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On Animal Spirits and the Lure of a Bonanza

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"On Animal Spirits and the Lure of a Bonanza."

By

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I. Introduction.

Investing always involves taking chances on the future. The future is inherently uncertain. Whereas risk phenomena are susceptable to rational analysis, meaningful ~~prob~~ probabilities can be assigned to specified events after which the logic of the calculus of probabilities takes over, no such straightforward rational analysis of uncertain phenomena is possible. Nevertheless investment does take place, investors weigh alternatives and typically make their decisions in an ordered, reasoned manner.

A simple model of investment in a capitalist economy ~~decisions~~ in the face of uncertainty ~~in a Capitalist economy~~ is put forth. ~~This model~~ The aim is to show how a sophisticated financial environment makes large and quick rewards for success in the face of uncertainty possible, rewards which could not be ~~realized in a~~ achieved in the same time in a less sophisticated financial environment. The argument, if valid, suggests that active policies to facilitate the growth of sophisticated financial institutions should be an important part of the developement plan of those countries that chose the capitalist road to developement. It will also be pointed out that there are dangers along this path; and that ~~the operating rules of~~ monetary and fiscal policy operations will need ~~many require~~ to adjust to ~~the ever evolving~~ phenomena associated with sophisticated financial systems.

Two types of investment, "innovative" and "follow on" are differentiated. Most investment that takes place is "follow on" investment. These two types of investment blend into each other, there is no sharp demarkation line. It will be shown that ~~early~~ EARLY "follow on" investments will participate in the capital gains that result from the exploitation of successful innovations. Nevertheless there are investments and managements which are seasoned and relatively safe. These investments can be readily financed. ~~and~~ There are also projects which truly represent jumps into the unknown. The conditions surrounding the initial financing and the follow on exploitation of the successes among these innovative projects is our concern.

~~In order~~ To obtain financing the unseasoned or innovative investment or management must hold out the lure of a bonanza. A bonanza is an investment which yields very large returns, so large that even at discount rates far in excess of conventional market rates the present value of the expected returns is very much greater than the initial investment. A prospector finding a rich gold field is one example, the Ford motor company between 1903 and 1917 is another. Bonanza's result in great fortunes, and the history of great fortunes are chronicles of great wealth achieved in a very short time from modest beginnings. However the bonanza's that suffice to lure innovative investments need not be as great as that which the makers of great fortunes exploited. Prospects of a capital value 100 times the initial investment in the span of a decade, rather than the returns achieved by a Ford or a Carnegie, are usually sufficient.

Innovation in a Socialist economy will not be our concern. In a Socialist economy the innovator is not motivated by the prospect of a large personal gain. In a Capitalist ~~soc~~ economy such motivation exists, and the lure of the prospective gains must be sufficient to compensate for the possible losses. For a capitalist economy to exhibit innovative investment there must be

1) a class of entrepreneurs that look for new ways of doing things. These entrepreneurs can be unlettered.

2) the entrepreneurs must be sufficiently intrigued by the gains that they envisage to take great chances

3) The successes among the innovative investors must be able to realize - or appropriate - ~~to capital~~ at least a large share of the capital values generated by their pathbreaking

Nothing will be said about how a sufficiently large class that looks for new ways is achieved. In a capitalist economy the fact that successful innovators reaped large fortunes no doubt serves to inculcate an innovative twist to many minds. What will be taken up is how capital gains result from success in the face of uncertainty and how a sophisticated financial system both ~~enables the capital gains to be~~ increases the capital gains that result from successful innovation and facilitates ~~its~~ their appropriation by the innovators..

II. The "Lure of the" Bonanza

"At the planning stage, for an innovative investment, a wide range of possible outcomes are taken to be plausible. What precisely is the meaning of plausible in the context of decision under uncertainty? It does not mean the assignment of numerical probabilities to each of a set, or each range, of alternatives. An outcome of a decision ~~is~~ plausible if a scenario, each step of which is reasonable, can be sketched leading from the initial position to the outcome. Thus plausible outcomes are the result of fictions, and a decision maker faced with uncertainty will sketch various ~~alternative~~ scenarios, with alternative mutually exclusive outcomes, depending upon how "nature" and other elements in the "plot" react. Every step in the various dramas will be reasonable, however the outcomes can ~~be differ~~ be markedly different. ~~Some among the possible outcomes will offer very large rewards: these are the Bonanza's.~~

Note that starting from a particular set of initial circumstances a particular outcome and its opposite may both be equally plausible: mutually exclusive event can be all plausible

The inputs to the business 'scenarios' are investments, both financial and in the form of the time and energy of the ~~[illegible]~~ entrepreneur. The ~~outcomes~~ outputs are the capital values of the various alternative outcomes. If we wish we can 'discount' these back to today, to get the present value of the outcome. These present values can be compared to the initial investment, and the capital gains or losses computed.

Following Schumpeter, one result of a successful innovation is a monopoly position. Thus the returns to a successful innovation consist not merely of the results of the physical productivity of the factors of production ~~brought~~ brought together into new combinations but also the value of the monopoly position attained. For this reason it is not useful to think of a production function as determining the optimal investment scale at an exogenously determined set of financing terms, It is better to characterize the input-output situation by means of a pay-off function which combines both marketing and production characteristics

As market demand curves are determinants of the payoffs. and as monopoly ~~positions are part of the pay off from investment~~ positions (i.e. negatively sloped demand curves confronting the enterprize) ~~are part of the~~ result from successful innovation, the pay-off function will show diminishing returns to investment; the pay off function will be concave to the investment axis.

At this point it is worth noting that the "innovation" that may lead to a large pay off may for example ~~[illegible]~~ lead to a protected or monopoly market position rather than a new product or a new way of doing things. Advertising, considered wasteful by critics of capitalism, can generate large returns by creating such market conditions. A capitalist economy needs rules of the game – or countervailing influences – that constrain ~~[illegible]~~ the generation of monopoly positions. The ~~most~~ most important countervailing influence may be freedom of entry. Just as creation of a monopoly position may motivate one "generation" of entrepreneurs, a succeeding generation may be motivated by the profit ~~opportunities~~ possibilities ~~inherent~~ ~~in taking~~ BROM taking ~~part~~ PART of a monopolist's market away. It may be true that the sweetest of monopoly profits is an easy life – but the monopolist who takes it easy may, in a capitalist society that encourages innovation, have a ~~short~~ SHORT half-life.

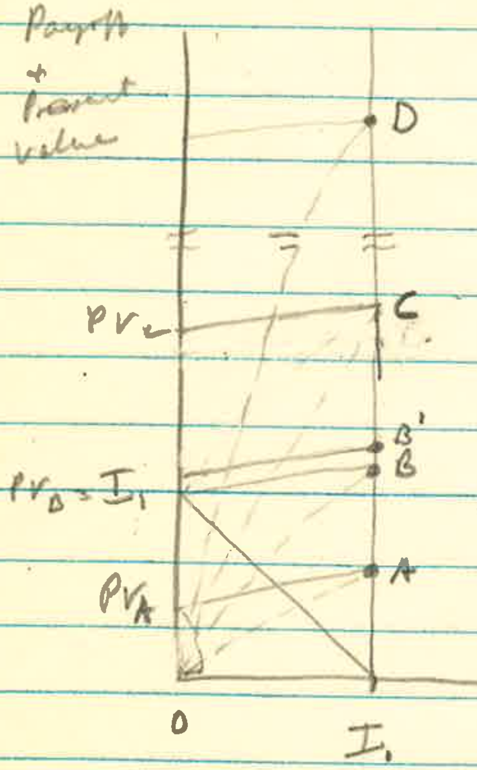
Embedded in the payoff function is a production function. If the product and factor markets are both perfectly competitive then the payoff function degenerates into a production function. In regulated monopolies, in well established cartels or quasi-cartels the characteristics of the payoff function may be dominated by the input-output relations of the production function. Only in the case of a purely technical innovation within a set of competetive markets will the ~~pay~~ payoff function of primary interest to us be ~~dominated by the~~ almost entirely determined by a production function

The "payoff" is total market value of output minus current purchased inputs. It is firstly the cash flow (gross profits before taxes) transformed by means of the tax system and accounting conventions into gross profits after taxes or net profits plus depreciation. In a one-period (or one act) model these gross profits naturally include the "recapture" of the initial investment; in a multiple period model this recapture is stretched out.

The investment process will be broken down into two parts. The first will be the quest for innovation, the second will be the exploitation of a successful innovation. The terms upon which both stages of the investment process will be financed depend upon the financial system: its flexibility, the aggressiveness of the participants and the extent of competition among the participants. The way in which the gains from a successful innovation are shared as well as the very size of the gains from innovations are determined by the depth, breadth and flexibility of the financial system.

The investment decision, and in particular the innovative investment decision, is a sequential process. The pay off functions are one-step or one-act at a time relation and each step involves some incremental investment. Whether second steps are taken and how such investment is financed depends upon the outcome of the first step. There are of course third and subsequent steps to the growth and evolution of an enterprise. Always whether or not these steps will be taken depend upon scenarios of possible outcomes

Diagram I
Payoff's
Alternative Scenarios
One Period



In diagram I payoffs from 4 of the many alternative scenarios starting with an investment of I, are illustrated. Scenario A leads to a loss, the present value of Payoff A is less than I. Scenario B results in breaking even, its present value is I_1. Scenarios C and D are profitable, scenario C leading to a present value equal to $2I_1$. Scenario D leads to a present value that is N times the investment; scenario D is a ~~ba~~ "bonanza".

Both scenarios C and ~~scenario~~ D lead to capital gains, the present value of the capital gain is the difference between the present value of the outcome and the ~~present value of the~~ initial investment. If PV_A is the present value of ~~the~~ some of the assets ~~which will~~ that are needed for the project, ~~which~~ and if this a believable minimum to the present value of the project, then PV_A may be borrowed to finance the project. Therefore

An innovative investment will have some ~~plausible~~ scenarios that lead to bonanza payoffs. Typically most of ~~these~~ plausible scenarios will lead to losses or small gains, outcomes such as A or B, although there are some examples of supposedly fool-proof ideas for which once stated all of the plausible plots led to large gains.

As an alternative to the investment opportunity with bonanza possibilities combined with loss possibilities, there are a large number of investments for which ~~will yield~~ all plausible scenarios lead to returns clustering around B-B', investments which do not hold out the prospect of spectacular gains but which ~~also~~ seemingly are not vulnerable to large scale losses.

If investors ~~are~~ on the whole risk averters then a 50+50 chance of $B+\alpha_1$ and $B-\alpha_2$ $(\alpha_1=\alpha_2)$ is in utility terms ~~worth less~~ less than B with certainty. Thus for ~~such an~~ investors $\alpha_1 > \alpha_2$ is a necessary condition for choosing the chance option rather than the sure thing: in our view α_1 being very much larger than the hazard, β, ~~for~~ some plausible outcomes is necessary

In contrast with this assumed case of known probabilities, the innovative investor cannot determine the expected value of his various scenarios; there is no way he can assign probabilities to the alternatives. The decision is ultimately intuitive, however the existence of ~~possibilities~~ of very large gains combined with techniques which can limit losses (limited liability companies) tends ~~the~~ to bias the result in favor of ~~the~~ accepting the innovative investment. The plausible large gains are the lure.

The bonanzas that lures the innovators are not just the initial favorable returns, given for example by outcome c and D in Diagram I. His scenario contains second and additional acts during which the prospects held out by the initial "success" of the innovations are exploited. In exploiting the possibilities opened up by the investment I_1, ~~outside the funds are bought can be bought~~ now initially successful innovation will have access to outside funds as well as the initial profits from operations. The terms upon which outside funds are available depend upon the financial system: in particular its competitiveness. Regardless of the terms offered by the financial system, the innovators, unless constrained by a need to quickly exploit the monopoly position, will not engage in outside financing unless the total returns from ~~additional~~ ~~investment exceeds the total cost of the~~ further investment, as given by a range of plausible scenarios exceeds, ~~often by~~ usually by a good deal, the cost of the financing. The capitalized value of the difference between these returns and ~~these~~ costs accrue to the innovator: his capital gains include this added increment as soon as the second

Thus the scenarios of success contain not only the payoffs from the initial investment but also the value to the initial (and later the early follow on) investors of the net gains from using borrowed and follower equity funds, and these gains accrue even before this financing is done.

~~The~~ Outside financing will become available at increasingly favorable terms as the scenario of success unfolds. Each improvement in the terms of financing ~~will~~ results in valuing the organization at lower rates of discount, ~~will mean~~ This ~~alone~~ results in further capital gains ~~both from~~ lowering the discount rate and from increasing the levering ratio.

Thus a favorable outcome to an innovation leads to ~~will result in~~ a number of acts which effectively result in large and ~~quick~~ capital gains ~~by the~~ to the innovators. ~~Great~~ Fortunes are not derived from savings out of conventionally measured incomes; great ~~fo~~ and modest fortunes are both the result of capital gains.

III Animal Spirits:

A optomistic and buoyant attitude towards accepting uncertainty has been characterized as high Animal Spirits. Individuals will differ, due to temperament, in their evaluation of the possible scenarios and in addition they will differ in the scenarios they accept as plausible. Inasmuch as the scenarios are personal, subjective differences in knowledge will lead to quite different plots. In particular, ~~the~~ knowledge of the financial system and an ability to ~~contemplate~~ imagine working with ~~[illegible]~~ financial men will determine whether particular plots are even contemplated, and if contemplated whether they are viewed with favor or disfavor. ~~If~~ Whether "borrowing" is viewed as an evil event, only resorted to under necessity, or as a way of exploiting favorable opportunities will determine how some plausible scenarios are evaluated.

In an advanced capitalist country such as the United States, the high Animal Spirits of the business and investing class in the 1920's and the 1960's may be contrasted with the gloom and pessimism of the 1930's. Even during the 1960's there was a period of euphoria in late 1965 and early 1966 which ~~was~~ contrasts with the relative gloom of late 1966 - early 1967. These intertemporal cycles in business mens views are well known, and the ~~[illegible]~~ event separating the two 'periods' is typically financial in character, Just as the ~~great depression~~ stock market and banking system collapse of 1929-33 or the ~~[illegible]~~ 'crunch' of September 1966. The cyclical variation in Animal Spirits is one element that makes the control of the American Economy difficult. This is particularly so as much of what is called household expenditures also responds to the same factors that cause cyclical variations in business views. Thus following the crunch of 1966, the household savings ratios were high.

However our interest, in this paper, is not in the cyclical variation in the propensity to invest in the United States and similar economies, our interest is in the variation, among ~~it~~ economies ~~they~~, in the willingness to ~~views toward~~ ~~taking~~ leaping into the unknown, to innovate. ~~that characterizes innovation among economies~~. In particular, is it necessary to posit that a stagnant non-innovative economy is characterized by "risk-averters" and a rapidly growing innovative economy is characterized by "risk seekers"?

From what has come earlier, it clearly is not necessary to ~~have~~ postulate such personality differences. ~~The~~ Differences can lie in the ability to concoct scenarios and ~~in differences~~ in the institutions that facilitate the exploitation of ~~[illegible]~~ "proven" innovations. The ability to concoct scenarios depends upon some facility with abstract thinking, the content of the scenario ~~will~~ depends upon how much of the world the author knows. Both of these characteristics might be ~~due to~~ related to literacy and general education; although in the post-literate age of ~~electronic int~~ "television" the illiterate should be more imaginative and knowledgeable.

~~Thus a bias in the scenarios toward low return may exist because of the fundamental educational and institutional ctt characteristics of an economy.~~

Thus a bias toward low return scenarios may exist because of the limited educational background and horizons within an economy. There is an economic pay-off in flexibility and willingness and ability to contemplate change from general education

In addition if, as suggested earlier, the exploitation of an innovation in a favorable financial environment leads to capital gains for the innovator, then the payoff from the success scenarios will depend upon the nature of the financial system. A financial system that facilitates the exploitation of investment opportunities opened by innovation, ~~but~~ and that protects the position of the innovator will ~~[illegible]~~ make the returns from the success scenarios larger, sooner and more ~~[illegible]~~ secure. They will be larger because of the leverage on "other peoples money" that is involved, they will be sooner because they take the form of immediate capital gains, — rather than savings out of the income — and they will be more secure, because they will enable an innovator to hedge the future ~~the future~~ possibly unfavorable ~~outcomes~~ second and subsequent acts by selling out a part of the position: he can realize part of his capital gains and diversify his portfolio ~~[illegible]~~ immediately after ~~[illegible]~~. Some initial successes

The potential gain from innovation is dependent upon the financial systems responsiveness to initial success, if a quick exploitation of ~~an~~ innovators monopoly position is necessary. ~~Many~~ Many innovations ~~are~~ not due to patentable ideas or processes, so that once success is achieved and becomes known a flood of followers may erode the monopoly position. However the initial innovator ~~will recognize success and sooner and~~ will almost always have a lead time in exploiting ~~financial markets~~ potential markets: ~~thus~~ if in fact he can finance this exploitation. Thus the gains from a success scenario once again depend upon the nature and responsiveness of the financial system.

Thus it is not necessary to posit differences in personality: ~~it is not necessary~~ to posit that stagnant countries are populated by risk averters whereas ~~dynamic countries are populated~~ i.e. the population of dynamic countries is leavened by the presence of risk-takers. The populations can be the same; the perceived plausible payoffs and the institutional relations may differ. Thus high Animal Spirits can be generated by an ~~histo~~ institutional organization that facilitate high payoffs from successful innovation

The animal spirits of entrepreneurs may also be unleashed if the ~~payoff~~ maximum loss from failure is reduced. The truncating of possible loss scenarios may ~~be~~ lead to the acceptance of a risky situation that would have been rejected if the maximum potential loss from a plausible scenario were larger. ~~Some of~~ Among the institutional ~~arrangement~~ factors which facilitate the taking of chances by setting a low maximum to possible losses is a full employment-growth situation for the economy. The reasoning ~~being~~ that even if all goes badly, I can always return ~~to my pres~~ a job as good as my present job underlies many a chance taking on new jobs or new firms.

~~Thus it is not alone the financial institutions which are conducive to high animal spirits but~~

Thus high animal spirits, an ex-post observed willingness to invest, can be generated in an economy ~~but~~ by both holding out lures of bonanzas and by truncating possible losses. The size of potential bonanzas, as well as their security once achieved depends upon the financial system. Overall economic progress set a minimum to the expected life standard for a household. A high, growing and secure minimum may also induce risk taking by setting a maximum to possible losses in real income. This last influence may make innovative activity more prevalent in rich economies - it may be a factor making for a greater divergence between rich and poor lands.

IV. Financial Institutions: their Relevance for Economic Developement.

What is the relevance of the above for a developing economy? A developing economy is often viewed as ~~a~~ imitative, borrowing techniques, processes and even experts from other economies. However any developing economy is a set of unique markets, it possesses unique production potentialities and its history and traditions ~~general~~ have resulted in unique behavioral ~~relations~~ attributes. Developement involves the exploitation of the opportunities offered by this unique ~~combination of assets and opportunities~~ markets and production possibilities. No mere imitation will do. Developement is inherently innovative. Thus if developement is to take place within a capitalist framework, a ~~system~~ of lures and ~~pay~~ pay offs for the innovator must exist. It is not enough for ~~there~~ there to be scenarios with large pay off's. It is also necessary that the various stages in such scenarios can be financed and the means ~~by which~~ must exist by which a large payoff can be made to the successful innovator.

In ~~the~~ production function economics there is no room for a House of Rothschild, a Morgan, Barings Brothers or Kuhn Loeb. In the tales of Capitalism they loom large. ~~Are~~ were these institutions and ~~their~~ the fortunes they generated ~~just~~ relevant significant for the development of their countries.

The role of the merchant banker is to facilitate the raising of capital for enterprises both here + abroad.