# *Rationality Under Intrinsic Uncertainty*

## *The Role of Confidence*

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Both Behavioral Finance and market practitioners view confidence as one of the most important psychological variables influencing investor behavior. In the Behavioral Finance literature, confidence is associated with biased decisions and overreaction: investor confidence leads them to give too much importance to some ideas and to refuse to seriously take new facts into account until the grounds for believing them become overwhelming. Shiller (2000) goes so far as to define confidence as the feeling that nothing can go wrong. In contrast, practitioners consider confidence as a positive characteristic influencing performance, as one of the basic traits of winning traders (Schwager, 1992). This discrepancy reveals the gap that still exists between academic treatments of the psychology of decision-making and the experience of market participants.

By acknowledging intrinsic uncertainty as the main feature of the decision task as well as the source of the greatest psychological challenge faced by practitioners, this paper offers a more differentiated treatment of confidence as a variable that can be both biased and unbiased, thus encompassing both its negative and positive sides. However, this requires a more radical departure from standard theory than Behavioral Finance has yet shown. It demands we view both markets and their participants not as sub-optimal information processors - as Behavioral Finance argues - but as rather more than information processors. This paper presents a new paradigm for the study of psychology and financial markets. The new view proves itself fruitful by leading to a methodology to calibrate confidence.

## Confidence: Less-than-Rational or More-than-Logical?

In the highly volatile upsurge in technology stocks that peaked in March of 2000 we can observe two different confidence-related phenomena. On the one hand, the naive confidence of the general public reacting to the news without having either theoretical or experiential knowledge of how markets operate. On the other hand, the lack of confidence of the great majority of professionals, who were at a loss as prices behaved in previously unknown ways and the generally expected collapse of the market again and again failed to materialize.

In the Behavioral Finance literature, confidence describes the first phenomenon: the general public was overconfident; it didn't know that things could go wrong. Not least because Behavioral Finance is still making its case against standard theory, it usually formulates its argument in terms of divergences from the standard notion of rationality and market efficiency. Behavioral Finance questions the postulate that markets are perfect information-processors - that prices "fully reflect" available information - by bringing in evidence of erroneous or incomplete information processing. Confidence - understood as

overconfidence - is thus used as an explanatory variable for investors' disregard of rational valuation models such as those postulated by standard theory: confidence amounts to an irrational ignorance of the "true" model. Behavioral Finance thus interprets confidence as a psychological factor that affect market participants' capacity to recognize the rules of the game, where these rules are seen as given.

The second phenomenon resulted from the ineffectiveness of the systems, forecasting methods and trading strategies that had been successfully applied in the past. This progressively lead professionals to a state of insecurity with respect to the capacity to judge and assess the situation, to a feeling of no longer being up to the task of making such judgements, to a mistrust in the own capacity to promptly react to new developments. This wasn't a question of a misperception of rules of the game, which could be seen as given, but rather of being unprepared for the changing rules of the game.

While Behavioral Finance views confidence as a source of decision bias, for market practitioners it is a state in which biases - both emotional and cognitive - are actually overcome. As market practitioners use the term, confidence denotes an inner, mental and emotional state, conducive to rational decision making. Confidence supports the psychological skills to which successful market participants attribute their performance, such as discipline, the ability to take losses, independence of mind, open-mindedness, the disposition to self-scrutiny. In this sense, confidence is not based on a belief that the future will turn out to be what one wishes it to be, as assumed by Shiller (2001). Nor is it related to ignorance but to knowledge, confidence increases with experience and understanding. However, such knowledge is not knowledge of the standard rational valuation model of finance theory. Rather than being associated with a particular theory, a specific strategy or investment method, it's a knowledge shown by practitioners successfully using a multiplicity of approaches. It thus does not refer to the content of investment decisions, it pertains to the decision making process. In particular, it refers to the "more-than-logical" (intuitive, experiential, instinctive, "gut feel...") aspects of the process.

The conflicting views of confidence as ignorance and confidence as knowledge points to the need for a more differentiated treatment of confidence that can encompass both sides. That is, we need to differentiate between unbiased and biased confidence: between confidence on the one hand and on the other hand overconfidence as well as loss of confidence. In order to do that, we'll have to examine a broader question behind the gap between the academic research and the experience of market participants: the role of the more-than-logical in investment decisions. This role lies in the apprehension of wholes and how they unfold in time. Behavioral Finance treat the more-than-logical as less-than-rational, solely as a source of distorted expectations and decision biases because it does not yet have a notion of rational decision making adequate for an uncertain world. Clarifying the nature of uncertainty in markets will allow us to understand why this is so.

## The Nature of Uncertainty in Markets

Intrinsic uncertainty is something that everyone knows from experience. There are an infinite number of variables driven by the human condition that are impossible to capture in a neat formula. But the difficulty is not just a computational one. The question is not just that there are too many factors and too many configurations, too many ways in which those factors can interact.

Market reality is uncertain because it's intricate. Like an organic process, it's one interpenetrating system: every aspect of order involves every other aspect. From a given point of view, some aspects can be studied as units, but even a slight shift in point of view will require different modes of isolating units. A given model can only fit some orderly aspects or relations. But the simultaneity of many orders makes the actual order more intricate than any given model can represent. Market reality does not come already "cut" in the units that the models take into account. It's what philosopher Eugene Gendlin calls "unseparated" multiplicity" that can be "cut" in many different ways. The way we divide up the processes, while in no way arbitrary, is never final or definitive. The kinds of processes that one can pull out of the stream of events are limitless in number. Re-dividing the processes in different ways allows the relevance, or irrelevance, of certain factors to appear in a different light. This is why so many different apparently contradictory strategies can succeed, the reason why a multiplicity of models and strategies can co-exist and potentially serve as a basis for making money in markets. This is very much in accord with the observation that the methods employed by successful traders - such as those interviewed by Schwager [1992] - are extraordinarily diverse.

Any event always has more facets than what could be listed sequentially. We usually think of things one by one, we isolate certain factors and relationships, but in the process of events everything interacts. Any aspect you can isolate will affect and be affected by all others. Each one changes what the others really are. What we call "a factor" never acts as we think it does, but only as it changes and is instantly changed by being in contact with all other factors. Whether a certain relationship between two factors will hold over time or not, depends on these interactions. But these interactions are not interactions between factors that have an independent existence, that exist separate from each other and only then interact. Interaction comes first. That is, that factors are entities that we ourselves constellate, we pull them out from the "unseparated multiplicity" (Gendlin [1997]).

Uncertainty stems not only from the fact that market events do not consist of discrete aspects, but also from the fact that the market process is not a series of discrete events, a chain of completed occurrences, of finished happenings. The future is uncertain because it's always in the process of being formed. It's not a point in a timeline that already exists and its just waiting for its turn. Rather, it's continually in formation. The factors that we pull out of the unseparated multiplicity are continuously acting on the forming of all others. In time, interaction re-generates what the factors are. Factors constellated under past circumstances might no longer mean what they originally did; new aspects can always be differentiated from a new scene (Gendlin [1996])

Intrinsic uncertainty is different from risk. Risk is a concept that presupposes we have

already reduced what we are studying to unit-like factors, whereas uncertainty stems from the facts that events are not determined by factors that are logical units. Risk refers to errors within a model, that is, within a particular "cut" of reality. Ambiguity, a further term that is sometimes used as synonymous to uncertainty, refers to a lack of certainty about the right "cut", that is, a lack of certainty between different models, among different "cuts". But intrinsic uncertainty means that reality is such that logical reasoning first requires a "cutting" and also that we cannot assume that a cut will last through time.
When we talk about risk, we're thinking within a set of possibilities. We've already seeing market reality through a "grid", and whatever doesn't fall into one of our boxes seems random and unpredictable. When we talk about ambiguity, we've already conceived of the space of possibilities as a multiplicity of sets, a multiplicity of grids, each of them is given. But when we talk about uncertainty, we are facing a changing space of possibilities.

## More than Information Processing

Behavioral finance disputes standard theory's the descriptive value of standard theory's conception of rational valuation. However, it still looks at it as normative, that is, as the standard from which investor and market behavior deviate.

A core assumption of standard economics is the view of the economy as an atomic interacting system. While the eventing process consists of a series of wholes (Gendlin [1996]), standard theory assumes that each of these wholes can be reduced to the sum of atomic units. The essential characteristics of the system's components are independent from their relationships to other components, such that interaction does not lead to the emergence of new properties. The atoms are conceived of as existing, objective "facts" that have an independent existence, they're fully formed entities that not only precede interactions but also last through events in their original form.

The atomic hypothesis permeates standard theory at many levels. It is embedded in the assumption of pre-coordinated results of equilibrium theory, in the notion of value as an objective category independent from the perceptions of economic agents, in the definition of economic rationality as the representation of this underlying reality. In particular, it legitimizes the universal reducibility of uncertainty to probabilities amenable to mathematical treatment that underlies expected utility theory, the rational expectations hypothesis as well as most of the statistical methods applied in the empirical financial markets research. This is only justified if the system observed shows the limited independent variety typical of games of chance. In this case, the space of possibilities that characterizes the process of events can be seen as a unique, fixed set. We might not know for sure which of these possibilities will actually occur, but the space itself is certain. If, instead, market interaction is organic, we no longer have a unique, fixed set of possibilities and uncertainty is no longer reducible to the risk case.

Behavioral Finance's quasi-rational economic man is a sub-optimal information processor, a fallible version of the standard paradigm. In other words, the independent maximizer of an expected utility function whose expectation formation is a statistical procedure associated with a correct representation of an objectively given probability distribution is

still viewed as normative for rational economic man. The world of quasi-rational economic man is the same as that of his normative counterpart, where atomic interaction ensures the superiority of analysis over intuitive inference. Because his world is, per definition, devoid of uncertainty, rational economic man does not need ways of knowing it. All he has to do is to acquire enough data and the quantitative methodology - the "true" formal model plus the econometrical techniques - to gain the true representation of reality and calculate the fundamental equilibrium price. However, the model of the market offered by standard theory does not capture the true nature of uncertainty in markets.

While efficient markets and Behavioral Finance theorists argue whether markets and their participants are perfect or imperfect information processors, the intricacy of market reality calls into question the computational view.

When we think of rationality as merely information processing, we are implicitly assuming that reality comes already cut into bits, into discrete units with a fixed content, the units to which logic can be applied. Logic itself cannot choose the units, it can't determine its content, that is, the content has to be externally given. In other words, the content-units which logic requires need to be somehow first generated (Gendlin [1953]).

Both the consistency requirements of rational choice theory and the stability assumption of rational expectations presuppose a single, fixed set of possibilities. Equilibrium defines such a set. In equilibrium the units to which logic can be applied are already constellated, the content of rational decision-making is a given. A reason why we call it "equilibrium" is that outcomes can be reduced to stable units that last across interactions. In equilibrium, nothing is added and nothing is lost, that is, there's no incentive for change, the system keeps reproducing itself in its present form.

However, market reality is intricate. This means that outcomes can't be reduced to stable units that last across interactions. Interaction "undoes" the units to which deductive logic and inductive inference can be applied. Rather than the single, fixed set of possibilities required for the information-processing view, market participants face a changing space of possibilities. This changing space of possibilities can only be conceptualized as Gendlin's "unseparated multiplicity" from which the content that logical reasoning requires is again and again pulled out. This process by which content is generated and re-generated is an active process, a more-than-logical process that requires a living person capable of directly experiencing reality.

Intrinsic uncertainty contradicts the notion that there's an economic reality independent from the market process, and which market valuation correctly or incorrectly represents. While standard theory views fundamentals as unit-like aspects of this environment, as information bits, intricacy means that information cannot be said to exist in and for itself. It is not an inherent property of discrete events but a continuous process, which is created over time as the market participants engage with the events. Consensual frames increase the likelihood that particular forms of information will be constructed; a large number of market participants will not only perceive outside events in a similar way but also share perceptions of transition or stability, thus creating, reinforcing or reversing trends.

However, the price trajectories that result from the continuous mutual adjustments of the participants do not converge to - nor diverge from - a true representation of an economic reality that has an existence independent from the market process. Market action interacts with the real sphere; it shapes it and is shaped by it. Rather than perfectly or imperfectly reflecting information, the market process creates information as it unfolds. Markets and their participants are thus neither optimal information processors, as standard theory postulates, nor sub-optimal information processors, as argued by Behavioral Finance: they are more than information processors.

The study of psychology and financial market cannot restrict itself by adopting a norm in which the more-than-logical is merely less-than-rational. As a result of its attachment to the standard notion of rational valuation, which only applies in a world devoid of uncertainty, Behavioral Finance's prescriptions to improve decision making remain geared towards weeding out more-than-logical aspects of decision making rather than increasing its reliability. A changing space of possibilities sets demands on the mental processes involved in decision making which go beyond the logical ones that suffice in the case of a unique, fixed set.

It's only in the case of a unique, fixed set of possibilities that we can define rational decision making in terms of its content. In an uncertain world, financial success does not depend on the correct estimation of an objectively given, true value but on the capacity to detect and profit from the formation and dissolution of consensual frames.

The cognitive and emotional biases that affect both the formation and dissolution of consensual frames and our capacity to detect and profit from them are of a different nature than the biases that distort decision making about discrete variables with fixed content. In the latter case, the biases do not let us recognize a given value that depends on states of the world which themselves are discrete and complete, they lead us to misrepresent existing content. But in the former case, the biases concern our capacity to think and feel beyond already given patterns, to detach ourselves from conventional wisdom and habits of feeling. We are attached to fixed content, our experience is "stuck" with already constellated entities rather than interacting with the intricacy of the situation where entities are constantly in formation. We don't realize that the market process is changing its content. We think and feel with the herd rather than about it. We don't think with a model but within it. We are swept by market sentiment. We can't choose whether to go with or against the crowd. In short, we don't show the psychological skills that market practitioners associate with confidence.

In order to close the gap between the academic treatment of psychology and financial markets and the experience of market participants, we need a new paradigm in which intrinsic uncertainty is acknowledged as both the main feature of the decision task and the greatest psychological challenge faced by practitioners. Only then will we be able to develop tools that contribute to decision making in a constructive way.

## A New Paradigm

The study of psychology and financial markets needs a unified framework that could replace the standard view. According to Kuhn [1962], a paradigm shift requires that the new framework encompass not only phenomena that are anomalous within the old view but also the functions that the old one could fulfill. The modern theory of finance, of which efficient markets theory is a major building block, achieved a link between investment theory and economic theory. The new paradigm needs to do the same: rather than play psychology against economic theory, it needs to be built on alternative economic theoretical foundations. This requires an alternative notion of economic interaction that can capture its intricacy, a way of thinking about economic choice and the formation of economic value that allows for a changing space of possibility. We need a new way of thinking about financial markets in which economics and psychology complement instead of contradict each other (Cymbalista [2001]).

The fact that uncertainty is intractable within the standard paradigm does not mean that it is outside the domain of economic theory. Many years ago, Keynes [1937] pointed out that the incapacity of economic theory to explain many real world phenomena was a consequence of its atomistic perspective. Most people associate Keynes with economic policies that involve demand management. But his real contribution to economic theory is less well known: he saw that the irrelevance of economic analysis lay in its failure to acknowledge the role of money in coordinating economic behavior in time. Money is what links everything together: market participants among themselves, different markets, the financial and the real sector, as well as the present and the future. Of course orthodox economists do not deny that money exists, but rather view money as neutral, as only affecting nominal prices but not the formation of economic value. What remains ignored is that the fact that economic interaction is mediated by money creates outcomes that are not reducible to independent factors that act alone. Money disrupts the coherence of standard equilibrium theory, we can no longer think in terms of unique fixed sets of possibilities. The non-neutrality of money means that economic interaction is organic. The economy is one intricate whole, an interpenetrating system, where all economic processes and sub-processes are interlocked, from the inter-affecting of the decision processes of market participants to the feedback loops between the stock market and other economic processes (Cymbalista [1998]).

The non-neutrality of money is not just an academic issue without any import for investing. Without taking into account the interactional nature of money, we can't understand the feedback loops at work. Such feedback loops create profit opportunities. And the failure to understand them can have dire consequences. Take the case of LTCM, whose portfolio models - all based on standard finance theory - ignored liquidity considerations. Liquidity is a monetary category and it's inherently interactional: it's always both being affected by the buy and sell decisions of the market participants and affecting these very same decisions. In fact, it affects the decisions as it is affected by them. LTCM's models assumed that markets are always perfectly liquid - that is to say, the inter-affecting of decisions was assumed away. And LTCM failed to recognize how its own behavior would affect market outcomes in ways in which its models couldn't predict. The same failure to acknowledge the reflexive nature of liquidity led investors to believe they were protected by portfolio

insurance in October 1987. And the same failure is still at work all the time, at a smaller scale, still negatively affecting market participants who make blind use of such models - and creating opportunities for those able to profit from such blindness.

We become better able to attend to the inter-affecting that LTCM ignored when re realize that all decisions in asset markets involve disposing of liquidity. We usually think of a market as liquid when there are enough buyers and sellers, so that we can buy and sell without changing prices. We also think of it in terms of low transaction costs: the more liquid the market, the less difference there is between buying and selling prices. In both cases, what's at play is the nearness of the asset to money - the most liquid of all assets. Money IS liquidity. And we can thus think of the demand for an asset as the reverse of the demand for liquidity.

Market prices result from the totality of the decisions of market participants pursuing their goals of increasing and securing wealth. When a market participant buys, he is injecting money into the market, and, the other away around, when he sells; he is withdrawing liquidity from the market. When he increases his exposure, he is foregoing of liquidity (either at present, when he buys, or in the future, when he sells short and later has to cover) in order to increase his wealth, and when he decreases his exposure, he is securing his wealth by recouping liquidity. For each individual, the exact compromise that is reached between the conflicting goals depends on the confidence that he attaches to his investment hypothesis. A high degree of belief in his estimates will lead the investor to increase his exposure; a low degree of belief will lead him to decrease it. Markets contract and expand with the changes in the supply of liquidity that result from the totality of the decisions of the participants. Liquidity thus both provides security and functions as the budget constraint of the market system, as the supply category that determines value. This is true for all asset markets- financial and other, including the market for productive capital. This is the basic idea behind an approach to valuation under uncertainty that i've presented elsewhere (Cymbalista [1998]) and in which economic interaction is conceptualized as organic, rather than atomic.

The organic approach draws on Keynes early philosophical work on probability theory and how it relates to his later treatment of expectations and uncertainty in the "General Theory", where confidence is incorporated into economic reasoning through the concept of liquidity preference. The approach combines Keynes' original thinking with recent developments in Keynesian value theory - known as the "Berlin School of Monetary-Keynesianism" because of its emphasis on Keynes' "Treatise on Money" -, viewing stock market valuation from a macroeconomic perspective alternative to Neoclassical general equilibrium theory.

While Neoclassical equilibrium theory sees only one set of possibilities, determined by the exogenous parameters, Keynes shows how money destroys the coherence of this single fixed possibilities space. Monetary-Keynesianism then restores the coherence of economic theory by viewing the space of possibilities as consisting of a multiplicity of sets, each associated with a given supply of liquidity, that is, with a given macroeconomic budget constraint. But the budget constraint is endogenous; it depends on the state of confidence.

For analytical purposes we can artificially hold the state of confidence constant - which is what lets us see each of the multiple sets of possibilities as fixed. Each set is an equilibrium path, and it's only within each set that the consistency requirements of expected utility theory and the stability assumptions of rational expectations theory hold. In other words, it's only in equilibrium that we can view rationality as the unique representation of an underlying reality. But even in equilibrium, where the return on securities reflects the return on productive capital, there are no fundamentals independent of valuation: since the confidence-dependent budget constraint is endogenous, fundamentals always already embody the inter-subjective valuation process.

Viewing the budget constraint as endogenously determined allows us to embed the role of perceptions in the notion of economic value and to look at psychological variables without having to leave economic reasoning behind us. Most important, the way we define economic choice and economic value is not restricted to the case in which the set of possibilities is fixed: it also allows for a changing space, that is, for the actual situation faced by market practitioners. With a changing space of possibilities, more than logic is involved in rational decision making. Rationality is no longer representational but participatory: embodied, enacted and relational. This is very much in accord with recent developments in cognitive research that question the computational paradigm (Cymbalista [2001]).

When we think in terms of a shifting, confidence-dependent supply of liquidity constraining the economy as a whole as well as each and all of its sub-processes, the organic, intricate nature of economic interaction becomes apparent - as well as the limitations of reductionistic approaches. The market process can no longer be viewed as a series of discrete events that can be broken down into stable units that last across interactions. Factors only exist within the texture of intricate events. They aren't discrete entities both in the sense that they are always "crossed" with other factors and in the sense that they are incomplete, for the future is not a rearrangement or an extrapolation of already existing entities but always in formation. At any moment, all the possibilities don't exist either as finished facts or as separate entities, they are not already patterned but rather cross with all others. Intrinsic uncertainty leads to the demise of the logical-positivist methodology that underlies standard theory.

But the question remains: how then do successful investors know what they know? How is it that they transform the lack of certainty into an opportunity for profit?

In the "General Theory" Keynes devotes a whole chapter to the conventional character of valuation in a monetary economy. He mentions three conventions: assuming that the future will be like the past - i.e. ignoring the possibility of future developments whose nature is not known-, assuming that the present valuation is correct, and relying on average opinion. We can add to that factors that increase the likelihood that particular "facts" will be attended to: shared models and working tools, meanings supplied by the media, institutional behaviors. Keynes explains the market process in terms of the dynamic interplay between average opinion that relies on conventional wisdom and speculators trying to anticipate changes in the conventional basis (often, at least nowadays, by conventional means). Keynes points out that while conventions have a stabilizing effect,

they are also precarious, prone to sudden and violent changes, which occur together with shifts in liquidity preference. But Keynes cannot tell us the means by which we can detect - and profit from - the formation and dissolution of consensual frames. What can our understanding of intricacy and our notion of rationality as participatory add to that?

The market process is constantly changing its content - affecting the returns on productive capital as well as the meaning and implications of the variables and indicators that participants watch as they make their decisions. But conventional valuation only takes into account already made entities. Its objects are "cut-off" from the intricacy of the whole scene; they're separate from their context and the whole web of interactions. When people think conventionally, they miss how one scene transitions to the next. Their thinking is "stuck" in old and generally known content disregarding the fact that the whole scene "keeps running" (Gendlin [1996]). They are thinking in terms of an old cut of the set of possibilities rather than tracking the changing space of possibilities.

Uncertainty requires that we think and feel beyond already existing patterns - and we can only do so by making use of our gut knowledge, of our bodily felt experience. The intricacy of market reality means that we cannot fully grasp the import for the future of any of its aspects except with a situational sense. It's only experientially that we can sense know a scene as the unseparated multiplicity that it is, that we can sense possibilities as crossed. Wholes and how they unfold can be known only intuitively, with one's body, just as one knows the ways of a familiar culture or the ways of a familiar person. The body of an experienced market practitioner knows its environment, it can sense the whole situation - in its concreteness and specificity - as one, in a way that no computer can. It's only from a sense of the whole scene that we can discover new aspects of the environment, factors and relationships that haven't yet been constellated as "facts" by the market. And it's also a bodily sense that allows an experienced investor to instinctively grasp trend formation.

## Participatory Rationality: A Relational Approach to Investment

The organic view suggests a relational approach to investment, where the interaction between market participants and the mind of the market is placed in the foreground. As an inter-subjective phenomenon, the mind of the market - the collective behavior of the system, the price trajectories that result from the mutual adjustment of the participants - shows the interactive nature of biological processes. Like a living being, the market moves by watching itself. In the sense that it observes itself and acts upon itself, that is, it's self-aware and always involved in the process of self-regulation, the mind of the market can be conceived as embodied. We can then compare the intuitive aspect of the interaction between the market participants and the mind of the market to empathic relating. This allows us to grasp elements of the psychology of investment that have been left out of our academics accounts. Like empathy, the capacity to participate in or experience another person’s feelings, thoughts or movements, intuition should not be understood as some kind of extrasensory perception. Much to the contrary, it is a synthetic cognitive mode related to our being embodied beings. In anticipating patterns and tendencies, experienced practitioners make use of the same type of knowledge that we use in interpersonal relationships.

Like empathy, intuition is a biological ability, a mechanism with which evolution has endowed us to handle complex and uncertain social situations. Trend formation and reversal have mass psychological aspects, related to herding impulses generated by the limbic system, the part of the brain that controls emotions and motivation. The capacity to recognize such patterns is intuitive. Practitioners say they smell the market, they have a gut feeling for the momentary situation and how it is going to develop. Even more common, traders often find themselves thinking that a certain course of action makes sense while simultaneously feeling uneasy about it. The best traders learn to value such intuitive reactions since they often reveal a more complex unconscious processing of disparate data than can be intellectually understood or spoken. This process, which is usually not conscious - i.e. the practioner doesn't know how he does it -, is explicated by drawing the psychotherapeutic research on empathy.

Similar to the use of empathy in a therapeutic relationship, where the therapist makes use of his own reactions to the client and of his self-knowledge to make inferences about the inner life of the client, tuning into the market comprises both affective and higher-order cognitive elements. Empathy, knowing first-hand the experience of another person, is an emotional state that builds on self-awareness. When we make inferences about another's inner state from observed behavior, we search in ourselves for appropriate sensations, feelings, thoughts or movements. In observing the market, investors unconsciously recreate in themselves the perceived patterns and reconstruct a meaning consonant with it. Tuning into the market, developing an empathic relationship with its mind, comprises therefore emotional resonance, necessary to recognize the market's mind-set. But the physiological tracking of the state of mass psychology creates not only information but also impulses to act. Emotional resonance does not substitute for conceptual thought. It's rather the foundation upon which the conceptual and imaginative aspects that bear on the capacity to anticipate changes in belief systems contingent on possible future developments are built. Experienced investors' capacity to distinguish between noise fluctuations, trend formation and dissolution involves an identification process and at the same time the ability to set oneself outside the process and avoid merging with the crowd.

Situations when positive feedback processes cause their own reversal are comparable to what in psychotherapy is called "incongruence". You can see it clearly when, for example, someone feels alone and starts demanding attention from his partner. If he does it in a way that disregards the whole situation, for instance complaining to the partner, accusing him of being neglectful, etc, the partner will feel crowded and end up distancing himself: the way the person interacted brought about the exact opposite effect of what was desired. Incongruence arises from habitual, structured patterns of feeling and behaving that get cued by present events without interacting with events; the person is not responsive to the actual situation. It's a frozen aspect of experience, a static pattern that occupies the center of the persons' sensorium. Such patterns are "stoppages" in the experiencing process (Gendlin [1964]). In the market, conventions create such stoppages. A profit opportunity often arises from the fact that the market expects something to happen, behaves according to these expectations, but is actually causing the opposite effect. LTCM is an excellent example of incongruent market behavior. While we can pick up incongruences

instinctively, we need to think beyond patterns to realize what changes in the whole scene the market is blind to - and would bring about a reversal once the market constellates it as a "fact".

Participatory rationality is more encompassing than analytical cognition. Because participation consists of on-ongoing interaction, participatory rationality is dynamic. It is also subjective: participants gauge the market situation as they sense themselves. The contents of the experiential process are not separate from it but rather derive from the process that makes them, i.e. the manner of process determines the contents produced (Gendlin [1964]). And yet the subjectivity of the process does not mean it is arbitrary. While we can no longer define the appropriateness of our responses in reference to some external, objective benchmark, there are still generally valid criteria by which we can judge the rationality of the decision calculus.

First, rational investment is based on acknowledgment of environmental uncertainty. Experienced practitioners' sense of confidence in their judgement of a situation is not founded on a denial of the intrinsic uncertainty about the future course of events but rather on its awareness. Indeed, George Soros [1995] describes himself as an "insecurities analyst". Accordingly, denial does apply to the overconfidence of the general public, not because they ignore the standard rational valuation model but because they are unaware of uncertainty.

Second, rational decision making comprises an understanding of the reflexive relationships at work. While we cannot specify the content of the decision calculus, nor associate it with a particular model of the market, we can still require that actions be derived from hypotheses based on the some model of how the market works, which itself is founded on the knowledge that the market process is constantly changing its content.

Third, as in empathic relating, the way we deal with our internal data determines the quality of our relationship with the mind of the market. While inner states present a valuable source of information, such internal information is not always reliable, being often influenced by out of control emotions and unresolved elements of our past history. This suggests we examine reactions from an experiential, first-person perspective in which we take into account internal rather than external information. Instead of measuring a response in reference to some external benchmark, we can define it in relationship to an internal, mental and emotional state. This corresponds to Schwager's (1992) finding that despite their employing a wide variety of methodologies, successful traders share common principles respective an inner attitude, a detached, emotionally unbiased stance. In particular, the subjective experiences of overconfidence and lack of confidence have an affective character; from the inside they feel qualitatively different from each other as well as from an emotionally balanced reaction. Rational expectation formation is thus one that strives to be emotionally unbiased. In this sense, rationality relates to the way in which we deal with our internal data, it's a procedural variable, in which we try to be as objective as possible in handling our subjective perceptions.

How then can we know if a gut feeling expresses a valuable subconscious analysis of the

situation rather than a biased emotional reaction? How can she access this intuitive knowledge, how can she let her bodily felt experience work together with logic? How can she remain receptive to the state of market psychology without falling herself prey to overconfidence or loss of confidence?

## Calibrating Confidence

The confidence-related biases affect the dynamic between the two most basic behavioral patterns of living beings functioning in the world: reaching out and withdrawing. In economic behavior, these forces are present whenever a market participant makes a decision: increasing wealth is a goal-approaching behavior, whereas securing wealth - i.e. avoiding losses, is a goal-avoidance behavior. While both behaviors remain fully accessible to a confident market participant, a biased participant gets "stuck", unable to move in both directions with equal ease according to the requirements of the situation. He then increases - in the case of overconfidence - or decreases - in the case of loss of confidence - his exposure beyond what he would do if acting in a confident state. The confidence biases distort the participant's sense of the situation. While the overconfident market participant ignores that things can turn out to be different than what he hopes, the participant suffering from loss of confidence ignores that things can turn out to be different than what he fears. They are both unable to take in evidence contrary to their assumptions. The biases not only hinder the perception that the rules of the game are constantly changing but also support herding behavior. When the market as a whole is affected by one of the biases, the individual's bias is reinforced by the market's prevailing bias, and he cannot recognize the latter but instead contributes to it. This leads to self-reinforcing trends that are unsustainable and eventually - when the changes in the rules become apparent - reverse.

Overconfidence and loss of confidence stem from deeply ingrained habitual responses that arise in connection with a low tolerance for uncertainty. There are two basic tendencies that human beings show when the lack of certain knowledge generates an anxiety that is experienced as intolerable. The first habitual tendency is a denial of uncertainty. We fall prey to it when in order to act we need to overlook the fact that we don't know for sure. The second habitual tendency is that of withdrawing. In this case we remain aware of uncertainty, we know that we don't know for sure, but this makes us afraid to act and prone to a premature disengagement, we collapse.
Normally, both tendencies are present: it's as if we have an overconfident, greedy or hopeful "sub-personality" and a fearful one. On the one hand, having the two tendencies in ourselves is what allows us to resonate with the state of market psychology, to intuitively grasp it. On the other hand, it makes us prone to get carried away by it. Further, each of the tendencies involves a positive aspect: the motivation to act, on the one hand, and the awareness of uncertainty, on the other hand. Both are needed for optimal decision making under uncertainty. However, a biased participant is under the grip of one of the habitual tendencies: he identifies himself with either one of the sub-personalities and exiles the other. But he's unconscious of it, the process is not under his control.

Correcting the biases that affect the proper use of intuition involves a different kind of learning than the analytical competence taught at business schools. The idea of cognition

as embodied and enacted implies the usefulness of methods that study behavior not from the outside, from a third-person viewpoint, but from the inside, from the first-person viewpoint. Methods that address first-hand experience do not presuppose the mind-body dichotomy that underlies conventional Western philosophical and scientific inquiry. Instead, they make use of the dual character of human observation, of our capacity to be internally self-aware as well as externally aware. With this in mind, Varela et al. [1991] have proposed the application of meditation principles and techniques to scientific practice. More recently, a whole issue of the Journal of Consciousness Studies [1999, 2/3] was devoted to this question. In combination with a conceptual framework for market valuation that legitimizes the role of first-hand perception, awareness enhancing techniques might indeed offer the best basis for improving the intuitive element of prediction. However, the arduous Eastern contemplative practices were elaborated and perfected in environments that could hardly be farther from the market situation. Needed is rather an educational system adapted to the context in which market operators find themselves. MarketFocusing, a goal-oriented application of a methodology developed by philosopher and psychologist Eugene Gendlin, Ph.D., at the University of Chicago, offers that.

This methodology, which Gendlin has named, Focusing, is a particular way of entering into one's own experiencing process. It teaches how to attend to and reliably consult inner data on inner space, connecting felt experience and logic.

Focusing resulted from Gendlin's research on the on-going flow of experience, the bodily felt but conceptually vague flow of felt meaning. In particular, he investigated the relation of this hitherto neglected mode of awareness - for which he coined the term "felt sense" - to conceptual thought, and how this relation changes logic and conceptual structure. He found that people able to think WITH their gut feeling were distinctive in their ability to tap an internal process ignored by most. Right from the beginning they showed a capacity to attend to the murky edge of what is being said, which can only be sensed physically. This different kind of inward attention to what is at first sensed unclearly allows people to identify a broad attitude or large issue that underlies specific problems and questions. Gendlin then devised a method that includes specific directions to systematically contact and explicate this intuitive level, by befriending and accurately symbolizing fine discernments of the felt sense. Vast experience and research has proven that this skill can be taught.

Entering into the felt sense of a topic is a means to tap and articulate subliminal knowledge. A felt sense is a physical experience of a situation, an internal aura that encompasses everything you feel and know about the given subject. It communicates itself not in the form of thoughts or words, but as a single - though intricate - bodily feeling. It's not made of discrete bits of data that you add together in your mind, it rather comes to you all at once, including all the bits of data you've accumulated in the past. A felt sense has emotional - along with factual - components. It includes emotions, experiences and thoughts which you have had in the past, but it itself is not an emotion. An emotion is often sharp and clearly felt, while a felt sense is complex and much more difficult to describe. It's the broader, holistic, unclear sense of the whole concern, made of many interwoven strands but felt as

one. It's more basic than the thoughts, feelings and ways of acting that are already formed and cut out into existing patterns.

A felt sense is usually not already there but needs to form. Entry into the process happens by attending to a bodily felt uneasiness, perhaps in your stomach, chest, or throat. It's at first dim and fuzzy, something we usually pass by because it's just an uncomfortable "nothing". Specific steps have been devised for finding this particular inner space, holding onto a felt sense and carrying out moves in the space so that the felt sense can open up. When this happens, it brings a felt shift, a definite physical feeling of something moving within, changing or getting unstuck. The nature of the problem changes with each shift; when you finish, the problem is not the same as when you began: as its felt sense changes, so does your take on it.

MarketFocusing teaches a person to access each of the habitual tendencies inherent in market participation, and then to have both simultaneously present, without identifying with either. When this happens, the positive aspects of the two tendencies start to work in tandem: she can not only act with an awareness of uncertainty but also, when circumstances so demand, withdraw without experiencing her own fallibility as a threat to herself. The person learns to separate her own individual-psychological habitual tendencies and biases from the extraneous uncertainty, that is, from factors that are unpredictable and out of her control. While this does not make the unpredictable predictable, it is highly empowering: it allows the person to reestablish control over variables that are controllable and improves her relationship to uncertainty. As the tolerance for uncertainty increases, so does flexibility and adaptability. The person becomes better able to listen to and trust her own inner sense of rightness and regains the capacity to adequately react to unexpected events. Most important, the person finds a great store of information about the situation that was previously not available to her conscious mind. Superimposing the subliminal knowledge contained in each of the tendencies leads to a bias-free assessment of how the two forces are working at the market level. The procedure leads to new hypothesis, new questions, new information-gathering and new probes, generating a new kind of information concerning factors that could not have been thought of or isolated before and resulting in better decisions.

The procedure for mastering uncertainty has applications that go far beyond the financial markets arena. More and more often, we all need to make decisions for which there are no rules, no fixed and known systems. People need the conceptual understanding and the psychological skills that would allow them to remain confident in an uncertain world. That is, the skills that would allow them to remain aware of uncertainty and thus watchful without falling into panic. Markets offer the best example of the difficulties of acting in systems characterized by intrinsic uncertainty. This means that the general public can gain a lot by learning the same type of self-feedback skills that makes an investor operate successfully in such an uncertain environment.

## References


Cymbalista, F. (1998): Zur Unmoeglichkeit rationaler Bewertung unter Unsicherheit - Eine monetaer--keynesianische Kritik der Diskussion um die Markteffizienzthese, Marburg.

Cymbalista, F. (2001): *Towards a Unified Theory of Psychology and Financial Markets*. (being reviewed for publication).

Gendlin, E. T. (1962): Experiencing and the Creation of Meaning - A Philosophical and Psychological Approach to the Subjective. Evanston, 1997.

Gendlin, E. T. (1964): *A Theory of Personality Change.* In P. Worchel & D. Byrne (Eds), Personality Change, pp 100-148, New York.

Gendlin, E. T. (1996): A Process Model. (Available from http://www.focusing.org).

Gendlin, E. T. (1997): *The Responsive Order: A New Empiricism.* In: Man and World, 1997.

Journal of Consciousness Studies. (1999), Vol. 2/3.

Keynes, J. M. (1921): A Treatise on Probability. London.

Keynes, J. M. (1936): The General Theory of Employment, Interest and Money. London.

Keynes, J. M. (1937): *The General Theory of Employment.* In: The Quarterly Journal of Economics, pp. 209-223.

Kuhn, T. (1962): The Structure of Scientific Revolutions. Chicago.

Schwager, J. D. (1992): The New Market Wizards - Conversations with America's Top Traders. New York.

Shiller, R. J. (2000): Irrational Exuberance. Princeton.

Soros, G. (1995): Soros on Soros. New York.

Varela, F.J., Thompson, E. & Rosch, E. (1991): The Embodied Mind. Cambridge, MA.