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 NIE, inter alia, provide a better perception of what takes place behind the veil of "money and finance" than neoclassical economics, and why it makes sense to occasionally regulate free markets. It might also help to explain 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 goods are traded forward[1] - because, as HICKS (1946, 139) explains, 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 institutional eco-

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[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:

(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.

nomics – 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 the "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.

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

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(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).

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." They may be seen as surrogate forward traders for goods and services who are bridging present and future engagements by use of the services of financial markets and financial firms. 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 and its financial counterpart. It might also help to better understand 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) mentions:

> 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)

Different from Hicks's temporary general equilibrium, Arrow (1953) and Debreu (1959) described a full-fledged general equilibrium over time that incorporates risk, though not (Knightian) uncertainty. The first step from 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 point of time at which they are available and the state of the world on whose occurrence their exchange contract is contingent on (Debreu 1959, 28, 98).[5] The probabilities of the various

[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

states of the world are assumed as *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[7] subject to their endowment.[8] Individual utility functions are stable, well-ordered time-state preference orders over the set of all individual consumption plans (bundles of commodities) - weighted by their related individual state preferences (the individual attitudes towards risk). Finally, competition is perfect, transaction costs are zero, money is irrelevant – and there are firms. They perfectly hedge both 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. Risk behavior within this time-state-preference economy is reflected only by the risk behavior of consumers.[9]

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 speak of "incomplete" instead of "complete" markets for time-state claims (Hirshleifer 1970, 264 ff). However, we prefer to at least accentuate also *incomplete foresight* (Knightian uncertainty). Arrow (1970) mentions it explicitly in his discussion of time-state-preference theory by arguing that the establishment of a new business or the investments in technical progress are "…by their very nature leaps into the unknown." (1970, 135) He continues:

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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] More precisely: their Von-Neumann-Morgenstern -(expected)-utility.

[8] 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.

[9] Hirshleifer (1970, 231 ff.).

> 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)

About here enters the support of the institutions of *money, money loans* and, important, the diverse forms of *limited liability*. The latter implies a termination of the chain of personal liabilities - as in the case of equity ownership or bankruptcy - which amounts to a disruption of what classical economists since David Hume[10] view as the "natural" (i.e., determined by self-interest) control mechanism of the capitalist economy. Arrow (1970, 139) explains it as society's answer to the progress impeding fact that not all risks, "which it would be desirable to shift[11] can be shifted through the market."[12] Of course, this interruption of the "natural" capitalist control mechanism has to be filled by some appropriate "made" control mechanism such as the establishment and administration of corporate boards, securities and exchange commissions, financial regulators, bankruptcy courts, the judiciary in general etc. Certainly, the real world economy, understood as a system of surrogate forward markets, works well only if the institutions of these "made" control mechanisms are both, well designed and well manned (referring to Popper[13]). It is against this background, we interpret the activities of *entrepreneurs*, the leading managers of private firms, as surrogate futures traders of goods and services. They are bridging present and future by an ongoing decisions process that is coordinated by means of a complex system of market and non-market organizations (firms). For convenience, we distinguish between four kinds of decisions: *spot market decisions* (purchase of inputs), *non-market decisions* (transformation of inputs into outputs); *future market decisions* (adapting output to expected sales, influencing sales by marketing etc.), and *financial*

[10] One of the "three fundamental laws of nature," see Hume (1739/40, Book III, Sect. VI).
[11] For reasons of economic progress.
[12] "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)
[13] Who said: "You cannot construct foolproof institutions…. [and] institutions are like fortresses. They must be well designed *and* properly manned." (Popper 1957, 66)

decisions, i.e., decisions of how to financially bridge present and future actions[14] (i.e., the choice of their leverage rate or their demands for services of financial markets or firms that are led, of course, also by entrepreneurs).

The problem of *bounded rationality*, brought up by Simon in 1957, took a bit longer to seep through into the microeconomics of institutional analysis.[15] 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 may 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)

Summing up: In the world of NIE, markets for time-state claims are generally open ended or "incomplete." As a result, market promoting institutions like money and money loans and non-market institutions like firms, limited liability or bankruptcy courts matter. Non-markets are helpful not only for reasons of transaction costs but also because not all risks which it would be desirable to shift can be shifted through the market. Given that, "…the economic problem of society is mainly one of rapid adaptation to change in the particular circumstances of time and place" (Hayek 1945, 524), the search for a governance structure of non-market institutions, managed by qualified entrepreneurs, may improve the adaptability of economy to

[14] Note, the combination of spot and forward purchases, both payable today, may be separated [in the general equilibrium case] into three individual transactions when a money loan is inserted, viz., into a spot transaction payable today, a money loan transaction, and a forward transaction payable tomorrow (cf. Richter 1989, 142).
[15] See above reference to Williamson (1975, 4).

an uncertain and changing environment, and, in this sense, contribute to its "*adaptive efficiency*."[16] But what about its "*allocative efficiency*" (or Pareto efficiency)? The answer is that Pareto-efficiency is a foreign word in NIE. It is the result of an (as-if) optimization-under-constraints exercise that is based on assumptions, which contradict the premises of the NIE.[17] The existence of transaction costs, incomplete foresight and bounded rationality has institutional consequences that cannot be answered by neoclassical optimizing procedures. Thus, under conditions of the NIE, the advantages of "more market" – an increase in risk shifting by means of financial innovations - is not necessarily welfare improving. To the contrary, it may invite moral hazard (opportunistic actions of the counterparty)[18] on a scale that by far outweighs the advantages of "more market." The financial crisis of 2008, which followed a rising wave of asset securitization and risk shifting, illustrates this point.

3. Entrepreneurs as Surrogate Forward Traders of Goods and Services

As we have seen, the costs of using the market, the problems of incomplete foresight and bounded rationality do not only help to understand why there are firms but also why there are only a small number of forward markets for goods and services. In this case it appears preferable to restrict ourselves to a study of the institutional economics of a pure spot market economy based on Hicks's (1946, 140) temporary equilibrium analysis. By assumption, prices or sales of future goods or services are only *expected*, not *known*. In addition, because of Knightian uncertainty, not all kinds of goods and services available in the future are known today. The firm, under the leadership of its "entrepreneur-coordinator," is now not only the institutional answer to the costs of using the market but also to the problems of incomplete foresight and, to our understanding, of bounded rationality. The Knightian entrepreneur replaces Coase's entrepreneur-coordinator.

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[16] North (1990, 80).
[17] Furubotn and Richter (2005, 71); on the other hand, "efficiency" is, *in a general sense*, an important purpose of economics - as is "general health" in medicine. Given the assumptions of NIE – positive transaction costs, incomplete foresight and bounded rationality – one may speak of "NIE-efficiency".
[18] Arrow (1970, 142 f.) expressly points to this problem.

At this point, it suggests itself to consider some of Knight's views, among them his idea to compare the evolution of hierarchical organizations under uncertainty, with the evolution of biological organisms:

> 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)

It is tempting to digress into the history of economic thought like the ideas of David Hume (1739/40) concerning the origin of justice and property, of Carl Menger's (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 history of economic thought.[19] All we wish to do is to point out that not only the proper design of institutions, and their being manned by capable people, is society's best answer to the imponderables of life, but also entrepreneurial leadership (authority) as described by Knight. Numerous organizational questions arise that are absolutely foreign to the neoclassical theory of the firm such as the problem of the *separation of ownership and control* as in case of a joint stock company (corporation). As all "made" disruptions of the "natural" control mechanism of capitalism, it needs a "made" replacement in the form of some kind of "hand" control mechanism – such as the establishment of a board of directors that has the task, i.a., to supervise entrepreneurial decision making. Consequently, NIE scholars started to view firms in an entirely different direction, viz., as "*legal fictions, which serve as a nexus for a set of contracting relationships among individuals.*"[20] As a consequence, the core theme of the theory of the firm switched from its neoclassical engineering perspective to the institutional (legal) perspective of *corporate governance*. The problem involved is that, with uncertainty present, "…the

[19] Knight (1921, 271) did not view entrepreneurs as one personality but as a "special social class, the business men, [who] direct economic activity;" … On this point and related issues see also Drucker (1946/1962, 26 – 36, 235n). The history of the figure of "the entrepreneur" in economics is reviewed in Ricketts (2002, Chapt. 3).
[20] Jensen and Meckling (1976, 310).

primary problem or function is deciding what to do and how to do it" - not the execution of activities (Knight 1921, 268). Consequently, professional managers, in their capacity as Knightian entrepreneurs (or "surrogate forward traders of goods and services"), need sufficient leeway. In actual fact, corporate law gives executives - for a limited period of time - full ownership rights in the corporation. [21] To avoid managerial exploitation of the firm's resources, management is subjected under control of the corporation's board of directors - not of its shareholders (the owners of the firm). The latter may be understood as a legal answer to Olson's (1965) logic of collective action.[22]

By their nature, economists emphasize the need of keeping an eye on the *economic incentives* slumbering in legal or administrative control mechanisms such as corporate governance (e.g. Vives 2000). Thus, corporate governance is treated from various angles, such as aspects of the forces of internal or external *competition*,[23] the role of *strategic maneuvers* between insiders (like management, supervisory board) against outsiders (stockholders, taxpayers),[24] the influence of too narrow *personal closeness* between members of the supervising and executive board.[25]

In short, talking about entrepreneurs as surrogate forward traders for goods and services implies to view the core problem of the firm not simply as how to adjust production to given input and commodity prices but, rather, as how to plan and decide under conditions of uncertainty.

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[21] Schumpeter (1942, 141) complains in this context about 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 employee run capitalism by the fallout of the financial crisis of 2008 or such events like the Enron scandal (see the *Economist*, Feb. 9, 2002, 9).

[22] Because without an (costly) organization of stockholders, "any effort the typical stockholder makes to oust the management will probably be unsuccessful;" (Olson 1965, 55). The law seems not to be able to compensate for that phenomenon. At least according to Baums and Scott (2005) "…it cannot be said that either US or German law is designed to give primacy to shareholder interests."

[23] Holmström and Tirole in their survey article (1989) distinguishing between *internal disciplining* by design of executive compensation plans, and *external disciplining* by managerial labor markets, product market discipline (competing away slack), capital market discipline (besetting takeovers).

[24] Hellwig (2000, 98).

[25] Bebchuk et al. (2002, 2003, 2004) who stress that the problems of executive compensation arrangements are rooted in the boards' failure to bargain at arm length with executives.

4. On the Role of Financial Markets and Financial Intermediaries

The counterparty of entrepreneurs, understood as surrogate forward traders, is the consumer (somehow). In their desire to keep their hands free for their uncertain future, consumers purchase rarely goods and services for future delivery. They either "save" by buying financial assets like claims for money, with the latter being offered by financial firms, or else purchase on credit later. Anyway, a number of financial institutional constructs dispense consumers 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[26]) 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.

Among 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) that requires the input of resources (transaction costs) to determine the credibility of a debtor's promise to serve and repay his debt – or to legally enforce a delinquent debtor's liabilities. The "invention" of the transferability of money claims (without need to inform the debtor) was a big cultural step forward; in effect it allowed risk shifting through the market. However, tradable money claims are *assets* whose market value equals the present value of their expected future payments or resale value. Thus, trust in their future tradability matters. Another important institutional invention are contingent claims 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 in-

[26] "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.

dividuals to engage in risky activities, which they would not otherwise undertake." (Arrow 1970, 137). A typical NIE problem of money claims (financial assets), besides the above mentioned measurement problems, is *moral hazard* (or opportunism) as a consequence of changes in the incentive structure that occurs through risk shifting (e.g., by insurance purchase).

2.) *Financial markets:* Financial markets are social arrangements that facilitate repeated exchange of financial assets among a plurality of parties (as opposed to occasional exchange between individuals). Trust in their persistence - in the future tradability of their objects of trade - is vital for the existence of financial markets. Under conditions of the NIE, markets – assets markets in particular – are "incomplete" in the sense that not all risks can be shifted through the market. As a consequence, the chain of liabilities is disrupted by the norm of "limited liability," an interruption that has to be filled by some collectively agreed upon control mechanism. Given the large numbers of traders on financial markets, collective agreements on market control need to be organized and financed and thus become subject to Olson's (1965) logic of collective action. Anyway, it is implausible to see them as self-organizing social entities. As a consequence, rational actors who plan to buy or sell goods – especially financial (or other) assets - face the problem of choosing (organizing themselves) a specific *market organization* ("market order") on which they wish to trade their assets - like on a security exchange or an over the counter market. Basically, this is an institutional choice problem concerning the setting up, running, reorganization, funding, etc. of a *specific* public or private collective good "asset market organization"[27] that economizes on transaction costs, the effects of unforeseen events (Knightian uncertainty) and bounded rationality. Assumed is, of course, the existence of an elementary legal order,

[27] 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.

containing secure property rights, a well-functioning judiciary etc. As has been mentioned, the specific problem of asset markets is their collapse as a consequence of Akerlof's lemons principle.[28] At issue for traders is the choice between (1.) the establishment of a "made" organization "asset market" (a *collective good*) like a security exchange or other collectively organized supervisory measures, and (2.) to leave financial markets on their own and wait for the "spontaneous" evolution of self-regulation, like by the "spontaneous" evolution of innovative financial products such as Collateral Debt Obligations (CDOs), CDOs squared etc.,[29] "enhanced" by Credit Default Swaps (CDSs), and publicly rated (a *collective good*) by private rating agencies (who are financed by those rated). --- As we know now, after the 2008 crisis, the "spontaneous" answer # (2) contributed in every respect to moral hazard, i.a., among the originators of loans, who had much less incentive to care about the quality of the contracts they wrote because they thought the risks would be someone else's problem. Thus, there are good reasons for discarding the "spontaneous" solution and favor choice # (1.): The establishment of a "made" organization "asset market" by collectively setting up some form of market supervision.

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 and the effects of uncertainty adequately by organizing a non-market mode of coordinating the demand and supply of claims for money. 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.

[28]Bad products drive out good products (*Akerlof* 1970).
[29] Collateral debt obligations (CDOs) consist of diversified portfolios of securitized bank loans, which the originators had sliced into different tranches that they not only sold to investor groups with different attitudes towards risk but also to themselves.

Financial firms buy money claims from (give money loans to) ultimate borrowers and sell money claims to (accept deposits from or sell bonds to) investors.[30] They are lead by *financial entrepreneurs* who are individuals, with the abilities of the figure of the Knightian entrepreneur, in their capacity as organizers of financial firms who are able to deal with the consequences of unforeseen events.[31] As any entrepreneur, financial entrepreneurs are also of the Schumpeterian type and to introduce *financial innovations* like (more recently) securitized bank loans, Collateralized Debt Obligations (CDO's) or Credit Default Swaps (CDS's). As any novelty, financial innovations are not necessarily beneficial. Thus, the introduction of unregulated CDO's and CDS's lead to a remarkable increase in opportunism (moral hazard) among their originators and traders,[32] which contributed to the extent of the 2008 crisis and resulted in the enormous complexity of their liability structure. [33]

In fact, the problem of the separation-of-ownership-and-control of banks is probably more critical than that of manufacturing firms – in particular under aspect of today's high leverage ratio of commercial banks.[34] Of all firms, salaried executives generally manage financial firms so that most equity is external (i.e., not owned by management). Given the considerable discretion of, in this case, financial entrepreneurs, the above-described problems of corporate governance become particularly serious. Not amazingly, in their draft report, the OECD Steering Group on Corporate Governance (Kirkpatrick 2009) comes to the conclusion

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[30] As Freixas and Rochet (2008, 15) say, they "…deal in financial contracts (loans and deposits), which cannot be easily resold, as opposed to financial securities (stocks and bonds), which are anonymous…and thus easily marketable."

[31] Example: The German house bank as described by Edwards and Fischer (1994, Ch. 7).

[32] G. Wagner, „Falsche Anreize", *Handelsblat. Legal Success*, 24, 09. 09, p. 16, handelsblatt.com

[33] 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." For illustration, he adds an 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 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."

[34] In Germany: 1872 ca. 45%, since 1960 about 5% and less (Welcker 1978, 67).

that the financial crisis of 2008 "can be to an important extent attributed to failures and weaknesses in corporate governance arrangements." That relates also to the problem of bonus payments.

5. Conclusions

(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, running capitalist firms, are much better equipped to successfully direct investments – also on long views. They promise to be the more successful surrogate forward traders than any politician or public servant could be - not least because of their efficiency oriented market incentives and the much greater adaptability of their private organizations (firms) to unforeseen events in comparison to government departments or other public organizations.

(2) Knightian entrepreneurs - the leading managers of production firms - *direct* the "real part" of the modern enterprise system under the *assistance* of the "financial part" of the economy, i.e., its financial firms and financial markets. The real part of the economy determines essentially the direction of its evolution; the financial side serves as an indispensable link of the capitalist feed-back system – as a more or less qualified "advocate of capital" (Hinds 1990, 20[35]).

(3) Firms (production and financial firms) are the major tools of entrepreneurs in their capacity as surrogate forward traders of goods and services. The organization of firms helps

[35] "In the absence of central planning, the financial system becomes the center piece of the allocation of resources," (Hinds. ibid.) which sounds somewhat quixotic after the show offered by financial firms and markets during the development of the 2008 crisis.

Knightian entrepreneurs not only to save on transaction costs but also to deal with the limitations of human rationality and the troubles of imperfect foresight.

(4) Financial markets are especially endangered by the consequences of the "lemons principle," i.e., market collapse as a consequence of adverse selection (exemplified by the collapse of the market for "toxic assets" during the financial crisis of 2008). Akerlof's (1970) model case of the collapse of the market for used cars is comparatively easy to avoid by credible guarantees from car dealers that hardly have adverse side effects. By contrast, credible guarantees from financial dealers, such as Credit Default Swaps, may cause the collapse of some markets (and thus systemic risks[36]) as illustrated by the fate of certain Collateral Debt Obligations (Hellwig 2008). The avoidance of the collapse of individual financial markets, and systemic risks, requires collective actions of individual traders and managements. Olson's logic of collective action applies.

(5) 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 that reduce entrepreneurs to profit-maximizing automatons and markets to self-adjusting organizations. Entrepreneurs play an important role for the "rapid adaptation to particular circumstances" (Hayek 1945, 524) of firms and collective actions to guarantee the continued existence of specific markets and their order - to avoid the collapse of markets or of the market mechanism due to the *lemons principle*, or of the break down of competitive pricing due to *monopolization*.

Thus, neither Keynes is right to argue for a replacement of certain market activities by government action (like planning of financial and real investments) nor are believers in self-

[36] "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 existing reputation equilibrium might keel over to its opposite: no-trade equilibrium as result of an extreme lemons effect. Note, reputation equilibria rely heavily on buyers' beliefs.

regulating markets[37] right to argue that the institutional framework of markets (their "organization") adapts itself fast enough to environmental changes to supersede any (private or public) collective intervention. We have to brace ourselves for an appropriate private or public regulation of financial markets.

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[37] Thus, Carl Menger**,** one of the prominent representatives of the theory of *organic institutional evolution*, argued rather cautiously „...some social phenomena are the results of a *common will* directed toward their establishment (agreement, positive legislation, etc.), while others are the unintended result of human efforts aimed at attaining essentially *individual* goals (the unintended results of these)." (Menger 1963, 133; emphases in the original)

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