

Towards a Theoretical Foundation of Animal Spirits: Probability, Uncertainty and Intentionality¹

Joachim Güntzel

1. Introduction: Do we need a Theory of Animal Spirits?

The central role that uncertainty plays in Keynesian macroeconomics is widely recognized today. As, for example, Mark Hayes puts it: „Post Keynesian economics takes time seriously. Production takes time, time to make as well as to use the tools of an advanced technology under a specialized division of labor. The flow of time is irreversible and the future is unknowable. The value of capital assets depends on future events which are subject to uncertainty, not merely to statistical random variation or risk.”² This uncertainty is a fundamental one, and there is no way, how ever mathematically sophisticated it may appear, that could enable us to reduce this fundamental characteristic of the world we are living in. Uncertainty is like a veil, which lies impenetrable between us and the future.

There is also a newly arising recognition of the fact that Keynes, in his earlier years, paid great attention to a new and original conceptual foundation of probability³. Last but not least, the term “Animal Spirits”, which has been used by Keynes in chapter 12 of the *General Theory*, has gained new attention in the last years due to the need of a fresh understanding of human economic behavior after the financial crisis of 2008⁴. But this notion is sharply contrasted by the impression that there

¹ This is the full version of a paper presented at the Third Nordic Post-Keynesian Conference at Aalborg University (Denmark), May 22-23, 2014. The author wants to thank the organizers and the scientific committee, as well as the participants of the conference for their questions and comments.

² Hayes, Mark: *The Post Keynesian Difference*, Discussion Paper for the Keynes Seminar, Cambridge (October 19, 2010). For a more detailed overview on the role of uncertainty in Keynes' economic ideas, see for example: Dow, Sheila; Hillard, John (2002): *Keynes, Uncertainty and the Global Economy, Beyond Keynes*, Volume Two, Cheltenham (UK), Northampton, MA (USA): Edward Elgar.

³ See Muchlinski, E. (2007): Keynes' „A Treatise on Probability“ (C.W., Vol. VIII), in: <http://www.keynes-gesellschaft.de/Hauptkategorien/LebenWerk/Monographien/TreatiseonProbability.php> (Download vom 27.03.2009).

⁴ See Farmer, Roger E. A. (2008): "Animal spirits." *The New Palgrave Dictionary of Economics*. Second Edition. Eds. Steven N. Durlauf and Lawrence E. Blume. Palgrave Macmillan, 2008. *The New Palgrave Dictionary of Economics Online*. Palgrave Macmillan. 04 June 2013

<http://www.dictionaryofeconomics.com/article?id=pde2008_A000105> doi:10.1057/9780230226203.0043

exists a certain gap between this newly recurred interest in the Keynesian concepts mentioned above, and a thorough theoretical investigation and – most of all – integration of these concepts within a concise theoretical frame. This paper tries to make a contribution in order to fill this gap.

Do we need such a theoretical approach? Eventually, Animal Spirits are a concept which is payed attention to not only since yesterday, especially in Post-Keynesian economics⁵ It is certainly true that a lot of interesting and important contributions to the concept of Animal Spirits have made in the past two or three decades. But there still does not seem to exist a theoretically concise conception of what Animal Spirits *really are*, particularly in connection with Keynes' conceptions on probability and uncertainty. Therefore the paper poses – and tries to answer – mainly three questions:

- How can „Animal Spirits“ be *conceived more precisely* than usual?
- How, particularly, can Animal Spirits be connected with *Keynes' concept of probability and uncertainty*?
- How could a more general *philosophical foundation* of Animal Spirits within the philosophy of mind (esp. the concept of *intentionality*) look like?

In the final analysis, this aims to be a contribution in order to develop *a more general and more realistic idea of man* than is given by the dominating neoclassical concepts, as well as a *basis for a constructive use of Animal Spirits* within Post-Keynesian economics.

The paper is structured into three parts: First, it is argued that the analysis of Akerlof/Shiller (2009)⁶, which has regained a new and growing interest for Animal Spirits, does not hold as a solid basis for a definition of the phenomenon. Second, it is demonstrated that a more solid theoretical basis for Animal Spirits can be derived from Keynes' original concept of probability and uncertainty; and third, the main elements of this theoretical basis are formed by what is introduced in the following as the concepts of

- *α -attentism* and *α/β -attentism*
 - *the reversion of the probability problem*
- and the
- application of the philosophical concept of *intentionality*.

⁵ As a prominent example could be cited: Dow, A.; S. Dow (1985): Animal Spirits and Rationality, in: T. Lawson, H. Pearan (ed.), Keynes' Economics: Methodological Issues, Sidney, pp. 46-65.

⁶ Akerlof, G.A.; Shiller, R.J. (2009): Animal Spirits. How Human Psychology Drives the Economy, and Why it Matters for Global Capitalism, Princeton University Press.

By the introduction of these new concepts, an attempt is made to give Animal Spirits a solid foundation within an appropriate theoretical framework. This appears to be important for more than one reason. Besides others, the most important reason – to the author’s conviction – is that Post-Keynesian economics needs to develop a serious opponent against the still dominating *homo oeconomicus* within mainstream economics. I suppose that in the long run it will not be enough to repudiate the idea of man which is represented by *homo oeconomicus*. This prudish fellow, although appearing to us as being boring, unrealistic and even unhuman, has proven an astonishing ability to resist and a stunning will to survive in the field of mainstream economics, which deserves at least some kind of respect from us. Some old wisdom says that you have to understand your opponent in order to beat him. I am convinced that this is also true if we want to overcome *homo oeconomicus*. We have to replace him by *another idea of man*, an idea which has a *comparably solid foundation*, or otherwise we will distress ourselves fighting against the windmills of *homo oeconomicus* over and over again. At least, we should not forget that he has – in the shape of utilitarianism – an impressive philosophical assistance on his side.

2. *Some Remarks on Akerlof and Shiller*

Let me first of all stress my conviction that Animal Spirits are *important*. In fact, they are even so important that they should not be left without a solid *theoretical foundation* and *precision*. But what actually *are* Animal Spirits? A starting point for this analysis is the book by Akerlof and Shiller (2009). Animal Spirits are brought by them in connection with any deviation from rational behavior: „In contrast, John Maynard Keynes sought to explain departures from full employment, and he emphasized the importance of animal spirits“⁷ And a bit further on: „The thought experiment of Adam Smith fails to take into account ... the extent to which people are irrational or misguided. It ignores the *animal spirits*“⁸. And finally: „...animal spirits... is now an economic term, referring to a restless and inconsistent element in the economy. It refers to our peculiar relationship with ambiguity and uncertainty. Sometimes we are paralyzed by it. Yet at other times it refreshes and energizes us, overcoming our fears and indecisions“⁹

We therefore can summarize that Animal Spirits are apparently used as a synonym for behavioral patterns which contradict the classical/neoclassical ideal of economic rationality.

There are five manifestations of Animal Spirits according to Akerlof/Shiller:

⁷ Akerlof/Shiller (2009), p. 3.

⁸ Akerlof/Shiller (2009), p. 3.

⁹ Akerlof/Shiller (2009), p. 4.

- Confidence and confidence multipliers
- Fairness
- Corruption and bad faith
- Money illusion
- Stories

Without going too much into detail¹⁰, one should ask if this specification of Animal Spirits is consistent and theoretically precise enough. Unfortunately, there is reasonable doubt that the answer to this question is positive. The main critical remarks are:

- (1) Animal Spirits *are not clearly defined*; the term remains astonishingly vague and imprecise, due to a *lack of conceptual foundation*.
- (2) The selection of five manifestations of Animal Spirits appears to be somewhat *arbitrary*, moreover *heterogeneous* (what, e.g., has money illusion got to do with Animal Spirits?).
- (3) The manifestations of Animal Spirits according to Akerlof/Shiller are – regarded separately – well known and partly even objects of scientific research (e.g. Behavioral Economics/ anomalies in the sense of a violation of expected utility maximisation); thus a common parenthesis under the label of Animal Spirits seems to be neither necessary nor meaningful.
- (4) Other aspects of human behavior are being omitted (e.g. greed, fear, herd behavior, etc.)

Besides these critical remarks, one can criticize even at least one contradiction within Akerlof/Shiller's analysis. When they discuss "fairness", they recognize a certain ambiguity: „While on the one hand there is a considerable literature on what is fair or unfair, there is also a tradition that such considerations should take second place in the explanation of economic events“¹¹ The role fairness plays as an "Animal Spirit" is particularly emphasized within the foundation of efficiency wage theory, a core explanation of involuntary unemployment within mainstream economics:

$$lr^{EQ} < lr^{EF}$$

with lr^{EQ} = equilibrium wage (real); lr^{EF} = efficiency wage (real)

The justification for $lr^{EF} > lr^{EQ}$, according to efficiency wage theory is:

¹⁰ For a more detailed discussion see Güntzel (2013).

¹¹ Akerlof/Shiller (2009), p. 25.

If $l_r = l_r^{EQ}$, that means if the labor market is in equilibrium, then $L^S = L^D$.

The result from this situation will be a lack of motivation for job holders to fulfil their tasks properly, since they can always find a new job “over the street”. Thus, a premium on l_r^{EQ} shall lead to higher motivation and, in consequence, cause higher productivity:

$$l_r^{EF} > l_r^{EQ},$$

and therefore $L^S > L^D$, that means unemployment as a result of too high wages. So far, Akerlof and Shiller follow the well-known argumentation of the efficiency wage theory. But then comes their “surprising turn” because they see a common sensibility for fairness as the real cause for premium on l_r^{EQ} and thus involuntary unemployment: „This view of the labor market is...simpler...It is simpler because we think that we can represent the wage as depending at least in part on what workers think would be fair, and those fair wages are almost always above the market clearing wage.“¹²

Apart from the impression that this argument concedes a rather high influence of worker’s views about fairness on the level of wages (maybe such an influence can be attested in some cases of very high qualified and specialized work, but for the vast majority of the labor force daily experience in times of globalization speaks a quite different language), there arises a contradiction when Akerlof and Shiller come to the third of their *Animal Spirits*, namely corruption and bad faith. Some examples are the sale of „fraudulent patent medicines“ (e.g. in the US in the 19th century or in Europe in middle ages), as well as dubious financial products and methods of „creative accounting“ by which potential investors are deceived about imaginary assets. Such methods are mainly made responsible by Akerlof and Shiller for a number of serious crises in modern capitalist economies, above all the financial crisis since 2007/2008. They state that „... the business cycle is connected to fluctuations in personal commitment to principles of good behavior and to fluctuations in predatory activity which in turn is related to changes in opportunities for such activity.“¹³ I would totally agree with Akerlof and Shiller in this point, but exactly lies the contradiction to what they argued before: Under these assumptions, why should a generally accepted pledge for fairness *not* be an appropriate *remedy against corruption and bad faith*? And, if this is acceptable, why should *fairness* then be regarded as being part of the (seemingly) irrational „*Animal Spirits*“? Would fairness not be instead a pretty *rational corrective* against corruption and bad faith? In other words: Isn’t this a contradiction within the analysis of Akerlof and Shiller? I do not want to be mistaken in this point: I agree with Akerlof and Shiller in the tremendous importance that *Animal Spirits* have for the course of the economy. But I also am convinced that *Animal Spirits* need a more precise and theoretically satisfying foundation if we want them to play a more important role within economics.

¹² Akerlof/Shiller (2009), p. 106.

¹³ Akerlof/Shiller (2009), p. 38.

Nevertheless, apart from any critique in detail, one has to concede that Akerlof/Shiller have brought Animal Spirits back to the attention of economists as well as to a broader audience.

3. Connecting animal spirits with Keynes' conception of probability and uncertainty

Let us now move on to the question how Animal Spirits can be anchored within Keynes' conception of probability and uncertainty. Some preliminary remarks are necessary¹⁴: First of all, it has to be mentioned that Keynes himself does not exactly define how Animal Spirits should be understood. The term appears only three times in Keynes' published writings¹⁵. It is also worth to mention that there is a distinction between a technical use of the term Animal Spirits (traced back to Descartes and Hume), as well as a literary use. Keynes himself appears to use the term in the literary sense; for some historical remarks on the term Animal Spirits which has a history of more than 2500 years, see, for example, Barens¹⁶.

„Probability“, according to Keynes, is not a given *characteristic* of events, but a *logical relationship* between a proposition and an available background of knowledge: „... this expresses strictly a relationship in which they stand to a corpus of knowledge... and not a characteristic of the propositions in themselves.“¹⁷ This simply means that it does not make sense to say that a certain event does have a concrete probability; in fact, this makes also clear that Keynes had a profound distrust against the mathematically sophisticated methods of probability calculus, particularly when it comes to an application of such methods in real life situations.

a	with	a = proposition for which a probability shall be considered;
$\alpha =$		h = proposition on the available corpus of knowledge;
h		$\alpha =$ „ <i>rational degree of belief</i> “ in proposition a

It therefore is argued said that there does not exist any *probability of certain events*, but „a *probability-relation* of degree α between a and h“¹⁸ with each, a and h, representing a *set of propositions*.

From this argumentation there can be derived a number of characteristics of Keynes' probability conception: These *characteristics* of probabilities are:¹⁹

- Probabilities are often not comparable (since there is no common measure for them);
- probability propositions are seldom quantifiable;

¹⁴ See Barens (2011).

¹⁵ Keynes (1936), p. 161 f.

¹⁶ Barens (2011), p. 22 f.

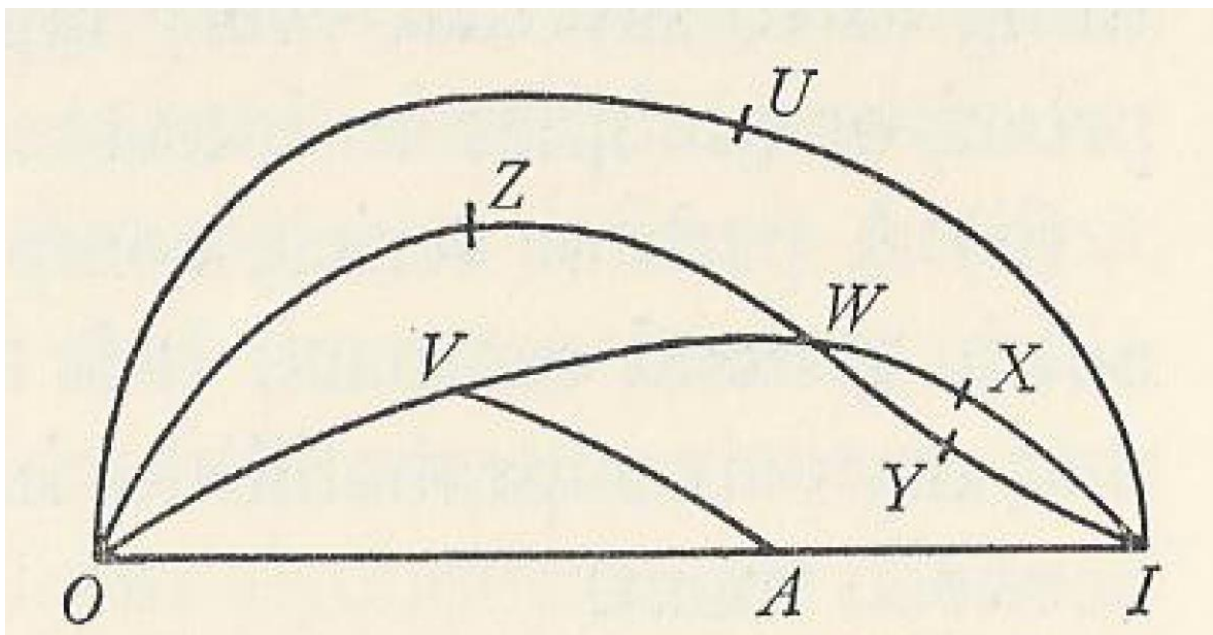
¹⁷ Keynes (1921), p. 3 f.

¹⁸ Keynes (1921), p. 4.

¹⁹ See Muchlinski (2007).

- probability propositions lie within a „continuum between true and false“;²⁰
- the term probability experiences a „transformation into a *rational degree of belief*“;²¹
- the Bernoulli-principle is in most cases (of real life) not applicable; therefore „Keynes distinguishes himself from traditional probability theory“;²²
- and finally, perhaps the most important notion: About probability there can only be said „that it is a lower degree of rational belief than certainty“.²³

Keynes illustrates his argumentation with a simple graphic:



Source: Keynes (1921), p. 42.

In this graphic, O stands for an impossible event, whereas I stand for certainty (that means, as probability of 1). A, U, V, W, X, Y and Z stand for different probabilities. A is a numerically calculable probability, because it is situated along a linear line between O and I. All other probabilities, which lie along a non-linear line between O and I, are not calculable. But they may be comparable, as long as they lie along the same line. For example, Z is a probability which lies along a non-linear line between O and W, therefore is $Z > 0$ and $Z < W$, but Z is numerically not calculable. It has to be pointed out that the comparability of two probabilities does not mean that they are numerically calculable. In the above graphic, only A is calculable, because it is situated along a direct, linear line between O and I. All other probabilities, which lie on a common non-linear line, are only comparable (but not calculable), whereas probabilities which lie along no common line are not

²⁰ See Muchlinski (2007), p. 5.

²¹ Muchlinski (2007), p.7.; transl. by the author

²² Muchlinski (2007), p.7.; transl. by the author

²³ Keynes (1921), p.16.

comparable at all (and of course not calculable neither). Probability A, for example, is calculable (because it lies on a linear line between 0 and I), but it is not comparable with Y, since A and Y have no line in common. The optical impression that probability Y is nearer to I than probability A is, has no relevance.

This non-calculability of (most) probabilities, in particular, lies at the core of Keynes' argumentation on uncertainty: „The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence... We simply do not know.“²⁴ (Keynes 1937, p. 213) It is crucial to point out that this principal uncertainty is a *fundamental characteristic* of reality; it cannot be diminished or managed through any procedure of mathematical probability theory. This sceptical view on any kind of mathematical probability calculus is a fundamental characteristic of Keynes' conception of probability. It is a consequence of his conviction that probability is a *logical relation between propositions* and *not* some intrinsic characteristic of real phenomena.

Let us now turn to the problem of a theoretical foundation of Animal Spirits within Keynes' probability conception. First of all, we have to consider that (mathematical) probability calculus is only a very limited help in daily life situations. Therefore, in Keynes' own words, a decision problem must be tackled „in virtue of an intuitive judgement directed to the situation as a whole“ and not as „an arithmetical deduction derived from a series of separate judgements directed to the individual alternatives each treated in isolation“²⁵. As a consequence from this statement, Keynes emphasises the central role of human *motives, judgements, expectations* and *psychological factors* and „he is interested in the manner in which individuals make decisions and can act successfully under the circumstances which uncertainty imposes on them“²⁶

Against this background, Animal Spirits should can be understood as a kind of *catalyst* which hinders a decision blockade, which would otherwise be caused by the fact of non-calculable probabilities: Since a probability $\alpha = a/h$ is not numerically determined, it varies with every new proposition²⁷ $H_k \in h_k h$ (with: $h = \{ H \mid H = H_1, H_2, \dots, H_j \}$ resp. $h_k h = \{ H \mid H = H_1, H_2, \dots, H_j, H_k \}$). This simply means that a decision maker will change his rational degree of belief with every new information he obtains. Since every new proposition H_k enlarges the set $h_k h$, α can never be finally determined; in other words, $\alpha = a/h$ can only be of a temporary grade (because $a/h \neq a/h_k h$). This leads to the danger of an infinite attentism: A change of α could improve informational basis for decision; this first form of probability-based attentism shall be denominated hereafter: $\alpha - attentism$.

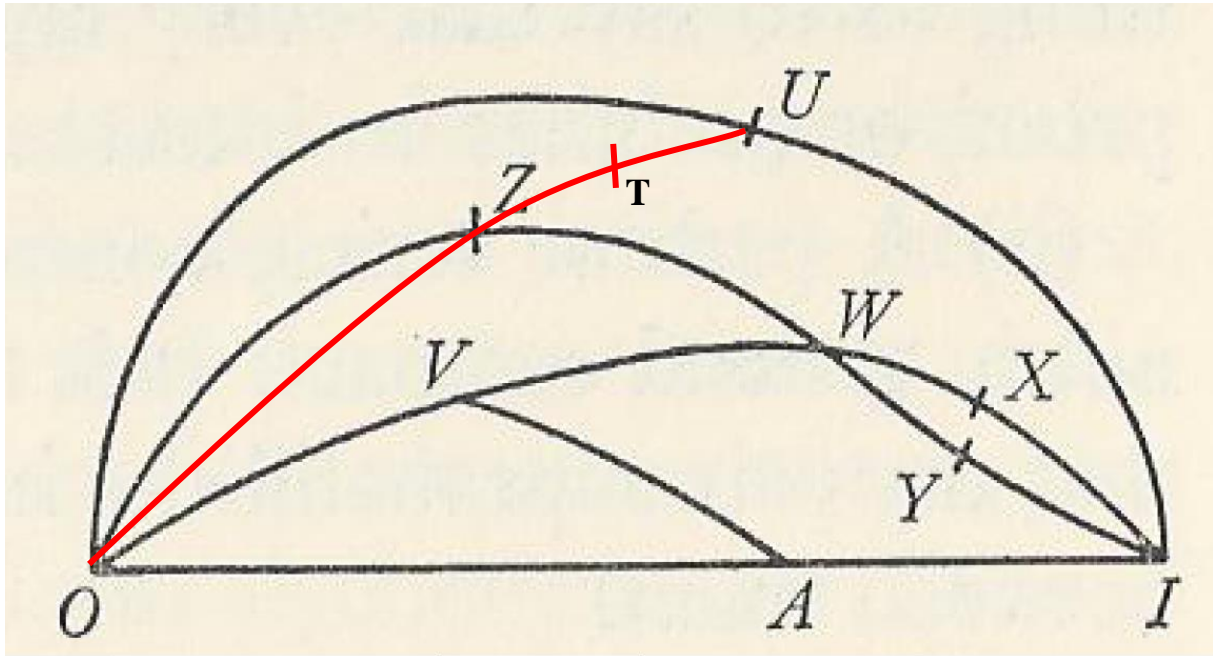
²⁴ Keynes (1937), p. 213.

²⁵ Keynes (1921), p. 345.

²⁶ Muchlinski (2007); transl. by the author

²⁷ The terminology follows Keynes (1921); for a detailed explanation see there.

There can also be identified a second form of probability-based attentism: A lack of comparability between different degrees of rational belief α and β leads to an attentism which will hereafter be denominated α/β -attentism; with $\beta = b/h$ (interpretation analogous to $\alpha = a/h$). to explain this, take a look at the following graphic:



Source: Keynes (1921), p. 42; extension by the author

Here we have a new probability T which lies on a new (red) non-linear line between Z (with rational degree of belief = α) and U (with rational degree of belief = β). Z and U, which have not been comparable before, can now be compared, since $Z < T$ and $T < U$, therefore $Z < U$. The probabilities Z, T and U are still not calculable (they are situated along a non-linear line), but they can be compared, thus the information basis for decision making has improved. The form of α/β -attentism can be defined as the waiting for new information which makes two rational degrees of belief (here α and β) comparable. Both forms of attentism – α -attentism and α/β -attentism – lead to a blockade of the individual's ability to make a decision and take action. Animal Spirits *end* this inability to make a decision through their intrinsic *propensity to act* (in Keynes' words „... a spontaneous urge to action rather than inaction“). Against this background, a definition of „A.S.“ could read as follows:

Animal Spirits are an expression of the human will to overcome a situation of uncertainty through the decision to take action. They are grounded on an instinctive propensity to act under the consideration of the rational degree of belief, as well as under the implication of further motives of human behaviour (such as convictions and judgements)

4. „Animal Spirits“ and Intentionality

How can Animal Spirits be connected with a philosophical concept which forms a central part of the contemporary philosophy of mind? Man is without any doubt a being with the characteristic of having mental states. Man is a mental being. Surprisingly enough, the specific meaning of „*man as a mental being*“ is (implicitly) pointed out in Keynes' concept of probability: „If *a* represents a particular proposition, we must know something about it, namely its *meaning*. May not the apprehension of its meaning afford us some relevant evidence? If so, such evidence may not be excluded.“²⁸ *Intentionality* as a core element within the philosophy of mind can – in my view – offer an adequate frame for having regard to this „*mental characteristic*“ of the human existence.

Examples for such intentional states of mind are *conviction, apprehension, hope, request, love, hate, animosity, liking or disliking, doubt, expectation, admiration, desire...*²⁹ All intentional states are always existant, even without having conciousness of them. What do these considerations mean for our theoretical foundation of Animal Spirits? Man cannot „escape“ his intentional states, because they determine his existence as a mental being. Therefore, I first want to make an *assumption*:

*Human beings always act as an entireness*³⁰

Secondly, I propose a postulate:

Because of the lack of calulability of probabilities, there occurs an eventually unbearable conflict between the state of the „outside world“ (being uncertain and uncalculable) and the state of the „inside world“ of the individual (being intrinsically mental); this coflict appears to be at the source of a blockade which hinders the individual's dynamic activity and its decision taking.

The justification for the assumption lies in the philosophy of mind, particularly in the analysis of the philosopher J.R. Searle.³¹

The justification for the postulate is given by the introduction of probability-based attentism above: α -attentism and α/β -attentism can be regarded as a consequence of Keynes' s concept of probability, with probability being a „rational degree of belief“, and not an intrinsic characteristic of a certain event. The named conflict is unbearable in the long run, since intentional states of mind necessitate an appropriate activity of the individual.

²⁸ Keynes (1921), p. 62.

²⁹ Searle (1991), p. 18.

³⁰ See Güntzel (2014); to appear soon.

³¹ Searle (1991) and Searle (2012).

Animal Spirits are now being interpreted in the way that they dissolve this conflict by leading to what will be hereafter called a *reversion of the probability problem*:

The *probability problem* lies in the fact that non-calculable and non-comparable probabilities lead to a blockade of the individual's ability to make a decision:

$$\alpha = ? \text{ resp. } \alpha > ? < \beta$$



Lack of calculability/comparability blocks the dynamics of individual's activity

The *reversion of the probability problem* through Animal Spirits lies in the possibility that uncalculable and/or uncomparable probabilities enable the individual to come to a decision on the basis of its intentional states of mind. The probability problem is reversed in the sense that, instead of being blocked by uncalculable/uncomparable probabilities, the individual is, on the contrary, being freed from the compulsion to follow these probabilities. Animal Spirits lie at the core of this reversion.

$$\alpha = ? \text{ resp. } \alpha > ? < \beta$$



Since α resp. β are not numerically determined, the dynamics of the individual's activity *is being enabled*, by taking decisions on the grounds of the individual's intentional states of mind (like *convictions, hope, antipathy...*)

A specified and precised definition of Animal Spirits would therefore read like this:

Animal Spirits are layed down and fixed within the mental structure of an individual and they show a tight connection to the intentionality of mental states. Animal Spirits enable the individual to dissolve a conflict between the physical „outside world“ and the mental „inside world“, which occurs due to the lack of calculability of probabilities.

5. *Concluding Remarks*

The main contribution of this paper is an approach which tries to develop a theoretical foundation of Animal Spirits within Keynes' conception of probability. For Keynes, probability is not an intrinsic characteristic of a certain event, but a logical relation between a proposition and a given background of knowledge ("rational degree of belief"). Moreover, probabilities are often (at least in real-life situations) non-calculable and very often even not comparable with each other. A rational degree of belief is never finally determined, since every new information will change the background of knowledge and therefore the rational degree of belief.

On the grounds of this conception of probability, it is argued in this paper that the characteristic of probabilities as being rational degrees of belief leads to two forms of probability-based attentism, denominated as α -attentism and α/β -attentism. The first form (α -attentism) is given when an individual decision maker is waiting for new information about a rational degree of belief, α . The second form (α/β -attentism) is given when a decision maker is waiting for new information in order to make two rational degrees of belief, α and β , comparable. It is argued then that Animal Spirits in this context can be regarded as a catalyst which enables an individual decision maker to overcome both forms of attentism and therefore to react to the fact of uncertainty by the decision to act ("a spontaneous urge to action rather than inaction"). Animal Spirits are based on an instinctive propensity to act under regards of rational degrees of belief, as well as other motives of human behavior (like convictions or moral judgements).

In the further course of the analysis, we try to hint at the possibility of anchoring Animal Spirits within the philosophy of mind, particularly the concept of intentionality. For this purpose, an assumption and a postulate are stated:

- 1) Human beings always act as an entirety.
- 2) Because of the lack of calculability of probabilities, there occurs an eventually unbearable conflict between the state of the „outside world“ (being uncertain and uncalculable) and the state of the „inside world“ of the individual (being intrinsically mental); this conflict appears to be at the source of a blockade which hinders the individual's dynamic activity and its decision taking.

Against this background, Animal Spirits are interpreted in the way that they allow for a reversion of the probability problem. The probability problem lies in the fact that uncalculable and uncomparable probabilities lead to the above mentioned forms of attentism and therefore hinder the individual to make a decision. The probability problem is reversed in the sense that, instead of being blocked by uncalculable/uncomparable probabilities, the individual is, on the contrary, being freed from the compulsion to follow these probabilities. Animal Spirits enable the individual to come to a decision by following its intentional states of mind.

6. References

- Akerlof, G.A.; Shiller, R.J. (2009): *Animal Spirits. How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*, Princeton and Oxford (Princeton University Press).
- Barens, I. (2011): 'Animal Spirits' in John Maynard Keynes's *General Theory of Employment, Interest, and Money: some short and sceptical remarks*, in: *Keynes, Sraffa and the Criticism of Neoclassical Theory, Essays in honour of Heinz Kurz*, Milton Park (Routledge), p. 21-32.
- Braunberger (2009): *Keynes für Jedermann. Die Renaissance des Krisenökonomien*, Frankfurt (F.A.Z.-Institut für Management-, Markt- und Medieninformationen).
- Carabelli, A.M. (1988): *On Keynes's Method*, London (McMillan).
- Davidson (2009): *John Maynard Keynes*, 2nd ed., Basingstoke (Palgrave Macmillan).
- Dow, A.; Dow, S. (1985): *Animal Spirits and Rationality*, in: T. Lawson, H. Pearan (ed.), *Keynes' Economics: Methodological Issues*, Sidney, pp. 46-65.
- Dow, S.; Hillard, J. (2002): *Keynes, Uncertainty and the Global Economy, Beyond Keynes, Volume Two*, Cheltenham, UK, Northampton, MA, USA, (Edward Elgar).
- Farmer, Roger E. A. (2008): "Animal spirits." *The New Palgrave Dictionary of Economics*. Second Edition. Eds. Steven N. Durlauf and Lawrence E. Blume. Palgrave Macmillan, 2008. *The New Palgrave Dictionary of Economics Online*. Palgrave Macmillan. 04 June 2013
<http://www.dictionaryofeconomics.com/article?id=pde2008_A000105>
doi:10.1057/9780230226203.0043
- Goller, H. (2003): *Das Rätsel von Körper und Geist. Eine philosophische Deutung*, Darmstadt (Wissenschaftliche Buchgesellschaft).
- Güntzel, J. (2014): *Am Anfang war der Mensch. Die Entmenschlichung der Ökonomik und ihre dramatischen Folgen*, Marburg (Metropolis); to appear soon.
- Güntzel, J. (1998): *Erwartungen, Unsicherheit und „Animal Spirits“ bei Keynes*, in: *Wirtschaftswissenschaftliches Studium*, Vol 16, Nr 7, pp. 361-363.
- Güntzel, J. (1994): *Indikatoren des wirtschaftlichen „Klimas“*. Eine Untersuchung aus der Perspektive der Adäquationsproblematik, *Tübinger Volkswirtschaftliche Schriften*, Bd. 9, Tübingen und Basel (A. Francke).
- Hayes, Mark: *The Post Keynesian Difference*, Discussion Paper for the Keynes Seminar, Cambridge (October 19, 2010).
- Howitt, P.; McAfee, R.P. (1992): *Animal Spirits*, in: *American Economic Review* Vol. 82, pp. 493-507.
- Keynes, J.M. (1936): *The General Theory of Employment, Interest, and Money* (The Collected Writings of John Maynard Keynes Vol. VII, 1973), London/Basingstoke (Macmillan).
- Keynes, J.M. (1921): *A Treatise on Probability* (The Collected Writings of John Maynard Keynes Vol. VIII, 1973), London /Basingstoke (Macmillan).
- Marchionatti, R. (1999): *On Keynes's Animal Spirits*, in: *Kyklos*, Vol 53 (3), pp.415-439.

Matthews, R. (1984): Animal Spirits, in: Proceedings of the British Academy, Vol. 70, pp. 209-229.

Moggridge, D.E. (1992): The Source of Animal Spirits, in: Journal of Economic Perspectives, Vol.6, No. 3 (summer), pp. 207-208.

Muchlinski, E. (2007): Keynes' „A Treatise on Probability“ (C.W., Vol. VIII), in: <http://www.keynes-gesellschaft.de/Hauptkategorien/LebenWerk/Monographien/TreatiseonProbability.php> (Download 27 March 2009).

Posner (2009): How I became a Keynesian, in: The New Republic, Ausgabe vom 23.09.2009 (www.tnr.com, Download am 19 June 2013).

Searle, J.R. (2012): Wie wir die soziale Welt machen. Die Struktur der menschlichen Zivilisation, Berlin (Suhrkamp).

Searle, J.R. (1991): Intentionalität. Eine Abhandlung zur Philosophie des Geistes, Frankfurt (Suhrkamp Taschenbuch).

Contact:

Prof. Dr. Joachim Güntzel

Baden-Württemberg Cooperative State University, Ravensburg

Marktstraße 28

D-88212 Ravensburg (Germany)

Mail: guentzel@dhbw-ravensburg.de