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THE AFFORDABLE LOSS PRINCIPLE

Causal models focus on maximizing returns by selecting optimal strategies. Effectuation begins with a determination of how much one is willing to lose and leveraging limited means in creative ways to generate new ends as well as new means. The causal entrepreneur calculates up front how much money he or she needs to start the venture and invests time, effort, and energy in raising that money. The effectuator, in contrast, tries to estimate the downside and examines what he or she is willing to lose in order to start the venture. He or she then uses the very process of building the venture to bring other stakeholders on board and creatively leverages slack resources available in the world. At each stage of the process he or she chooses options that create more options in the future.

Estimating what is affordable does not depend on the venture but varies from entrepreneur to entrepreneur and even across his or her life stages and circumstances. By allowing estimates of affordable loss to drive their decisions about which venture to start, effectuators do not need to depend on any predictions. To calculate expected returns, we have to estimate future sales and possible risks that constitute our cost of capital, and then raise enough money to make the venture happen. To calculate affordable loss, all we need to know is our current financial condition and a psychological estimate of our commitment in terms of the worst-case scenario. This is not only a nonpredictive mode of estimation, it also is a way to nullify the role of uncertainty in early-stage funding decisions.

The "plunge" decision provides a good illustration of the affordable loss principle. Imagine an entrepreneur who is considering quitting his well-paying job to start his own firm. Causal logic suggests he should do some market research and competitive analysis to estimate the potential risk and return to the venture and then decide whether he wants to take the plunge. His musings might go as follows: "I need $2 million to start this venture, and I hope to break even in two years. I can put in $250,000, so I need to raise $1.75 million before I can take the plunge—even without taking into account my opportunity costs in terms of two years' salary." For the causal entrepreneur, taking the plunge is a matter of specifying parameters as accurately as possible to make a good decision.

Effectual logic, in contrast, suggests the entrepreneur set an upper bound on what he or she is willing to lose in order to start the venture. So an effectuator might think to oneself, "I have always wanted to be my own boss. I think I can afford to take two years and invest my

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$250,000 to try this out. In the worst-case scenario, I will lose the money and will be back in the job market in two years. But if I don't do it now (I am almost 40 and my kids are off to college soon), when will I ever do it?" For the effectual entrepreneur, taking the plunge involves *designing* a venture using what he or she has, and what others may eventually bring to the table. This may or may not include additional funding of $1.75 million.

Notice that in the causal case, all the information is about things that are for the moment outside the decision-maker's control and are almost entirely dependent on the effect to be created. In the effectual case, the information is about the entrepreneur's own life, current commitments and aspirations, involving trade-offs between subjective risks and values, over which some control can be asserted. This can work, of course, only if the entrepreneur is willing to adapt the shape and thrust of the venture (i.e., the effect) to the extent and intensity of his or her commitment rather than to some "opportunity" determined exogenously by a "market." In other words, the entrepreneur's effects have to adapt to his or her means, and not vice versa.

The affordable loss principle also dictates that effectuators find creative ways to bring their idea to market within the means they can assemble. This usually necessitates taking on outside stakeholders, who themselves may or may not use the affordable loss principle in committing resources to the budding venture. The affordable loss principle is evident in the cognitive processes used by expert entrepreneurs. In general, they either prefer the cheapest alternative or came up with creative ways of doing things at no cost to themselves. Furthermore, they explicitly see themselves as financially risk-averse and cost-conscious. To quote just one example:

> I'll start with cheap—make sure I cover my cost and don't have to take huge risks. One thing I'm sure about [based on] my experience: Never take any risk if you can help it. It is just the opposite of what most people think about entrepreneurs.

Entrepreneurs generally accept some amount of risk as inevitable in any and all situations. This allows them to enter the game without overthinking the odds and makes them appear risk-loving. Yet they are unwilling to wager on expectations of high returns or on their own ability to predict and sidestep downside potential. This means they play the game very conservatively, and hence appear risk-averse. There is independent evidence for this. See Miner and Raju (2004), published in the *Journal of Applied Psychology* for a meta-analysis of 14 studies on the subject[1]. Perhaps the most spectacular evidence for the curious combination of

[1] J.B. Miner and N.S. Raju, "When science divests itself of its conservative stance: the case of risk propensity differences between entrepreneurs and managers," *Journal of Applied Psychology,* 2004, **89**(1): 14–21. Also, in an earlier study comparing how entrepreneurs and bankers perceive and manage risk, I found that entrepreneurs sought out options with lower predicted variance and lower predicted returns than bankers who picked projects with high predicted returns believing that they could control the downside through a variety of analytical and predictive strategies (Sarasvathy, Simon, and Lave, 1998, published in the *Journal of Economic Behavior and Organization*). Thereafter entrepreneurs came up with more ways of increasing returns at any given level of risk than bankers who merely accepted predictions of potential return.

acceptance of the downside in tandem with the refusal to wager on expected return comes from Tom Fatjo's autobiography.

Fatjo was an accountant in Houston when a meeting in his subdivision challenged him to take up the garbage collection problem the community was facing. In 1970, he borrowed $7,000 for his first truck. Every day, Fatjo woke up at 4 a.m. to collect garbage for two hours before changing into a suit to go to work in his accounting office. This went on for more than a year before he let go of the security blanket of a white-collar profession to found the waste management giant Browning Ferris. Of course, when he made the decision to take the entrepreneurial plunge, he did not know he would end up building a billion-dollar enterprise. Here is how he describes his moment of decision:

> Within a week I was almost frantic. My food wouldn't seem to digest, and I had a big knot in my chest. When I was doing one thing, I thought of two others which had to be done that same day.
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> The pressure just kept building. Even though it was cold, my body was damp from continuous perspiration. Since so much of what I was doing in the accounting firm had to be done by the end of the tax year and involved important decisions with key clients, I needed to spend time thinking through problems and consulting with them as they made decisions. I was caught in a triangle of pressing demands, and I felt my throat constricting as if there were wires around my neck.
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> That night I was exhausted, but I couldn't sleep. As I stared at the ceiling, I fantasized all our trucks breaking down at the same time. I was trying to push each of them myself in order to get them going. My heart began beating faster in the darkness and my body was chilled. The horrible thought that we might fail almost paralyzed me.
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> I wanted to quit and run away. I was scared to death, very lonely, sick of the whole deal. As hard as I tried to think about my life and what was important to me, my mind was just a confused mass of muddled images… I remembered committing myself to make it in the garbage business—"Whatever it takes!" I lay back on my pillow and felt a deep sigh within myself. "Good Lord, so this is what it takes," I thought, then rolled over and got some restless sleep.[2]

We can of course explain this "choice" in terms of risk preference, or the escalation of commitment bias, or merely the blind groping of a chaotic emotional reaction to stress. Given that Fatjo did indeed leave the accounting firm and start the garbage firm, it seems to me that none of the above applies. Furthermore, he was not basing his decision on a calculation of expected return, nor did he have the goal clarity of a visionary. Fatjo was simply coming to terms

[2] Fatjo, T. *With No Fear of Failure* (Nashville, TN: W Publishing Group, 1981).

with the worst-case scenario and committing to the project nonetheless. His decision embodies the principle of affordable loss.

At first glance it is easy to confuse the affordable loss principle with min–max analysis or real options logic. Both real options and min–max are useful decision tools under uncertainty. Furthermore, as I will show in the ensuing paragraphs, the affordable loss principle is useful in both types of analyses. But the use of the affordable loss principle in effectuation differs from its use in real options and min–max in two ways: in the content of the information required to make the decision and in terms of the assumptions underlying the structure of the decision problem. In sum:

- Calculating affordable loss within an effectual logic does not require computing outcome and preference probabilities.
- Also, unlike a decision tree structure implicit in min–max or real options analyses, affordable loss logic can accommodate a generalized semilattice structure that includes overlapping decision alternatives.[3]

Let us examine the plunge decision using each of these three types of analyses in turn.

Classic decision tree

Figure 1a represents the plunge decision as a classic decision tree.[4] The entrepreneur is faced with the choice of staying in his current job with outcome *S* representing the net present value (NPV) of his steady stream of income from the job, or starting a new venture with *I* representing the level of investment required. There is a probability of success *p* to achieve the best consequence of a return *R* on investment *I* and a probability of $q = 1 - p$ for the worst outcome of venture failure. There are three assumptions embedded in this decision tree that are also carried over to the real options and min–max analyses:

1. The possible outcomes *S*, Return of *R*, Investment of *I,* and so on. are enumerable and predictable.
2. The outcomes are independent of each other—that is, they are nonoverlapping.
3. The list, probabilities, and magnitudes of outcomes are not endogenous to the decision-maker's initiatives.

[3] Both tree and semilattice are structures of mathematical sets used to model how collections of small sets make up a larger complex system. A collection of sets forms a semilattice if and only if, when two overlapping sets belong to the collection, the set of elements common to both also belongs to the collection. A collection of sets forms a tree if and only if, for any two sets that belong to the collection, either one is wholly contained in the other, or else they are wholly disjoint. A tree, therefore, is a semilattice that does not contain overlapping sets.

[4] In **Figure 1a–d**, I have used the graphical notation of R.D. Behn and J.W. Vaupel, *Quick Analysis for Busy Decision Makers* (New York: Basic Books, 1982) to illustrate the four types of analyses of the plunge decision.

In the effectual case, none of these assumptions is necessary. Instead, the outcomes to effectuation need not be enumerable, may be overlapping, and are for the most part endogenous to the effectual process. But even in the classic decision tree analysis where these assumptions hold, the affordable loss principle is useful. The decision tree recommends taking the plunge only if the expected value of return to the new venture $pR - qI > S$. Affordable loss can add to the analysis by suggesting a maximum limit on I, thereby limiting the loss in the worst-case scenario.

Real options logic

Recent research in management has focused on real options logic as an alternative to the classic decision tree above[5] (McGrath, 1997). Real options logic involves breaking up an investment into stages so that the entrepreneur also has the option to abandon the project at the end of each stage. This is represented in Figure 1b as a series of investments I_i. In other words, in the real options case, the decision depends mostly on R and S, with I being reduced in relevance. Affordable loss continues to be useful in this case in determining limits on what I should be.

Real options logic has come under considerable criticism precisely because it ignores the possibilities offered by a more "effectual" (in my lingo, not in those of the critics quoted below) approach:

> A prominent characteristic of strategically interesting settings is that, having made an initial investment, firms can actively engage in follow-on activities that can influence outcomes and identify new possible actions and goals. While in established real options theory there is recognition that the option to make or forego follow-on investments is a source of value and that prior stage-setting investments may be a precondition for the exercise of these options, there is an assumption that the nature and quality of options are independent of the firms' interim activities. The implicit imagery is of a firm "buying a ticket" to engage in some pre-specified opportunity set, thus ignoring the potential for the firm to mold and enhance initiatives, learn about new opportunities, and discover new possible initiatives not conceived of at the time of the initial investment [6]

In contrast, an effectual use of the affordable loss principle is drenched with the possibility that entrepreneurs can mold, shape, transform and reconstitute current realities, including their own limited resources, into new opportunities.

[5] McGrath, R.G. 1997. A real options logic for initiating technology positioning investments. *Academy of Management Review*, 22(4): 974–96.

[6] Adner, R. and Levinthal, D.A. 2004.What is not a real option: considering boundaries for the application of real options to business strategy. *The Academy of Management Review*, 29(1): 74–85.

Min–max logic

In the two types of analyses so far, we have assumed that the choice is between staying in a job and starting a new venture. But once the entrepreneur has decided to take the plunge, he or she may still have to select among multiple ventures. Here a min–max logic is relevant. Even in this case, however, affordable loss is a useful principle. As shown in Figure 1*c*, the min–max decision depends only on *R,* because *S* has been removed from consideration and *I* has been selected through the affordable loss principle. But it still requires reliable predictions about future returns, whereas in the effectual case such predictions are unnecessary. Note that my argument does not eliminate or reduce the relevance of the motivating power of upside potential, only the necessity of calculating accurate predictions of it. Instead the entrepreneur's overall belief that success is likely to bring substantial, even if unspecified, gains (financial and otherwise), provides a sufficient condition for taking effectual action.

Effectuation—When decision is not a tree[7]

In all three cases above, we have not considered the opportunity costs of *not* starting a new venture. The opportunity cost of starting a venture is very clear—it is equal to *S* or some function of *f(S)*. But the opportunity cost of not starting a venture—that is, the cost of staying in the current job—has been taken to be zero in all three causal analyses of the plunge decision. Effectuation, in contrast, explicitly takes into account the fact that there are opportunity costs *f(R)* (as **Figure 1d** illustrates) to not starting the venture. Given that effectual outcomes are uncertain in a Knightian sense, these opportunity costs may be arbitrarily high. Also, in the effectual case, investment in the new venture does not depend on the venture. It is instead a function of the entrepreneur's current income and wealth, represented as a function of *S* in **Figure 1d.** In other words, effectuation argues that the plunge decision cannot be drawn as a tree; it is better modeled as an overlapping semilattice.

Affordable loss can be used to reduce risk in all four settings by focusing on controlling downside scenarios and finding ways to reach the market with a minimum expenditure of such resources as time, effort, and money. In an effectual setting, it makes uncertainty irrelevant to the entrepreneur who creatively finds ways to get to market through existing slack in the world and investments from a variety of stakeholders. Expert entrepreneurs have mastered the affordable loss principle and are able to translate it into the zero-resources-to-market principle. Furthermore, instead of combining the affordable loss principle with computations of expected return to determine which particular new venture to start, as do analyses using causal trees, effectuation combines affordable loss with self-selected stakeholders and their ability to mold and construct new opportunities as primary criteria for choosing among new ventures.

Distinguishing Characteristic:
Imagining possible new ends using a given set of means

[7] The inspiration for this section derives from C. Alexander, "The City Is not a Tree." In J. Thackara (ed.), *Design After Modernism: Beyond the Object* (London: Thames and Hudson, 1988), pp. 67–84.

Using affordable loss forces, effectuators seek stakeholders within their immediate vicinity, whether within their geographic or sociocultural vicinity, social network, or area of professional expertise. Furthermore, by choosing not to tie themselves to any theorized or preconceived "market" or strategic universe for their idea, effectuators open themselves to surprises about which markets they will eventually end up building their business in or even which new markets they will create.

Figure 1. Modeling the plunge decision of the entrepreneur.