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Entrepreneurs as Surrogate Forward Traders of Goods and Services

Seen From the Viewpoint of New Institutional Economics

by

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Abstract: The purpose of this paper is to illustrate – argumentative style – that once we abstain from the usual neoclassical assumptions and integrate transaction costs, imperfect foresight and bounded rationality into present neoclassical (spot and futures) market theory, we get a more realistic perception of the decentralization of intertemporal economic decision making. The failure of most futures markets for goods and services is compensated by firms ("hierarchies"), which are lead by entrepreneurs in the sense of Knight (1921) who may be seen as surrogate forward traders for goods and services. We claim that the "more realistic assumptions" of the NIE lead to a better perception of what takes place behind the veil of "money and finance" than the present neoclassical theory. It might also help to better understand some aspects of the financial crisis of 2008.
JEL: D40, E40, E44, G 20, G21, G28, G29

1. The Problem

> An act of individual saving means – so to speak – a decision not to have dinner to-day. But it does not necessitate a decision to have dinner or to buy a pair of boots a week hence or a year hence or to consume any specific thing at any specified date.
> Keynes (1936, Ch. 16)

Only a few consumer goods are traded forward[1] - because, as HICKS (1946, 139) exFplains, of "…the uncertainty of the future and the desire (of the consumer) to keep ones hands free to meet that uncertainty, which limits the extent of forward trading under capitalism." Most forward markets for consumer goods fail.[2] Cause is - from the perspective of the new institu-

[1] Such as the London Metal Exchange, the New York Board of Trade, or the New York Mercantile Exchange.
[2] On the difference between the technical terms of futures and forward contracts see Wikipaedia: Both are contracts "…to deliver an asset on a future date at a prearranged price, they are different in two main respects:

tional economics – the presence of positive transaction costs, imperfect individual foresight and bounded individual rationality. The unspoken assumption of classical economics is that private firms, their managers or entrepreneurs, serve as surrogate futures traders of goods and services. They decide "today" what, where, and how much is going to be produced for "tomorrow" and, in that context, what etc. should be bought "today" of factor future inputs of labor, land, capital. The reason why the price mechanism is superseded by "the firm," whose "entrepreneur-coordinator" directs production are *transaction cost* or "cost of using the price mechanism" (Coase 1937, 390) and, according to the reading of Williamson (1975, 4), "[Knightian] *uncertainty* and, implicitly, *bounded rationality*."[3] The latter two attributes include the costs of adapting to unforeseen events and of repairing errors resulting from bounded rationality. Anyway, transaction costs, imperfect foresight and bounded rationality require suitable institutional arrangements and "…some authority (an "entrepreneur") to direct the resources" such that "certain marketing costs" are saved.[4] Coase continues:

> The entrepreneur has to carry out his function at less cost, taking into account the fact that he may get factors of production at a lower price than the [forward] market transaction which he supersedes, *because it is always possible to revert to the open market if he fails to do this*. (Coase 1937, 392, italics added)

However, the last line of above reference is at variance with the fact of the failure of most futures markets for goods and services. Because there are (practically) no forward markets, the Coasian entrepreneur-coordinator cannot compete with them. He competes, instead, with the multiplicity of entrepreneurs of other firms – the standard problem of industrial organization.

(i) Futures are exchange traded, while forwards are traded over the counter. Thus futures are standardized and face an exchange, while forwards are customized and face a non-exchange counterparty.
(ii) Futures are margined, while forwards are not. Thus futures have significantly less credit risk, and have different funding."

[3] Williamson relating to Coase (1937, 392), italics added.
[4] Coase (1937, 392).

The purpose of this paper is to illustrate – argumentative style – that once we abstain from the usual neoclassical assumptions and integrate transaction costs, imperfect foresight and bounded rationality into present neoclassical (spot and futures) market theory, we get a more realistic perception of the decentralization of intertemporal economic decision making. The not existing futures markets for goods and services are replaced by firms ("hierarchies"), which are lead by "entrepreneur-coordinators" who may be seen as surrogate forward traders for goods and services. They apply more or less skillfully a mix of internal non-market decisions (by command of hierarchical superiors) and external market decisions (use of the price system). We claim that the "more realistic assumptions" of the NIE lead to a better perception of what takes place behind the veil of "money and finance" than the present neoclassical theory. It might also help to a better understand at least aspects of the financial crisis of 2008.

2. On Neoclassical Forward Market Theory

Standard market theory deals with spot markets and their equilibrium as illustrated by the "Walrasian Cross." The general equilibrium version of it provides Hicks (1946, 140) for his "pure spot economy". It contains no forward markets, but assumes that individuals form expectations about future prices, and take them into account in their spot market decisions. Hicks describes basically the theory that underlies Keynes's General Theory. As reasons why there are only a few futures markets for goods Hicks (1946, 159) writes:

> Generally ,,it is uncertainty of the future, and the desire to keep one's hands free to meet that uncertainty, which limit the extent of forward trading under capitalism;…" (Hicks 1946, 139)

Opposed to Keynes, Hicks and later Patinkin (1956/1965), Arrow (1953) and Debreu (1959) describe a full-fledged pure general equilibrium "futures economy" that incorporates risk though not (Knightian) uncertainty. The first step from a general equilibrium of a pure spot economy to Arrow-Debreu's time state preference theory is comparatively simple: Goods and services are now characterized not only by their physical nature and the location at which they

are available, but also by the time at which they are available and the states of the world on whose occurrence their agreed upon exchange is contingent (Debreu 1959, 28, 98).[5] The probabilities of the various states of the world are *a priori* known. In this sense people possess perfect foresight and thus "full information about the nature and consequences of their choice."[6] Furthermore, consumers are assumed to act perfectly rational in the sense that they maximize their individual utility subject to their given endowments[7] with their individual utility functions being based on stable, well-ordered time-state preference orders with respect to all possible consumption plans (bundles of commodities) and weighted by their individual state preference (their attitude towards risk). Finally, competition is perfect, transaction costs are zero – and there are firms. They are assumed to perfectly hedge their sales and their factor expenses; as a consequence the profits of firms are certain. There is no room for entrepreneurs. Firms are profit-maximizing automatons, with their profits being distributed to consumers who own shares of firms. Besides, a firm's value is unaffected by its debt-equity mix (Modigliani and Miller 1958). Risk behavior within this time-state-preference economy is reflected only by the risk behavior of consumers.

This is no longer true under conditions of the NIE, i.e., under positive transaction costs, incomplete foresight (we don't know all possible future events, not to speak of their statistical properties) and bounded rationality. Textbooks, like Hirshleifer (1970), mention of these three properties only positive transaction costs in the sense of positive costs of using the market, and distinguish between "complete" and "incomplete" markets for time-state claims (Hirshleifer 1970, 264 ff). Arrow (1970), by contrast, considers also incomplete foresight, e.g., regarding the success of a new business, of technical progress or the development of new

[5] For instance: I purchase x bushels of wheat to be delivered here, one year from now, payable today, on the condition that my next year's crop has been destroyed by hail (i.e., the purchase of hail insurance). Individuals have full knowledge of all possible events (hail, drought, normal weather) and their probability distributions at each particular location etc.

[6] Cooter and Ulen (1988, 235).

[7] Under this condition, since all firms are privately owned by assumption, their managers have to maximize the firms' profit subject to the firms' production functions. Managers are fully informed about their technically feasible production plans.

knowledge that are "…by their very nature leaps into the unknown." (1970, 135) He continues:

> In any economic system, capitalist or socialist, there is a responsible agent to whom the burden of any given risk falls in the first instance. In a capitalist world … the owner of a business typically is supposed to assume all the risks of uncertainty, paying out the unexpected losses and enjoying the unexpected gains. (Arrow 1970, 135)

Now entrepreneurs and their skill to adapt to the unforeseen (their "adaptive efficiency" [8]) are relevant for the success or failure of firms. Entrepreneurs (self employed or employed entrepreneurs) become "surrogate forward traders" who substitute the bulk of inoperative forward market deals by a mix of non-market and market decisions.

The problem of bounded rationality, brought up by Simon in 1957, took a bit longer to seep through into the microeconomics of institutional analysis.[9] It might sound like a bad joke for some people, but legal rules and legal practice provide examples of how society allows for our cognitive limits. An example is contracts. Those reaching into the future can be unavoidably incomplete. The standard technique to deal legally with the difficulties created by "gaps" in such incomplete contracts is to apply certain accepted principles—for example, the common judgment of what is "reasonable." The most famous example of this technique in Anglo-American law is the use of the standard of due care in cases of negligence.

> For obvious reasons, a judge is not free to decide cases according to his whims. He has to apply some principle that, ideally, is understandable, reconstructible, and predictable. Unavoidably, bargaining is pervasive. And this process seems to obey some implicitly or explicitly agreed upon principles. In any case, the rational lawmaker knows that additional rules will evolve over time. Changes will come about partly by the extension of judge-made law, or through the writing of individual contracts, and partly through the generation of informal rules. (Furubotn and Richter 2005, 22)

[8] "Adaptive efficiency …provides the incentives to encourage the development of decentralized decision-making processes that will allow societies to maximize the efforts required to explore alternative ways of solving problems." (North 1990, 81)

[9] See above reference to Williamson (1975, 4).

Summing up: In the world of NIE, markets for time-state claims are generally "incomplete." As a result,"…not all risks which it would be desirable to shift can be shifted through the market." (Arrow 1970, 139)[10] The answer of society to this problem was and is the evolution of institutions like firms or other legal constructs such as licensing, limited liability, and bankruptcy that allow risk shifting by other means than market exchange. In those institutions "…the price system, which the economist tends to regard as essential to the rational allocation of resources, is not used."[11] Opposed to the neoclassical dogma, such non-market institutions may improve the flexibility and responsiveness of the system to unforeseen events (its "adaptive efficiency") – and not constrain it. In fact, under conditions of positive transaction costs, incomplete foresight and bounded rationality "more market" – an increase in risk shifting through the market – is not necessarily welfare improving. It may lead to a distortion of the incentive structure of contracts and invite moral hazard (opportunistic actions of the counterparty). The financial crisis of 2008, which followed a rising wave of asset securitization and risk shifting, illustrates this point.[12]

3. Entrepreneurs as Surrogate Forward Traders of Goods and Services

As we have seen, the costs of using the market do not only help to understand the "nature of the firm." They also give reasons for the general failure of forward markets for goods and services. In this case it might be preferable to study the institutional economics of a world in which only spot market transactions are taken into account; forward transactions are neglected - something like an institutional economic version of Hicks's (1946, 140) temporary equilibrium theory. Consequently, there are no generally *known* prices, only individually *expected* prices for future goods and services. Uncertainty (in its widest sense) includes here the knowledge of all goods that are available in the future and of their prices. The firm, under the

[10] "Futures contracts in commodities and in foreign exchange are well known to supply insurance against price movements among their other social functions." (Arrow 1970, 137)
[11] Arrow (1970, 140)
[12] Richter (2009).

leadership of its "entrepreneur-coordinator" is now not only an institutional answer to the costs of using the market but also to the problems of Knightian uncertainty. The Knightian entrepreneur replaces so to speak (or becomes equivalent to) Coase's entrepreneur. It suggests itself to consider some of Knight's views, among them his idea to compare the development of hierarchical organizations under uncertainty with the corresponding evolution of organic life:

> "When uncertainty is present and the task of deciding what to do and how to do it takes the ascendancy over that of execution, the internal organization … is no longer a matter of indifference or mechanical detail. Centralization of this deciding and controlling function is imperative, a process of "cephalization," *such as has taken place in the evolution of organic life*, is indispensable, and for the same reasons as in the case of biological evolution." (Knight 1921, 268 f., italics added)

One is tempted to indulge oneself in the history of economic thought such as the ideas of David Hume (1739/40) concerning the origin of justice and property or of Carl Menger (1883) organic interpretation of social phenomena or the differences and similarities with the much referred to entrepreneur of Joseph Schumpeter (1911). Yet we don't want to get involved here in the interpretation of the history of economic thought.[13] All we wish to do is to point out that not only the proper design of institutions in combination with their use by capable people is society's best answer to the imponderables of life.[14] The debate on equity capital requirements and capital (Jensen and Meckling 1976),[15] of "corporate culture" and its focal point interpretation by Kreps (1990),[16] or of "credible commitments" (Klein and Leffler 1981;

[13] Knight (1921, 271) did not think of entrepreneurship in the sense of "one man rule." He rather speaks of a "special social class, the business men, [who] direct economic activity;" … On this point and more (like loyalty) very clear Drucker (1946/1962, 26 – 36, 235n).

[14] As Popper (1957, 66) states: "You cannot construct foolproof institutions." (We like to add: Like profit maximizing automatons). Popper continues: "Institutions are like fortresses. They must be well designed *and* properly manned."

[15] Contract theory as analytic answer to the "separation of ownership and control" problem emphasized by Berle and Means (1932).

[16] "The organization will be characterized by the (focal) principle it selects . . . In order to protect its reputation for applying the principle in all cases, it will apply the principle even when its application might not be optimal in the short run." (Kreps, 1990, 93) Baron and Kreps (1999, 19) specify: "The organization's culture refers to norms of conduct, work attitudes, and values and assumptions about relationships that govern behaviour of the organization."

Williamson 1983).[17] On the other side, the neoclassical theory of the firm, as taught in standard microeconomics, is of not much use for a fuller description of the firm as an institution to manage uncertainty (cf. Furubotn 2009). It makes sense only as part of general equilibrium theory that explains how and under which minimal (most abstract) conditions a multiplicity of consumers and producers can be imagined to coordinate their economic spot and future plans through markets alone. Instead, we proceed the other way round and much less restrictively. Given the less abstract assumptions of positive transaction costs, imperfect foresight, and bounded rationality the question we ask the following question: What types of institutions (market, hierarchy, a mix of both) will a multiplicity of consumers and producers choose to bring their economic spot and future plans into accord? Our answer is that entrepreneurs (together with their team of leading employees) serve as surrogate forward traders of goods and services. It demands a model of the firm that is very different from its neoclassical form, viz., the firm understood as a complex system of norms and regulations (of more or less relational contracts) that are formed and compounded according to the time-proven art of organizing and managing a business – its production, finance, marketing, accounting etc. departments – with the aim to be profitable.[18] New institutional economic considerations (on organizing work, make or buy decisions, sales contracting, corporate governance, credible commitments, etc.) have to start from here. The NIE gives reasons for the existence (or "nature") of the firm; it will hardly ever provide a comprehensive theory of the firm comparable with its neoclassical form. In fact, a *general* NIE theory of the firm would be at odds with the "micro-micro," institutional oriented style of reasoning in NIE as, e.g., illustrated by Williamson's (1985, 135 f.) answer to the puzzle of why firms do not comprehensively integrate: because selective intervention is not feasible.

[17] As part of what we call the "institution-as-an-equilibrium-of-a-game approach" (Furubotn and Richter 2005, 8).
[18] Or the evolving science of management as, e. g., started by Drucker (1946) or (1955).

4. On the Role of Financial Markets and Financial Intermediaries

The counterparty of entrepreneurs, understood as surrogate forward traders, is the consumers - though, very indirectly. In their desire to keep their hands free for their uncertain future, consumers purchase only rarely goods and services per future delivery. They "save" by buying financial assets: money or claims for money, with the latter being sold (more or less indirectly) by our surrogate forward traders, the entrepreneurs of producers of goods and services.[19] Thus, a number of financial institutional constructs dispense consumers who save now from deciding, what to have for "dinner… a week hence or a year hence." (Keynes 1937, 210)

> It is about here where financial capital enters the surrogate futures market for goods, and the need for an "advocate of capital" (Hinds 1990, 20[20]) becomes relevant. As a result, the speculative endeavor of industrial entrepreneurs is controlled (or disturbed) by the activities of financial entrepreneurs – who themselves are also both: traders and market makers.

These financial institutional constructs are

1.) *Financial assets*: money and claims for money. Both allow their owners the transfer of purchasing power from "today" into the future. The basic institutional economic problem of claims for money is a measurement problem (Barzel 1982): the costs of the determination of the credibility of the debtor's promise to serve and repay his debt - alternatively, the chances of legal enforcement of a debtor's liabilities. The "invention" of the transferability of money claims (without need to inform the debtor) was a big cultural step forward. It is an important contribution to the development of risk shifting through the market. Another important institutional invention is contingent claims

[19] That corresponds to the basic ideas of the circular flow model underlying Hicks's (1946) temporary equilibrium theory - with one important difference: In the world of relational contracts (and the NIE assumptions) individual economic plans are not only coordinated by prices alone but also otherwise. A general equilibrium (of employment etc,) would at most be a special case. Insofar the NIE would come close to the results of Keynes (1936).

[20] "In the absence of central planning, the financial system becomes the center piece of the allocation of resources." (Hinds. ibid.) It is a mix of the activities of financial entrepreneurs and the market mechanism of incomplete financial markets.

or derivatives, i.e., money claims whose value is derived from the value of "the underlying" such as an asset, an index or other item (like weather conditions or the residual value of a firm). Such an insurance contract allows the shifting of risks "and thus permits individuals to engage in risky activities, which they would not otherwise undertake." (Arrow 1970, 137) Typical NIE problems of money claims (financial assets), besides the above mentioned measurement problems, are the phenomenon of *moral hazard* (or opportunism) that are a consequence of the changes in the incentive structure through risk shifting (insurance contracts).

2.) *Financial markets:* Markets in general should be conceived as organizations: Given transaction costs, imperfect foresight and bounded rationality the classic competitive market process does not work by itself. The organization of markets depends on the type of goods traded on them – here financial assets ("financial products"). Rational actors who plan to buy or sell a specific [type of] good (here financial assets) face therefore two (interrelated) institutional choice problems:[21]

(1.) To choose a basic organization „market" ("market order") within which they wish to trade their specific goods - like on a security exchange or over the counter; and

(2.) to choose a specific organization of the exchange contract they wish to conclude with their particular trading partner.

Both are non-market coordination problems -- the first is a problem of collective action between multiple suppliers and demanders; the second is one of bilateral action between single suppliers and demanders. Of interest is here only the first coordination problem. It consists in the setting up, reorganization, choice etc. of a public or private collective good,[22] viz., a more or less sustainable[23] formal or informal organization

[21] See Furubotn and Richter (2005, Ch. 7); Richter (2007).

[22] A private collective good would be a *club good* in case of a closed market or a *private public good* in case of an open market – similar to Coase's (1974) lighthouse example. The decline of the provision of privately ordered public goods may be the result of badly governed principal-agent contracts between today's capital owners and

„market," within which traders wish to do business. Money claims are characteristic "resale goods" und, thus, require institutional preservatives against the "lemons principle"[24] and the possibility of a collapse of the market.[25] The elementary means against the lemons principle are forms of credible commitment of the supplier of money claims (the debtor, the liable party). Note that any "insurance," such as the one offered by Credit Default Swaps (CDS's), is burdened by the consequences of moral hazard (as reflected by the early history of the 2008 crisis). Some form of regulation, preferably of private ordering, may be unavoidable. Anyway, due to positive transaction costs etc. risk shifting through the markets is limited, non-market forms of risk shifting (among them financial firms) are needed (see Arrow 1970).

3.) *Financial firms* (such as commercial banks) exist as a consequence of the imperfections of financial markets due to transaction costs, incomplete foresight and bounded rationality. They compensate the failure of the market to handle risk-bearing adequately by non-market coordination of the basic financial operations such as origination (including underwriting), guaranteeing, servicing, and funding of money claims. As Arrow (1970, 141) puts it:

> What we observe is that the failure of the price system to handle risk-bearing adequately leads to a diminished use of prices even in contexts where they would be most useful in bringing about a careful and flexible confrontation of needs and resources.

Financial firms are lead by *financial entrepreneurs*, in any case Knightian entrepreneurs who deal with the unforeseen but also Schumpeterian entrepreneurs who intro-

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their agents. . Schumpeter (1942, 141) speaks in this context of the erosion of ownership interests. ["*...,the figure of the proprietor and with it the specific proprietary interest have vanished from the picture."*] It is tempting to illustrate the wealth destroying consequences of such an employee run capitalism by the fallout of the financial crisis of 2008.

[23] Understood in the sense of containing more or less effective provisions against market failures such as the "lemon effect" or monopolistic dominance (cornering). Note: There may be more or less "dangerous" organizations "market". Which of them traders choose to trade on reveals their subjective risk preference.

[24] Bad products drive out good products (*Akerlof* 1970).

[25] As the markets for structured securities such as Collateralized Debt Obligations (CDOs), CDOs squared etc.

duce *innovative* "financial products" like (more recently) Collateralized Debt Obligations (CDO's) or Credit Default Swaps (CDS's). The latter might have induced opportunistic behavior (moral hazard) among financial entrepreneurs and their staff.[26] The problem of the separation-of-ownership-and-control of banks is probably different from that of manufacturing firms – at any rate under aspects of regulatory requirements of equity capital. The public brouhaha about excessive bonus payments of bankers after the 2008 crisis illustrates another aspect of this problem.

5. Final Remarks

(1) To begin with, our argument is directed against public investment planning as suggested by Keynes (1936, 164):

> I expect to see the State, which is in a position to calculate the marginal efficiency of capital-goods on long views and on the basis of the general social advantages, taking an ever greater responsibility for directly organizing investment;

We claim, instead, that Knightian entrepreneurs are much better equipped to successfully direct investments – also on long views. Entrepreneurs promise to be the more successful surrogate forward traders than any politician or public servant - not only because of their past experience (and networking) but also because of their incentive structure and the much greater adaptability of their firms to unforeseen events in comparison to government departments or other public organizations.

(2) Knightian entrepreneurs *direct* the "real part" of the modern enterprise system - under the *assistance* of the economy's "financial part." The production side of the economy determines

[26] Scott (2009) describes the complexity of CDO's and adds: "About 80% of the 2.5 trillion subprime mortgages made since 2000 went into securitization pools." He adds the example of a CDO^2 created by a large bank in 2005. "It had 173 investments in tranches issued by other pools…It issued 975 million of four AAA tranches, and three subordinate tranches of $55 million. ….Two of the 173 investments …were tranches from another from another billion-dollar CDO…which was composed mainly of 155 MBS tranches and 40 CDO's. Two of these 155 MBS tranches were from a 1 billion RMBS pool created in 2004…composed of almost 9000 mortgage loans (90% subprime)…" etc. etc. Scott concludes, "With so much complexity, and uncertainty about future performance, it is not surprising that the securities are difficult to price and that trading dried up." We like to add: not surprising apart from the incentives of moral hazard for originators of such financial products.

the direction of its evolution, not the financial side, which plays an important but serving role, so to speak as "advocate of capital" (Hinds 1990, 20[27]).

(3) Financial markets are endangered by the "lemons principle" and its consequence, market collapse due to adverse selection (exemplified by the collapse of the market for certain asset based securities during the financial crisis of 2008). A collapse of Akerlof's (1970) market for used cars can be (and is actually) avoided by credible guarantees from car dealers. To offer credible guarantees by financial dealers has been tried out (by credit default swaps or CDO's), though, with devastating results (Hellwig 2008). The avoidance of the collapse of financial markets (or their "maximum credible accident:" the collapse of the whole financial system [systemic risks][28]) requires collective actions. Olson's problem of collective action needs consideration. Experience shows that it can be privately managed on markets that are organized like privately owned firms such as securities' exchanges.

(4) However one proceeds, since the "discovery" of the rational expectation hypothesis some 40 years ago one should stop modeling economies like more or less simplified mechanical or electronic devices. There are good reasons for returning to the elementary insights of classical economics as championed by David Hume (1739/40) and its game theoretic discussion as by Binmore (1998). Its principles of the elementary legal order of the liberal State are in a sense "made" for a world of frictions due to transaction costs, incomplete foresight and bounded rationality. They are regulating

> (i) the *property rights* of individuals according to the general principles of private property,

[27] "In the absence of central planning, the financial system becomes the center piece of the allocation of resources." (Hinds. ibid.) It is a mix of the activities of financial entrepreneurs and the market mechanism of incomplete financial markets.

[28] "The risk of a chain reaction of falling interconnected dominos." (Kaufman 1995, 47) Systemic risk, seen from the perspective of a repeatedly played trust-abuse game, is the "risk" that an existing reputation equilibrium might keel over to its opposite: a no-trade equilibrium as result of an extreme lemons effect. Note, reputation equilibria rely heavily on buyers' beliefs.

(ii) the *transfer* of these rights by consent according to the principle of freedom of contract;

(iii) the individual *liability* for contractual obligations and tortious acts.

Central for the financial side of a liberal economy is its *liability* rule. The clarity of the chain of liabilities of traded money claims should be the central object of the economics (and NIE) of finance instead of the discussion of ways how to circumvent the problem of the liability of debtors through the construction of quasi-insurance contracts like Credit Default swaps[29] or the establishment of a systemic risk fund.[30] What should be called to mind in this connection is he fact that an increase in the trade of such titles invites moral hazard and thus is not necessarily welfare improving. „More market" does not necessarily mean „more Pareto efficiency."

[29] And the construction of Collateralized Debt Obligations (CDOs), CDOs squared etc. On the difficult reconstruction of liability chains of CDO's see Scott (2009).

[30] See Sachverständigenrat (2009), Subparagraph 2005: Suggestion to establish a „Stabilitätsfonds" (risk fund) for transnational transacting banks.

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