Ever since the Crash of 2008 there has been a widespread recognition, both among economists and the general public, that economic theory has failed. But there is no similar consensus, even among participants of this conference, on the nature and implications of that failure. As a sponsor of INET I am delighted because it shows that INET is open to widely different strands of new economic thinking. But I am not only a sponsor; I am also the proponent of an alternative interpretation of financial markets and today that is what I should like to talk about.

I believe that the failure is more profound than generally recognized. It goes back to the foundations of economic theory. Economics tried to model itself on Newtonian physics. It sought to establish universally and timelessly
valid laws that govern reality. But economics is a social science and there is a fundamental difference between the natural and social sciences. Social phenomena have thinking participants who base their decisions on imperfect knowledge. That is what economic theory has tried to ignore.

Scientific method needs an independent criterion, by which the truth or validity of its theories can be judged. Natural phenomena constitute such a criterion; social phenomena do not. That is because natural phenomena consist of facts that unfold independently of the scientific statements that relate to them. The facts then serve as objective evidence by which the validity of scientific theories can be judged. That has enabled natural science to produce amazing results.

Social events, by contrast, have thinking participants who have a will of their own. They are not detached observers
but engaged decision makers whose decisions greatly influence the course of events. Therefore the events do not constitute an independent criterion by which participants can decide whether their views are valid. In the absence of an independent criterion people have to base their decisions not on knowledge but on an inherently biased and to greater or lesser extent distorted interpretation of reality. Their lack of perfect knowledge or fallibility introduces an element of indeterminancy into the course of events that is absent when the events relate to the behavior of inanimate objects. The resulting uncertainty hinders the social sciences in producing laws similar to Newton’s physics.

Economics, which became the most influential of the social sciences, sought to remove this handicap by taking an axiomatic approach similar to Euclid’s geometry. But Euclid’s axioms closely resembled reality while the theory of rational expectations and the efficient market hypothesis
became far removed from it. Up to a point the approach worked. For instance, the theory of perfect competition postulated perfect knowledge. But the postulate worked only as long as it was applied to the exchange of physical goods. When it came to production, as distinct from exchange, or to the use of money and credit, the postulate became untenable because the participants’ decisions involved the future and the future cannot be known until it has actually occurred.

I am not well qualified to criticize the theory of rational expectations and the efficient market hypothesis because as a market participant I considered them so unrealistic that I never bothered to study them. That is an indictment in itself but I shall leave a detailed critique of these theories to others.
Instead, I should like to put before you a radically different interpretation of financial markets. It was inspired by Karl Popper who taught me that the participants’ interpretation of reality never quite corresponds to reality itself. This led me to study the relationship between the two. I found a two-way connection between the participants’ thinking and the situations in which they participate. On the one hand people seek to understand the situation; that is the *cognitive function*. On the other, they seek to make an impact on the situation; I call that the *causative or manipulative function*. The two functions connect the thinking agents and the situations in which they participate in opposite directions. In the cognitive function the situation is supposed to determine the participants’ views; in the causative function the participants’ views are supposed to determine the outcome. When both functions are at work at the same time they interfere with each other. The cognitive and manipulative functions form a circular relationship or feedback loop. I
call that feedback loop reflexivity. In a reflexive situation the participants’ views cannot correspond to reality because reality is not something independently given; it is contingent on the participants’ views and decisions. The decisions, in turn, cannot be based on knowledge alone; they must contain some bias or guess work about the future because the future is contingent on the participants’ decisions.

Fallibility and reflexivity are inexorably interconnected, like Siamese twins. Without fallibility there would be no reflexivity – although the opposite is not the case: people’s understanding would be imperfect even in the absence of reflexivity. Of the two twins, fallibility is the first born. Together, they ensure both a divergence between the participants’ view of reality and the actual state of affairs and a divergence between the participants’ expectations and the actual outcome.
Obviously, I did not discover reflexivity. Others had recognized it before me, often under a different name. Robert Merton wrote about self fulfilling prophecies and the bandwagon effect, Keynes compared financial markets to a beauty contest where the participants had to guess who would be the most popular choice. But starting from fallibility and reflexivity I focused on a problem area, namely the role of misconceptions and misunderstandings in shaping the course of events that mainstream economics tried to ignore. This made my interpretation of reality more realistic than the prevailing paradigm.

Among other things, I developed a model of a boom-bust process or bubble which is endogenous to financial markets, not the result of external shocks. According to my theory, financial bubbles are not a purely psychological
phenomenon. They have two components: a trend that prevails in reality and a misinterpretation of that trend. A bubble can develop when the feedback is initially positive in the sense that both the trend and its biased interpretation are mutually reinforced. Eventually the gap between the trend and its prevailing interpretation grows so wide that it becomes unsustainable. After a twilight period both the biased and the trend are reversed and reinforce each other in the opposite direction. Bubbles are usually asymmetric in shape: booms develop slowly but the bust tends to be sudden and devastating. That is due to the use of leverage: price declines precipitate the forced liquidation of leveraged positions.

Well formed financial bubbles always follow this pattern but the magnitude and duration of each phase is unpredictable. Moreover the process can be aborted at any stage so that well formed financial bubbles occur rather infrequently.
At any moment of time there are myriads of feedback loops at work, some of which are positive, others negative. They interact with each other, producing the irregular price patterns that prevail most of the time; but on the rare occasions that bubbles develop to their full potential they tend to overshadow all other influences.

According to my theory financial markets may just as soon produce bubbles as tend toward equilibrium. Since bubbles disrupt financial markets, history has been punctuated by financial crises. Each crisis provoked a regulatory response. That is how central banking and financial regulations have evolved, in step with the markets themselves. Bubbles occur only intermittently but the interplay between markets and regulators is ongoing. Since both market participants and regulators act on the basis of imperfect knowledge the interplay between them is reflexive. Moreover reflexivity and fallibility are not confined to the financial markets; they
also characterize other spheres of social life, particularly politics. Indeed, in light of the ongoing interaction between markets and regulators it is quite misleading to study financial markets in isolation. Behind the invisible hand of the market lies the visible hand of politics. Instead of pursuing timeless laws and models we ought to study events in their time bound context.

My interpretation of financial markets differs from the prevailing paradigm in many ways. I emphasize the role of misunderstandings and misconceptions in shaping the course of history. And I treat bubbles as largely unpredictable. The direction and its eventual reversal are predictable; the magnitude and duration of the various phases is not. I contend that taking fallibility as the starting point makes my conceptual framework more realistic. But at a price: the idea that laws or models of universal validity can predict the future must be abandoned.
Until recently, my interpretation of financial markets was either ignored or dismissed by academic economists. All this has changed since the crash of 2008. Reflexivity became recognized but, with the exception of Imperfect Knowledge Economics, the foundations of economic theory have not been subjected to the profound rethinking that I consider necessary. Reflexivity has been accommodated by speaking of multiple equilibria instead of a single one. But that is not enough. The fallibility of market participants, regulators, and economists must also be recognized. A truly dynamic situation cannot be understood by studying multiple equilibria. We need to study the process of change.

The euro crisis is particularly instructive in this regard. It shows that policies that could have worked at one point of time are no longer sufficient at the next one. It also
demonstrates the role of imperfect understanding and misconceptions in shaping the course of history. Since the euro crisis is currently exerting an overwhelming influence on the global economy I shall devote the rest of my talk to it. I must start with a warning: the discussion will take us beyond the confines of economic theory into politics and social philosophy. It will provide an excellent illustration of the reflexive interaction between imperfect markets and imperfect regulators. That is an interaction that goes on all the time while bubbles occur only infrequently. This is a rare occasion when the interaction exerts such a large influence that it casts its shadow on the global economy. How could this happen? My explanation is that there is a bubble involved but it is not a financial but a political one. It relates to the political evolution of the European Union and it has lead me to the conclusion that the euro crisis threatens to destroy the European Union. Let me explain.
In my theory a boom bust process or bubble has two components: a trend that occurs in reality and a misconception relating to that trend. In the boom phase the European Union was what the psychoanalyst David Tuckett calls a “fantastic object” – unreal but immensely attractive. It was the embodiment of the open society – an association of nations founded on the principles of democracy, human rights, and rule of law in which no nation or nationality would have a dominant position.

The process of integration was spearheaded by a small group of far sighted statesmen who practiced what Karl Popper called piecemeal social engineering. They recognized that perfection is unattainable; so they set limited objectives and firm timelines and then mobilized the political will for a small step forward, knowing full well that when they achieved it, its inadequacy would become apparent and require a further step. The process fed on its own success,
very much like a financial bubble. That is how the Coal and Steel Community was gradually transformed into the European Union, step by step.

Germany used to be in the forefront of the effort. When the Soviet empire started to disintegrate, Germany’s leaders realized that reunification was possible only in the context of a more united Europe and they were willing to make considerable sacrifices to achieve it. When it came to bargaining they were willing to contribute a little more and take a little less than the others, thereby facilitating agreement. At that time, German statesmen used to assert that Germany has no independent foreign policy, only a European one.

The process culminated with the Maastricht Treaty and the introduction of the euro. It was followed by a period of
stagnation which after the crash of 2008 turned into a process of disintegration. The first step was taken by Germany when, after the bankruptcy of Lehman Brothers, Angela Merkel declared that the virtual guarantee extended to other financial institutions should come from each country acting separately, not by Europe acting jointly. It took financial markets more than a year to realize the implication of that declaration.

The Maastricht Treaty was fundamentally flawed, demonstrating the fallibility of the authorities. Its main weakness was well known to its architects: it established a monetary union without a political union. The architects believed however, that when the need arose the political will could be generated to take the necessary steps towards a political union.
But the euro also had some other defects of which the architects were unaware and which are not fully understood even today. First of all it failed to take into account the fallibility of the architects: there is neither an enforcement mechanism nor an exit mechanism and member countries cannot resort to printing money. This put the weaker members into the position of a third world country that became over-indebted in a hard currency.

The Maastricht Treaty also assumed that only the public sector is capable of producing unacceptable imbalances; the market was expected to correct its own excesses. And the Maastricht Treaty was supposed to have established adequate safeguards against public sector imbalances. Consequently, when the European Central Bank started operated it treated government bonds as riskless assets that banks could hold without allocating any capital reserves against them. This encouraged commercial banks to
accumulate the bonds of the weaker countries in order to earn a few extra basis points. This caused interest rates to converge which, contrary to expectations, led to divergences in economic performance. Germany, struggling with the burdens of reunification, undertook structural reforms and became more competitive. Other countries enjoyed a housing boom that made them less competitive. Yet others had to bail out their banks after the crash of 2008. This created conditions that were far removed from those prescribed by the Maastricht Treaty with totally unexpected consequences. Government bonds which had been considered riskless turned out to carry significant credit risks.

Unfortunately the European authorities had little understanding of what hit them. They were prepared to deal with fiscal problems but only Greece qualified as a fiscal crisis; the rest of Europe suffered from a banking crisis and
the divergence in competitiveness also gave rise to a balance of payments crisis. The authorities did not even understand the nature of the problem, let alone see a solution. So they tried to buy time.

Usually that works. Financial panics subside and the authorities realize a profit on their intervention. But not this time because the financial problems were reinforced by a process of political and social disintegration. While the European Union was being created, the leadership was in the forefront of further integration; but after the outbreak of the financial crisis the authorities became wedded to preserving the status quo. This has forced all those who consider the status quo unsustainable or intolerable into an anti-European posture. That is the political dynamic that makes the disintegration of the European Union just as self-reinforcing as its creation has been.
At the onset of the crisis a breakup of the euro was inconceivable: the assets and liabilities denominated in a common currency were so intermingled that a breakup would have led to an uncontrollable meltdown. But as the crisis progressed the financial system has been progressively reoriented along national lines. This trend gathered momentum in recent months. The LTRO enabled Spanish and Italian banks to engage in a very profitable and low risk arbitrage in the bonds of their own countries. And the preferential treatment received by the ECB on its Greek bonds will discourage other investors from holding sovereign debt. If this continued for a few more years a break-up of the euro would become possible without a meltdown – the omelet could be unscrambled – but it would leave the central banks of the creditor countries with large claims against the central banks of the debtor countries which would be difficult to collect.
The Bundesbank has become aware of the danger. It is now engaged in a campaign against the indefinite expansion of the money supply and it has started taking measures to limit the losses it would sustain in case of a breakup. This is creating a self-fulfilling prophecy. Once the Bundesbank starts guarding against a breakup everybody will have to do the same. Markets are beginning to reflect this.

The Bundesbank is also tightening credit at home. This would be the right policy if Germany was a freestanding country but the heavily indebted member countries badly need stronger demand from Germany to avoid recessions. Without it, the eurozone’s “fiscal compact,” agreed last December, cannot possibly work. The heavily indebted countries will either fail to implement the necessary measures, or, if they do, they will fail to meet their targets.
because of collapsing demand. Either way, debt ratios will rise, and the competitiveness gap with Germany will widen.

Whether or not the euro endures, Europe is facing a long period of economic stagnation or worse. Other countries have gone through similar experiences. Latin American countries suffered a lost decade after 1982, and Japan has been stagnating for a quarter-century; both have survived. But the European Union is not a country, and it is unlikely to survive. The deflationary debt trap is threatening to destroy a still-incomplete political union.

This is a dismal prospect. There must be a way to avoid it - after all, history is not predetermined. Right now Europe hangs together out of grim necessity. That is not conducive to a harmonious partnership. The European Union had been a “fantastic object”, a desirable goal, when it was only an
idea, but it turned into an objectionable imposition when it became a reality. The only way to reverse this seemingly inexorable fate is to recreate the European Union as a fantastic object worth striving for. The European Union has the makings of an open society that could be a model for the rest of the world. All it needs to do is to recommit itself to the principles of open society and that requires the authorities to recognize their mistakes and correct them. Angela Merkel has shown some signs of doing so but the German authorities, notably the Bundesbank and the constitutional court are dead set on enforcing laws that have proved to be unworkable. This has turned statutes that were meant to be stepping stones into immovable rocks that stand in the way of finding a solution. I believe a solution can be found even at this late stage but it will require a change of heart by the German public.
I can point the way towards a solution. First, the rules governing the eurozone have failed and need to be radically revised. Defending a status quo that is unworkable only makes matters worse. Second, current conditions are far removed from the Maastricht criteria and exceptional measures are needed to restore normalcy. Finally, the new rules must allow for financial markets’ inherent instability.

I have translated these general principles into a practical proposal which is published in today’s Financial Times but it would take us too long to discuss it here.

In conclusion, I believe that this discussion of the euro crisis illustrates how fallibility and reflexivity can provide interesting insights into the process of social change. I readily admit that my conceptual framework is not sufficiently developed to serve as a new paradigm. But I
should like to think that it would have the capacity to do so if other people started developing it and I am pleased that INET is now fostering more research along these lines.

\[\text{\footnotesize 1 Scientists are also fallible but the fallibility of participants poses problems for the social scientists from which physisists are exempt.}\]