplaces, there are numerous experts and leaders who may share that viewpoint. Aren't some scientists better than others? Devotees may decide to abandon their inadequate existing high priests and idols, hunting for and selecting a supposedly better one to admire and follow. Wall Street natural physical

science propaganda, particularly in securities investment realms, always anoints new experts and leaders for professionals and Main Street to revere.

Or, players can just choose a more worthy scientific ideology. Wall Street constantly offers an intriguing menu of other scientifically inspired perspectives from which marketplace leaders and followers can choose. Not surprisingly, each of these viewpoints has their own rocket scientists and apprentices. Isn't someone on Wall Street always making money somewhere? Wouldn't a losing trader be a winner if they'd only done things differently ("the right way"; "the opposite way of what they actually did")? One or more of these alternative scientific approaches should work fine (make money) over time if properly applied.

For those marketplace believers inspired by probability theory, the predicted event does not happen each and every time. So be patient. Anyway, the bottom line of scientific rhetoric-people should have faith that the would-be scientists of economics and Wall Street eventually will discover a better and sufficiently profitable approach, or will more profitably apply the ones they've already devised.

Let's explore in depth Wall Street's scientific metaphors, including its subjective "scientific" viewpoints. The variety of natural physical science disciplines, words, theories, and laws provides the natural physical scientists of Wall Street and economics with an extensive menu. This scope increases the likelihood that their scientific rhetoric will tempt and enthrall many listeners. Different marketplace professors vary in their scientific preferences, and thus in their rhetorical ingredients and recipes. Similarly, depending upon the particular taste of the given audience, some items in the subjective list are more appealing than others.

Natural physical scientists specializing in a given subject matter share a common perspective on their phenomena and objectively proven laws relating to them. The person on Main Street knows that similarly situated persons objectively see the sun and other stars the same way. The language of bodies and points, and motion and change, is common sense ("natural") for most of the public. Physics studies physical bodies- from big planets to little particles- as well as forces and energies. Chemistry analyzes elements and compounds. Biology studies living bodies and organisms. So Wall Street and economics frequently speak of many of its phenomena as if they are physical bodies, points, forces, powers, or energies. Or, it views them as elements, compounds, or living entities. Such familiar language makes Wall Street more understandable to the public.

Wall Street theologians objectify economic phenomena to create religious incarnations of "The Market", "The Price", and other information such as inflation, gross domestic product, and unemployment. To create a supposedly scientific realm, the counterfeit scientists of Wall Street and economics also objectify marketplace phenomena. According to these visionaries, such phenomena allegedly are "out there" to be objectively perceived and studied; they are apart from the subjective perspectives and thought processes of the observer. "The Market" (an objectification of all marketplace phenomena), "The Price", and other variables thus have a scientific version.

In both small towns and large cities, shoppers visit "markets" and buy things. These of course are real places like a grocery or department store. Face-to-face commercial merchandising and financing of course occurred before the advent of the telegraph, telephone, and computer. Even today, sometimes commercial dealers or financiers, as they did during early modern capitalism, travel to a "market" fair or town at a physical location and transact business. Imagine

a petroleum convention in Houston or London. These physical meetings nevertheless do not create an additional "The Market" (whether living or inanimate) in addition to geographic "market" locations. Like the religious versions, Wall Street inventors have not demonstrated Its objective (true for all) existence via an objective application of the scientific method. "The Market" is not a physical object of Nature. No one can point to it or see it with a telescope or microscope. Is "The Market" an intangible Natural entity like a force or power? There has been no scientific proof that this force or power exists.

Humans generate wealth from Natural bodies such as land and natural resources. Land, raw materials and precious metals, and man-made goods physically represent wealth. At times, Natural material such as grain seeds has been the basis of monetary units such as gold. Securities and other financial instruments are more abstract (less tangible) than land and natural resources, but they represent wealth and are convertible into money. And don't forget the wonderful derivatives of financial ("physical", cash, spot marketplace) instruments. In buying and selling a financial instrument or commodity in interaction with others at a price, traders make or lose money on the basis of price changes. As an analog to a physical body such as land or natural resources that represents wealth, the natural physical scientists of economics and Wall Street invent their own science fiction- "The Market". They view "The Market" and actual marketplace phenomena such as price ("The Price") and money as bodies or akin to bodies. Traders create or lose money from some thing or some place. Some players haul money out of Wall Street like a miner; they make it "from The Market" or win it "in The Market". Other warriors "lose it to The Market" or "in The Market", as if in an ocean or a deep hole.

The sun looks different according to factors such as the observer's geographic location or eyesight quality, time of day, weather conditions, and so forth. Yet there are still true for all laws

regarding the sun. Natural physical scientists of Wall Street and economics assume the missionary yet myth-making position that “The Market”, “The Price”, and marketplace phenomena are bodies or similar objects of inquiry that “everyone” can analyze objectively, as if cultural phenomena are like the sun or a particle. Again, the would-be natural physical scientists of marketplaces have faith their viewpoints really are objective, or at least mostly (or approximately) so. Also, a number of sciences study the sun from various objective perspectives. Thus as there are diverse (hard) sciences and their branches which objectively review a common phenomenon, economists and other marketplace players infatuated with genuine science create another fairy tale. They believe there can be diverse scientific (objective; or at least mostly objective) perspectives, theories, and strategies regarding economic phenomena.

Faith that at least experts objectively can perceive and comprehend shared objects of inquiry makes the diversity of Wall Street opinions less disturbing for much of the public. Many people therefore are inclined to inquire about and believe in various supposedly scientific laws or rules regarding an allegedly objective “other” separated from the observer, whether “The Market”; “The Price”, or other economic phenomena such as supply or demand.

Scientific language and approaches imitating those of natural physical science appear in both fundamental and technical displays that Wall Street gift wraps for professional and Main Street pupils. “Fundamental” analysis suggests a theoretical effort alongside the practical money making ambition. Use trusted principles and methods to ascertain the marketplace’s “bedrock (core)” facts and rules! “Technical” study hints at principles and approaches comparable to applied sciences such as mechanical engineering. Diverse fundamental and technical strategies or systems professing scientific capacities cling to mathematics and statistics in various ways.

Many social scientists that objectify fundamental and technical marketplace phenomena supposedly objectively "out there" aggregate them. One hears: "the fundamentals demonstrate (show, tell us, or signal)" and "the technicals indicate (say, are behaving)". Thus like "The Market", "the fundamentals" and "the technicals" from this perspective deserve capitalization. Later chapters show how marketplace observers select and handle fundamental (and technical) information in a variety of subjective fashions. The definitions of fundamental and technical are themselves matters of opinion, not science. Nevertheless, gurus say investors should study "The Fundamentals" to ascertain "fair value".

Engaging poetic sensory images make "The Market", the price level and its fluctuations, money, and other economic information tangible, like a body (or otherwise seemingly objective, akin to a point or force). "The US government bond market is huge." "That S+P 500 price move was enormous." "How do you see 'The Market' (or, 'The Price') and 'Its' movements?" "That analyst looks below the market's surface for information." "What story does 'The Market' ('The Price') tell you?" Some traders claim to have a "sense", "feel", "touch", or "smell (nose)" for "The Market" or money. Someone with faith "substantial profits are headed their way" can "just taste" that money coming. Money generated by ringing the Wall Street cash register "piles (stacks) up". A Wall Street rocket scientist can make a "mountain" or "ton" (or another weight) of money. Some say a "pound" equals a million dollars.

Wall Street tries to locate key price "points" for a particular stock such as General Electric. In his "Commodities Course", W. D. Gann claims: "keeping up all the resistance levels, and having all the time periods on your chart, and the geometrical angles from all important tops and bottoms brought up to date, will enable you to determine these safe buying and selling points from which you can make a fortune in a short period of time by sticking strictly to the rules and

eliminating all guesswork and trading on mathematical science, and not on hope" (chapter 6, p82). "Foreign exchange markets work just like fast-flowing water and their movements can be calculated mathematically- but only up to a point" (German and Swiss physicists; Reuters, 6/26/96).

Rhetoric, not just science, may use the mathematical, statistical, and other formulas devised (discovered) by scientists. Marketplace analysts vary in their devotion to quantitative measures in their explanations. Quantitative viewpoints of course depend to some extent on words to persuade. Anyway, the purported scientists of Wall Street and economics adore mathematics and physics. Everyone knows that one can add, subtract, or otherwise manipulate numbers in easy as well as complex calculations. A price and its changes obviously involve number, as do many other economic variables. One also can assign a numeric weight to so-called qualitative phenomena. Economics and Wall Street recognize that many audiences will have faith in a purportedly objective application of mathematical and statistical procedures to "The Price" and "The Market" (and "The Economy") and their "components" as bodies. They perceive and analyze these Wall Street bodies as units to be added or subtracted, built up or broken down, constructed or weighed. Since the bodies subjected to such analysis are "out there", objectively apart from the observer, they purportedly can be seen via an objective (scientifically rational) method as in natural physical science. Chemistry, with its elements and compounds, also serves as a model for separating, combining, and mixing economic bodies. As physics speaks of elementary bodies, waves, and forces, so biology with its DNA and amino acids deals with Nature's building blocks. Some Wall Street biologists treat the marketplace as akin to an organism, in which assorted marketplace "parts" combine to make up a living whole.

Many speakers arrive at conclusions about marketplace phenomena in general, and "The Price" in particular, by "adding up" via a constructive method or "breaking down" via a destructive one. In a strategy akin to the addition approach, some assimilate "all" relevant information together. Assimilation procedures operate like cooking a stew. The theorist tosses "everything" into a mix to create the new entity. Wall Street engineers grasp various marketplace "yardsticks" and "measuring sticks" in figuring things out. Yet always keep in mind the scientific rhetoric of Wall Street and economics regarding the adding up, breaking down, measuring, or assimilation (mixing, combining) of phenomena relies on words (language) and does not necessarily involve quantitative analysis.

Thus allegedly scientific ringleaders and their henchmen quantitatively and qualitatively assess information, data, facts, factors, evidence, and news as parts, pieces, or elements. Marketplace astrophysicists see information as a "constellation" of factors. The public learns "The Market" and the price (we need not always use capital letters and quotation marks in regard to price) are like a container or other body full of parts, pieces, and elements. Bullish, bearish, or neutral information (fundamental and technical factors) are "weighed" by or incorporated within ("built into", "embedded in", "taken into account or discounted by") "The Market" or the price. Criminal law speaks of "the body (or weight or balance) of evidence"; Wall Street talks about "bodies of facts" and "building blocks" of information. "The facts ("The Facts", "The Fundamentals", or "The Technicals") add up into (combine to make) a bullish equation." "Put two and two together. That information adds up." "Look at the elements of the economic outlook." Observers "weigh" various economic and political considerations that should influence an upcoming Federal Reserve Board decision on interest rates. In "adding up all the facts", analysts reach diverse opinions regarding OPEC's potential production and pricing policies.

In Wall Street, mathematical plus and minus signs sometimes interrelate with statistics such as price level and movement. A price higher today than yesterday's close has moved into positive territory, a lower price into a negative region. "Positive" (bullish) news should help prices to rise. "Negative" (bearish) information may "cause" prices to fall. Wall Street usually associates- especially in stock marketplaces- so-called positive news, levels, and price changes with goodness. It links negative ones with badness. Bullish traders smile when the good news starts to "multiply". An "exponential" rise in corporate profits pleases equity bulls.

Wall Street physicists "break down" and its biologists "dissect" corporate balance sheets and income statements via assorted analyses. Some carve a securities price into parts associated with various factors. Thus a stock with a price of 100 dollars has some facts adding up to 50 dollars, with others worth 25, and the rest amounting to another 25. Another opinion will break the 100 dollar stock down differently. Some visionaries ritually divide a price into an investment piece (sometimes called rational or some similar term, and usually associated with "good") and a speculative (perhaps called irrational, emotional, or psychological) part. The venerated analysts Benjamin Graham and David Dodd believe general and individual factors generate the "market price". The category "*Individual factors*" divides into "Speculative" and "Investment" ones. They say there is a "general question of the relation of intrinsic value to the market quotation". "It will be evident from the chart ["which traces the various steps culminating in the market price"] that the influence of what we call analytical factors over the market price is both *partial* and *indirect*- partial, because it frequently competes with purely speculative factors which influence the price in the opposite direction; and indirect, because it acts through the intermediary of people's sentiments and decisions. In other words, the market is not a *weighing machine*, on which the value of each issue is recorded by an exact and impersonal mechanism, in accordance with its specific qualities. Rather should we say the market is a *voting machine*,

whereon countless individuals register choices which are the product partly of reason and partly of emotion" ("Security Analysis"; First Edition, 1934, p23; italics in original).

Physical sciences study motion and change in various ways. Experts analyze the changing location of a body in space, an element's moves between gas, liquid, and solid forms, weather patterns and shifts, and alterations in a biological organism or ecosystem over time. Doctors ponder medical charts, including those related to particular patients. Sailors study maps. Is the marketplace or price movement "dynamic", "static", "turbulent", "volatile", or "in equilibrium"? Wall Street chemists perform "litmus tests" to ascertain present or changing marketplace conditions. Marketplace scholars and students subjectively understand and review changes (including "trends") in supply and demand, price movement (level, distance, and speed), and trading behavior. They pore over tables lined with numbers covering various time horizons. They gaze at charts with lines of prices or economic indicators like housing starts organized over time.

"Every body perseveres in its state of rest, or of uniform motion in a right line, unless it is compelled to change that state by forces impressed thereon." Isaac Newton, "Principia": "Axioms", First Law of Motion (p19). Some scientific preachers speak of the "The Market" or the price as if it were like a planet in celestial mechanics. "News hits The Market" (and thus gets built into It or the price) and "changes Market direction". Such poetic sages typically promote rules regarding the characteristics or behavior of "The Market" and actual marketplace phenomena as objectively fixed or inevitable, or almost so. "This is how The Market is or acts".

Alternatively, suppose a high priest of science views "The Market", "The Price", "The Economy", or some other economic variable as if it were a quantum physics particle. These

illuminated guides couch their enthusiastic speeches and scriptures about marketplace phenomena in the vocabulary of objective probability. “This is how The Stock Market usually is (acts, behaves).” Or, “the price has gone (goes) up nine times out of ten under these circumstances”.

Biological metaphors and similes proliferate in Wall Street. Why restrict scientific eloquence about “The Market” and marketplace phenomena to physics? Wall Street Darwins likewise claim “The Market” stands objectively out there to be studied. Their fantasy inspired by natural physical science also supplements actual phenomena such as the price and participants. Like a human being, this invention of “The Market” has a mind, soul, thoughts, activities, and anatomical parts. The biological fabrication of “The Market” devised by Wall Street parallels the anthropomorphic, Godlike entities or powers discussed in the preceding chapter. “The Price” also may have such characteristics. The scientific rhetoric here is very much like the religious rhetoric. Since a religious as well as a scientific version of “The Market” and “The Price” could have human characteristics, rhetorical lines (if any) between such versions are not clear.

“The Market” and the price- like people- are called rational, logical, sensible, or reasonable as well as irrational, illogical, crazy, and emotional. “The Market” may be confused or uncertain. “The Market” not only has a mind, it has emotions and moods. It may have a voice and tell a story. It may be happy or sad. A price move has a “life of its own”. Also, “The Market” has an “anatomy”, a “pulse”, a “complexion”, a “face”, and “nerves”. In regard to alleged insider trading by the Galleon Group and others, “the markets’ lifeblood”- information- fell under American government scrutiny. (Financial Times, 11/6/09, p3). “Bad news will break the back of the market.”

Other colorful biological body metaphors describe Wall Street phenomena. “Housing is the backbone of the economy.” Analysts beginning to study a marketplace may have only the “bare bones” of a trading idea. Researchers try to “flesh out” their viewpoints. Prices move up and down on “legs”. After all, like human beings, prices and “The Market” “dance around”. Someone who has established only a fraction of a large, intended position has taken only “baby steps”. A central bank policy unlikely to influence marketplace participants much is “toothless”. A big rally in government bonds is “muscular”. Wall Street loves “fat” profits. Don’t forget the “heart” of a marketplace and the “arteries” of commerce.

Some Wall Street social scientists invent other objectifications to sum up or create a compound of the perspectives or actions (or both) of marketplace participants. These creative embodiments parallel those of “The Market” and “The Price”. Some speak of “mass (or market) psychology”. The public is familiar with talk about crowds. However, many Wall Street and social science doctrines view a crowd as an objective as well as essentially homogeneous body or group. Experts supposedly objectively can analyze the crowd (sometimes labeled a “herd”) or its cousin “the consensus”.

In the economic “environment” and “jungle”, financial instruments, marketplaces, or participants may be or act like “animals”. Sometimes Wall Street and its cast of characters are playfully called a “zoo”. The public hears of various “species” and “breeds” of investors and investments. Some investors are value ones, others are New Era; some are long term, others short term, and so forth. Wall Street institutions offer various “families” of investment products. Players regale audiences with compelling stories of “bulls” and “bears”. Traders- especially investors- face danger from air, sea, and land, from “vultures”, “sharks”, “piranhas”, “wolves”, and “tigers”. Marketplace predators such as the tiger sometimes “lie in wait” or “hide in the

weeds", prepared to pounce on and tear money from unwary or relatively inexperienced traders ("sheep" or "lambs"). Yet suppose a stock declines in price; it may "claw its way back" to a higher level. Some trading "scavengers" try to pick up profits wherever they can.

Other creatures roam Wall Street. A "dog" is a marketplace in which prices are falling significantly, especially a securities one. An undesirable stock and an unprofitable recommendation also are dogs. However, some dogs are praiseworthy. In "The Snowball" (p166), her biography of Warren Buffett, Alice Schroeder comments regarding his stock research: "Warren was a bloodhound for anything free or cheap." A modest price rally within a major downtrend, if followed by renewed price dives, is a "dead cat bounce". The Federal Reserve Board is "hawkish" when it raises rates to fight inflation, "dovish" when it displays an accommodative monetary policy. Wall Street traders, salespersons, and analysts with supposedly outdated viewpoints are "dinosaurs" or "fossils". Watch out for the "five hundred pound gorilla", a trader or other marketplace participant viewed as being especially influential for marketplace price trends. If stock prices begin to rise quickly, many ravenous buyers may "go ape" to grab equities. Wall Street marketplaces are full of busy "bees". Trading rooms are "beehives" of activity. Salespersons create a "buzz" regarding a stock, though its owners do not want to be "stung" by falling prices. Successful traders have good marketplace "antennae".

Unethical traders are "rats" or "cockroaches". The Biblical Garden of Eden has a wily and dangerous serpent (Genesis 3). Wall Street likewise has some immoral or unscrupulous "snakes". A salesperson that significantly changes its pitch according to the particular customer it solicits is a "chameleon". Within the Wall Street "ocean", "pond", "aquarium", or "fishbowl", some fishy "bottom feeders" may not be ethical. Picture a firm with substantial economic and political influence; its powerful "tentacles" reach widely.

Wall Street salespersons want their investment customers to have strong "appetites" for owning securities. Ravenous traders go "hog wild" in an effort to gobble up as much stock as they can swallow. Remember the risks of blind faith in and being married to a position. A Wall Street proverb says: "Bulls may make money, and bears may make money, but pigs get slaughtered". The overly greedy pig held onto a marketplace position for too long. As time passed, its trading profits on open positions fled; the position realized big losses when the trader finally closed it out.

Like organisms, marketplaces "evolve" over time. They can "mutate", too. A financial instrument that allegedly traded according to one pattern may "change its spots" (imagine a leopard) and "move around" with a different trading behavior.

Wall Street biological rhetoric does not confine itself to zoology. Its botanists and farmers muse that increasing (usually this is called good) prices "bloom", "blossom", or "flower". This enables owners to "reap" or "harvest" riches. In Wall Street stock "gardens", declining marketplaces "wilt"; that is bad for securities investors. Traders- like farmers- must toil hard to "grow" their profits. Portfolio managers "weed out" securities they no longer wish to own. The US Federal Reserve "plants" ("sows") the "seeds" of economic "growth" by cutting interest rates. Financial guardians try to identify the "roots" of major marketplace problems. As stocks rally (perhaps after crossing some difficult terrain), Wall Street investment guides crow: "We're finally out of the woods." "Money does not grow on trees." Are emerging stock marketplaces, commodities like crude oil and wheat, or subprime mortgage securities "fertile soil" or "barren ground" for investors?

Biology has become especially inspirational in recent years to many would-be natural physical scientists of Wall Street and economics. Andy Haldane, the Bank of England's head of financial stability, believes: "Financial risk management and regulation should cast aside many elements of traditional finance theory and learn lessons from ecology, the spread of diseases, biology, and engineering" (Financial Times, 4/22/09, p22). In an article headlined "Organic mechanics" (Financial Times, 11/27/09, p7): "Science and finance As better ways are sought to explain and even predict market behaviour, attention is swinging toward the links that sustain ecosystems". We see a picture of two bees flying over flowers and next are told: "Interdependent species are more vulnerable to external shocks, just as big banks were hit worse by the crisis than hedge funds." A chart shows "global financial ecosystem" of 2005 (the article also calls it a "Global finance network"). This ecosystem "has become much more interconnected over the past two decades." Moreover, "Bankers and financial economists are working with mathematical biologists to learn lessons about resilience from natural ecosystems- from fisheries to forests- and from the spread of disease." Lord Robert May, a "distinguished mathematical biologist", a zoology professor at Oxford and a former president of Britain's Royal Society, "is delving deep into the financial ecosystem." The article indicates his belief: "The financial theorists have a lot of ground to make up." He claims: "'The more I hear about financial economics, the more I am struck by its similarity to ecology in the 1960s.'" What rivers of cash will flow into academia to investigate such notions?

Don't forget chemistry. It is a truism that we need oxygen in order to live. Bethany McLean and Peter Elkind state in "The Smartest Guys in the Room" (p380): "By its nature, a giant trading operation depends on credit to survive- it is the oxygen for the business. This was especially true of Enron, because of the giant cash needs of Enron Online." Investors hope bearish news will not "poison" or "contaminate" the economic environment. During the

worldwide economic crisis that emerged in 2007, Bear Stearns became "viewed as an increasingly risky counterparty given its exposure to toxic mortgage-related securities." (Financial Times, 3/15-16/08, p3). Don't forget wonderful financial instruments such as the "synthetic" collateralized debt obligation (CDO) of the recent economic crisis. Economic observers speak of "elasticity" regarding supply and demand.

Recall war and its life and death concerns. Natural physical science also deals with life and death, health and illness. A high or rising price in a marketplace, especially in stocks, is "healthy". One hears: "The stock rally today left the market in good shape." A declining economy or marketplace (especially in securities) is "unhealthy" or "sick". A falling stock "caught the flu", "pneumonia", or a "bug". A marketplace with little price movement and low trading volumes is "dead" or "dead in the water". Widespread and intense fear sometimes "paralyzes the market". The marketplace life cycle includes birth. A stock rally was "born" once the dollar weakened and interest rates fell. The bond rally "died" once sustained inflation moved onstage. Someone with a tiny trading position is "just a little bit pregnant". Whereas a position losing some money is a "pain" or "headache", some label a deal losing a sizeable amount of money an "abortion".

Almost everyone visits or at least knows about doctors. Many widely-watched television dramas feature doctors. Suppose that stock prices have declined substantially. The equity marketplace is "on its sickbed" or "deathbed" or "in hospital". Perhaps expert financial "doctors" will "cure" marketplace "ills" and "nurse it" on the "road to recovery". Financial guardians and politicians as well as traders "take the market's (the economy's) pulse" and "vital signs"; they analyze its "symptoms" and make a "diagnosis". Perhaps "the market caught a cold" or "had an allergic reaction to bad news". No marketplace is "immune" to problems, though some laws

strive to “inoculate” against financial illness. Regulators or political luminaries “prescribe (doses of) medicine”, “prescriptions”, “first aid”, “antidotes”, or “remedies” to eliminate what they view as unhealthy or irrational about a marketplace. Investors in stocks and homes do not want an “anemic” price recovery. The Federal Reserve Board acted dramatically by slashing the Federal Funds rate 75 basis points between its formally scheduled meetings. So “the US Federal Reserve showed yesterday that it felt the American economy was sick enough to need a shot of adrenaline to the heart.” (Financial Times, 1/23/08, p2). A stock marketplace that has rallied strongly to very high levels due to massive economic stimulus and easy monetary policy is “pumped up on steroids”. Like a surgeon, an analyst “cuts into” a corporate balance sheet with a “scalpel” to understand it and separate out key facts. No trader wishes to “lose an arm and a leg”.

In the recent global financial crisis, many banks and other financial institutions failed. We learn of the “Pathology Of a Crisis”; “At Failed Banks, Fatal Levels of Untreated Risk-Taking”. (NYTimes, 11/19/09, pB1). The article displays a photo of a microscope with its lens aimed at an unnamed bank. All over the United States, “the coroners of the financial crisis”, government investigators, are performing “post-mortems on failed lenders”. Federal officials performed a “financial autopsy” on Haven Trust Bank, a small Georgia bank that “collapsed” in December 2008. The “coroner’s report” identified “the cause of death: toxic loans”.

Sometimes speculation (or bad types of speculation such as “excessive speculation” or manipulation) or gambling afflicts or “infects” a Wall Street marketplace. Some Wall Street physicians call speculation or gambling a “virus”, “plague”, “sickness”, or “disease” that can spread “contagiously” (an “epidemic”) through a marketplace. In the fall of 2007, “Toshiko Fukui, governor of the Bank of Japan, expressed strong concern about the turbulence in world markets, comparing it to ‘a serious disease’” (Financial Times, 11/28/07, p15).

Many people shy away from speaking to a trader that usually loses money, treating it like a “leper”. Honest traders will shun an unethical counterparty as a “leper”.

The weather interests almost everyone. Many Wall Street professionals employ meteorological and astronomical language in their scientific oratory. Like weathermen, “forecasters” “take the temperature” of the marketplace. They check their trading “barometers”, financial indicators or methods they believe explain or predict price level and movement or other marketplace phenomena. These “weathervanes” point out that the economic or Wall Street “climate” is “sunny” when corporate earnings or equity prices are rising, or high and likely to remain so. Extremely lofty trading profits are “astronomical”. Will fears of bad news “cast a shadow” over the economy? “Bad”, “gloomy”, “dark”, “stormy”, and “tempestuous” Wall Street weather contrasts with a “good, sunny climate”. Bad weather usually implies low or falling prices, or an opinion that corporate earnings are low (poor) or weakening. In an unfavorable economic climate, corporate profits may “evaporate”, “go up in smoke”, or “vaporize”. Sometimes the economic “atmosphere”, “horizon”, or “sky” is “cloudy”, “unclear”, or “hazy”. That speaker may believe bullish and bearish factors are roughly in balance, or that much important information is unknown or highly uncertain. Prices finding it challenging to rise further face “headwinds”.

A price rally in its early stage is in its “dawn”. New marketplace viewpoints “eclipse” old ones. A trader in a dismal losing position “hopes the trade will see daylight soon”. A potential change in financial or political policy may be “light years away from now”.

A surprising news announcement strikes the marketplace like a “tornado” or “hurricane”, inducing large and rapid price changes. A trader (perhaps “underwater” or “drowning”) may need to “ride out (weather) a storm”. Traders hate being trapped in a money losing “drought”. Hardy traders, researchers, and risk managers push their way through a “blizzard” or “snowstorm” of economic information. A financial advisor seeking to mislead others is engaged in a “snow job”.

Wall Street enlists other exciting and sometimes catastrophic Natural phenomena for its metaphors. A huge price rally is “meteoric”. After a long quiet period, “The Market” “erupted” like a “volcano”; prices spiked higher. The European Central Bank’s stunning short-term rate increase shook bond investors like an “earthquake”. Will there be a “tidal wave” of buying or a “flood” or “hail” of sell orders? Suppose the price “climbs uphill” from a “valley” to achieve a new “peak” (“pinnacle”, “plateau”). Will the price “slowly slide downhill”? Will an “avalanche” of selling emerge, causing the price to “fall off a cliff” (“over the edge”)?

Not only do marketplace geometers identify key price points. They do the same for other economic variables such as gross domestic product, consumer prices, housing starts, and unemployment levels. They draw lines to connect such points. Draftsmen create support, resistance, and trend lines and curves around this financial information.

Financial engineers assess and forecast the distance, speed, and shape of price (“Market”; economic) moves. Within Wall Street, as in modern physics, the language of body (and point) interrelates with that of force, power, and energy. Traders speak of buying and selling “power” and “force”. Active, large volume traders are “high powered”. Both upward and downward trends have (gain, lose) “momentum”. Bullish marketplaces “defy gravity”. Bearish ones

“gravitate” to a low level. Wall Street astronomers say a substantial price drop may propel the price “into a black hole”. Elevated commodity prices, if sustained, will increase “inflationary forces”. Foreclosures and high interest rates can put “downward pressure” on the prices for houses and commercial real estate prices. This could be “deflationary” for “The Economy”. Picture two traders, one very bullish on US stocks over the long run, the other very bearish; their views are “polar opposites”.

Natural “waves” and “cycles” are familiar to the public. The ocean has waves. Light and sound are waves. Wall Street price trends move like or in “waves”. Buying and selling waves flow into or buffet marketplaces. The marketplace is busy for a while, then settles down, and later becomes active. Traders enter orders in waves. Traders draw “channels” in their price charts. Prices- like a river between its banks- move within their bounds. Natural cycles include weather seasons and those of biological organisms (life cycle) and ecosystems. Scholarly economic tracts speak of and propose theories regarding “economic cycles” and the “business cycle”. Marketplaces allegedly have objective “cycles” related to price level, direction, and time. Like water or air, Wall Street conditions or price trends sometimes are “turbulent”. References to turbulence (or volatility) usually suggest unclear or difficult marketplace conditions or apparently fast (perhaps also wide and choppy) price swings.

Are many phenomena of mortgage-backed securities marketplaces difficult to perceive or follow? Are complex instruments within them hard to understand? Such a marketplace is “opaque” rather than “clear”, “transparent”, or “translucent”.

Think of positive and negative magnetic charges. An “excited” marketplace has an “electric atmosphere”. Active marketplaces have “electricity about them”. A good salesperson is

full of “positive energy”. Salespersons get “charged up” like a battery before they start a sales pitch to a big client. Very bearish news “shocks” a stock marketplace investor. A substantial Federal Reserve rate interest rate cut can serve as a “circuit breaker” against the threat of a “vicious cycle down” in global equity marketplaces. (Financial Times, 1/23/08, p12). Imagine two big Wall Street firms that dislike and refuse to trade with each other; there is “friction” between them.

Chemistry studies reactions involving elements and compounds. Nuclear physics analyzes chain reactions. Traders and prices “react” to stories. Suppose “The Price” navigates toward a level reached several weeks ago. A news bulletin may “cause a price reaction”, inducing “The Price” to reverse course. Assume several traders purchase a stock. If prices move higher, more and more people may rush to buy, starting a “chain reaction” and generating even higher prices. Marketplace poets call a dramatic price collapse a “meltdown”. Page 1 of the Financial Times (9/30/08) headlines “Meltdown Monday”. In the “Global crisis”, the “House [of Representatives] shocks investors”. In the “S&P 500’s worst day since 1987…Stocks dive on bail-out rejection” [the Congress soon thereafter did enact a financial rescue package]. The NYTimes (6/23/07, p1) states: “Trying to Avert Meltdown in Securities Backed by Risky Mortgages”, Bear Stearns “pledged up to $3.2 billion in loans yesterday to bail out one of its hedge funds that was collapsing because of bad bets on subprime mortgages.” Talented traders and sufficient capital enable a trading firm to reach the “critical mass” necessary to generate lots of money. In Wall Street, a trader notorious for its unethical marketplace behavior will be avoided as “radioactive”. After a financial crisis, what is the “fallout”?

Wall Street plies listeners with language related to thermodynamics. Recall games of skill (hot or cold streaks), war (heat of battle), and love (hot lover). Scientific wordplay of hot and

cold entangles with values of good and bad. Often- but not always- hot is good. Sometimes cold wins praise. Context matters.

Traders have “hot” streaks where they win money (“cold” cash) and “cold” streaks where they lose it. Research viewpoints are hot, lukewarm, or cold. For example, an investment analyst hot on a stock encourages listeners to buy it soon. A lukewarm opinion indicates indifference. Being cool on a stock or strategy means one should avoid them. Hot advice means one should act quickly on the recommended strategy. If an analyst is hot, its recent marketplace predictions generally have come true; cold implies the reverse. A player who changes its opinion and elects not to establish a position has “cold feet”. Someone that volunteers reasons for rejecting a trading idea “pours cold water on it”.

Being “burned” by “The Market” or marketplace scoundrels is bad. No one should follow trading recommendations “full of hot air”. Salespersons and investment bankers make “cold calls” on prospective clients. Talented traders keep a “cool (clear) head” and have “ice water in their veins”.

New issues of equity securities are hot. An actively traded marketplace- especially one rocketing higher in price- is hot. Securities marketplaces perceived as rising, given the predominance of owners, usually are hot and good. However, a “boiling” marketplace has too much of the wrong kind of activity (perhaps speculative or gambling “fever”), with many players overly “fired up”. However, some Wall Street audiences insist that complicated trading ideas should be “boiled down” so they can more easily see their essence (point). Some learned orators talk of an “overheated” marketplace (or economy). In Wall Street, this often refers to a marketplace in which prices have risen too fast or that is too high (or both), or that is moving up

and down too much. Perhaps the overheated (too volatile) marketplace needs to "cool off" before recommencing an upward move.

Some economic experts and Wall Street stars speak of a rather flimsy marketplace body- the famed "bubble". In most discussions of economic (financial) bubbles, prices of assets have "floated too high". However, the term can be stretched to indicate situations where asset values have "fallen too low". The President of the Federal Reserve Bank of New York, William C. Dudley, solemnly declares: "there is little doubt that asset bubbles exist and that they occur fairly frequently. By an asset bubble, I mean price increases (or declines) that become unmoored from fundamental valuations. I want to be clear that I am distinguishing this from price movements that are tied to changes in fundamentals." (Remarks at the Economic Club of New York, "Asset Bubbles and the Implications for Central Bank Policy", New York City, 4/7/10). Compare the eloquence of financial engineers, who say that values (assets) "rest on a shaky foundation". Many of Wall Street's scientific czars believe in the existence of an objective "natural price" (true value, fair value). If such a Natural (scientific) price exists for a security or other economic phenomenon, there can be objectively abnormal (extreme) price levels and movement.

A cold metaphor underlines the danger of a sudden and precipitous price fall: "The market is on thin ice." Borrowers do not want either short or long term interest rate marketplaces to go into "deep freeze". In such conditions- as in the global credit crisis that began in 2007, some players find it very expensive or impossible to borrow money. When central banks, banks, and other institutions become more willing to lend money, credit "thaws".

Many shrewd traders and researchers have a "reservoir" of trading ideas. "Illiquid" (usually "small") marketplaces like many penny stocks have less "flow" than "liquid" (usually

"big") ones like a Dow Jones Industrial Average stock. In an illiquid equity, trading is less frequent, and the transaction size usually is smaller. Some marketplace traps relate to fluids. A trader with a big position in an illiquid arena may find it challenging to exit without losing money. A trader in a losing position hopes to escape from a "whirlpool" or "quicksand".

How else do scientific scripts describe marketplace location? Imagine the human body again. Traders not only take (establish) "positions". They want to be in a "good position", to have money making trades on the books. Suppose someone is losing money, or believes they probably will do so. In this "bad position", they are (or may become) "stuck", "in a corner", "tight place", "hard spot", or "buried". They must "dig themselves out of a hole" (that they "dug themselves into"). If a price is low or too low, it is "in the pits".

Medicine is not the only applied science fashionable on Wall Street. Many rock stars and groupies of economics and Wall Street embrace the language of other applied sciences as part of their rhetoric. They count their blessings that people from all walks of life and nations are familiar with engineering inventions and accomplishments. As genuine applied sciences have experts such as Thomas Edison, so should Wall Street, right? Artful metaphors develop public faith that Wall Street and the economics profession contain people with bright and practical ideas that will (or very probably will) make money.

Would-be Henry Fords and Wright Brothers concentrate much of their tireless effort to romance audiences with words relating to vehicles. Most of the world knows about cars, and many millions of people have driven or ridden in one. Many observers have pointed to America's long love affair with the automobile. Trains, planes, buses, and boats of course are not strange to Americans or others.

Wall Street marketplaces are “good trading vehicles”. What are “good investment vehicles” for a prudent investor to buy? Blue chip stocks, US government bonds, or some combination of these? How about stocks of emerging marketplaces, mortgage securities, or commodities? From what instruments will one get the most “mileage”?

“The Market” or “The Economy” (or a financial benchmark such as the S+P 500, a particular equity, a 10 year US government note, the US dollar, or crude oil) may “shift” into “high gear” (move faster, usually in an upward direction) or “low gear”. IBM may gain “traction” and “motor higher” or move into “overdrive”. Wall Street militarists say “The Market” can do an “about face” and trend in a different direction. Its crafty engineers authoritatively declare that the US dollar’s rally will “accelerate”, “stall”, “put on the brakes”, “do a U-turn” (akin to a geometric “180 degree” one), or “move into reverse”. Will crude oil “run out of gas (or steam)” around 100 dollars per barrel?

Who was “asleep at the wheel” prior to and during the subprime mortgage “crash” of 2007-09? After having done their supply and demand homework, researchers do not want their trading ideas to “backfire” and lose money. Someone who has “leveraged” their assets and borrowed a substantial amount of money to trade is “highly geared”. There must be a “road map” for us to follow in Wall Street to assess risk and build our net worth. What factors will “fuel” or “jumpstart” a bond rally and “drive” prices higher? Both theoretical and applied sciences speak of speed, time, and distance. Many wonder how far (high, low) bond yields may travel. How fast will the move be, and what course will it take? Will “The Stock Market” venture and stay on a “smooth road”, or will its “path” be “rough, bumpy, or rocky”?

Will an equity bull market, which has moved like a “train”, be “derailed” or “go off track”? Propaganda proclaims “engines” or “locomotives” of growth remain.

Long run investors in US equities are in the same “boat”. “Here’s a great opportunity. Don’t miss the boat.” Currencies “float”. Salespersons “float” trading ideas for their customers. The price “cruises” along. Expectations of rallies in stocks are “anchored” by faith that the Federal Reserve will keep short-term interest rates very low. To avoid “shipwreck” and protect “voyagers”, will marketplace “navigators” use their analytical “compasses” prudently?

Language relating to flight infiltrates Wall Street rhetoric. Since securities marketplaces are important to Wall Street and entrepreneurs and companies that issue securities, speakers usually honor upward moves and high prices (especially in stocks) with a label of goodness. Downward moves and low prices are branded as bad. After being “launched” or “ignited” by important information or some “catalyst”, “The Market” or a financial instrument may “fly”, “rocket”, “skyrocket”, “soar”, “take off”, or “blast off”. After an upward “trajectory” (or “spiral”), prices are at “stratospheric levels” or in “orbit” or “outer space”. Price declines are “nose dives” or “crashes”. The Dow Jones Industrial Average “returns to earth” when it falls to what the speaker views as a so-called natural (or reasonable) level (in line with fundamentals, perhaps). According to many Wall Street stars, sideways price movements (perhaps more significant than usual), are “gyrations” or “oscillations”. Those worried about a big drop or “free fall” in equity prices or the ability of junk bonds to repay principal may hurry to buy US government bonds in a “flight to quality”. As on airplane runways, will regulators and politicians “engineer” or “pilot” a “soft landing” for the economy? Will the economy suffer a “hard landing” and fall into recession into depression? In a financial crisis or credit crunch, central

banks may “helicopter in” cash to solve the problem. Top executives ejected from their firms want lucrative “golden parachutes”.

Look further at the arsenal of mechanical wordplay used by Wall Street and economists (including marketplace regulators). Marketplace risk takers trade in financial “instruments”. Insinuating language of engineering and mechanics creates and boosts confidence that Wall Street marketplaces (at least well-developed, well-regulated, rational ones) usually function well. Federal Reserve Governor Frederick I. Mishkin notes: “In general, the U.S. financial system is an efficient mechanism for channeling funds to individuals or corporations with worthy investment opportunities.” (“Monetary Policy Flexibility, Risk Management, and Financial Disruptions”, 1/11/08).

Everyone knows about clocks. Experts know “what makes the market tick”. In so-called normal times, “the market should operate like clockwork”. Charles I. Plosser, the head of the Philadelphia Federal Reserve Bank, comments (“The Benefits of Systematic Monetary Policy”, 3/3/08): “The current economic environment does have some extraordinary features, namely the tremendous difficulties that are affecting the smooth working of capital markets.”

Picture a complicated mechanical structure such as an electric power plant or oil refinery that we want and need to work well. Scientific experts try to prevent problems from developing and disasters from happening, right? When problems exist or develop, well-trained specialists arrive to repair them.

Will financial engineers and rocket scientists “fix”, “repair”, or “mend” a marketplace? Scientific rhetoric expresses and increases faith that experts, due to their allegedly objective

theory and techniques, often can prevent or fix (or at least manage) problems in Wall Street marketplaces (and in the economy).

Purported scientists of Wall Street and economics use analytical "tools" from "toolkits" and "toolboxes" not only to "get a handle on the market" (understand the marketplace), but also to prevent or repair marketplace problems or damage. Fortunately, the US Federal Reserve possesses "traditional mechanisms of market intervention". (Financial Times, 3/15-16/08, p2). Federal Reserve Board Chairman Ben S. Bernanke notes that "the Fed's best tool for pursuing our macroeconomic objectives, namely to promote maximum sustainable employment and price stability" is "the management of the short-term interest rate." However, the Fed's new term auction facility (which offers credit) "may…become a useful permanent addition to the Fed's toolbox." (Speech at the Women in Housing and Finance and Exchequer Club Joint Luncheon, Washington, DC, "Financial Markets, the Economic Outlook, and Monetary Policy"; 1/10/08).

Some highly profitable Wall Street trading desks are "well-oiled trading machines". Individuals also can be "trading machines" or "dynamos". The Pixies sing in "Bone Machine": "Your bones got a little machine You're the bone machine." However, the investment bank "Bear Stearns is a leverage machine: with only $11.8bn of capital from its shareholders it supports a balance sheet of $395bn, most of it bonds, and many of these backed by mortgages." (Financial Times, 3/15/08, p6).

Traders "build up" (increase) their positions. A well-run Wall Street firm "manufactures" ("builds up") profits. Researchers "construct" arguments as to why people should buy and hold stocks. What is a "well-constructed" stock portfolio? Salespersons offer "concrete" investment ideas.

Note other mechanical and engineering talk. Like gold miners, “data mining” traders and analysts “dig into” and “pick apart” corporate balance sheets, income statements, and economic news releases in arduous efforts to “unearth” valuable money making information. Will someone discover that upward price pressures are “in the pipeline”? What are the “keys” to understanding the US stock marketplace? Investment bankers may propose “breaking up” a corporation to “unlock” value for shareholders. Don’t forget “bridge loans”; this short term lending provides or extends financing to a borrower until the establishment of a more permanent financial arrangement. Last week’s economic releases “telegraphed” (signaled) the eventual rally in bonds. A trader in a hurry to establish or escape a position may move with “laser speed”.

Many history buffs are familiar with the Great Wall of China, a structure built to protect the northern borders of the Chinese empire from intrusions by nomadic tribes. Many Wall Street houses establish “Chinese walls”. Picture a financial institution with various departments such as underwriting, trading, and research. Constructed via rules, procedures, and physical separation of departments, Chinese walls are information barriers. They seek to avoid the illegal use of inside information and to prevent conflicts of interest. For example, a firm may seek to separate and isolate people who make trading decisions from persons (such as corporate advisors) privy to undisclosed material information which may influence those decisions. Is “architecture” a fine art or a science? In any event, architecture requires knowledge of the applied science of engineering. The European Commission held a “summit to review the architecture of finance” (Financial Times, 9/24/09, p28). “The financial crisis has handed bureaucrats an unprecedented opportunity to redesign the architecture of financial markets.”

A trader that made a lot of money on its bets “nailed the market right”. A “sharp” (fast and far) price move “spikes” up (down). Suppose the S+P 500 falls 10 percent in a week; it was “hammered” or “drilled”. A trader with offbeat, misguided marketplace analysis that constantly loses money “may have a screw loose”. Many Wall Street houses promise clients “seamless” execution of their trades.

The scientific theatre of Wall Street and its allies also woos the public with exciting vocabulary related to explosives. Such entertaining scientific rhetoric sometimes intertwines with or suggests metaphors of war and violence. A marketplace that many believe will soon have remarkable price movements is an “explosive” situation. Prices can “explode higher”. “The Market” or your position can “blow up in your face”, causing you to lose money. A massive crude oil production hike by OPEC may “nuke” traders holding big long positions in that marketplace.

Let’s now review how Wall Street and economic icons and their disciples import other language from natural physical science and thereby produce additional metaphors. Their creation of a rhetoric of or related to naturalness, rationality, and probability generally (although not always overtly) interweaves with the numerous scientific metaphors discussed above. This further evidence displays the devoted faith of many pillars of Wall Street and economics in science, and their fervent belief they are being scientific (or at least substantially so). Moreover, this rhetoric of rationality (and related terms) is crucial to the painstaking effort of the would-be scientists of economics and Wall Street to objectively (scientifically) adopt and apply the objective perspectives and thought processes of the natural physical sciences. The valiant, determined, and sustained crusade by would-be Newtons, Einsteins, Darwins, Edisons, and Fords of Wall Street and economics to objectively apply the scientific method to economic (cultural)

phenomena is indeed impressive. Their scientific schemes and courtship of audiences express their profound faith that marketplace phenomena (including "The Economy") are objectively (physically; naturally) out there, capable of being scientifically viewed and understood. Wall Street and economics purportedly even have objective experts and trained pupils akin to those of the natural physical (hard) sciences.

Can infatuation with genuine science enable cultural observers to think and act as (or very much like) real scientists? Can being wedded to language associated with natural physical science and by fighting to have objective perspectives and thought processes transform a cultural participant (including a so-called neutral or outside observer) into a genuine scientist or an approximation of one? In any event, by marrying themselves to words of and tied to nature and rationality, by painting themselves as scientists, many Wall Streeters and economists create fascinating propaganda that convinces many other professionals and much of Main Street.

It is a truism that in the Natural (objective) world of real science, there are Natural phenomena. What about Wall Street? Do marketplaces belong to Nature? A favorite allegedly objective phenomenon in economic wordplay is the "natural price". One could capitalize this as "Natural Price" to emphasize this noble battle to objectify marketplace phenomena. The beloved natural price concept sometimes surfaces in Wall Street talk and economic treatises as "fair value", "true value", "central tendency", or "(natural) equilibrium". The fair value of a particular security (or a benchmark index such as the S+P 500), currency, or commodity is a price or price range. Fans of the naturalness doctrine often call a price "too far" from fair value "irrational", "illogical", "unreasonable", or "emotional". Scientific all-stars and their pupils deem levels near the natural price "rational", "logical", and "reasonable". Wall Street's hunt for an objective natural price, central tendency, fair (or true) value, or equilibrium in financial marketplaces

resembles a religious quest striving to discover the existence of something invisible or unseen above, underneath, beyond, behind, or within phenomena.

Learned professors stress that amateurs and novices will not easily unearth this natural price. One needs specialized training or extensive experience (or both) to understand the wonderful complexity of economic life. Wall Street and the economics community have valuable experts who invent various systems to find and assess fair value.

The rhetoric of expertise and following guides audiences to rely on Wall Street rocket scientists not only in discovering the marketplace's natural price level, but also in taking trading positions in relation to it. Picture a body or point that belongs in a certain (correct, right, appropriate) place. If an objective natural price exists, Wall Street (or at least some illuminated experts within it) may objectively know where "The Price" will (or probably will or should) be. Imagine that the price should be at a natural level that one can discover in advance. Isn't it logical to trade accordingly and wait for it?

Suppose the current price level or range for a stock (or any other marketplace) differs substantially from fair value. What related language do economic experts espouse? Engineers may call the equity "mispriced". Or, "'The Market' has gotten ahead of itself", "has moved too far", or "has not traveled far enough". Sermons declare that "The Price" ("The Market") is cheap or expensive, too high or too low. We hear words of price overvaluation and undervaluation, overshooting and undershooting, and overreaction and underreaction. The marketplace is overbought or oversold.

Scientific dogma peddled by Wall Street and economics relating to value, reasonableness, and related terms dovetails with everyday Main Street language. Supermarket shoppers and current and prospective homeowners also converse with a vocabulary of value and reasonableness. “It’s natural (reasonable) to look for a good deal.” The public searches for good value; it converses about cheap, expensive, reasonable (or fair) prices. If bargains exist for Main Street’s goods and services, if real estate may be undervalued or overvalued, why not rely on Wall Street experts to dig up some marvelous opportunities?

Faith in an objective natural price infects Wall Street and numerous economic theories, from those of Adam Smith to others promoted by modern-day economists and business school and finance teachers. United States Federal Reserve Board Chairman Alan Greenspan (Speech to the Annual Financial Conference of the Federal Reserve Bank of Atlanta, “Risk Management in the Global Financial System”, 2/27/98; italics supplied), offers a typical perspective. Recall the decline in US stock prices of more than 20 percent on October 19, 1987. “There is no credible scenario that can readily explain so abrupt a change in the fundamentals of long-term valuation on that one day. Such market panic does not appear to reflect a simple continuum from the immediately previous period. The abrupt onset of such implosions suggests the possibility that there is a marked dividing line for confidence. When crossed, prices slip into free fall- perhaps *overshooting the long-term equilibrium*- before markets will stabilize.”

Or, “Stocks Register Steep Gains, But Wall Street Is Still Wary” ...“’It’s really a market that seems to be bouncing from an oversold condition,’ said Alan Ackerman, market strategist for the brokerage firm of Fahnestock & Company. ‘Whether it’s a bear trap is hard to tell.’ On Wall Street, the game of determining whether a given rally marks a bottom is on, and it elicits all manner of analytical devices.” (NYTimes, 4/11/01, ppA1, C8).

Some whistles to hop aboard the scientific bandwagon are amusing as well as clever. An ad for Franklin Templeton Investment features two pictures, one of Benjamin Franklin (the revered American statesman and inventor), the other apparently of a bulldog. "Our investment philosophy? Find the bone. That's the approach behind our Mutual Series Funds. Dig deep, and the truth will be exposed. Our portfolio analysts aggressively go after undervalued securities others have overlooked...." Another newspaper article: "Two Views of a Marked-Down Market...According to Morgan Stanley Dean Witter, the market, as measured by the Standard & Poor's 500-stock index, has not been this cheap since either the end of 1998 or the beginning of 1999, depending on the valuation measure. This is enticing, given that the Nasdaq composite index, heavy with technology, is down to 2,904, 42 percent below its record high in March." (NYTimes, Money&Business, 11/26/00, p7).

Keep the spotlight a while longer on devotees of the natural price and valuation theory. Each growls fiercely that its view is objective. Yet these supposedly clear-sighted savants often disagree in their conclusions as to the natural price of a particular financial instrument. Rocket scientists quarrel as to when the instrument will achieve fair value. Some will not offer a definite time. Related debates occur as to the shape and speed of that future price path. Also, individual theoreticians often change- sometimes substantially- their refined views as to what this so-called rational, fair value is.

"The Bank for International Settlements (BIS) said that the U.S. dollar could be considered overvalued or undervalued, depending on the measure used to judge its level against foreign currencies." (Reuters, 6/9/97). "His [Michael Milken's] recurrent theme was 'perception versus reality,' or, put more bluntly, how he could see what most of the world could not. Self-

serving as it was, he had in fact built his legendary career and fortune upon this ability: first, in seeing the creditworthiness of companies that the rating agencies deemed junk, and later in seeing the undervalued assets of companies that were candidates for buyouts or takeovers. His was the clairvoyance of the outsider. He held himself apart from the mainstream. He had become both prophet and engineer of change." (Connie Bruck, "The Predators' Ball", p271).

Or, "New Era For Taking Market's Pulse. Analysts Debating Valuation of Stocks. As the Dow Jones Industrial Average flirts with the stunning level of 7,000, several leading analysts on Wall Street are counseling that the old rules no longer apply when judging whether the stock market has soared beyond reason. These market watchers, whom some call the New Era group, divine a new period for stocks that is defined by low inflation and the public's keen attraction to stock mutual funds. When the old standbys for valuing stocks are adjusted for these factors, they assert, stock prices look either perfectly reasonable or, at worst, modestly high. But in boldly rejecting old-style analysis of stock market physics, the New Era group is meeting stiff, skeptical resistance from a hard-core group of traditionalists, many of whom draw on the sobering experiences of past downturns." (NYTimes, 2/11/97, pC1).

The price of an actively traded and widely studied financial instrument or benchmark index may move "slowly" or "quickly"- and even dramatically, in a "short" period of time. Does an objective, true for all fair value and central tendency and equilibrium change frequently or all the time? Or, instead, do subjective viewpoints (opinions) of valuation mavens (including investment whiz kids) as to value alter?

"Is RJR Worth $25 Billion? ...What does it say about the country's [US] financial markets when a company that was worth $55 a share in the stock market one day is valued at $75

by its top management the next day and is sold at auction six weeks later for $109? It was not, after all, a Picasso painting that was the subject of a breathless bidding war. It was RJR Nabisco, a company made up of assets that are eminently real and quantifiable." (NYTimes, 12/2/88, ppA1, D15).

Onstage during the financial crisis that began in 2007, prices of many United States mortgage-backed securities (especially those involving subprime loans) "started heading South", and then quickly collapsed. Rating agencies and others rapidly silenced their merry melodies regarding many mortgage securities and other instruments. As prices fell out of bed, formerly high grade investments rather suddenly received an assessment of low grade, speculative, or worse. Bear Stearns, an investment bank, "told investors in its two failed hedge funds that they will get little if any money back after 'unprecedented declines' in the value of AAA rated securities used to bet on subprime mortgages." (Bloomberg, 7/18/07). The investors in "High-Grade Structured Credit Strategies Enhanced Leverage Fund" and "High-Grade Structured Credit Strategies Fund" and in various subprime securities perhaps wonder why the high priests of Wall Street and economics did not ascertain or disclose the objective fair value (natural price) sooner.

Relativity theories of Einstein and others are cornerstones of modern physics. For example, observers at two different locations and distances from an event will not perceive the event at the same time. Many Wall Street players compare two or more marketplaces and their prices. Fundamental studies examine "value elements" (or data or factors) supposedly objectively "built into the price" of each instrument. Enthused by physics, Wall Street traders and economists fondly compare prices of two or more marketplaces and reach conclusions as to their "relative value". Many of these theoreticians yearn to establish a common objective

viewpoint as to the relative cheapness or expensiveness of two or more instruments or marketplaces. Suppose each of the stocks of two large US computer software companies marketplace has a natural price. An inquirer comparing the stock price history of these firms perhaps will discern an objective (price spread) relationship between them. Such comparisons may extend beyond individual instruments. "The S+P 500 is expensive relative to emerging Asian stock markets."

Much of Wall Street's language of naturalness and value explicitly or implicitly links up with concepts of rationality and irrationality. Rationality talk itself is integral to the scientific flag fabricated and waved by much of Wall Street and its academic and media allies. Rationality themes of Wall Street and economics deal with the complete array of economic phenomena-marketplaces, participants, perspectives, actions, and so forth. In addition, Wall Street often stitches the scientific metaphors discussed above into both rationality wordplay and purportedly scientific viewpoints and strategies. Much of the Wall Street entourage thereby confidently imagines itself as wearing a scientific garment, and so it diligently displays this appearance of rationality, objectivity, and science to others. Rationality rhetoric's wares attract public attention and lure players into Wall Street and help to keep them there. Rationality anthems inspire many to follow Wall Street's professional advice. Isn't rationality good?

Genuine natural physical sciences equate or associate rationality with objectivity and the scientific method. In a true science like physics, the rational (objective) perspectives and strategies permit the scientist to perceive and analyze clearly and thus achieve truth for all. Aspiring natural physical scientists in economics and Wall Street contend one can objectively define and analyze rationality and irrationality in cultural arenas.

It is a truism that objective mathematical and formal and logic (reasoning) exists. Natural physical science rationality often involves mathematical or statistical analysis. Some reasoning is rather straightforward. One plus two is three. Two times six is twelve, and three times four also equals twelve. Take a given data set of observations of a biological phenomenon. What are the mean and standard deviation? Obviously arguments and experiments that prove theories and formulas such as force equals mass times acceleration, or energy equals mass times the speed of light squared, are quite complicated. The objective arguments (rationality) of physics and other hard sciences use formal logic such as the syllogism. If all healthy human beings have well-functioning hearts, and if this person is a healthy human being, then it has a well-functioning heart. Of course the logic often is far more complex. It is also a commonplace that natural physical science rationality is not restricted to math and formal verbal logic. The different theoretical and applied sciences directly or indirectly involve one or more of the senses- whether sight, hearing, or other- in a variety of ways.

Some natural scientists employ a deductive reasoning method- a conclusion about particulars follows necessarily from general or universal premises. Others use induction. The scientist infers a generalized conclusion from particular instances. Some scientific arguments harness both deduction and induction. Regardless of reasoning method, in a real science like physics, the interrelated definitions, propositions, arguments, demonstrations, proofs, and laws are true for all observers. Observations, experiments, and conclusions regarding the Natural world must be replicable to satisfy the scientific method, and thereby natural physical science rationality.

Suppose that the definitions, principles, methods, arguments, observations, perspectives, and thought processes within and regarding cultural arenas are not objective, as are those of hard

sciences. Then cultural rationality and natural physical science rationality are not the same- or even almost alike. Rhetorical reasoning is not scientific reasoning.

Of course, since we live in "the real world", cultural participation does not and cannot preclude objective awareness of Natural phenomena. Cultural participants make statements regarding objectively Natural phenomena; "the sun is shining." In cultural arenas, apart from such viewpoints, the definitions, propositions, arguments, proofs, wisdom, and laws represent the speaker's personal convictions.

Regardless of how much formal logic and mathematics cultural perspectives and thought processes employ, cultural rationality (thinking) is far more figurative (metaphorical) and associative than that of the natural physical sciences. Cultural reasoning may create and use some objective links as parts of its subjective chain of argument. However, the perspectives and thought processes of cultural rationality (including their premises, definitions, and arguments) involve (are based upon) numerous leaps, stretches, and filling in the blanks which are not mathematically or formally logical or otherwise objectively true for all. For example, what goes into (fills in the blanks) of a definition of investment, speculation, or economics and why? Consequently, the meaningful and important proofs and structures it manufactures inescapably remain subjective, true only for those with faith in them. These opinions have the stamp of truth for others that agree with the speaker, whether a family, friends, business colleagues, or even most of a wider community such as a religion or nation. Though opinions can dress up with a great deal of formal reasoning, including deduction, induction, and so on, their rhetorical argument always falls short of a natural physical science (objective) proof.

Many believe the word rationality and several of its word cousins are natural physical science terms. Yet many people within cultural fields such as love, war, politics, religion, and games of skill also adore speaking of the rational, irrational, and their relatives.

Imagine an inquirer who battles relentlessly to prove once and for all what love, religion, God, ethics, politics, war, art, or games really and truly "is". They may have unflinching faith in their conclusions. This noble effort, even when couched in rationality language, never creates truth in the natural physical science sense. Cultural fields are filled with fertile competing definitions, theories, and laws but are barren of hard science type truth. Such warring positions often drape themselves with rationality language, but one opinion never scientifically disproves another. In love, politics, and religion, don't we sometimes proclaim that someone we cannot persuade to view things (the facts, the world) our way is irrational, illogical, less rational, unreasonable, not reasonable enough, or lacking in common sense? We typically assert that our own opinion is the good (or better, or best), correct, right, or rational (or more rational) one.

Also, what "is" rational and irrational (or more or less rational) regarding and within a cultural arena (such as politics, economics, and Wall Street) is a matter of opinion decided within culture. Depending on how one defines rationality, there may be various breeds of rationality and so-called logical thinking. Are poetry, painting, music, sculpture, cinema, and dance unreasonable? For cultural fields, rhetoric rather than true science defines and understands cultural rationality. And not one of the assorted rhetorical formulations and viewpoints is natural, objective, positive, scientific, or true for all- even though such rhetoric often incorporates quite a bit of formal logic. Rationality and related terms and theories about them belong to cultural playing fields, battlegrounds, and faiths. Moreover, cultural rationality is not always verbal (or mathematical).

The author of this book aims to convince his readers. However, his perspectives, arguments, and proofs are not and never can be rational or true in the natural physical science sense.

Is natural physical science rationality the truest, purest, or highest form (or level) of rationality, reasoning, logic, or truth? Quite a few religions, some philosophers, and several artists disagree. A religion may equate God with reason, the rational, truth, or related terms, though religions have not demonstrated according to the scientific method that their doctrines are true for all.

In fields outside of the hard sciences, endearing rationality eloquence can sweep listeners off their feet. One could write volumes on the cultural history of rationality and related words. Some would include descriptions and analysis of how individuals and groups exploit such loaded terms to persuade others and to acquire and project economic, political, romantic, religious, social, artistic, and other forms of power. Rationality and irrationality talk may relate to variables such as age, gender, sexual preference, race, ethnicity, religion, or nation (tribe, clan). Are older people more rational than young adults are? In general, are men more logical (less emotional) than women? Is Christianity more rational than other faiths? Is one denomination of Christianity more reasonable than others? Surely civilized (advanced) nations are much more rational and intelligent than primitive tribes? Is capitalism more rational than socialism or communism?

Opinions as to good and bad, and degrees or levels of good and bad, explicitly or implicitly permeate rationality rhetoric. Rationality definitions and discussions thus typically have ethical as well as epistemological and historical dimensions. It is good (better, wise) to be

rational, bad (or less good, unwise) to be irrational or illogical. Some say the rational is good and irrational equals bad. But don't some people condemned as bad nevertheless reason quite a bit?

Suppose all rationality- or "true", the highest, or best rationality- is natural physical science rationality. Suppose economic and Wall Street arenas are (or are very much like) natural science (objective) fields in which one can exercise such rationality. If at least some Wall Street experts and cultivated economic gurus are truly rational and can discover or invent the (or a) right money making approach to "The Market", such heroic teachers and their partisans can enlighten their pupils and help them to harvest money.

Economists and Wall Street leaders and experts infatuated with natural physical science lecture that audiences (especially relatively unsophisticated ones) should perceive and trust them as objective ("rational") guides. After all, rational natural physical science geniuses are better equipped than amateurs to discover, invent, and apply rational perspectives and approaches. Don't rational perspectives and methods achieve beneficial results in hard science? Think especially about the feats of applied sciences like engineering and medicine. So properly developed and applied rational trading viewpoints and strategies will or probably will (at least often enough) win money and manage risk effectively in Wall Street, right?

Many Wall Street believers in a natural physical science model for Wall Street and economics have made money. Unfortunately, many scientific advocates have lost money.

> "Clearly, sustained low inflation implies less uncertainty about the future, and lower risk premiums imply higher prices of stocks and other earning assets. We can see that in the inverse relationship exhibited by price/earnings ratios and the rate of inflation in the past.

But how do we know when *irrational exuberance* has unduly escalated asset values, which then become subject to unexpected and prolonged contractions such as they have in Japan over the past decade?" Alan Greenspan, Chairman of the United States Federal Reserve, Speech to the American Enterprise Institute for Public Policy Research, "The Challenge of Central Banking in a Democratic Society", 12/5/96 (the Dow Jones Industrial Average 12/5/96 close was 6437; my italics)

"Dow Finishes Day over 10,000 Mark for the First Time... Ralph J. Acampora, director of technical research at Prudential Securities, was an early believer in Dow 10,000. On March 16, when the average first topped 10,000 and then retreated, Mr. Acampora exulted: 'It's exciting. It's America. We all should get up and sing "God Bless America." These are our big stocks that are leading. It's anything but irrational.' The stock market surely is America today. An estimated 45 percent of American households own equities, up from about 14 percent in 1980." NYTimes, 3/30/99 (ppA1, C12)

Just as they quarrel as to what the fair value of a financial instrument is, the diverse species of Wall Street natural physical scientists disagree as to what price levels (and "movements"), analytical perspectives, trading methods, or participants are rational or irrational (or which are more rational than others). Many on Wall Street, especially those inspired by natural physical science, chirp loudly that the price (like a body or vehicle) can move or travel too far, too high, too low, or too fast. Perhaps the price overshot the rational (natural) price in a rally. If fair (true, good) value for the S+P 500 is 1200, 1500 must be unreasonable. A price collapse- especially a sustained one- beneath the long term equilibrium undoubtedly is irrational! Some skeptics may wonder why traders had reasons and arguments for buying (or selling) at a supposedly unnatural or irrational level. At prices distant from so-called fair value, are buyers

rational and sellers not, or vice versa? Who decides this? At any given moment, there surely cannot be multiple objective natural prices for a given financial instrument or index.

Some Wall Street clairvoyants proclaim a consensus as to the fair, rational value or what constitutes a rational trading viewpoint and approach. Isn't this consensus composed of numerous subjective opinions rather than objective viewpoints? Isn't this so-called consensus merely the speaker's rhetorical construct? In any event, in the absence of an authentic scientific demonstration, neither a majority vote nor an apparent consensus (or a so-called universal view or collective wisdom) constitutes objective proof.

Rationality rhetoric does more than inspire its speakers and aim to explain phenomena and educate audiences. Bewitching rationality oratory does more than enable one Wall Street professional to convince another professional. It convinces much of the Main Street public to walk down Wall Street aisles with friendly yet rational partners.

Rationality jargon induces action partly because much of Wall Street and its comrades in economics departments, business schools, and other social "sciences" so enthusiastically and comprehensively strive to mimic genuine scientists. The devout faith that one (especially experts) can analyze the phenomena of economics and other subjective realms with the same sort of rationality as that of actual (hard) sciences sells especially well when the speaker is a distinguished pedagogue or a trading rationalist who has made a lot of money. Rationality eloquence also appears authoritative and persuasive because it intertwines with a very diverse and impressive repertoire of other scientific metaphors. Nevertheless, heartfelt parroting of rationality talk, even when cleverly interspersed with other scientific wordplay, does not have magic powers. Neither such incantations nor unflinching faith transforms cultural domains such

as economics and Wall Street into Natural or Natural-like ones, nor enables reasoning regarding or within them to become scientific.

The columns below are guides to the rationality language game that Wall Street, economics, and others play so seriously. However, not all rationality rhetoric is identical, or devised with equal creative skill. Not all speakers in a given cultural field employ every term, or define and apply a word in the same way. Some words may seem more "truly scientific" than others. Also, depending on the speaker's viewpoint, the meaning of some words overlaps that of others. One also could place the various words in the two columns into one column or on one line. In such a pillar or continuum, rational (or true, most, or highest rationality; truly scientific) would be at the top or at one end, with terms indicating less rationality or irrationality increasingly distant from it.

The word rational may allude to more than the icon of hard science type thinking. Words in the rational tower generally are viewed as good and praiseworthy, in contrast to the bad, evil, less good, or inferior members in the irrational column. Rationality talk thus often conveys ethical, moral, or religious overtones. Rationality and good also suggest truth, rightness, correctness, accuracy, and appropriateness. Irrationality and bad connote wrong, error, and imprecision or disorganization. Therefore many condemn irrational trading perspectives, methods, actions, participants, and factors.

Picture an individual that lusts after money who has great confidence in the true for all natural physical sciences. When prodded by an association of rationality with some version of goodness, and especially when further aroused by other natural physical science vocabulary, they are especially inclined to believe in and follow some version of natural physical science rhetoric.

Since it makes good sense to follow good experts and their assistants, why be unreasonable, less rational, irrational, and bad (or less good)?

In cultural domains, advocates of a particular opinion fight to place their theory in the rational column. They often consign different or opposing theories to the irrational (or much less rational) category.

Rational	**Irrational (or Much Less Rational)**
Reasonable	Unreasonable
Logical	Illogical
Objective	Subjective (opinion)
Scientific	Unscientific
Intelligent (wise, smart; street smart)	Unintelligent (unwise, dumb, stupid)
Sensible (prudent, good judgment)	Senseless (imprudent, bad judgment)
Common Sense (obvious)	
Natural	Unnatural
Realistic	Unrealistic
Businesslike (commercial)	Unbusinesslike (uncommercial)
	Emotional (or psychological)
	Superstitious

Many would add simple-minded, foolish, brain dead, nonsensical, demented, insane, or crazy to the irrational list. Wall Streeters often pin labels from the irrational column to a given person or trading community to signify hostility to or contempt for their viewpoints and actions.

Some past and present observers (players) in cultural fields- whether in economics, politics, war, religion, and "high society" (and other social circles)- associate additional words with the rational versus irrational columns. They link rational to civilized, cultured, educated, and advanced. Aren't words like civilized and advanced associated with goodness (and sometimes even with virtue)? Irrational suggests uncivilized, uneducated, ignorant, and backward, and perhaps also barbaric, savage, or primitive. When the Isaac Newtons and Henry

Fords and other giants of Wall Street and economics employ words from the rational and irrational columns above, won't many listeners recall a few of these other persuasive terms?

If someone believes in "the" right or best outlook, other competing viewpoints usually seem false (or less true), inaccurate, inferior, irrational, or lacking in common sense. Suppose a Wall Street colony and its academic and media helpmates convince others that their given subjective perspective really is objectively rational (scientific), or "as close to that standard as one can get at this time given the present state of investigation, information, and knowledge". By comparison, other rival frameworks often will be called less rational, subjective, inferior, or irrational. These competing ideologies consequently will tend to attract fewer disciples.

Also, though those aspiring to clear-sightedness generally are suspicious of emotion, not everyone brands emotion as bad in all circumstances. In love, isn't emotion often considered good? In addition, a few poets, musicians, and others praise (at least to some extent) irrationality or randomness.

Is there ever a tendency for those with substantial money losing trading positions or recommendations to declare the current price unreasonable, irrational, or unbelievable? At all price levels in a given marketplace, Wall Street traders and advisors nevertheless offer what they believe to be good, rational explanations for their marketplace perspectives and thought processes (reasoning), strategies, decisions, and positions.

Pretensions to objectivity (scientific rationality) extend beyond traditional economics to "behavioral economics", which claims to blend economics and psychology. "Some Funds Try to Read Your Mind...Richard H. Thaler, a professor of economics and behavioral science at the

University of Chicago Graduate School of Business and the field's leading figure...says research by him and others holds practical promise even if Wall Street peregrinations cannot be fully fathomed just yet." Arjen B. Pasma, a portfolio manager at ABN AMRO Ratio, employs behavioral concepts. He "uses a model that identifies stocks out of favor or undervalued because of emotional or psychological factors. 'If you want to exploit irrationalities, you should use something that is rational or emotionless like a model,' he said." (NYTimes, Money&Business, section 3, 8/19/01, p8).

A rocket scientist may believe a rapid upward journey has left the price too high (perhaps in thin air) and reflects an irrational marketplace environment for the financial instrument. This condition is a mania. Financial engineers label the converse situation with rapidly falling and too low prices a panic. Someone who trades way too much, taking imprudent risks, is a trading maniac. Wall Street logicians typically place what they deem manic and panic outlooks and behavior in the irrational column.

Can investors in high grade securities become too exuberant, and thus irrational? If they are irrational, are they still investors? Can a rationality kingpin or financial doctor objectively answer these questions according to the scientific method?

Some people, especially those influenced by natural physical science notions, speak of thinking versus feeling. In cultural arenas, are perspectives and thought processes separable from emotion? Is so-called emotional reasoning entirely, mostly, partly (or necessarily) irrational, less rational, disorganized, chaotic, or unclear? Emotion permeates cultural reasoning. Participants love, fight for, have faith in, and enjoy winning good, valued ends other than knowledge for its own sake.

Compare hard science textbook knowledge with marketplace and other cultural street smarts gained through experience (including the school of hard knocks). Street smart sounds more rational than irrational. Yet how much formal logic do street smart people use, whether in games of skill, love, war, politics, religion, ethics, or Wall Street?

In which column, or where on the line, should one place intuition? Some speak of a "sixth sense", or a feeling in their heart, gut, or bones, as to where the price will be or what a trading counterpart will do. Many natural physical scientists would insist on placing intuition in the irrational category. After all, everyone knows there are only five senses. Others observers might place it somewhere in between the two columns.

Reasoning obviously implies thought of some sort, and natural physical scientists of course tell us that thinking only occurs in the head. Some cultural speakers surgically divide the body according to the rationality variable. Some body parts, which usually include the head and its brain, are associated with rationality. The heart, gut, and bones are unreasonable, less reasonable, or seats of passions, emotions, and feeling. Some speakers nevertheless attribute reasoning, or a different sort of thinking than the rational one of the head, to such organs.

Since both Wall Street inmates and the Main Street public are familiar with rationality phraseology from cultural fields as well as hard science ones, the adoption of it by Wall Street and economists makes Wall Street phenomena and perspectives appear less strange and more fascinating. The rationality language idolized by Wall Street and its allies is a tool created to build and sustain faith in the alleged scientists of Wall Street and economics and their rhetoric. Draped in the robes of science, painted with the authority of rationality, aren't such guides

worthy of respect and emulation? If we have trouble understanding their subtle or advanced perspectives and methods, fortunately many of such supposed scientists generously offer handholding services to us.

Some may wonder why distinguished Wall Street experts squabble as to what viewpoints, strategies, and actions are rational, or which are more scientific, intelligent, objective, logical, or smarter than others. In addition, perhaps due to clever experiments and diligent testing, would-be scientists may improve or even discard marketplace doctrines and strategies previously blessed as scientific, rational, or objective. Despite such great diversity of opinion and the inability to objectively prove any of their theories, many economists and Wall Street guiding lights emphasize that marketplace science marches forward over time. Moreover, regardless of the Wall Street speaker's particular natural physical science theology or trading recommendation, the sacred scientific rhetoric unrelentingly espouses a common general theme. The public should do what Wall Street's expert Newtons, Einsteins, Darwins, and Edisons (and their well-schooled apostles) say is rational.

Do real natural physical scientists need metaphors to develop or prove their theories, or practically apply them in the real world? Doesn't a comprehensive, sustained, and widespread use of metaphors (and subjective definitions) and similes indicate that the type of rationality of participants in (observers of) that field is cultural rather than scientific? Extensive figurative language is a sign of a cultural realm, of cultural perspectives and thought processes. Wall Street and economic rationality language is not scientific. It is metaphorical (subjective). Detailed discussion on these issues follows in later chapters.

In religion and other cultural areas, the fervent, frequent, and widespread statement of a personal doctrine tends to enhance faith. In general, the longer that cultural opinion has been accepted by the given community, the more rational, "objective", certain, and true (truer than ever) it appears to the congregation reasoning and behaving in accordance with it. Inspired, creative, and repeated expression- in Wall Street, economics, and politics, as in religion and elsewhere in culture, often helps convert people to the proclaimed subjective perspective. Thus the more people that subscribe to the rhetoric of the natural physical scientists of Wall Street and economics, the more their polished sermons and scriptures are taken for granted and called reasonable, objective, and true by those with faith in them. Usually, the more one hears of successful financial coaches, heroes, generals, wizards, and rocket scientists who also preach apparently scientific wisdom, the more believable their opinions seem. Shouldn't one try to imitate their actions, and do as they suggest? In Wall Street, sustained obedience of course generally requires profitable outcomes or a belief that it is reasonable to wait a long time to make money.

What trading perspectives and strategies are rational (or the most rational) in general, or for a given marketplace? What about for a particular client? Wall Street romances the public with various enticing allegedly objective and rational approaches. Although marketplace speakers mix a variety of cocktails of scientific rhetoric to serve the public, rationality language almost always is an explicit or implicit ingredient.

Much of the rationality preaching by Wall Street and its cohorts relates to "investment". Is an investor (or true investor) rational? Is investment intrinsically rational? Is investment ethically good? Many supposed scientists walking the Street bind the terms investor and investment to the rational column. This fancy stratagem aims to encourage people to invest,

especially in securities marketplaces with an investment "nature". Most contrast investors (prudent owners) and investment with speculators and speculation, as well as with gamblers and gambling (and with trading in the non-neutral sense of that word). A minority of Wall Street biologists admit some species of speculation are rational, even if they mildly disapprove of the practice.

What about hedging and risk management? Most Wall Street naturalists classify these practices as rational (and good). In Wall Street, some players call the hedging of perceived price risks facing financial assets "insurance". Inside and outside of Wall Street, most people believe having insurance against significant risks is reasonable. On Main Street, owning life, home, and property insurance is prudent. According to the Financial Times (9/8/09, p1), "Mexico makes $8bn as oil hedges pay off". The nation bought financial contracts "as insurance against weaker energy demand and lower oil prices" and its "astute risk management will make it the envy of Opec". Yet is hedging the same as gambling or a type of gambling? The Financial Times continues (p22): "Mexico's big gamble on oil pays off". The newspaper adds: "When Agustin Carstens, Mexican finance minister, hedged all his country's oil sales for 2009 at $70 a barrel, in effect gambling that prices would stay low this year, he surely had in mind the dreadful political experience of a Latin American neighbor [Ecuador's hedging program of the mid-1990s]."

Is speculation necessarily irrational or less rational in the natural physical science sense of "rational" (objectively)? Is gambling intrinsically even less rational (more irrational) than speculation? However, anyone who has spent time in Wall Street knows many so-called speculators think hard about their trading positions, often harder than many investors. Some speculators make money over the long run, too. Many gamblers in games of skill diligently calculate risks. Also, many professional gamblers view themselves as engaged (working) in a

business. Many gamblers invest time, effort, and money to succeed. Quite a few people have earned their living over the long run via gambling.

Rationality talk seeks to lead players into rational (good) marketplaces and opportunities, to steer them away from those that are insufficiently rational. The rationality honor encourages many to have and maintain faith that the particular Wall Street marketplace or trading idea is appropriate turf for financial pilgrims seeking to make money and manage risks. Many- or at least experts- probably can harvest money in a rational (or substantially rational) environment, right? A rational marketplace need not be as pristine or organized as a scientific laboratory. Nevertheless, rationality language, sometimes associated with terms like efficient and inefficient, implies the praiseworthy marketplace has significant and sufficient order and structure, analogous in many respects to a Natural phenomenon such as an engineering mechanism or biological system. Most orators believe that this sufficiently understandable (intelligible) financial domain usually has enforced rules and regulations, readily discernible prices, quite a few participants, and a substantial amount of trading activity. Investors are often the target audience for rationality stagecraft. The US equity arena is a popular playing field for such labeling.

In any given marketplace, players perceive, select, and evaluate diverse information in assorted subjective ways. A variety of bulls and bears and so-called neutral observers offer various and competing arguments to justify their perspectives, methods, and actions. From a variety of pulpits, preachers of rational, intelligent, and logical viewpoints and price outlooks try to sweep listeners off their feet and capture adherents. Assume a given playground and a Wall Street rocket scientist in love with a particular (general; overall) marketplace doctrine and strategy. At times this wizard may have a bullish stance in that marketplace, whereas during

other periods that guide may take a bearish or neutral posture. However, at times a significant majority of Wall Street's scientific evangelists chain rational and irrational wordplay to a specific bullish (or bearish or neutral) outlook for a given financial marketplace such as United States equities. The following prophetic chant and its variations are well-known: "It is rational to own US stocks over the long run."

Admittedly, natural physical science advocates have long intently studied marketplace price "motion", notably in the American stock marketplace. Wall Street swarms with geniuses trained in mathematics, physics, and other real sciences. Many of these extremely bright people toil long hours over many years. Sophisticated computer hardware and software abounds. But has anyone offered evidence which proves in the true for all, scientific sense that a bullish (bearish, neutral) outlook in any marketplace- even for a benchmark such as the Dow Jones Industrial Average- is objectively rational (or irrational)? Has any financial engineer ever objectively (scientifically) demonstrated that the price (over any given time period) must or probably will move up (or down, sideways, or randomly)?

In a marketplace widely classified as rational (or usually rational), such as that of United States stocks in general, suppose the majority of these fictional scientists seductively propose that the rational (or most rational) position to establish is a long (owning) one. For decades in regard to US equities, Wall Street natural physical scientists and many others consistently have advertised this bullish perspective in public preaching, private parables, and cherished investment bibles. Of course at times some rocket scientists have been neutral or bearish regarding US stocks. At times some howl that prices are not at fair value or are irrational, perhaps exuberantly so.

Many such experts qualify their rationality viewpoints for a marketplace by referring to a time element. The favorite for many supposed scientists is the nebulous long run period. A sample teaching: "Over the long run, the bullish price outlook for US stocks is the rational one."

Some of this rationality pillow talk is modified in another fashion. Some Wall Street rationalists murmur that their bullishness only applies to investment grade equities. This enables Wall Street and its friends to identify experts who can determine which stocks are suitable investment vehicles. Won't it be rational for the public to follow such stock investment oracles? Investment experts also inhabit interest rate, foreign exchange, and commodity marketplaces. Isn't it rational for an individual investor to follow expert guidance on how to build a properly diversified portfolio in stocks and bonds?

Remember the prestige and authority of natural physical science and its skilled practitioners. It is stupid to question objective truth, and smart to agree with it. Everyone knows that it is rational, intelligent, and logical to trust physicists, chemists, biologists, and mathematicians in their field of expertise. Recall again the abundant number and broad range of Wall Street's scientific metaphors. Wall Street's investment coaches and cheerleaders in stock, interest rate, currency, and commodity marketplaces often season their rationality language with them. Isn't it rational to want good investment vehicles?

The Wall Street romance of rationality also has an entertaining aspect. Isn't figuring out a marketplace rationally and making money as a result fun? Rational exuberance sounds rather pleasant. Scientific language bolsters faith that trading in general- and investment in securities and other financial instruments in particular- can be both rational and a source of happiness.

Let's explore a bit more why packages of Wall Street and economics rationality language and supposedly objective marketplace theories and strategies so often succeed in convincing others. To more fully appreciate the seductiveness of the scientific songs of Wall Street and economics, one should outline the roles of natural physical science and the legal system in the creation and structure of the American Dream's rationality rhetoric. "Selling the American Dream: Money, Politics, Nature, and God" discusses the structure and historical and philosophical background of the American Dream, including the integral part played by rationality rhetoric, in greater detail.

"Rationality" is a crucial element of the persuasive and successful American Dream cultural faith. Rationality language is integral to American Dream discourse in general and its specific political, economic, social, and religious dimensions. Wall Street's audience- at least most Americans and many others around the globe- generally believes that wealth and financial security, liberty, freedom, social respectability, the good life (or a better life), and happiness are rational and good goals to pursue. The American Dream is a rational viewpoint, right? The rhetorical strength of Wall Street and economics rationality discourse therefore derives partly from the persuasive power and history of the American Dream itself.

Although scientific and cultural rationality are very different, rationality vocabulary has not been confined within the box of the genuine natural physical sciences. Regarding and within a cultural field, natural physical science dreams and pretensions and rationality talk are not objective; they never discover objective truth. However, regarding and within a cultural battleground, rationality propaganda- especially when coupled with other scientific metaphors- often convinces cultural players of its objectivity.

In the American Dream, economic, political, social, and religious (ethical) perspectives and goals are linked to- and supported by- rationality vocabulary imported from a subjective doctrine that intertwines religious and scientific language. The words of natural physical science rationality thus cascade through and permeate the American Dream, although the American Dream's perspectives and rationality remain entirely subjective (cultural).

Isaac Newton's natural physical science view also expressly includes an opinion on God. God and His will are rational (reasonable) and Natural. Nature reflects the creation by and will of God. Natural physical science investigates and discovers the laws of Nature. Understanding Nature thus links up with an understanding of God.

Newton's natural physical science doctrine, including its rationality language, directly inspired the Puritan political philosophy of John Locke. According to Locke, political principles, actions, and institutions should be rational, reasonable, and natural; so should economic ones. Yet the rational in political and economic life is not merely good, lucid thinking. For Locke, religion and rationality intertwine. Political and economic rationality has a religious, ethical, moral, and specifically "scientific" ("natural") component. The Lockean marriage of natural physical science and religion with politics and economics resulted in the American Dream.

The American Dream in principle is good as well as rational for everyone. It is good to think and act rationally in economic and political arenas, not only in scientific- and religious-ones. Why not preach that investment can be rational, objective, and even scientific (or mostly or nearly scientific)? The American Dream's rationality rhetoric helps many scientific theologians of Wall Street and economics to persuade themselves and much of the public (especially the American one) to think and act in specific ways. It is good, natural, rational, and logical to walk

into United States (and other appropriate) securities marketplaces (especially investment grade ones). It is intelligent to buy and hold for the long run good securities, especially US investment grade stocks.

We hear of civil law, criminal law, divine law, artistic laws, and laws of other subject matters from physics to philosophy to psychology and economics. Either in general, or for a specific legal realm, some visionaries declare "the law" ("true law") is objectively "out there" to be discovered or interpreted.

However, apart from objective natural physical science laws (truths), other laws are cultural phenomena and so true only for those with faith in them. Charming viewpoints regarding civil, criminal, divine, and social science laws are entirely subjective (matters of opinion, not so-called definite facts); so are philosophical, artistic, and other perspectives of the humanities. It does not matter if the advocate loudly pleads that such subjective perspectives and principles are rational, reasonable, logical, and objective. In regard to cultural laws, no objective proof according to the scientific method has shown they are true for all.

Some base their cultural laws on the "laws of Nature" or divine law. Some derive laws of Nature from "reason" or from God and His laws. Some associate "reason" (or some version of it) with God. Some theorists associate concepts of law in various ways to ethics and morality, to viewpoints of good, indifferent, bad, or evil.

In any given cultural arena, religious faith or enthusiasm for natural physical science (or both) may inflame the mind of a law-hunting wizard. This guide may unveil the law, which it alleges is true for all. Who belongs to this group of "all"? For some clerics of culture, their faith

regarding what is supposedly objective (rational) applies to the entire world. For other evangelists, this law is relevant only for a particular country, nation, tribe, clan, or other social group.

Anyway, now think of law in a Main Street sense of courts, lawyers, legislation, contracts, and crimes. History displays assorted legal systems over time and across cultures. Also, legal scholars, philosophers, religious leaders, and others have defined "law" and its fields (and "justice") in diverse subjective ways. Even within a given culture, disagreements exist regarding the definition, scope, and application of law.

Sometimes one leader makes the laws. In the United States as in many other countries, legislatures or administrative agencies enact many laws. Some rules and regulations relate to commerce or property. Others define and punish criminal acts. Many laws reflect community values as to right and wrong. Some rules are more procedural, such as when to file an answer to a civil complaint.

Everyone knows that American courts interpret laws. However, even learned judges do not in all disputes agree what the law is or how one should apply it. Sometimes a court seeks to ascertain the intent of the legislature. What really is the statute's true, intended meaning? Some scholars do admit that courts sometimes make law. For the US Constitution's Bill of Rights, what are "unreasonable searches and seizures" (Fourth Amendment) and the scope of freedom of speech and the press (First Amendment)? A court may decide some contractual rights and obligations are unreasonable and unenforceable even if the parties actually agreed upon them. Courts sometimes declare it reasonable to presume some terms belong (implicitly) to the contract even if the parties never discussed them.

The adored language of rationality imported by aspiring natural physical scientists of Wall Street and economics acquires further persuasive force by the longstanding tradition of a vocabulary of reason employed by the American legal community. Within the American Dream, the legal field reflects and is a subset of the Dream's political and economic aspects. The American public believes that laws should be reasonable and (good, just). The law (good laws, not the bad ones) of a nation under God assists the practical realization of the American Dream.

For the United States, laws and the legal system represent the "voice (or will) of the people" (even if only a majority- not all- of the citizenry agrees with that voice). Political leaders and the public say that America is under God, and that everyone is equal "under the law". Although "the law" has a religious (moral) dimension in the American Dream, the law in the Dream also is like a natural physical science body or principle. The law (one perhaps should capitalize the L) often is said to be out there. Not only is the law (legal phenomena) objectified, supposedly apart from its interpreters, people (or at least experts) allegedly can analyze and apply it rationally (objectively).

Especially in early American history, court decisions as well as legislative and executive acts developed many of the laws and legal principles of the United States and its political subdivisions. American and English jurisprudence created the subjective concept of the "reasonable man" ("reasonable person" nowadays) within the so-called common law tradition. This reasonable person parallels the "voice of the people", the legislature (or an executive branch rule maker). Also, recall the religious notion of "The Market" as akin to a god or other spiritual being or entity. The proverb "The Market is always right" suggests "The Market" is or is like some mythical reasonable person.

Suppose an auto accident occurs. Or, imagine that someone playfully tosses firecrackers near a crowd. In deciding liability in a negligence case, a court inquires how a reasonable person would act under the same or similar circumstances. How foreseeable was the harm? In this formulation, the reasonable person theory implicitly satisfies some subjective community standard for average (or at least sufficient) judgment, care, and ability. The legal "reasonable person" label consequently suggests levels or degrees of rationality and reasonableness. Sometimes a court decision explicitly speaks of this hypothetical reasonable person and its standard. Other judicial opinions only implicitly refer to subjective reasonable person concepts.

The ideology of the reasonable person standard implies the existence of someone reasonable (rational) enough to understand and express the law and intelligently apply it in the particular case, right? So the legal system must have qualified persons- judges- with an understanding of what high, average, and low reasonableness in a given legal context are. Other experts such as legal philosophers also may possess this knowledge. Is every judge a genuine expert? Anyway, judges discover, interpret, or declare what the law supposedly "is"- or how a law should be applied in a particular situation. Yet if Main Street players can have high, average (or sufficient under the reasonable person standard), and low levels of reasonableness, the community of judges (professionals) likewise can have high, average, and low levels of rationality. Thus the American legal system has or probably has some truly rational (or at least highly reasonable) judges and courts. Such expert judges know better than other ones the laws and how to express and apply them. Of course in cultural practice, we all know that some judges are more talented than others.

A viewpoint associated with the language of reasonableness, sometimes including the reasonable person tradition, permeates American legal principles and their application. Judges seek to make the most reasonable (rational, intelligent, logical) decision (best interpret the law) in fields in addition to the negligence arena. Therefore rationality concepts and standards pertain not only to negligence doctrines and situations, but extend to other domains such as contracts, property, and constitutional and criminal law. In all these realms, American courts (and legal scholars) not only deal with particular fact situations, but also interpret statutes, regulations, and other judicial decisions.

Until there is widespread agreement on "the law" according to these subjective rationality standards, lawyers, judges, law professors, politicians, and others actively debate what the allegedly objective law is. Assume a given legal issue, or the application of a similar law to similar factual circumstances. Often within the same era, courts in different jurisdictions, each flying the reasonableness banner, conflict in their declarations of what the law really is or how it should be applied. Wise Massachusetts courts may disagree with the wise ones of Mississippi. In federal courts, the Second Circuit may reach different decisions from the Fifth Circuit. How many objectively reasonable persons or reasonable viewpoints are out there? Also, widely accepted legal opinions as to the reasonable interpretation of a law or what a reasonable person would say or do according to the law can change. In the United States and elsewhere, a standard for or definition of legal reasonableness is not frozen in time. Besides, why not take a look at cultural history? Not all nations and other communities share the views of the United States as to what rational, reasonable, correct, and good legal theories and rules are.

The law (including judicial decisions) derived from any standard of reasonableness therefore represent only one community's opinion of reasonableness. However, all members of

the given legal (political) community are subject to the law and its future application. Justice is blind. Sometimes, the relevant community is the entire United States. The Supreme Court declares the law of the land. Legal rules obeyed and respected by the great majority of a political community increasingly become taken for granted. Those laws appear to represent reason and common sense. This faith of course does not always remain constant or endure forever. However, the longer people take a legal rule for granted, the more likely it is they will call the opinion and values it represents not only just and right, but also rational, objective, and natural.

The "reasonable person" of the United States (or any other) legal realm is a poetic invention. In culture, no scientific reasonable person standard exists. That an objective (scientific; natural) "highly reasonable person" exists in Main Street or among judges (or lawmakers) likewise is a science fiction. As legal phenomena are cultural, they are not objective realities akin to the bodies, entities, powers, forces, or principles of the natural physical sciences. Just as American law's reasonable person dogma and other legal doctrines embracing rationality language are subjective phenomena, the perspectives involving and applying them likewise are cultural rather than scientific.

Cultural definitions of and other rhetoric relating to reasonableness, reasonable person, rationality, and associated words vary. Within the legal domain (and likewise inside politics and other cultural realms), the subjective reasonable person concept nevertheless gives cultural observers (participants) a useful rhetorical parallel to the natural physical scientist that investigates Nature. Such parallels do not miraculously transform subjective playgrounds such as legal, political, or economic worlds into an objective (scientific; Natural) environment. They do not alchemically make legal, political, or economic rationality or laws the same as or even like the objective rationality or laws of natural physical sciences. The perspectives, thought

processes, principles, methods, decisions, and actions of any so-called reasonable person in culture are never rational, objective, scientific, or true in the hard science sense.

Since the United States political community via its political theory and legal doctrine has a reasonable person standard, it is not surprising that highly influential economics and Wall Street communities invent their own similar subjective standard, the rational economic participant. This rational economic person has at least average (sufficient) rationality. In regard to appropriate financial portfolio investment, the "prudent person" is a similar concept.

Moreover, like judges sitting high on the courtroom bench, economists and marketplace traders (and investment advisors), can pretend to be objectively rational. Wall Street does not always distinguish between rationality grades. Nevertheless, rational (or at least highly rational) expert "judges of the market" make money trading. Other rational (objective; very intelligent; rocket scientists and engineers), expert marketplace judges guide traders and other marketplace participants in making decisions. Shouldn't securities investment be a rational process? "Selling the American Dream: Money, Politics, Nature, and God" explains in depth the interrelationships of the economic and political formulations within American Dream rhetoric. Rationality wordplay seeps not only from natural physical science into law and politics; it also flows back and forth between the political (legal) and economic fields. As the law decides (claims to discover or knows, like a real scientist) what is reasonable, economics and Wall Street fabricate their own rhetoric of rationality.

Natural physical science wordplay helps Wall Street to sell in seemingly dispassionate fashion the gospel that its marketplaces are good, sensible places to seek the desired American Dream goal of money. Rationality language, the embrace of other natural physical science

words, and efforts to adopt hard science perspectives and strategies unite to create this rhetoric of dispassion. This rhetoric has two versions, though they closely resemble each other.

The first spin's scientific pretensions are broader. Purely (or very substantially) objective ("rational") viewpoints regarding economic phenomena supposedly exist within Wall Street and the economics profession. Wall Street and its economic allies praise calculated, unemotional, scientific marketplace perspectives, thought processes, strategies, and actions. This alternative insists that someone who loves money- especially an expert- nevertheless may remain entirely (or almost entirely) unemotional as it fights to acquire or keep that money. Wall Street experts, leaders, and many of their students can apply their purportedly scientifically rational abilities to analyze phenomena, manage risks, and make money trading. Economists in general have faith that their beloved theories understand (at least to some extent) marketplace phenomena and can often (or at least sometimes) help to achieve desired economic objectives. But do many people in Main Street neighborhoods with faith in an allegedly objective (dispassionate) natural physical science approach also believe they have sufficient ability, training, experience, or time to be a Wall Street natural physical scientist? Rationality pep rallies- especially those geared toward securities investment- want both the Main Street public as well as Wall Street coaches and players to have deep confidence that rational, logical Wall Street financial engineers and their learned allies will act as (or very much like) scientists on their behalf. We can follow the recommendations of such rocket scientists and their cheerleading henchmen, or even hand money over to many of them to manage!

In cultural arenas, although one can control or manage one's emotions and character traits, they always remain part of one's perspectives and thought processes. In American Dream culture, one should compete for, chase after, fight for, love, and worship money. It makes sense

to have fervent faith that it is good and reasonable to make and keep money. Some of Wall Street's clever rationality coaches and generals unleash a second version of the rhetoric of dispassion. Wall Street engineers sell the public the possibility of passionate coolness. In the first alternative, emotions and character traits are entirely or almost completely absent from the observer's (participant's) marketplace perspectives and thought processes. In the second, the language of dispassion is more clearly in tension with the rhetoric of the goodness of desiring and even passionately seeking money. Yet a supposedly scientific rationality introduces or enhances objectivity and thereby subdues and controls the emotions and character traits. In this second story, Wall Street participants- especially talented rocket scientists and their well-trained apprentices- can win the struggle to keep a prudent (rational) balance between reason (or mind, or thoughts) and emotion (feelings). Some would say the head conquers or restrains the heart. Those with such triumphant rationality are sufficiently rational (reasonable, logical) to be deemed objectively rational. They supposedly are as rational, or almost as rational, as genuine scientists (those of natural physical science). It is reasonable to follow the marketplace recommendations of this second clan of dispassionate rationalists, or to toss cash over to them for management.

This second version's scientific eloquence has metaphorical counterparts derived from other interesting playgrounds. Recall how Wall Street tells people to be cool like a poker player, calm like a great general, and not to get married to or have blind faith in one's trading position. Thus in comparison with the first chorus of dispassion, this second chant tends to promote a greater introduction of metaphors based upon the language of other cultural domains alongside scientific ones. It thereby can evoke the fun, entertainment, and excitement of these fields.

Subjective "science" is never science (objective). Yet since many Wall Street speakers and economists really want to be natural physical scientists or almost exactly (or very, very much) like them, they devotedly seek to objectively wed themselves to the scientific method. The genuine scientific method objectively develops theories and replicates experiments related to them. By talking the talk of the scientific method, many in Wall Street and economics (including central bankers and finance ministers) convince themselves that they can and do apply the method objectively (or almost so). To create an appearance of true science, to create an impression of genuinely objective knowledge and expertise, Wall Street often fills its discourse with words such as "experiment", "probability", "causes" ("reasons"), "formula", and "system". Everyone knows such terms perform key roles in the natural physical sciences. Cultural domains, not only scientific ones, also enlist such words. However, a term such as experiment or probability appears "scientific" when surrounded by the language of and pretenses to the scientific method, rationality, and objectivity. Peppering the discourse with other scientific metaphors such as "vehicle" further enhances belief in the reality of objective scientific study regarding and within marketplaces. In this epic quest to be scientists or very much like them, Wall Street and economics subjectively embrace theories from physics, chemistry, biology, mathematics, and other natural physical sciences as models for marketplace inquiry and explanation. This effort by would-be scientists to objectively adopt such scientific theories is crucial to their faith that they are objectively using the scientific method, and that their perspectives, thought processes, and words are objective rather than cultural (metaphorical).

Economists and Wall Street traders develop theories and perform studies, experiments, and tests. In this process, will they need to "massage the data"? A trader may seek to discover a good (or the best) money making or risk management strategy in a given marketplace such as United States equities. Or, it may locate a trading method, system, formula, or technique it can

use in several marketplaces. Some universal system (perhaps with modifications) may work well in stocks, bonds, and currencies, right? This treasure hunt may be for themselves alone, on behalf of a group (think of long term investors in US equities), or perhaps even everyone.

Trading experiments in Wall Street derived from natural physical science perspectives do not necessarily make money. In addition, unlike a real scientific experiment, trading results via a given "scientific" system are not replicable. A trader employing one may make money, but it will not inevitably do so, or always at the same success rate. Two traders adopting the same system will not achieve the same results, unless they always act in the same marketplaces at precisely the same time and in exactly the same way (such as with the same orders and volumes).

Many scientists say they understand a phenomenon when they know its cause or causes, the reasons for it. In Wall Street, much of the language of causation relates to body. For example, "The Price" of a financial instrument is at the current level because it contains various elements or components that add up in a particular way. Some may break a stock price into investment and speculative parts. Alternatively, think of an animal with a nature, a planet in orbit, or an objective probability distribution of elementary particles. The price of a financial instrument therefore behaves, or probably will behave, in a particular way. Much of the other language of causes and reasons relates to change. "What news moved the crude oil price up a dollar today? Was the real reason the OPEC announcement about production cutbacks? Or was it the bullish inventory stats, or both?" "Why are government bonds up so much from the lows? There are a bunch of reasons, but the main one is that the big fall in the S+P 500 has been causing people to buy bonds."

Where will the price of the S+P 500 be at the end of the year? The Wall Street scientific stage presents marketplace probability and uncertainty as scientific variables. Wall Street

professors and their confederates in economics broadcast they objectively can assess marketplace probabilities and uncertainties relating to phenomena, including events and outcomes. Like beautiful talk relating to experiment and causation, such rhetoric boosts their own as well as public faith that one can view and understand Wall Street and other economic information without (or with very little) subjectivity. Suppose marketplace observers and participants (especially experts) not only can be rational like genuine natural physical scientists, but also objectively can understand marketplaces and their probabilities and uncertainties- particularly those relating to the future. Wall Street thereby promotes the opinion that it can discover and devise objective theories and methods that will enable traders to make money and manage financial risk. A related opinion: economic guardians (at least sometimes) objectively can understand and manage "The Economy"!

Yet examine a particular marketplace, such as that for US equities, at a given point in time. Not only do the various Wall Street players, economists, and central bankers hoping to be like rational natural physical scientists differ in their marketplace perspectives. Allegedly objective participants (observers) debate the "substance", "essence", or implications of marketplace uncertainties or probabilities. Are some probability assessments more objective than are others? Why?

Mathematical and statistical models and formulas (financial ratios for corporate balance sheets, moving averages, means and standard deviations, and so on) are helpful heuristic methods for Wall Street traders and analysts. But what if in Wall Street and other economic contexts one never objectively can apply mathematical and statistical formula and methods or other inspiring hard science theories? Suppose economic arenas, fields, playgrounds, realms, battlefields, jungles, environments, and universes are cultural rather than Natural. Then all Wall

Street traders (and its other players) and even distinguished professional economists (and central bankers and finance ministers) perceive marketplace phenomena from an individual subjective outlook, not an objective one. Then, unlike a natural physical scientist studying Natural phenomena, their marketplace viewpoint and thought processes (reasoning) are never objective or rational in the hard science sense of such words. In addition, the design, assessment, and interpretation of their marketplace experiments inescapably will be subjective, never rational. Moreover, even the most illuminated and prestigious economic assessments as to marketplace probabilities and uncertainties (those relating to future price matter especially to Wall Street risk takers) are cultural, mere opinions of the speaker.

Physics may not have one universal, comprehensive system. A hard science such as physics, biology, or chemistry may have a few competing theories over time or at the same time. Yet at any given point in time, each natural physical science branch offers far fewer persuasive models on how to place the phenomena of its subject matter in perspective than do religion, philosophy, other humanities, and social sciences such as political science, economics, sociology, psychology, and cultural anthropology.

Unlike any given natural physical science, Wall Street- and even the discipline of economics- possess many competing perspectives. Wall Street temples all agree that it is rational and good to want, make, and have money. Wall Street pours out billions of dollars analyzing marketplace phenomena to achieve wealth, financial security, and prosperity. It spends mountains of cash on technology. It forks out huge salaries and bonuses to Ph.Ds, MBAs, and very experienced and successful traders. Many subjective viewpoints indeed feel compelling. Such rhetoric may involve a great deal of reasoning- including much formal argument. But even widely accepted subjective perspectives and arguments remain personal opinions. Neither Wall

Street nor the economics profession have unearthed or devised objective universal (scientific) principles, or even created substantial agreement, on how to analyze marketplace phenomena or make money.

In "The Structure of Scientific Revolutions", Thomas Kuhn describes the creation and the acceptance of physical science principles and procedures. Physical science frameworks are not unchanging. Though the perspectives and principles of a genuine science such as physics may vary, Kuhn emphasizes that at a given period scientists widely share important aspects of these viewpoints. He notes: "Newton's success in predicting quantitative astronomical observations was probably the single most important reason for his theory's triumph over its more reasonable but uniformly qualitative competitors. And in this century, the striking quantitative success of both Planck's radiation law and Bohr's atom quickly persuaded many physicists to adopt them even though, viewing physical science as a whole, both these contributions created many more problems than they solved" (p154).

A physical science field can include more than one perspective on phenomena. Physics studies bodies and motion in various ways. There are astrophysicists and particle physicists. Also, different sciences may view the same phenomena from varied objective angles. Biology and chemistry (and their subdivisions) both analyze the human body and its parts. Nevertheless, each truly scientific perspective must satisfy the requirements of objectivity, (scientific) rationality, and the scientific method. Its definitions, propositions, observations, proofs, and laws must be true for all, not mere opinions.

Subjective perspectives and thought processes of course are not devoid of references to objective physical phenomena. Cultural theories require and speak of observation of real human

beings. Definitions, arguments, and conclusions on love, games of skill, war, politics, and religion relate to people. An urban sociologist obviously sees people and buildings. The writer of this book has spent years on Wall Street and conversed with hundreds of traders and other marketplace participants. Books and articles he has read obviously are physical objects.

In a hard theoretical or applied science, the scientist's personal perspective is not relevant to the objective analytical process or its discoveries and inventions. Cultural perspectives and thought processes- including their definitions, propositions, arguments, theories, and proofs- do not separate the inquirer from the inquiry and its conclusions. Though the objective scientific method inspires many cultural observers, their subjective investigations, theories, and conclusions never satisfy the objective scientific method. Also, the reasoning chains of genuine sciences such as physics do not include or reflect the values (except the value of objective knowledge), emotions, and character traits of the observer.

William James, in "The Varieties of Religious Experience" (p491), states: "Science... has ended by utterly repudiating the personal point of view." Werner Heisenberg, the Nobel Prize winning physicist, emphasizes this objectivity and distance from the object of inquiry. "Certainly quantum theory does not contain genuine subjective features, it does not introduce the mind of the physicist as a part of the atomic event. But it starts from the division of the world into the 'object' and the rest of the world, and from the fact that at least for the rest of the world we use the classical concepts in our description" (p55). "Our actual situation in research work in atomic physics is usually this: we wish to understand a certain phenomenon, we wish to recognize how this phenomenon follows from the general laws of nature." "Physics and Philosophy" (p57).

Infatuated by natural physical science theories, success, and prestige, most economists and much of Wall Street eagerly hustle to wear the white coat of science, objectivity, and rationality. Their worship of science and their ardent faith in their ability to be genuine scientists inspires them to build and renovate rhetorical structures. In this process, these dreamy economists and Wall Street houses and heroes convince themselves and much of the public that they are seeing economic phenomena clearly and apart from them, like (or almost like) an astronomer with a telescope or a biologist with a microscope. Natural physical science language, particularly the rhetoric of rationality, permits Wall Street's money-loving generals and warriors, its money-worshipping evangelists and wizards, to claim or imply that real (scientific) objectivity regarding and within Wall Street is possible or substantially so. Kings of cash and duchesses of dollars proclaim that escape from subjectivity, from mere opinion, exists in principle and occurs in practice.

This scientific faith and self-image helps both Wall Street and economics to market themselves as possessing hard scientific objectivity and rationality. Each congregation of Wall Street's would-be natural physical scientists eloquently and confidently asserts to itself, its peers, and often to Main Street that its personal marketplace approaches, strategies, and actions are scientific or very much like those of natural physical science. Expert Wall Street professionals and their worthy apprentices and allies underline not only the intelligence, but also the potential economic benefits, of thinking and acting according to such allegedly scientific marketplace principles and methods.

A Wall Street adage: "Everyone can have an opinion on the market". Regarding US equities in general, the manager of a several billion dollar hedge fund remarked: "Leo, there's almost as many opinions on the market as there are noses." Since much of Wall Street and

economics adores Natural physical science, many attacks on marketplace opinions, players, actions, and outcomes embrace scientific wordplay. One scientific camp that promotes buying stocks may criticize another stock crew wedded to a different buying approach as being unscientific. The second band is not rational or intelligent enough, or truly rational, in its marketplace perspective and actions. Maybe a trader or central banker is using the wrong tools, or not handling them properly. Picture a crude oil trader berating another for not looking at supply and demand objectively. Or, a true investor should buy and hold for the long term, review fundamentals, and avoid leverage. Some securities investors squawk that speculators are not rational. Fundamentalists bark that technicians are not really (or sufficiently) scientific in their approach.

Launched from Wall Street pulpits and academic ivory towers, echoed by much of the financial media, the extensive and sustained scientific sales pitches often have religious fervor. Some professors and their fans roar that they possess "the" correct way of analyzing Wall Street phenomena and taking risks. Others preachers, somewhat more modest, insinuatingly purr they know "a" way. Even "a" way supposedly is objective, rational, and implicitly true for all.

The engaging romance of marketplace science seeks action- and not only from professionals. This rhetoric successfully seduces much of Main Street into Wall Street. Language from various corners of the investment industry, especially the securities one, is geared to encourage buying. Wall Street's natural physical science ambitions and pretensions often interrelate with its serpentine efforts to package itself as an honest broker, true friend, and worthy partner that wishes to help the public to make money. Our best (true) friends should tell us the unvarnished truth; scientists do so, and they also get things done. The pageant of

objectivity from these simulated scientists enables them to downplay their financial interest in sparking people to cart their money into Wall Street.

Observers differ in their opinions as to which natural physical science universe (environment) Wall Street in general and its various marketplaces most resemble. Eminent Wall Street and economics professors concoct and serve up assorted natural physical science doctrines. This marketing plan is prudent. Picture their audiences. A given spectator knows more about some scientific fields and topics than other ones. Also, not everyone finds the same natural physical science or all its branches equally fascinating or understandable. An extensive menu of choices between seemingly scientific perspectives and strategies ensures that many Wall Street professionals and many Main Street clients will find at least one entrée appetizing.

The inviting scientific picnic basket offered by financial schoolteachers contains courses inspired by biology, chemistry, and physics. Many recipes from economics and Wall Street blend in hearty helpings of mathematics and statistics. To enrapture listeners, some Wall Street cooks mix two or more of natural physical science worldviews into a scientific casserole. Wall Street biologists (from botany to zoology), chemists, meteorologists, and physicists (Newtonian, quantum; astronomers) underscore that students should have faith that these perspectives, methods, and laws are scientific. Or, since they are so very much like the hard sciences, it is reasonable to treat them as such! Many Wall Street leaders prefer fundamental strategies. Other would-be scientists promote technical methods. Various fraternities devise combinations of fundamental and technical ingredients.

From the long term viewpoint of hard (real) sciences, natural physical science realities, including outcomes, relate to phenomena with regularities. The Natural phenomenon itself may

be unchanging. It may be a process, including a changing or developing one. Also, chaotic phenomena exist in the Natural world. Yet when natural physical science studies that constant disorder as a problem and develops true for all laws regarding it, that randomness represents a form of ordered regularity.

Pretend economics environments, including those of Wall Street, are- or are very much like- those of natural physical science. Then economic and marketplace phenomena are in one or more fashions objectively predictable. Wall Street high priests represent a variety of sects, and each dangles sugarplum versions of objective potential outcomes before traders. Traders faithfully should base their marketplace perspectives and actions upon at least one of these visionary models.

Desire for money, financial security, and prosperity of course relate to the future. Traders ask: "Where's the stock market going?" "Where's the economy headed over the next couple of years?" Assume not only that one objectively can perceive and analyze Wall Street and other economic data. Suppose also that marketplace phenomena such as price level and movement follow objective scientific laws like those of natural physical science. Someone wooed by the attractions of hard science rationality will select between marketplace worldviews of objective certainty, objective probability distributions, and objective randomness (chaos, uncertainty). Picture the S+P 500 stock index. The future outcome related to the particular financial instrument may be certain or nearly so; think of the movement of the planets. Alternatively, future prices will reflect objective statistical distributions. Recall quantum mechanics and its explanations of particle behavior. Think too of outcomes of roulette wheel spins. Or, perhaps the rocket scientist will view all price outcomes as random, or claim they display only some objectively probable aspects (think of weather).

Though some Wall Street physicists declare that future outcomes for marketplace phenomena are definite and predictable, might this claim be akin to religious opinions on destiny and fate? A few Wall Street Newtonians crow that their scientific method should, if properly applied, make money over all trading time horizons. Others assert such claims for the long run (however they define that word). Still others do so only for short term trading horizons. Celestial mechanics, by which scientists predict with certainty planetary locations years in advance, is a key inspiration for these financial perspectives. The objective marketplace observer or participant accurately can predict price level and direction. Some believe this talent is possible some of the time, others much or all of the time. Someone convinced that a price must or almost certainly should be at or near a certain level at some future time probably believes that it is foolish not to try to profit from that marketplace destiny.

In Wall Street proclamations, the phrase "past performance does not guarantee future results" typically hides in a forest of fine print. Despite boilerplate warnings, and although marketplace risk is a subjective phenomena, Wall Street generally minimizes the existence of marketplace price risks. Yet many Wall Street scientists and others are reluctant to preach (at least in writing) a gospel of absolute or almost absolute certainty to others, and especially to the nonprofessional public. What if a player loses money in a sure-fire, foolproof trade? Words of objective certainty relating to price, "The Economy", or other economic variables offer little wiggle room if things turn out differently than they supposedly should have.

Besides, money lovers know that in the cultural parlor of love and romance (and sex), though many lust for certainty, most will settle for high probability. The enticing blueprint of objective distribution offers Wall Street and its academic compatriots more flexibility in

conversations which aim to persuade others to think and act in a particular fashion. Wall Street Heisenbergs promise (sometimes only implicitly) definite objective probability distributions of marketplace outcomes akin to the particles which obey laws of quantum mechanics. For example: “Prices probably will go up like they almost always do.” Perhaps the anticipated result is merely “highly likely”. “Stocks are depressed now. But look at past price action. After having fallen down ten times, in eight cases they rallied to new highs within about four or five years. So prices probably eventually will soar to new highs like they usually do.”

Or: “The nation has had ten previous recessions, and each has been followed by economic recovery.” For the US, economic recovery and GDP growth generally are associated with improved consumer net worth and stronger corporate earnings. In the US context, prices of equities often have risen during recoveries. Thus the views relating to recession and recovery suggest that rising equity prices very probably will accompany the oncoming (very probable) recovery.

Picture a public inflamed by Wall Street stories of fortunes won that also believes in the delightful scientific metaphors and rationality wordplay of Wall Street and economics. If a price outcome (or “economic conditions” with an associated price “behavior”) objectively happens around eight or nine out of ten times, then it sure seems mighty rational to try to capture some money off this fact. For both experienced Wall Street pros as well as novices, this objectively attractive marketplace opportunity is seductive. Suppose it is reasonable to wait for the long run for this price event.

What if the economic schoolmaster declares that marketplace outcomes, such as higher prices, happen only two out of three times? That’s still a fair amount better than a 50-50

proposition. Even at two out of three odds, some traders with belief in their own skill- or with faith in the talent of a sincere and trusty Wall Street rocket scientist graciously willing to assist them- will drag money to Wall Street houses.

Sermons of objective distribution assist in negotiations with those who lose money (and in related legal battles) after the seemingly sweet trading recommendation went sour and did not turn out as expected. The classic (normal) statistical distribution is popularly known as a bell curve because of its shape. About two-thirds of data points are within one standard deviation of the mean. Ninety five percent of data points are within two standard deviations of the mean, with 99 percent within three standard deviations. Though statistical distributions in marketplaces and elsewhere can vary from the classic shape in diverse ways, the marketplace evangelists of objectivity always can point to unusual (even extreme) data from the mean and standard deviation perspective.

However, assume a marketplace model is called an objectively (scientifically) reasonable one. Many Wall Street and other economic princes of probability then can dismiss cultural phenomena (including price outcomes) which they deem objectively improbable as unusual, abnormal, unnatural, extraordinary, irrational, random, or entirely (or almost completely) unexpected. Blame the event! The scriptures of objective probability enable traders to transfer some or all of the responsibility for their money losing trading decision to an implicitly or explicitly Natural world reflected in the model they manufactured and embraced. “How could anyone have expected that?” “Nobody (or hardly anyone) could have foreseen that outcome!” Similarly, holy probability writ helps Wall Street advisors- even hoary investment sages- to minimize or evade personal responsibility for their money losing marketplace recommendations. Economists, central bankers, and finance ministers likewise employ such rhetoric in order to

dodge responsibility. Most probability experts and leaders will blame themselves little if at all if they can identify a marketplace price outcome of two standard deviations or more. Yet who built the model, and were they genuine scientists?

Recall again the worldwide economic crisis that emerged in 2007. Marketplace price moves- particularly the declines in mortgage securities, other corporate debt instruments, and equities- made frequent headlines. The Financial Times comments (8/21/07, p8): "Goldman Sachs Asset Management is also staffed by people who are very clever. The advanced mathematics they use puts their models far beyond the comprehension of lay people." The article asks: "So how have the quants lost so much money? In essence, many quant hedge funds were guided by their models to hold the same positions. When some of them started to lose money thanks to the credit sell-off, the need to meet margin calls on their debt forced them to sell their 'good' investments. As so many quants were crowded in, the result was a stampede downwards for the 'good' investments. This happened several days in a row. These were '25 standard deviation' events, according to Goldman- meaning that in a normal bell curve distribution, such a day would happen only once every 100,000 years. Several such days in succession was, therefore, far beyond what the models had anticipated. Leverage amplified the losses."

Are the marketplace phenomena analyzed really and truly Natural ones? In their marketplace decision making and interactions with others, aren't people cultural phenomena? Do people in marketplaces, politics, social circles, religious communities, games, love, war, and the fine arts think and behave according to objective (Natural) regularities and statistical rules? Or, rather, does a cultural observer subjectively enlist objective mathematical and statistical methods as part of its subjective perspective in order to study people? "War of the Words" and "Seeing, Saying, and Herding" portray how marketplace perspectives always are subjective.

Statistical measures such as means and standard deviations (though they are "subjectivized" when applied to cultural phenomena such as marketplaces) assist many financial participants and observers. However, the duration of marketplace history one chooses as relevant for the creation of a particular model affects the means and standard deviations of that analytical edifice. Changing the history often results in much different means and standard deviations. If there are various means, to which is it probable (or certain) that a price (or price spread) will revert? If there are various means and standard deviations, how far can the price travel before it is "way out of line" with "the fundamentals" or supposedly irrational?

Recall the US real estate marketplace (including mortgage securities arenas) prior to the terrifying subprime mortgage (and other) problems that began to unfold in 2007. Many prophets (including respected investment oracles) who surveyed real estate information reviewed only the preceding few years. Most concluded there was not much, if anything, to worry about in regard to American residential or commercial real estate. Yet why not extend one's time horizon back several or even many decades? Also, suppose an extensive historical review process subjectively reveals only a handful of time periods with conditions especially relevant to one's perspective on the current marketplace. A marketplace outcome may have happened only once or twice in "the past", yet shouldn't one focus significant attention on these rarer periods? Should marketplace research focus only or primarily on American history? Besides, in addition to the time horizon parameter, people choose and create other variables to create a given marketplace perspective. The subjective selection and handling of marketplace information reflects and influences viewpoints regarding marketplace risks and probabilities. Why not look at landscapes in addition to real estate (mortgage; housing) ones? Why concentrate only or almost entirely on mortgage loans, mortgage-backed securities, residential and commercial real estate prices, and other so-

called closely related phenomena? Substantial and fast price declines (and rallies) in various interest rate and equity marketplaces have happened far more frequently than even once in 100 (or 10) years. The recent global economic crisis has inspired numerous explanations and will continue to do so. Yet was this the first episode in American or other marketplace history involving factors such as lax credit standards, substantial leverage, and traders rushing to preserve profits or minimize losses?

Anyway, if the analytical framework is fundamentally good and structurally sound, economists and Wall Street generally tell themselves and others that its financial engineers can tinker with it and make improvements. Then it probably will work better next time, right? Don't real scientists sometimes refine their theories? If you believe in economic science, stick around and have faith in the objective talents of marketplace experts.

Wall Street's entertaining weather metaphors suggest other issues of economic rhetoric, especially that of many supposed scientists and their comrades. In Main Street, many say: "No one can predict the weather." Some Wall Street godfathers authoritatively cackle: "No one can predict the market". Weather involves changes, prices change. Yet if no one can predict price changes, how can traders make money except by chance? Why should anyone- even noble investors- trade on Wall Street?

Keep in mind a couple of other questions. Why does a successful marketplace trader (or researcher) need to predict prices all or even most of the time? Can't someone that forecasts prices some of the time be accurate a majority (even most) of the times it makes a prediction?

Despite their respect for the aphorism that no one can predict the weather, most know that many weather phenomena are scientifically predictable. Of course weather events can surprise even meteorologists. Suppose New York City is sunny today, with few clouds in the sky. Despite the forecast of continued dry weather for the next several days, it nevertheless may rain tomorrow. Also, a weather expert does not predict perfectly all aspects of weather, or expect to do so. Select several calendar days over the next several months, with each chosen day separated by one week from the next closest one. Suppose that today a meteorologist had to predict the exact temperature range, precipitation level, and wind speeds for New York City for each of these days. It would be extraordinary if the scientist's views turned out to be precisely accurate.

Nevertheless, some weather outcomes are predictable with significant statistical certainty. Some weather phenomena are almost 100 percent certain, others less so. The sun rises and sets relative to a given earthly location at predictable times. Regions on Earth have weather seasons that persist for ages. New York City's July temperatures and rainfall averages and ranges objectively are predictable for the foreseeable future. Everyone knows these NY City patterns probably would change if a comet or gigantic meteor struck Earth. The potential of such an unusual hypothetical event does not alter the present weather probability estimates.

Anyway, suppose no one objectively can predict with either certainty or statistical probability future marketplace prices over any time horizon, regardless of whether the marketplace is a stock, debt, foreign exchange, or commodity one. If so, both prices and money making outcomes over time, whether the time horizon is short run or long run, are objectively random. To such Wall Street naturalists that believe they perceive marketplace phenomena rationally through natural physical science spectacles, sustained money winning objectively is a statistical fluke, luck, fortune, or chance.

It is a truism that Wall Street needs participants for its various stock, debt, currency, and commodity arenas to survive. Also, many corporations and others that wish to raise capital may seek to do so via Wall Street. Wall Street enjoys helping clients raise capital. A second platitude: issuers of stocks and interest rate instruments need buyers.

However, if future price outcomes are a matter of objective chance, many potential traders have limited economic incentive to venture into or stay within Wall Street. Wall Street does appreciate tourists, but it really prefers permanent residents. In general, if "no one can predict the market" over any time horizon, why play around in Wall Street unless one simply enjoys marketplace action? How do many economists and Wall Streeters dressed up in scientific garb face this randomness challenge?

Of course even if no one can predict prices, some people will own physical debt instruments to earn interest, or hold a stock for its dividends. We all know that since a corporation or government entity pays bond interest due to legal obligations rather than Natural processes, it may decide not to pay that interest. Similarly, if a firm pays a dividend, we know it may choose to slash or eliminate the stock dividend. However, focus further on debt and other marketplaces. Almost all interest rate instruments have a fixed life. A bondholder has a contractual right to receive back the principal loaned. So absent default, one can forecast what the bond price will be on its maturity date (though not necessarily at other times). Nevertheless, as in general bond prices fluctuate, and all else equal, why participate in bond marketplaces unless one wants to earn interest? Compare physical (spot; cash) marketplaces for stocks, foreign exchange, and commodities. Their spot price also rises and falls. However, in contrast to debt, these physical marketplaces do not have a fixed life. Since they never mature, financial engineers

cannot predict their future price as of some contractual final date. In contrast to debt playgrounds, those for stocks, foreign exchange, and commodities provide no contractual promise that one will get back all or even some of the money risked. In foreign exchange, think of cross trades being rolled over continuously, rather than a time deposit denominated in a particular currency (although a deposited currency may suffer devaluation and become nearly worthless). Futures and forward contracts (as opposed to physicals), such as the NYMEX December 2012 crude oil contract, cease trading on a given date. However, while they are trading, such non-spot marketplaces are not any more predictable than physical (the "underlying" spot) ones.

Chapters such as "War of the Words" discuss whether one objectively can define terms such as long run and short run. If trading and other economic perspectives are cultural, no one objectively can prove that marketplace outcomes are objectively probable (or certain or random) over any time horizon. Anyway, many Wall Street weathermen believe no one can predict the market over the short run on a consistent basis. Yet several within that fraternity of doubters have faith that at least in a few marketplaces, some experts can forecast with consistent (even if not inevitable) success over the long run. However, one can reverse this assertion and sound just as logical. Thus, one can predict the market (or some marketplaces) over the short run, but no one can predict the market over the long run. But since short and long runs are each time periods, how can marketplace outcomes be more Naturally predictable over one time horizon than another?

Assume for the sake of argument that some Wall Street theories inspired by natural physical science are objectively rational. Suppose that all other marketplace perspectives make or lose money as a matter of mere statistical probability. Then regardless of the time horizon, for

a supposed marketplace scientist to make money otherwise than randomly, future prices must be either objectively certain (as in celestial mechanics) or their distribution objectively probable (as in quantum mechanics). Thus financial engineers embark on epic quests to design and apply objective strategies and systems. Even if their creations may not be perfect, can't they still be objective (or mostly so)?

However, few Wall Street fans of natural physical science espouse the dogma that short run price movements are certain (or almost always so). Marketplace prices move down as well as up, suggesting the challenge of proving such certainty. To date, no trader or trading machine has continuously predicted the short run with unerring accuracy.

Some others adopt the view that phenomena such as short run price movements and levels in at least some marketplaces are objectively probable. Others have faith that long run price action in some marketplaces is objectively probable. In either case, since future outcomes are not guaranteed, the objective trader will not always be right. However, objective knowledge of such marketplace probabilities should enable an all-star trader to be right more often than wrong. Suppose over time a phenomena happens seven out of ten times. Why shouldn't an expert and many of its adherents generally be able to predict that event around 70 percent of the time?

Everyone knows that Wall Street heroes, including some wedded to the objective probability model, make more winning trades and are more profitable than others over various performance periods. Some research gurus have better track records than others. However, this does not demonstrate in the true for all sense that short run (or long run) marketplace events are objectively probable. Second, since histories show that prices fluctuate up and down over various

short runs, how can one objectively prove that a scientifically probable direction for prices exists for any future short run? For example, suppose the stock price is 50. What Natural Law makes it objectively probable it will be lower, say at 48 or 46 in two weeks (or five years) as opposed to higher at 52, 55, or some other number? In addition, Wall Street natural physical scientists do not universally agree as to what the supposedly objective probabilities are in any given marketplace over any given short run (or long run). In any given marketplace, the short run natural physical science perspectives and strategies seeking to profit from supposedly objective probability distributions are diverse. So are the allegedly scientifically rational long run viewpoints and methods. Also, different rocket scientists often apply the same so-called objective (or mostly objective) strategy in diverse ways. In any particular marketplace, does the same would-be engineer predict with the same degree of accuracy (replicate its results) over each of several fairly extended time periods?

Assume short run time horizons of the same duration in a particular financial instrument. It can be a stock in the Dow Jones Industrial Average, the US 10 Year government bond, the Japanese Yen, or crude oil. Regarding the same supposedly genuinely scientific environment, it is inconsistent to assert that over some short runs the price action is objectively probable (or certain), while over other short runs it is objectively chaotic. Why should marketplace outcomes be objectively probable for one month, but random within a later one? Similarly, if prices within each of various long runs (say, five years) are objectively certain or probable, how can other long ones of the same duration be random?

Walk back to the comment that no one can predict the market. Assume instead that some people objectively can predict prices with accuracy enough of the time to harvest profits consistently (even if not always). If “most people cannot predict the market”, then most of the

public (especially on Main Street) will not want to participate on its own in Wall Street. Some individuals may seek to display their intelligence by printing heaps of money like a famed Wall Street rocket scientist. Yet in general, if one lacks sufficient scientific knowledge and experience, why venture into the Wall Street jungle (laboratory) and risk getting eaten alive (blown up in an experiment)? If profits objectively should be made in Wall Street, it is logical, intelligent, reasonable, rational, and prudent to find, learn from, and follow a worthy Wall Street expert. A great number of Wall Street players entranced by scientific visions therefore hunt for rational experts to educate and lead them.

In the natural physical sciences, not all experienced professionals possess the same level of expertise. Even those well-versed in physics tend to defer to distinguished university professors and Nobel Prize winners. Similarly, not all Wall Street professionals are experts (or as good as the best experts). Aren't some economists considered to have greater expertise than others? Assuming a parallel with genuine sciences, the number of marketplace experts possessing marvelous objective predictive ability is relatively small. In any event, Wall Street and its academic allies generously offer other professionals and Main Street an assortment of candidates as outstanding (or at least adequate) experts. Suppose you can't speak directly to a marketplace expert; remember that many of them belong to teams or have well-trained pupils.

If no one can predict "The Market" (price outcomes) consistently, then trading skill in the sense of superior ability does not exist. Why do some species of Wall Street natural physical scientists and their comrades fiercely battle to convince other professionals and Main Street (especially in relation to some securities marketplaces) of the objective truth of their anti-skill scripture? If over short and long run time horizons price outcomes objectively are random and superior trading performance a matter of chance, why play the Wall Street game at all?

Interestingly, for any given marketplace, partisans of objectivity do not always agree on long run price direction. Even those sharing the same outlook on long run trend do not necessarily subscribe to the same view regarding the path prices probably will take. Even devoted believers in fair value do not always agree on the natural level, or when that price or price range will or should be achieved.

Some nimble Wall Street natural physical scientists nevertheless resemble circus high-wire specialists. Watch their rhetorical acrobatics in relation to the long run- especially in regard to the long run for equity marketplaces in general and that of America in particular.

Let's first take a quick look in the scientific tent. Considerations that influence views regarding supposedly objective long run price direction intertwine. One variable is the particular marketplace selected. Although there are numerous stock, interest rate, currency, and commodity marketplaces, a would-be scientist may reach different conclusions regarding them. An analyst may perceive trends for the US stock marketplace as different from those of US government bonds. Or, American equities may have a different objective long run price direction than that of a particular emerging stock marketplace. And even within a general marketplace such as US equities, a given scientific evangelist at any particular moment might hold a number of allegedly objective viewpoints regarding long run future prices that vary according to financial instrument. For example, it may declare that the long run upward price direction of one American stock is objectively probable. This engineer simultaneously may conclude the long run price probability for a different US equity is down.

Another general consideration- in principle, a professor could vary its conclusions according to certainty, probability, and randomness. For example, a scientific missionary may believe the long run future price direction of one marketplace is objectively certain, whereas the trajectory of others is only scientifically probable or merely random. Or, a guide may declare that no long run marketplace has an objective destiny. It nevertheless may assert that the long run future for one or a few marketplaces is objectively probable, even though that of other arenas is objectively random.

In identifying an allegedly objective future price direction, the current price level for the given marketplace of course also matters, as does the selection of and perspective on past, current, and future phenomena relevant to price level and direction. Some would-be scientists gazing forward will try to identify some natural price or fair value. Thus for any marketplace, the guru may identify the objective future long run price direction as up, down, or sideways (or random). A wizard also may determine that the objective long run of a marketplace may take a varied route. For example, prices generally could increase for five years, then fall over at least the next several years, and then resume their upward flight.

Now let's suppose a studious Wall Street expert in love with hard science persuades itself and others that a particular marketplace (imagine US equities) is unpredictable over the short run but predictable (with probability or certainty) over the long run. If there is an objective long run and prices of that marketplace have an objective long run direction, then long run price outcomes are objectively predictable. Assume the trader maintains its position (perhaps a diversified portfolio) in the proper (natural, logical) direction in regard to this long run. Be reasonable and just hang in there for the long run! Then desired financial profits should appear according to natural physical science probabilities (or certainties).

Key consequences follow from the existence and awareness of such an objectively probable (or certain) marketplace long run. In principle, anyone can predict it and act objectively in regard to it. However, the scientific world relies on experts (especially the best and leading ones) to develop and prove theories. Hard science experts also are the ones best suited to apply the theory accurately (properly) via forecasting or action, especially in very difficult cases. So if outcomes are objectively certain, such experts should almost always be right; if outcomes are objectively probable, the accuracy of their predictions over time should approximate those probabilities. Imagine that Wall Street and other economic lands are really (or very much like) natural physical science-type territories. Then it seems intelligent (rational) in Wall Street and other economic environments for other professionals and Main Street to follow such wonderful objective economic experts.

In a given section of an objective field such as physics, think of the application of a given theory. Suppose in the same situation, experts face the same practical problem of forecasting and acting. In general, why would one experienced scientific genius outperform by much (if at all) another of equal abilities and training? Don't expert participants performing the same experiment get the same (essentially identical) results?

Thus, if an objectively certain or probable long run price outcome (or target) exists, the trading predictions and actions of all the so-called genuine (true, real, bona fide) marketplace experts and those that follow them should perform more or less the same over that long run. Some professors may qualify this conclusion by saying tactical decisions will influence performance to some extent; however, this does not change the general rule. Now recall another marketplace proverb, which quite a few- but not all- Wall Street natural physical scientists (and

many others) embrace: “No one can beat the market.” This well-worn saying can refer to any time horizon. Save a detailed interpretation of the phrase and its implications for a later chapter. A rough example suggests its typical meaning for a Wall Street scientific tribe. Assume the S+P 500 from the close on December 31 of one year rises ten percent by the close on the last day of the next year. Some traders might earn quite a bit more than 10 percent on a mark-to-market basis relative to this benchmark. Yet to the would-be scientists believing the aphorism, this superior performance is objectively random, a matter of chance. Even expert traders and economists (and those who march in their footsteps) cannot outperform the market over the long run due to skill (superior ability).

However, assume one marries the doctrine of an objectively predictable long run to the dogma of an objective inability to outperform others relative to it (and its movements) due to superior talent. The purportedly intelligent (scientific, rational) offspring is a rather passive trading perspective, strategy, and behavior. After all, if one knows the general long run price direction, and especially if a natural price or fair value will or probably will be attained, it seems very reasonable to wait for it.

Leaving positions too early, before the objective level is reached, will reduce long run money making, right? Any given long run of course is made up of some series of short runs. Suppose the short run is not objectively predictable. Then successful struggles to improve long run performance by short run trading objectively will be statistical flukes. This short run trading also probably will boost overall transaction costs, thus making it harder to match marketplace performance averages over a relevant long run time horizon.

Suppose a marketplace probably will go downhill over the long run. Then of course few investors or other players will want to buy it since they probably will lose money if they do. Assume a given stock marketplace objectively is moving sideways over the long run. Even then, few investors or others will flirt with long run ownership. Why own a vehicle that by the end of the ride travels nowhere?

Only a marketplace that motors upward in price over the long run- despite twists, turns, and bumps in the road- will entice most investors or other buyers to participate for the long run. Many potential passengers refuse to buy into the assertion that the long run outcome is certain as in celestial mechanics, if only because short run prices hop around. However, regarding some marketplaces, enticing scientific advertising convinces many that the long run price outcome is very (very, very) likely in the sense of natural physical science probability.

Supposedly objective definitions play a major role in the natural physical science rhetoric of Wall Street and economics. No matter how one defines investment, speculation, trading, gambling, hedging, risk management, short run, long run, and other labels, natural physical science wordplay lures many individuals and institutions to bring their money to equity, debt, currency, and even commodity marketplaces such as crude oil. But in any event, the primary target of the natural physical science promoters of Wall Street and economics are the professional and Main Street investment communities, especially those in securities marketplaces.

Corporations and other businesses in America and elsewhere seek money from others to build and expand their enterprises. Wall Street battles to create and maintain itself as an integral part of a capital formation process reliant on stock and debt issuance. It helps entrepreneurs by

underwriting and selling their securities. Wall Street also assists governments (and similar international institutions) by underwriting and distributing their debt securities. Wall Street's banks and investment banks lack the capital to own all or a majority of the issued and outstanding stocks and debt instruments themselves- or even the bulk of outstanding US equities. Public buying- directly by Main Street as well as via Wall Street's professional buy side asset managers (many of whom handle Main Street money)- of stocks and interest rate instruments is crucial to capital formation. The capital raising process not only needs to attract public securities purchasers, particularly stock buyers. It must arouse owners in general to maintain their holdings. To encourage economic growth, many securities advocates act as boosters for net increases in public securities ownership.

Not surprisingly, Wall Street banks and investment banks (including their dealers, salespersons, and researchers) intend to profit from this capital raising and securities holding venture. So do Wall Street's professional buy side money managers. Science persuades, right? Buying needs to be encouraged, right? Consequently, many Wall Street professionals (as well as the capital seeking institutions) rush eagerly to embrace natural physical science viewpoints that identify an objective likelihood (especially over the long run) of rising equity prices or satisfactory returns on the holding of debt instruments.

Given the longstanding relative prominence of the United States within the global economy and the importance of securities marketplaces within America, Wall Street and its friendly academic colleagues have long deployed much of their arsenal of scientific rhetoric toward actual and potential public investors in United States securities in general and stocks in particular. The substantial growth, current size, and international role of US securities marketplaces partly reflect the success of these scientific bombardments.

Helpful Wall Street guides and their economic and political allies do their best to assist the capital formation process in marketplaces beyond America's shores. Would-be Newtons, Heisenbergs, and Darwins in America and other countries proclaim the wisdom of investing in stock and debt fields that resemble those of the United States. These courtiers point out nations (and individual corporations) that supposedly have a high probability of emulating US growth and success. At present, such marketplaces include those of the advanced capitalist economies in Western Europe, Japan, and elsewhere. Some experts say that emerging marketplace nations are fertile investment soil. As in the US, Wall Street often sows natural physical science doctrines to attract investors and other buyers to these marketplaces.

Speculators in various stock, debt, currency, and commodity marketplaces are a secondary target for rocket scientists. However, the majority of financial engineers- especially regarding the US and related securities arenas- that launch their scientific verbiage at speculators aim to persuade their target to initiate its position by buying (not by short selling).

Faith in objectively probable long run upward price outcomes stimulates buying and holding over all time horizons. One way to participate in that upward long term flight is simply to buy and hold the same securities for the long run. However, one need not lock up the same securities in the vault. A player can switch affections between financial instruments and remain a devoted net buy and holder. Picture those who invest for briefer time periods than the long run. Though most buy and sell more actively than the long run buy and holders, they intend to cash in from choosing their spots within the long run trend.

Many observers perceive that prices of United States equities in general have ascended over the long run. A great number of prestigious and wealthy securities firms, investors, and other money managers believe in the union of a natural physical science viewpoint and the future long run upward price direction for US equities. Wall Street drawing boards display the dogged climb over many decades of indices such as the Dow Jones Industrial Average and the S+P 500. The marriage of such a historical perspective to natural physical science-inspired ideologies that economic phenomena have objective probabilities (or certainties) has been instrumental in building and sustaining faith in the rationality of a buy and hold for the long run strategy in the United States equity marketplace. Many Wall Street pundits and their academic henchmen enthusiastically tell themselves and the public that the buy and hold for the long run (diversified portfolio) approach in United States investment quality stocks is a sensible, intelligent, and rational road to money making. Equity marketplaces blessed as closely resembling those of the United States likewise are rational investment universes.

We all know that not all instruments in a given marketplace necessarily move in the same price direction (or the same distance) over a given time span. Though history shows that some stocks decline while others advance, this does not dismay Wall Street scientists much. Numerous scientific ringleaders grunt loudly that over the long run higher prices for US equity securities in general (or at least investment grade shares) are probable.

The cinema industry tells moviegoers to relax in their seats. Enjoy the show on the silver screen. Should public owners of a properly diversified portfolio of investment grade US equities passively sit back for the long run as they watch prices dance on their trading screens? Slightly reducing one's net ownership position, or replacing one or more stocks in the portfolio with several others, is no big deal in this context. It's like changing your seat in the movie theater

while you watch the same film. How often, and at what point, during this long running stock show, if ever, do scientific impresarios tell the public that it is rational to run for the exits and get out of most or all of their equities? Suppose "The US Stock Market" achieves some so-called long run true value, natural price. How often do elite Wall Street natural physical scientists tell securities owners (especially investors) that they should sell out and leave the marketplace? In practice, most unveil a new long run fair value.

Trading success or failure of course influences how fervently and long someone embraces a marketplace viewpoint or position, even in US equities. Yet real science is authoritative. Many people therefore find it difficult to disagree with so-called scientific marketplace viewpoints promoted by illustrious leaders and respected experts, especially when these players can point to a profitable track record. Also, all else equal, the longer the period that a community (or any person) has faith in a given Wall Street outlook, including any supposedly objective approach, the more natural, true, objective, rational, and common sense that perspective appears to the believers. The buy and hold US equities for the long run creed has been popular for decades. America's widespread faith in the American Dream has endured for over 300 years. The less frequently and strongly others challenge the validity of a supposedly scientific marketplace doctrine, the more rational, logical, objective, and true that theory appears. As always, the more money accumulated by more people with a given trading perspective and strategy, the more likely it is that others will become inclined to adopt that outlook and method.

The greater the number of equity marketplaces which Wall Street scientists and their economic friends classify as having a probable (or certain) long run upward direction, the more owners (especially investors) Wall Street will tend to attract. Suppose bullish and bearish prices moves of such stock marketplaces apparently and generally follow (are correlated with) those of

the United States. Allegedly objective (scientific) buy and hold for the long run equity perspectives may proliferate more widely. As in the case of US stocks, a profitable model inspired by natural physical science may seem to be proven as objective (rational). For propaganda purposes, the greater and more widespread the profits, the better the proof!

Communities in any given marketplace, including an investment one, become less heterogeneous and more cohesive to the extent its members are equally enamored of a given marketplace perspective and strategy. Parallels in action tend to follow from similarity of outlook. Thus the greater the percentage of buy and hold for the long run devotees relative to the total long position (and though long run owners may change the composition of their holdings), the more passive overall ownership tends to be. Why shouldn't Wall Street science-loving emperors that proclaim long run bullish stock doctrines pray that the buy and hold crew stays net long- and grows even longer? If most stock (or interest rate) investors decide to quit owning securities and flee for the long run, what happens to Wall Street's long run role?

Suppose someone trades stocks actively from the long side. Can one define "active" objectively? Anyway, that warrior buys first and then sells after a brief period. Not long afterwards, it buys again, and so on. If a trader frequently darts in and out of a marketplace with such an alleged upward trend, it risks monetary injury. Will one usually have accurate views on future price direction, level (and the time for its achievement), and path? Though the long run direction is up, the short run may not be; one may sell at a lower price than one bought. If one pays commissions or other fees, active trading may reduce return. Thus many (but not all) would-be scientists shout that buying and holding (a diversified portfolio in most formulations) for the long run is more rational than other buying fashions.

Many of the scientific theologians and philosophers of economics and Wall Street erect similar arguments for long run investors in debt securities or diversified portfolios of financial instruments. To attract adherents, engineering icons speak authoritatively of yields and returns relative to capital invested. As in presentations demonstrating an upward trajectory of American stocks, they review some long run history and derive supposedly objective marketplace certainties or probabilities. One hears comments such as: “Over the long run, a prudent mix of stocks, bonds, and commodities offers a real return (yield) of five percent.” Teams of rocket scientists design different packages to satisfy a variety of rational portfolio players. Many but not all of these recommended portfolios contain stocks.

Partisans of the predictability of an objective long run seldom if ever speak of more than one long run. They really should glorify the misty duration they objectify with capital letters as The Long Run. But what is The Short Run, or The Medium Term?

Even if The Long Run is not eternal, can a series of briefer long runs add up to that extended period? Are price and other phenomena objectively predictable for each (or several) of these shorter though still long run periods? Can one objectively draw lines between concepts such as the very short run, the short run, the medium term, the long run, the very long run?

The long run offers cultural visionaries time and hope for the occurrence or completion of a phenomenon. Those who preach that a long run price is objectively certain or probable will have their scientific credentials tarnished if their forecasts do not occur over a specifically defined long run. Suppose the duration of this marketplace long run is indefinite (or quite vague). For example, some may say the period is “really long” or “more than five years”. All else equal, many owners of financial instruments inspired by natural physical science (or other faiths) will

remain relatively passive and await the marketplace outcome. An indefinite long run sells hope to many believers in marketplace science.

An indefinite long run buys time for the scientific clergy. What if an allegedly objective natural price (or natural return) is not reached after three years (or some other period)? The indefinite long run helps soothsayers to tell their concerned clientele that it still is intelligent and reasonable to stay on board with their positions. Some would-be marketplace scientists may not identify an objective fair value, only an objective long run trend. The indefinite long run notion assists this gang of clairvoyants too. Just hold on to your positions and wait (at least until the guru decides the objective trend is complete).

Everyone knows the objective laws of Nature are true for the long run. Many believe that the American Dream and its reasonable and good goals probably or definitely will succeed over and in the long run. Yet do the American Dream and the United States stock marketplace belong to Nature or to culture? Is a scientific long run the same as a cultural long run? Anyway, suppose that the US exists indefinitely, and that its equity marketplaces keep trading. Assume benchmarks such as the Dow Jones Industrial Average and S+P 500 do not fall to and remain perpetually stuck at zero. An indefinite long run attached to a supposedly scientific viewpoint regarding the probable (or certain) upward equity price direction means that the supposedly scientific marketplace wizard never definitively will be proven wrong. If the long run is indefinitely long, there is always a possibility that US stock prices will be higher than they are at any given present time. Also, these prices eventually could attain new all-time peaks.

Do marketplace prices have a one-way ticket? Look at decades of trading history for equity, interest rate, currency, and commodity marketplaces around the world. Don’t prices fall

as well as rise, even over extended time periods? A trader told me: “Remember the fairy tale of Jack and the Beanstalk? No market grows to the sky.” Is the upward progress of the United States equity marketplace an exception?

Recall “Stairway to Heaven”, Led Zeppelin’s famous song. “And it’s whispered that soon if we all call the tune Then the piper will lead us to reason. And a new day will dawn for those who stand long.” Investors in stock and other marketplaces may strive really hard to be scientifically reasonable (objective). Scientific wordplay may inspire many equity bulls to stand long.

But if economic arenas are cultural rather than Natural environments, the natural physical science ambitions of cultural observers (participants) are never even partly achieved. Cultural participants (observers) never escape subjectivity, even if they faithfully and furiously try to be scientists or very much like them. If economic fields are cultural, then economic phenomena- including Wall Street price outcomes- are not objectively certain or probable or random. If marketplaces are subjective domains, the belief that prices of the US stock marketplace, or those of any other playground, move according to objective (scientific) laws is akin to a religious creed. Prices in equity, interest rate, foreign exchange, and commodity marketplaces will not fluctuate or reach levels according to natural physical science (or natural physical science-like) probabilities, certainties, destinies, fates, or chance.

Assume it is a personal (subjective) opinion rather than an objective certainty or probability that any given marketplace will rise (fall; move sideways) over a given time period (whether short run or long run). If Wall Street and other economic fields are cultural phenomena, prices have no objective certainty or probability of moving in a particular direction in the current

long run, the next long run, or any other future long run. It does not matter if a given subjective viewpoint identifies ten allegedly relevant historical periods, with prices rising (or recovering) in nine (or all ten) of them.

A sacred cow for much of Wall Street and economics is the objectivity and rationality of their natural physical science-inspired perspectives and thought processes regarding economic phenomena. These social science evangelists believe their objectivity (rationality) is complete, or at least substantially so. Most devoted priests of economics (finance, business), inspired by the impressive progress of natural physical science (authentic science), believe economics will become more and more scientific as time passes, thus enabling additions to a storehouse of objective truth. Having convinced themselves they possess genuinely scientific credentials, why shouldn't the purported scientists of Wall Street and economics explicitly- or at least implicitly-present themselves to others as scientists? If they're scientists, don't they have a duty to educate the less enlightened? Their truth-teaching should extend not only to other professionals, but also (and especially) to Main Street pupils.

Enchanting natural physical science talk does more than seduce people to pay attention. The natural physical scientists of Wall Street and economics milk scientific vocabulary and viewpoints for all they are worth. The natural physical science rhetoric they serve up persuades many with faith in hard sciences that one can have an objective- or at least a mostly objective-perspective regarding and within marketplaces. Most of Wall Street's eloquent alleged scientists and their allies seek to accomplish more than making their fascinated listeners a bit more scholarly. Wall Street guides want action. A Wall Street scientific evangelist wants its audience to think and behave in a particular fashion. Everyone knows that true sciences such as physics, chemistry, biology, and mathematics not only discover objective truth. Theoretical science often

has a practical payoff! Financial pilgrims sure want money in practice. Real engineers working in Nature often can control or influence many outcomes, and so accomplish noteworthy real world feats. In the marketplace world, shouldn't the rationality of theory be applied as rationality in practice? Wall Street and economists claim to possess the practical equivalent of telescopes, microscopes, and other scientific tools. Thus some attractive sermons of those with scientific ambitions build confidence that traders- or at least expert traders- objectively can control marketplace outcomes well enough to make and keep money. Thus some beautiful gospels of economists, central bankers, finance ministers, and other regulators (echoed by many on Wall Street and quite a few politicians) build faith in (or at least hopes of) scientific control or influence over many economic outcomes. Can economic guardians objectively manage "The Market" or "The Economy"?

Scientific language not only entices many money-loving listeners to walk up the stairs and down the aisles of Wall Street. Scientific wordplay acts like a net or web in keeping traders in Wall Street. Picture a trader convinced that scientific understanding or a close approximation to it (especially by experts) of economic fields exists. Suppose this trader also believes that outcomes relating to marketplace phenomena such as price are objectively certain or probable. Then that player will have faith that scientific rationality and its methods will, or probably will, enable one (or at least experts and their apostles) to make money (at least in some marketplaces). So long as this faith remains, such traders usually decide that it is irrational, unreasonable, unintelligent, and illogical to leave the Wall Street church, at least for long.

To what extent is it reasonable to disagree with what prestigious, prosperous, and supposedly scientific experts in economics and Wall Street declare? Anyway, suppose the aspiring would-be scientist loses money. In general, so long as the trader retains its romantic

faith that objective money making theories and strategies regarding Wall Street exist, it will stay at the table or at least eventually will reenter the game (even if that playground is a different marketplace). We all know that real scientists should be disciplined and persistent. An objective trading method may not work in the short run, but it will do so eventually, right? Or, that strategy may generate rewards most of the time, right? Hang in there (at least for a while longer), just be patient, stick with the game plan. Or, perhaps the warrior should apply the system better (correctly, more prudently). Maybe a top-notch rocket scientist will refine that rational marketplace outlook and strategy so it performs better. After all, don't real sciences such as physics add to (improve) their body of objective knowledge over time? An unhappy player also might elect to adhere loyally to the principles of a given marketplace sect, yet select an apparently more worthy preacher of that dogma to follow.

Besides, creative Wall Street missionaries fabricate a wide assortment of seemingly objective doctrines from which the public can choose. If a supposedly scientific perspective, method, expert, or leader doesn't generate sufficient profits or loses money, pick a better one! Maybe the first one was unscientific or not scientific enough. In addition, Wall Street- frequently assisted by its financial media cohorts- continually mints heroic new expert rocket scientists for both pros and amateurs (and especially for investors) to admire and follow in the event other financial engineers run out of money making steam.

In Wall Street and other economic arenas, can devotion to science ever cloud someone's judgment? Suppose a trader, risk manager, or other marketplace observer falls in love with an allegedly objective (natural physical science) viewpoint and strategy. Such unbridled confidence in one's scientific rationality (objectivity) can blind a player, making it inflexible or complacent in its marketplace observations, probability assessments, and actions. A trader or economist

(including central bankers) might conclude something along the following lines: “Since I am looking at the world the right (objective, rational, scientific) way, those who disagree must be (or probably are) wrong (or have inferior ways of viewing phenomena).” An alternative script: “Since I’m viewing things in a right (objective) fashion, even if it’s not the only correct way, my way is good (logical) enough. Besides, many (or most) other viewpoints are less rational than mine.” In either case, great faith in science may turn out to be a financially costly outlook.

“Stairway to Heaven” sings: “And it makes me wonder.” The would-be natural physical scientists of Wall Street and economics embrace natural physical science to educate and persuade themselves and their audiences. Nevertheless, even though these Wall Street professionals and academic pipers talk with scientific words and widely and fervently advertise their supposedly objective (“rational”) marketplace viewpoints, such wordplay, perspectives, and actions do not necessarily make them scientists. Instead of engagement in scientific investigation and discovery, are these scientific hopefuls developing and preaching opinions? Are they propagandists and poets, people that devise and promote metaphors and other subjective viewpoints to entertain, enlighten, and convince others? If they’re not creating science, they’re making rhetoric. After all, simulated science is not objective at all; it is cultural. Science does not use or need subjectivity (including metaphors) for its objective perspectives, thought processes, methods, and proofs. Keep in mind that Wall Street observers (participants) import many words from cultural arenas such as games, love, war, politics, religion, and the fine arts- not just from natural physical science- into Wall Street to create metaphors and similes.

The American Dream often applauds those who “think big”. In the movie version of Tennessee Williams’s “Sweet Bird of Youth” (Richard Brooks, director), Tom “Boss” Finley tells Chance Wayne: “Let me tell you something laddie. This here is America. Today you’re

nobody. Tomorrow you're somebody. But you got to think big, act big, and you'll be big." Wall Street praises big deals, big players, and big profits.

Many economists and Wall Street inhabitants think really, really big in believing they reason as (or very much like) genuine scientists (objectively). Their comprehensive and sustained use of scientific language (including rationality rhetoric) is coupled to an obsessive struggle to objectively embrace scientific viewpoints and methods. In general, almost all Wall Street players and economists that employ scientific terms and strive to think and act like real scientists such as physicists and engineers convince themselves that they are scientific or close to it. They view themselves as objective ("rational" in the natural physical science sense), or mostly objective.

A given economist or Wall Street professional may intend to use scientific words and perspectives as metaphors. That speaker may directly or implicitly say it intended a metaphor (or simile). Or, contextual analysis by others may reach a subjective conclusion as to whether the orator intended its language to be metaphorical. Of course, sometimes a speaker talks the talk of science in a deliberately playful way.

Metaphors and similes are subjective (cultural) phenomena. They are never objective (scientific). However, many of the would-be scientists of economics and Wall Street nevertheless have faith that their marketplace perspectives and their metaphors are "still scientific" (objective; true for all). These scientific dreamers believe their deliberate, supposedly objective metaphors help to explain marketplace phenomena and enlighten both professional and Main Street audiences.

Many of the alleged scientists of economics and Wall Street go even further in their expression of scientific faith. Like the purported scientists that confess to using some (allegedly objective) metaphors, these science lovers have deep faith their perspectives are objective (or mostly so). However, these would-be scientists use scientific words and strive to espouse scientific perspectives without intending to be metaphorical. Not only do such science worshipers have faith their scientific wordplay is not subjective; they also believe they are not reasoning and speaking metaphorically. These scientific evangelists (as are the supposed scientists that confess to using some metaphors) are serious in their allegedly scientific enterprises. They too speak and behave in good faith, without intent to mislead others.

Suppose Wall Street and other economic arenas are cultural domains. Burning faith in subjective perspectives inspired by natural physical science will never transform Wall Street or other economic fields from cultural arenas into Natural environments. So suppose one removes the "scientific" costumes of the aspiring scientists of Wall Street and economics. Suppose the allegedly scientific talk, postures, rituals, and pretensions are not science. What's exposed? Culture. In cultural realms, people can be addicted or married to or have blind faith in "science". Yet all such devotees remain entirely within culture (subjectivity).

If Wall Street is a cultural arena, all perspectives within it and regarding it are entirely and inescapably subjective. Then the so-called objectivity and scientific rationality that Wall Street and economics cultivates and sells is a science fiction; it likewise is a fairy tale that Wall Street and economics objectively can apply the scientific method. Science (objectivity) is not rhetoric (subjectivity, culture). Thus if marketplaces, including Wall Street, are cultural playgrounds, then the scientific language of Wall Street and the economics profession is not only subjective, but also metaphorical. Then each allegedly scientific Wall Street and economics

perspective actually is subjective (metaphorical). Then the entire mighty and formidable tower of so-called "Science" painstakingly built by Wall Street and economics is a gigantic metaphor (subjective edifice).

The supposed scientists of Wall Street and economics may not believe their perspectives, thought processes, and speech are subjective (metaphorical). However, their symphonies of subjective "science" are not genuine science (objective). They are phony, fake, make-believe, and counterfeit science.

What if someone nevertheless has faith that a rhetorical (subjective; metaphorical) structure really is scientific, or mostly or approximately so? That person's belief is religious, or akin to a religious faith.

Metaphor Matrix: Wall Street and Other Fields

Metaphors and subjective definitions are integral to and inescapable within rhetoric (culture). Wall Street imports language from various fields to describe and explain its marketplaces and other economic phenomena. Not only do Wall Street professionals use metaphors and similes (subjective definitions) to educate and persuade other professionals. Wall Street also employs them in its quest to educate and persuade Main Street. The financial media embraces many of these metaphors. Economists and business (and finance) professors as well as central bankers and finance ministers are especially enamored of scientific language.

The matrix reflects a subjective definition of each field. Definitions of games, love, war, politics, religion, and so forth are not objective (scientific). Also, one category may share terms that "belong" to it with another field. The matrix is a heuristic device, not a straitjacket.

The overview of each arena does not provide all words that Wall Street enlists from it. The various chapters of "Words on the Street" include numerous others. For example, in the games category, one could pitch in words such as ball, cards, chips, and scorecard.

The matrix includes a couple of words that Wall Street institutions and individuals seldom if ever express. "Bordello" is an example. However, the matrix contains them to indicate formal parallels between terms of the various fields. So for this purpose, put issues of morality aside. A whorehouse is just a location, as is a bedroom, playground, battlefield, church, and laboratory.

In practice, a given speaker generally has some preference for one or more metaphorical categories. One may enjoy scientific wordplay, while another loves that of games. Some speakers of course engage language from several fields. Some vary their metaphors according to the financial topic, marketplace circumstances, and audience.

Assume a set of words from a given field. Not all users of terms from that category believe they are speaking metaphorically. For example, natural physical science language infatuates many in Wall Street and the economics profession. The would-be scientists of economics and Wall Street have faith their marketplace perspectives, thought processes, and vocabularies are objective (or mostly objective). Most of these supposed scientists do not believe their marketplace language and viewpoints are metaphorical (subjective). Although some so-

called scientists confess they sometimes employ a few metaphors, these speakers usually believe they are using metaphors objectively.

The fields may refer to or imply opposites- games (or play)/work, love/hate, war/peace, faith/disbelief, good/bad (or evil). Many terms in the Participant pillar are Others relative to a given participant. The other is often a human participant, at least in cultural fields. However, the Other column suggests something or someone apart from, or opposite to, a particular participant and its perspective and strategy. Method refers to the means of achieving a desired, good Outcome, perhaps avoiding a bad one. One could construct a column of Tools, but several of these are included under Method.

Readers can expand the matrix to include other metaphorical sources rounded up and packaged by Wall Street. Think of Main Street and its shoppers and bargains. Wall Street rhetorical recipes take language from house and home as well as from the domain of food.

FIELD	PARTICIPANT	"OTHER"	LOCATION	METHOD	OUTCOME
Games Sports Gambling Play	player, competitor, professional, amateur, coach; team, club, fan, cheerleader, quarter-back, all-star; ringmaster; bettor, high roller; dealer, bookmaker; cheater	opponent rival Lady Luck Dame Fortune "odds", "house"	playing field, playground; arena; amusement park; rollercoaster, bandwagon, party; ballpark casino, "book", table	compete, practice, train, exercise; playbook bet, wager, play odds	win/lose; score points; fun; entertainment, amusement; "action"; addiction; make/lose money
Love Sex Friendship	lover/seducer, femme fatale, whore, pimp	lover, beloved, spouse, darling/ "ex"; friend	marriage; bed; relationship; "heart", bedroom, whorehouse, bordello	romance, seduction; body: touch and other senses	love, passion; "fucked"; heart-break, betrayal; friendship; hate; indifference
War Battle Violence	general, commander; army, troops; lieutenant, soldier, warrior; hero; champion;	enemy, foe; ally; prey	battlefield, trenches; jungle; Wild West; territory	battle, combat; offense, defense; strategy, tactics; attack, retreat;	victory/defeat; glory, fame/ shame; survival/ killed, death,

	coward, deserter, pirate; cowboy; hunter			fight; shoot; weapon, gun, bullet	wounded; advance/retreat; peace
Politics	king, ruler, leader; citizen, patriot; party, faction; partisan; traitor; fixer, operator; candidate; voter	opposing party (or class); legislature	legislature (also court and executive); nation, country, empire, realm; clan, tribe; throne; pedestal; soapbox	political oratory; campaign, vote	power or loss of power; reign/abdicate; laws of people
Religion (Magic)	(high) priest, evangelist, preacher; prophet; savior; master; believer, fanatic, apostle, disciple, pilgrim, devotee; enlightened; wizard, guru, shaman, alchemist; faithful; unbeliever, heretic, blasphemer, infidel, uninitiated; congregation, choir	God, gods; idol; spirits, forces, powers, energies; Fate, Destiny; denomination, sect	church, cathedral; temple; heaven, hell; soul, spirit; altar, pulpit ,	worship, faith, prayer, good works; revelation; oracles, signs, omens; magic, alchemy, theology	immortality, salvation, enlightenment, wisdom, divine knowledge/death, damnation, error, ignorance; religious or magical power
Natural Physical Science	(rocket) scientist, experimenter, engineer, inventor, researcher; professor, teacher; pupil, student; doctor; patient	body, particle, wave, field, power, force, energy; Natural processes such as weather; living Natural bodies (animals, etc.); Laws of Nature	laboratory, classroom; Nature; world, environment, universe	scientific method: observation, hypothesis, experiment, test, formula, demonstration, proof; diagnosis, prescription, surgery, antidote; toolkit; microscope, telescope, barometer; measure, weigh	"objective" + "rational" truth (knowledge); theoretical + applied science; practical results; useful creation (manufacture); cure
Art	artist, performer; craftsman, artisan; decorator, designer; imitator, forger; hack; connoisseur	audience, critic; buyer, collector	art world; stage, theater, performance hall; museum; studio; drawing board	inspiration; paint, drawing; writing, metaphors, similes; singing, dance; musical instrument; drama	beautiful creation (art); useful creation (craft); decoration, design
Wall Street Trading	buyer, long, bull; seller, short, bear; spreader (pair, cross); investor; speculator; dealer, merchandiser; trader; risk manager; hedger; salesperson	participants (individuals, institutions, firms); marketplace communities	marketplaces (equity, debt, foreign exchange, commodity; derivatives); exchange	buying and selling; trading, exchanging, investing, speculating, financing	make money; lose money; wealth, financial security; poverty