Both financiers and economists still get the blame for the 2007-2009 financial crisis: the first group for causing it and the second for not predicting it. As it turns out, the two issues are connected. The economists failed to understand the importance of finance and financiers put too much faith in the models produced by economists.

If this seems like an ancient debate, and thus irrelevant to today's concerns, it is not. The response of central banks and regulators to the crisis has led to an economy unlike any we have seen before, with short-term rates at zero, some bond yields at negative rates and central banks playing a dominant role in the markets. It is far from clear that either economics or financial theory have adjusted to face this new reality.

The best hope for progress is the school of behavioural economics, which understands that individuals cannot be the rational actors who fit neatly into academic models. More economists are accepting that finance is not a "zero sum game", nor indeed a mere utility, but an important driver of economic cycles. Indeed, finance has become too dominant a driver.

In this year's presidential address to the American Financial Association, Luigi Zingales asked "Does Finance Benefit Society?". He concluded that "at the current state of knowledge there is no theoretical reason to support the notion that all the growth of the financial sector in the last 40 years has been beneficial to society". And a recent paper from the Bank of International Settlements, the central bankers' central bank, concluded that "the level of financial development is good only up to a point, after which it becomes a drag on growth".

Note that these objections are not the same as the argument, familiar from the crisis, that individual banks are too big to fail (or TBTF). This approach is more akin to the idea of the "resource curse" that economies with an excessive exposure to a commodity, such as oil, may become imbalanced. Just as the easy money from drilling for oil may make an economy slow to develop alternative business sectors, the easy money from trading in assets, and lending against property, may distort a developed economy. This is where academic theory comes in. The finance sector damages the economy because iOt does not function as well as the models contend. Asset bubbles can and do form. Buyers of debt fail to prudently assess whether the borrowers can repay. The incentives that govern the actions of financial sector employees tend to reward speculation, rather than long-term wealth creation. Some of this is to do with the way that governments have regulated the financial system. But much of it is to do with the psychological foibles that make us human.

These foibles are not recognised in traditional models which assume that humans are rational beings or homo economicus. In his new book "Misbehaving: The Making of Behavioural Economics", Richard Thaler uses a different term: econs. He writes that "compared to this fictional world of econs, humans do a lot of misbehaving, and that means that economic models make a lot of bad predictions."

Of course, the behavioural economics school has been around for 40 years or so. But for much of this time, its conclusions were dismissed by mainstream economists as a set of lab studies, amusing as anecdotes but impractical as explanations for the behaviour of an entire economy.

Never mind the theory, look at the practice

Traditional finance theories still hold sway in academia because they look good in textbooks; they are based on mathematical formulae that can be easily adapted to analyse any trend in the markets. "Theorists like models with order, harmony and beauty" says Robert Shiller of Yale, who won the Nobel prize for economics in 2013. "Academics like ideas that will lead to econometric studies." By contrast, economists who speak of the influence of behaviour on markets have to use fuzzier language, and this can seem unconvincing. "People in ambiguous situations will focus on the person who has the most coherent model" adds Mr Shiller.

Nevertheless, behavioural economists argue that their mainstream rivals seem oddly uninterested in studies of how people actually behave. "To this day" writes Mr Thaler, "the phrase 'survey evidence' is rarely heard in economics circles without the necessary adjective 'mere' which rhymes with sneer." One example is the idea that firms seek to maximise profits by increasing output until the marginal cost of making more equals the marginal revenue from selling more. Surveys of actual managers, however, show that is not how they think; generally speaking, they try and sell as much as they can, and adjust the size of their workforce accordingly.

Individuals have a number of biases which traditional economists would struggle to explain. There is the "endowment effect" – people attach a higher value to goods they already own than to identical good that they don't. In their heads, the buying and selling prices of goods are quite different. People also suffer from "sunk cost" syndrome; if they paid $100 for a ticket to a sports game, they are more likely to drive to the match in a blizzard than if the ticket had been free. And another issue is "hyperbolic discounting" – people value the

receipt of a good (or income) in the short term much more highly than they do in the long term.

On top of these biases, individuals face enormous practical difficulties in doing what economists assume they do all the time – maximize their utility. The future simply has too many variables to be knowable. Take, for example, the standard definition of the value of a single share; it is equal to the future cashflows from said share discounted at the appropriate rate. But what will those cashflows be? Analysts struggle to forecast the outlook for companies over the next 12 months, let alone over decades. And the right discount rate depends on the level of investors' risk aversion, which can vary a lot from month to month. Robert Shiller won his Nobel prize, in part, for showing that the market price of shares was far more volatile than it would have been had investors had perfect foresight of the future dividends they would have received.

However, the academic theories of finance that emerged in the 1950s and 1960s were built on the assumption of rationality. There were a number of important planks to the theory. The efficient market hypothesis argued that market prices reflect publicly available information (in the strongest form of the hypothesis, even private information was baked into the price). Buying shares in Google because its latest profits were good, or because of a particular pattern in the price charts, was unlikely to deliver an excess return.

Another important concept was the capital asset pricing model (CAPM). This stated, in essence, that riskier assets should offer higher returns. Risk in this sense meant more volatile. The key measure was the correlation of a share with the overall market, or beta in the jargon. A stock that is less volatile than the market will have a beta of less than 1 and will offer modest returns; a stock that is more volatile than the market will have a beta greater than 1 and will offer above-average returns.

Linked to these ideas was the Miller-Modigliani theorem (named after the two academics that devised it) that the market would be indifferent to the way that a company was financed. Adding more debt to a company's balance-sheet might be riskier for the shareholders but would not affect the overall value of the group.

None of these ideas are stupid. Indeed they embed age-old common sense maxims such as "there is no such thing as a free lunch" or "if an offer sounds too good to be true, it probably is". The failure of professional fund managers to beat the market on a consistent basis is often cited as evidence for the efficient market hypothesis. Indeed the insight helped

establish the case for the growth of low cost "tracker funds" which mimic benchmarks such as the S&P 500 index. Such funds enable retail investors to get a broad exposure to the stockmarket at low cost. Furthermore the link between risk and reward is a pretty good rule of thumb. Beware any salesman who offers a "sure thing" paying 8% a year.

Nor should it be implied that academics are unaware that these models involve a degree of simplification – ignoring transaction costs, for example, or the difficulties involved in traders being able to borrow enough money to bring prices into line. Cliff Asness, head of the fund management firm AQR, says that few people think the markets are perfectly efficient. Investors do not naively assume that traditional models are right; they are constantly trying to adapt them to take account of market realities.

Indeed, there is a vigorous debate in academia about the importance of market anomalies, such as the tendency for stocks that have risen in the recent past to keep going up (momentum). Do they reflect a hidden risk factor that (on the CAPM principle) deserves a greater reward? Or are they simply be the result of "data mining"; torture the numbers enough and some quirk will assuredly appear. A paper by Campbell Harvey and Yan Liu in the Journal of Portfolio Management last year argued that "most of the empirical research in finance ... is likely false" because it is not subject to sufficiently rigorous statistical tests.

The market is always right

In the run-up to the crisis, these minutiae were largely irrelevant. Central bankers and regulators, led by Alan Greenspan, had absorbed the underlying message of the traditional model; that market prices were the best judges of true value, that bubbles were thus unlikely to form and, crucially, that those who worked in the financial sector had sufficient wisdom and self-control to limit their risks, with the help of market pressure. A bit like Keynes's wisecrack about practical men being slaves of a defunct economist, financiers and regulators were slaves of defunct finance professors.

One important consequence of this reasoning emerged in a quote from David Viniar, chief financial officer of Goldman Sachs, the investment bank, in August 2007. He said that "We were seeing things that were 25-standard deviation moves, several days in a row." To put this in perspective, even an eight-standard deviation event should not have occurred in the entire history of the universe. Any model that produces such a result must be wrong.

Mr Viniar was relying on "value at risk" models which supposedly allowed investment banks to predict the maximum loss they might suffer on any given day. But these models assumed

that markets would behave in reasonably predictable ways; with returns mimicking the "bell curve" that appears in natural phenomena such as human heights. In other words, extreme events, such as the ones in August 2007, are as unlikely as a 30-foot human.

Indeed, there is no reason that such events should happen if markets are efficient. However, markets display a herd mentality in which assets (such as sub-prime mortgages) become fashionable. Investors pile in, driving prices higher and encouraging more investors to take part. Charles Kindleberger, the economic historian, said that "There is nothing so disturbing to one's well-being and judgment as to see a friend get rich." If other people are making a fortune by buying tech stocks, or by trading up in the housing market, then there is a huge temptation to take part, in case one gets left behind.

This herd mentality means that financial assets are not like other goods; demand tends to increase when they rise in price. To the extent that investors worry about valuations, they tend to be extremely flexible; expectations of future profits growth are adjusted higher until the price can be justified. Or "alternative" valuation measures are dreamed up (during the internet era, there was "price-to-click") that make the price look reasonable.

When confidence falters, there are many sellers and virtually no buyers, driving prices sharply downwards. Indeed, in 2008, assets that had not previously been correlated with each other all fell at once, further confounding the banks' models of investment banks. Assets that were supposedly safe (like AAA-rated securities linked to subprime mortgages) fell heavily in price.

When this happened with dotcom stocks in 2000-2002, the problem was survivable. Some technology funds lost 90% of their value but, for most investors, such funds formed only a small portion of their savings. The problems became more intense with subprime mortgages because the owners of such assets were leveraged; that is, they had financed their purchases with borrowed money. They were forced to sell to cover their debts. And when some could not cover their debts, confidence in the whole system broke.

Leverage was a factor that was not really allowed for in mainstream economic models. To economists, debt is important to the extent that, in a sophisticated economy, it allows individuals to smooth their consumption over their lifetimes. For every debtor, there is a creditor, so a loss to one side must be offset by a gain to another; net global debt is always zero.

Similarly, for financial regulators, the rise of complex structured products like collateralised debt obligations (CDOs) was merely a sign that the system was getting better at parcelling up and dispersing risk to those best able to bear it. Federal Reserve discussions in the 2004-06 barely mentioned CDOs and their like, while in the decade preceding the banking collapse, the Bank of England's monetary policy committee spent just 2% of its meetings discussing banks. In "Stress Test", his book on the crisis, then New York Fed Chairman Tim Geithner said "We weren't expecting default levels high enough to destabilise the entire financial system. We didn't realise how panic-induced fire sales and radically diminished expectations could cause the kind of losses we thought could only happen in a full-blown economic depression."

Function failure

What is the finance sector supposed to do? Essentially, it needs to perform a number of basic economic functions. First and foremost, it operates the payments system without which most transactions could not occur. Secondly, it channels funds from individual savers to the corporate sector so the latter can finance its expansion. In doing so, it does the highly useful service of maturity transformation; allowing households to have short-term assets (deposits) while making long-term loans. It also creates diversified products (such as mutual funds) that help to reduce the risk to savers of catastrophic loss. Thirdly, it provides liquidity to the market by buying and selling assets. The prices established in the course of this process are a useful signal of which companies offer the most attractive use for capital and which governments are the most profligate. Fourthly, the sector helps individuals and companies to manage risks, whether physical (fire and theft) or financial (sudden currency movements).

However, partly (but far from wholly) because of the crisis, the sector is not performing some of its roles very well. In recent years, for example, banks have seemed reluctant to lend money to the small businesses need to drive economic expansion. Instead of raising funds from savers, American companies are returning more cash to shareholders (in the form of dividends and buy-backs) than the other way round. The bond market vigilantes have been neutered; central banks have intervened to keep bond yields down despite high deficits across the western world.

Another problem is that the basic utility functions of banking (payments, corporate lending) are boring and not that profitable. The big money has been made elsewhere. In their paper for the BIS, Stephen Cecchetti and Enisse Kharroubi show that rapid growth in the finance

sector tends to a lead to a decline in productivity growth. Two factors may be at work. First, the high salaries offered in finance divert the smartest graduates away from other sectors of the economy. Second, bankers prefer to lend against solid collateral, in particular property; periods of rapid credit growth tend to be associated with property booms. But construction and property are not particularly productive sectors. The net effect is that resources are diverted away from the most productivity-enhancing sectors of the economy.

In his speech, Luigi Zingales cast doubt on some of the finance sector's other services. "There is remarkably little evidence that the existence or the size of an equity market matters for growth" he said, adding that the same is true for the junk bond market, the options and futures market or the development of over-the-counter derivatives. That raises the uncomfortable possibility that a lot of the finance sector's returns may be down to the exploitation of customers.

A related issue is that the finance sector's profits may come from "rent-seeking"—the excess returns that can be earned by exploiting a monopoly position. Here the finance sector's very importance, and its ability to cause economic havoc, plays to its advantage. The 1930s showed the danger of letting banks fail. So governments stand behind the banking system—in the form of deposit insurance—and that means banks benefit from cheap funding. Because central banks worry about the effect on consumer confidence of plunging asset prices, they intervene when markets wobble. Both tendencies encouraged the finance sector to expand their balance sheets and speculate in the markets in the run-up to 2007. Indeed, the people who had risen to the top of investment banks such as Dick Fuld at Lehman Brothers or Jimmy Cayne at Bear Stearns, had a risk-taking mentality. In a Darwinian process, their approach had brought them success in the markets of the 1980s and 1990s, making them appear the leaders best adapted to the modern envionment.

The eventual result was that banks were bailed out by the governments and central banks—a combination of privatised profits and nationalised losses that was staggeringly unpopular with the public. So why not simply let the banks fail and share prices crash, as free market theorists would suggest? The problem is that politicians and regulators, given what happened in the 1930s, are simply unwilling to take that risk. The maturity transformation performed by banks makes them inherently risky; they are borrowing short and lending long, and that risk cannot be eliminated entirely. As Tim Geithner wrote "trying to mete out punishment to perpetrators during a genuinely systemic crisis - by letting major firms fail or forcing senior creditors to take haircuts - can pour gasoline on the fire. Old Testament

vengeance appeals to the populist fury of the moment, but the truly moral thing to do during a raging financial inferno is to put it out."

One born every minute

As well as benefiting from government protection, banks have another advantage: the sale of complex products to unsophisticated investors, who fail to understand either the risks involved or to spot the charges hidden within the product's structure. The long series of scandals involving subprime mortgages, the fixing of Libor rates (short-term borrowing costs) and exchange rate manipulation has indicated the scale of the problem; Mr Zingales points out that financial companies paid $139 billion in fines to American regulators between January 2012 and December 2014.

Such problems would not occur if the economic models held true and all investors were operating with perfect information and were completely rational. But there is an obvious information asymmetry between the banks and their customers. This was neatly illustrated by a recent US report which showed what happens to financial advice when the advisers are remunerated by the product providers; they were more likely to recommend high-charging products, costing Americans an estimated $17 billion a year. Indeed, one problem with financial products is that they are not like toasters, where a consumer can instantly see if something is wrong; it may take years (decades in the case of pensions) for the problems to become apparent. By that time, it may be too late for consumers to repair the damage to their wealth.

But the crisis was not just the result of poor financial regulation, it was also down to the failure of economists to understand the importance of debt. A few commentators, such as William White of the Bank for International Settlements, had warned about the issue in advance. But their warnings were ignored. It turned out that debt is not a zero sum game, in which any loss to creditors is matched by a gain to borrowers. If a loan is secured against a property, and the property price falls sharply, both the lender and the borrower can suffer; the borrower loses his deposit (and possibly his home) while the lender has to write down the value of the loan. In their book "House of Debt", published in 2014, Atif Mian and Amir Sufi, showed that American regions with lots of highly-levered homeowners suffered more in the recession than areas where buyers had borrowed less. Households had financed their expenditure during the boom with borrowed money, particularly in America where equity withdrawal from houses was highly common. Raghuram Rajan, the economist who is now India's central bank governor, called this "Let them eat credit".

In the corporate sector, the Miller-Modigliani theory implied the markets should be indifferent as to whether companies should finance themselves with equity or debt. But interest payments on debt are tax-deductible, giving debt finance an advantage. Furthermore, companies with cash on their balance sheets were encouraged by activist shareholders to return money to investors. Steadily, the corporate sector (and in particular the banks) became more leveraged. However if a company has a lot of its debt on its balance-sheet, it is highly sensitive to a small adverse change in market conditions since these can wipe out the value of its equity and cause it to go bust. A more levered economy will be more volatile.

The response

Regulators have tried to tackle some of these issues by insisting that banks hold more capital on their balance sheet, to make them less vulnerable to plunging asset prices. The rules also mean that banks devote less capital to trading. But these approaches run into the St Augustine problem, who proclaimed "Lord, give me chastity, but not yet." The efforts of the banks to improve their capital base has made them chary about lending to business, thereby slowing the recovery. Their retreat from market-making has made financial markets less liquid; some fund managers fear the next crisis may occur in corporate bonds, which investors have bought in search of higher yields. When investors try to sell, the banks will be unwilling to offer a market, causing prices to plunge; some funds may be forced to suspend redemptions, leading to a crisis of confidence.

Another regulatory approach is to focus on "macroprudential policy". One of the reasons central bankers were reluctant to tackle high asset prices was that their only tool was interest rates. But higher rates would damage the rest of the economy, as much as it would tackle market excess. A more sophisticated approach would use other tools, such as restricting the ratio of loans to property values. At the peak of the boom, no deposits were required. But it remains to be seen whether regulators will have the willpower to use such tools at the top of the next boom or indeed whether eager homeowners will find ways round the rules, for example by borrowing from unregulated lenders.

What about the response of economists? There has been a lot of work in recent years about the role of debt including, most famously, the studies of Carmen Reinhart and Kenneth Rogoff. Unfortunately, this debate has been sidelined on to the narrow issue of the level of government debt rather than the aggregate level of debt in the economy. Iceland and Ireland did not have a lot of government debt before the crisis; it was their bank debt that caused

the trouble. The reaction from Keynesian economists like Paul Krugman is that a focus on debt is simply a right-wing excuse to impose needless austerity on the economy.

The use of quantitative easing (QE) to stabilise economies has made it a lot easier to service debts and indeed has prompted many to argue that deficits are irrelevant in a country that borrows in its own currency and has a compliant central bank. Very little of the pre-crisis debt has been eliminated; it has just been redistributed onto government balance sheets. But QE has also forced up asset prices, boosting the wealth of the richest, and making it even more difficult for central banks to reverse policy. Even now, many years after the crisis, and with their economies growing and unemployment having fallen, the Federal Reserve and Bank of England have yet to push up rates. Perhaps they will never be able to return rates to what, before the crisis, would have been deemed normal levels (4-5%) nor indeed will they be able to unwind all their asset purchases.

So we have ended up, after three decades of worshipping free markets, with a system in which the single most dominant players in setting asset prices are central banks and in which financiers are much bigger receivers of government largesse than any welfare cheat could dream about. Economic and financial theory have not adjusted to this situation; can a market be efficient, or properly balance risk and reward, if the dominant players are central banks, who are not interested in maximising their profits?

The challenge

For all their criticism of mainstream economists, the challenge for the behavioural school is to come up with a coherent model that can produce testable predictions about the overall economy. They have grown in influence with governments adopting their "nudge" ideas on how to influence behaviour; asking people to opt out of pension plans rather than opt into them, improves the take-up rate. In effect, the rules rely on inertia; people can't be bothered to fill in the forms required to opt out.

At the macro level, however, a coherent model is yet to emerge. George Cooper, a fund manager and author, has argued that economics needs the kind of scientific revolution driven by Newton and Einstein.

The most promising approaches may be based on our growing understanding of the brain. Neuroscientists have shown that monetary gain stimulates the same reward circuitry as cocaine – in both cases, dopamine is released into the nucleus accumbens. "In the case of

cocaine, we call this addiction. In the case of monetary gain, we call it capitalism" says Andrew Lo of the Massachsetts Institute of Technology.

Similarly the threat of financial loss apparently activates the same fight-or-flight response as a physical attack, releasing adrenalin and cortisol into the bloodstream. Risk-averse decisions are associated with the anterior insula, the part of the brain associated with disgust. In other words, we react to investment losses rather as we react to a bad smell.

Another important finding is that humans would not improve their thinking if they turned into the emotionless Vulcans of Star Trek. Patients who have suffered damage to the parts of the brain most associated with emotional responses seem to have difficulty in making decisions. “Emotions are the basis for a reward-and-punishment system that facilitates the selection of advantageous behaviour” says Mr Lo. Humans also follow heuristics or “rules of thumb” that guide our responses to certain stimuli; these may have developed when mankind lived in much more dangerous surroundings. If you hear a rustle in the bushes, it may well not be a tiger; but the safest option is to run away first and assess the danger afterwards.

In the second world war, bomber crews had the choice of wearing a parachute or a flak jacket; donning both was too bulky. The former helped if the plane was shot down, the latter protected crew from shrapnel caused by anti-aircraft fire. Getting hit by shrapnel was statistically more likely so the rational choice would be to wear the flak jacket every time. Instead the crews varied their garb, roughly in proportion to the chances of the two outcomes—although there was no way they could predict the outcome of a single mission.

Mr Lo argues that this approach may sound arbitrary but such behaviour may be is rational from an evolutionary perspective. Take an animal that has a choice of nesting in a valley or a plateau; the valley offers shade from the sun (good for raising offspring) but vulnerability to floods (killing all offspring). The plateau offers protection from floods (good for offspring) but no shade (killing all offspring). The probability of sunshine is 75%. So the “rational” decision from the individual’s perspective would be to stay in the valley. But if a flood occurs, the entire species would be wiped out. It makes more sense for the species if individuals probability match. “When reproductive risk is systematic, natural selection favours randomising behaviour to avoid extinction” he writes.

Mr Lo’s view is that markets are normally efficient but not always and everywhere efficient. He dubs this “adaptive market theory”—and sees it as a consequence of human behaviour,

particularly herd instinct. Watching other people suffer triggers an empathetic reaction. When other investors are panicking in a period of market turmoil, we tend to panic too.

A similar approach, dubbed the fractal market hypothesis, is advanced by Dhaval Joshi of BCA Research. This acknowledges that investors with different time horizons interpret the same information differently. “The momentum-based high frequency trader might interpret a sharp one-day sell-off as a sell signal” he says, “but the value-based pension fund might interpret the same information as a buying opportunity. This disagreement will create liquidity without requiring a big price adjustment. Thereby it also fosters market stability.”

But if the different groups start to agree—groupthink, in other words—liquidity will evaporate as everyone wants to buy or sell at the same time. In such a situation, price changes may become violent. Mr Joshi thinks central bank interference in the markets is accordingly dangerous since it creates uniform mentality among investors in which easier monetary policy is always a good thing for asset prices.

Another area of research is to view the markets as a classic example of the principal-agent problem where many market participants are not investing their own money but acting on behalf of others. Paul Woolley and Dimitri Vayanos of the London School of Economics see this as a potential explanation for the momentum effect. Investors choose fund managers on the basis of their past performance; they will naturally pick those that have done well. When they switch, the successful manager will receive money that he will reinvest in his favourite stocks; by definition, these are likely to be stocks that have recently performed well. This inflow of cash will push such stocks up even further.

Another example of the principal-agent mismatch at work may lie in the incentive structure for executives. Ironically, this all stems from an attempt to align the interests of executives and shareholders more closely. In the 1980s, academics worried that executives were too interested in empire-building—creating bigger companies that would justify bigger salaries for themselves—and not focusing on shareholder returns. So they were given options over shares. In the bull market of the 1980s and 1990s, these options made many executives extremely rich; CEO pay has risen eightfold in real terms since the 1970s. These riches have come at the price of impermanence; the average tenure of a CEO has fallen from 12 years to 6.

The combination may have made executives oversensitive to short-term fluctuations in the share price at the expense of long-term investment; a survey showed that executives would

reject a project with a positive rate of return if it damaged the company's ability to meet the next quarter's earnings target. This may explain why record-low interest rates have not resulted in the splurge of business investment that economists and central bankers were hoping for. Again the financial system is not working well.

An evolving task

Another important issue for academics to consider is that the financial sector is not static. Each crisis induces changes in behaviour and new regulations that prompt market participants to adjust (and to find new ways to game the system). In any case, regulators cannot eliminate risk altogether. In terms of consumer protection, regulators cannot set a standard for the right product that should be sold in all circumstances. Investors' attitude towards risk may differ (indeed their ex ante willingness to take risk may differ from their ex post feelings when bad things happen.) And even if the salesman and the clients were equally well informed, the correct asset allocation (between, say, equities and bonds or America and Japan) cannot be known in advance.

Indeed, the attempt to create a riskless world may be counter-productive. Cliff Asness of AQR says that "Making people understand that there is a risk (and a separate issue, making them bear that risk) is far more important, and indeed far more possible than making a riskless world. And if I may go further, trying to create and worse, giving the impression you have created, a riskless world makes things much more dangerous."

There will never be an "answer" that eliminates all crises; that is not in the nature of finance and economics. But for too long economists ignored the role that debt and asset bubbles play in exacerbating economic booms and busts; it needs to be much more closely studied. Even if the market is efficient most of the time, we need to worry about the times when it is not. Academics and economists need to deal with the world as it is, not the world that is easily modelled.