

Post-Modern Finance: Alice's Evidence

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Abstract

I. “Oh, I’ve had such a curious dream!”¹

“Wake up, Alice dear!” said her sister. “Why, what a long sleep you’ve had!”

On July 4, 1862, Alice (of *Alice’s Adventures in Wonderland*) had the curious dream which has had such a profound impact on literature. On November 10, 1619, René Descartes also had a curious dream, and his has had a profound impact on science. [Davis and Hersh, 1986] While according to her sister, Alice had had a long sleep, it was only for a few hours. Descartes woke up from his sleep as well, but science has continued to slumber, continuing to dream Descartes’ dream for nearly four hundred years.

The essence of his famous dream was a unified method of scientific inquiry. Its principles were later summarized by Descartes in his *Discourse on the Method of Rightly Conducting the Reason and Seeking Truth in the Field of Science*.

The first rule was never to accept anything as true unless I recognized it to be certainly and evidently such: that is, carefully to avoid all precipitation and prejudgement, and to include nothing in my conclusions unless it presented itself so clearly and distinctly to my mind that there was no reason or occasion to doubt it. The second was to divide each of the difficulties which I encountered into as many parts as possible, and as might be required for an easier solution. The third was to think in an orderly fashion when concerned with the search for truth, beginning with the things which were simplest and easiest to understand, and gradually and by degrees reaching toward more complex knowledge, even treating, as though ordered, materials which were not necessarily so. (Descartes, 1960, page 15)

At first blush, this all seems unexceptionable; however, the beliefs underlying the method cannot be taken for granted. Perhaps the most striking attribute of Descartes' method is its reliance on what might be termed a "mechanical" metaphor. Just as the performance of a machine is a simple sum of the functions of its individual subassemblies, nothing is either gained or lost from dividing something (a problem, the universe) into pieces or assembling something from pieces. This is explicit in his second rule that problems might be divided into parts, and the

¹ All section titles and opening quotations are from Chapter 12 “Alice’s Evidence” of *Alice’s Adventures in Wonderland* by Lewis Carroll, reprinted in Martin Gardner’s *More Annotated Alice* [1990].

solution to the whole problem can be assembled from the solution of each of its component sub-problems. The mechanical metaphor is implicit in his third rule that the solution to a complex problem can be achieved by beginning with a simpler (hypothetical) problem and proceeding through a series of increasingly more complex problems until reaching a solution, and it is also implicit in his first rule in which he feels free to divide the universe into a subject (himself) and an object (everything else).

Underlying Descartes' method are other beliefs less explicit than those associated with the mechanical metaphor. One is the ontological belief that there is something "out there" to know. The universe works according to laws which exist independently of time and space. Such laws govern not only the physical world (the *cosmos*) but the social world (the *polis*) as well. Another is the epistemological belief that with the application of this method, we can know the laws of the universe. While he did not cast his method in a form which we recognize as our own "scientific method", he clearly believed in the efficacy of an appropriate combination of observation and reason.

For the last four hundred years, science, both natural and social, has maintained that through the application of Descartes' method and only through the application of his method (albeit in a more refined form), is it possible to gain explanation, understanding, and truth and the ability to predict, control, and solve problems. If we were seeking a definitive statement of what the word "modern" means, Decartes method would be a strong candidate, for it gave birth to the Enlightenment² which ushered in the modern world.³

Along with other sciences, the aptly named "modern finance theory" adheres to Descartes' principles. The mechanical metaphor is strikingly evident in the capital structure problem. First, we believe that we can separate the capital structure decision from other

² "In contradistinction to the Greek concept of nature which did not sharply distinguish mind or subjectivity and the world of objects, the Enlightenment concept refers to nature as essentially pure matter, structured according to laws and capable of being known through a mathematically formulated universal science." [Held, 1980, page 152]

³ *Alice's Adventures in Wonderland* was Lewis Carroll's fantasy, and "modernity" has been referred to as Decartes' fantasy. [Bennington, 1988]

corporate finance decisions, especially the investment decision. Second, we believe that we can solve the capital structure problem by stripping it to its bare essentials [Modigliani and Miller, 1958] and then adding complications in small increments (countless references too numerous to cite). Third, we believe that our research has no effect on the capital structure decisions we observe firms make.

Finance also shares Descartes' ontological and epistemological beliefs. While finance theories are often accompanied by stories describing their "economic rationale", their acceptance or rejection is formally dependent upon the logic of their mathematical derivations and statistical tests. While individual cases may suggest avenues of inquiry, only aggregate data can justify a theory. While individual cases are full of confusing detail, this confusion is a consequence of our inability to distinguish the individual contributions of a number of general principles and not that the cases themselves are fundamentally unique. Our theories are independent of time and space, and the longer and broader a series of data we can acquire to test them, the better the test.

The price that social inquiry has paid for the mantle of science is a methodological blindness to the historical character of society and a renunciation of direct access to practice. From the standpoint of strictly nomological science, history is reduced to a source of data for the formulation and testing of general (timeless) social laws and to a field of application for causal explanations using such laws. [McCarthy, 1978, page 129]

Using Descartes' method and its descendants, astonishing results have been produced in the natural sciences. The social sciences, including finance, have not been so successful. While the achievements of finance are lauded on ceremonial occasions, many are considered achievements only because they are applied in practice. [Frankfurter and McGoun, 1996] This is dubious evidence of their value. Those few achievements which are indisputable are meager justification for the effort employed. We have failed to make appreciable progress on the most important problems such as capital structure in spite of having committed massive intellectual

resources to the task. While this should hardly cause us to abandon it, it should at least cause us to question the “modern” method of inquiry.

II. “Sentence first--verdict afterwards.”

“It doesn’t prove anything of the sort!” said Alice.
“Why, you don’t even know what they’re about!”

The “modern” method of inquiry makes at least two serious presumptions that are particularly relevant to subject of this paper--that it is possible to state probationary laws (hypotheses) and to test them. Few in finance would challenge these presumptions; after all, what could be more cut-and-dried than making a statement and determining whether it is true or false. While there may be extremely difficult practical issues involved, in principle it all seems quite simple. We definitely cannot, however, presume our ability to ever do this.

Consider first what it means to formulate a hypothesis as a probationary law. We now take it for granted that there are laws “out there” in the natural world independent of time and space, although this was not so obvious to our ancestors. Thus in the natural sciences, we see no need to temporally and spatially circumscribe our hypotheses, knowing that whatever we may find true of this time and this place is very likely to be true of all times and all places. This is not quite accurate, for we are well-indoctrinated into the matter of *ceteris paribus*. We freely admit that our hypotheses are strictly true only of all times and all places when and where conditions exist identical to those under which we formulated and tested the original hypotheses. That this is not an especially severe constraint results from our quite reasonable expectation that there will indeed be many other times and places when and where sufficiently similar conditions will exist. We have justifiably become accustomed to broad applicability of the results of work in the natural sciences.

For example, when Ernest Rutherford conducted his experiments on radiation in his laboratory at Manchester University [Wilson, 1983], he expected that they could not only be replicated in laboratories in continental Europe but that his measurements would be in at least some ways true of radiation everywhere in the universe. He was not concerned that he was

measuring the properties of a unique sample of radium; otherwise, the work would hardly have been worth doing. While we would never think to question his expectation that the radiation he was observing was a general phenomenon, this was a hard-won presumption. That the same forces have and will always shape the heavens and the earth alike was at one time a radical notion.

Finance sets about investigating markets as if they were radioactive elements. The very act of formulating a hypothesis (a probationary law) implies a belief in the existence of laws. As in Wonderland, the sentence (that here we have a law) precedes the verdict (that there are indeed such laws). This is not to say that finance does not consider how effects may vary by time and place. It is quite common to divide a data set into several time periods and measure an effect for each period and to replicate a test and measure an effect in different markets. But consider that a necessary assumption underlying the concept of an “effect” is that something can always be presumed to affect or have an impact on something else regardless of whether or not that effect has ever been observed or has ever even occurred in the past.

For example, we presume a taxation effect on capital structure; that is, that there is some sort of mathematical function linking tax policy as a dependent variable to capital structure as an independent variable. Of course, this may be an extraordinarily complicated function. We may manage to discover what we believe are constants in a function for certain times and places; however, we find that these constants become variables as we try to fit our function to more times and places. Nonetheless we believe that ultimately there is some function linking tax policy to capital structure in which something is constant. While we may never know this ultimate function, we can come closer and closer to it. Before our inquiries have even begun, we have pronounced the Cartesian sentence that there is some law out there covering tax policy and capital structure.

Ironically, there is no “scientific” basis for this presumption. It is a “modern” belief” in finance, which unlike the natural sciences, does not even have the inductive support of past successes. As our research is limited by the need for sufficiently large samples to perform statistical tests, we rarely if ever try to fit our functions to fewer and fewer, rather than to more and more, times and places. We do not know that the same phenomenon does not occur in

both directions; that is, that what we thought were constants for one sample do not always disappear when we make any change in the sample. If it were true that there are no constants, and we have no proof that it is not, we must accept the verdict that there are no laws in the modern sense of the word covering tax policy and capital structure.

In the natural sciences, we can often know what is required in order to learn more -- a more powerful magnetic field, a more sensitive spectroscopic instrument, a more specific catalytic enzyme, etc. But we do not know what we need in order to learn more in finance, so we must be satisfied with all we can ever hope to get, which is more data and more statistical tests. A strong impetus to the publication of an empirical paper in a prestigious finance journal is its use of a virgin data set or a virgin statistical test, as novelty is a quite powerful intellectual aphrodisiac. Now if there are laws out there to be discovered, new data might indeed reveal something; however, this is a rather random process as we can only rarely design our own controlled experiments and must be content with whichever ones markets happen to throw up at us.

We have, however, more control over the use of statistical testing through which we can hopefully learn more from the data we already have. In finance, statistical tests take the place of magnetic fields, spectroscopic instruments, and catalytic enzymes. But there are problems. First, having pronounced the sentence before reaching a verdict, we are inclined to structure our testing accordingly. The most ubiquitous test in finance, the event study, is clearly biased towards finding whatever it is in the data that we want to find. [Frankfurter and McGoun, 1993]

Second, how closely the data fit the assumptions on which a statistical test is based has some effect on the ability of the test to detect subtle effects in the data. Unfortunately, as Milton Friedman consigned assumptions to the methodological dustbin around the time of the birth of modern finance [Friedman, 1953], they don't receive any attention. Therefore, as Alice so perceptively pointed out, when it comes to statistics in finance we really don't even know what they're about; that is, we have little clue as to what the plethora of numbers we compute really mean. For example, our statistics are hopelessly muddled by interactions within the data. Statistical testing assumes independence, yet every interaction between tax policy and capital

structure occurs under some influence of all prior interactions. It is impossible to use such interdependent data to differentiate between a law and a cultural phenomenon.

Modern finance has had disturbingly few successes solving its most important problems. Its mechanical method of stripping a problem to its perceived essentials, solving it theoretically, and hoping the solution survives when the problem is dressed in all its real-world complications again has not worked very well. Statistics have not been up to the task of seeing through these complications to pronounce judgment one way or another on the presumptive underlying theory, and we ought to have a strong suspicion not only that there has never been nor will there ever be a definitive statistical test, but also that there has never been nor will there ever be a definitive series, however long, of statistical tests.

III. “Nothing whatever,” said Alice.

Some of the jury wrote it down “important,” and some “unimportant.” Alice could see this, as she was near enough to look over their slates; “but it doesn’t matter a bit,” she thought to herself.

In order to get at what postmodernism in finance might be, consider the quintessential elements of modernism and modern finance introduced in section I: Descartes’ mechanical metaphor, ontological belief that there are laws “out there” to know, and epistemological belief that there is a universal “scientific method” with which to know them. As we have seen in section II, this Cartesian philosophy is inappropriate and ineffective in finance, even when judged by its own standards. Yet while modern finance has failed to achieve its ends (laws), there is nothing else which can, for the ends are as much a part of modernism as are the methods for achieving them. Postmodernism is not just a new way of doing things, but a new way of doing *new* things; there is no way other than the old way for doing the *old* things. This makes postmodernism especially difficult to accept, since it does not work according to what we are accustomed to think of as “work”.

In postmodernism, an organic metaphor is more appropriate than a mechanical one; there are no laws “out there” to know (and there is not even an “out there”); and there is

certainly no universal method for knowing anything (and “knowing” itself is problematic). The organic metaphor has become almost as trendy as postmodernism itself [Rothschild, 1990], and there is no point here in dragging it out too far and exploring all of its implications. The key feature of the organic metaphor for this discussion is that in contrast to the mechanical metaphor, things cannot be taken apart without much if not all of what they were getting lost in the process. The whole is much more than the sum of its parts. In finance, it is common to strip the economy from the culture, the market from the economy, the firm from the market, finance functions from the firm, capital structure decisions from finance functions and one capital structure decision from all other capital structure decisions and assume that this naked capital structure decision about which we theorize is unchanged by the process of tearing it out of its historical and institutional context. It is not.

The ontological consequences of this organic metaphor are first, there are no laws “out there”. There can be no laws governing phenomena, since a phenomenon can not be separated from its historical and institutional context to create a class of phenomena to which a law could apply. Second, there is no “out there” (the object) as such, since it cannot be separated from “in here” (the subject); in other words, the observed cannot be separated from the observer.

The epistemological consequences of this organic metaphor are similar. Just as it is impossible to separate the phenomenon from its historical and institutional context and the observed from the observer, it is impossible to separate the method from that to which the method is to be applied. Furthermore, it is impossible to separate the purpose of the method from the method itself. What we are trying to know, how we are trying to know it, and what it means to know it are inextricably intertwined. There are neither universal means of nor universal ends to knowledge.

But is there really “nothing whatever,” as Alice claimed? Does postmodernism imply that “*it* doesn’t matter a bit,” whatever *it* is? In the modernist epistemology, the Hypothetico-Deductive model of explanation [Nagel, 1961 and Hempel, 1965], all explanations take the form of a general law (for all *x*, if *x* has the property *P*, then *x* has the property *Q*) and an initial condition (*a* has the property *P*) from which one can draw a logical conclusion (*a* has the property *Q*). One might say that in answer to the question “Why does *a* have the property

Q?”, it is the general law and the initial conditions (and only the general law and the initial conditions) that matter. If there are no laws, what is it that matters when we ask “Why?”

What matters is whatever might appear in a story or narrative of why a has the property Q. Postmodernism is a retreat from the totalizing *metanarratives* of modernism back to simple narratives. [Lyotard, 1984] A story or narrative has a cast of characters, all of whom have feelings, emotions, motives, pasts etc. The characters live in institutional and cultural environments having traditions, customs, rules, histories, etc. There is no limit to the number of stories which can *explain* why a has the property Q⁴, and there is certainly no way to choose the *best* story. *It* may be written down as “important” in some stories and “unimportant” in others, but *it* is really both and neither. No story qualifies as *knowledge*, but all contribute to *understanding*. Over time, new stories are created, and old stories are modified or eliminated. Although we can not say quite how it “works”, these stories “work” for us at whatever it is we need to do.⁵

In the modernist ontology of finance, commodities exist and financial instruments (various forms of money) exist in order to facilitate the exchange of commodities. [McGoun, 1997] Investment is different from, but ultimately grounded in, consumption. In the postmodernist ontology of finance, it is not possible to separate financial instruments from commodities and investment from consumption. It is all commodities and consumption. [McGoun, 1996] Investing money is as pleasurable as spending it; in fact, investing it no different than spending it. “. . . the market has become a substitute for itself and fully as much a commodity as any of the items it includes within itself.” [Jameson, 1991, page x] There is no line between marketing and finance. And of course, finance research is a pleasurable commodity as well. Whether we call something “consumption” or “investment” doesn’t matter a bit.

⁴ Of course, everyone knows that a finite number of economists can have an infinite number of opinions.

⁵ In many ways, the epistemology of postmodernism is a return to that of Renaissance humanism. [Toulmin, 1990] According to Lyotard [1984, page xi] “It is obvious that one of the features that characterizes more ‘scientific’ periods of history, and most notably capitalism itself, is the relative retreat of the claims of

IV. “Why there they are!” said the King.

If any one of them can explain it,” said Alice, (who had grown so large in the last few minutes that she wasn’t a bit afraid of interrupting him,) “I’ll give him sixpence. I don’t believe there’s an atom of meaning in it.

The following description of the epistemology of modernity in general is disturbingly applicable to research in finance in particular:

The hysteria of causality corresponds to the simultaneous effacement of origins, the delirium of trying to explain everything and to reference everything. The mass expands and becomes a fantastic encumbrance, a growing mass of interpretations which has little relation to any objective. [Gane, 1991, page 177]

In its modernist attempt to show that everything is a consequence of rational wealth maximization, finance has created a fantastically massive theoretical and empirical literature that most practitioners and more than a few candid academics would regard as having become detached from its origins and having little relation to any objective.

When Alice said that there was not an atom of meaning in it, the “it” was not finance. But in the postmodern world, it could have been, because the postmodern world is devoid of meaning. “Meaning requires depth, a hidden dimension, an unseen yet stable and fixed substratum or foundation.” [Kellner, 1989, page 118] In postmodern finance, there is no rational wealth maximization nor any similar fundamental behavioral assumption upon which to build an explanatory structure. “Everything is visible, explicit, transparent, ob-scene, and unstable.” [Kellner, 1989, page 118] Alice is in no danger of losing her sixpence.

To some, the postmodern world may make no sense at all (although it may make perfect sense to certain finance practitioners who revel in market volatility.)

. . . the most startling fact about postmodernism: its total acceptance of the ephemerality, fragmentation, discontinuity, and the chaotic that formed the one half of Baudelaire’s conception of modernity. But postmodernism responds to the fact that in a very particular

narrative storytelling knowledge in the face of those of the abstract, denotative, or logical and cognitive procedures generally associated with science or positivism.”

way. It does not try to transcend it, counteract it, or even to define the 'eternal and immutable' elements that might lie within it. Postmodernism swims, even wallows, in the fragmentary and the chaotic currents of change as if that is all there is. [Harvey, 1989]

The seemingly nihilistic message of postmodernism is precisely why there is a very strong emotional component to a belief in modernism--the "Cartesian Anxiety".

It is the quest for some fixed point, some stable rock upon which we can secure our lives against the vicissitudes that constantly threaten us. The specter that hovers in the background of this journey is not just radical epistemological skepticism but the dread of madness and chaos where nothing is fixed, where we can neither touch bottom nor support ourselves on the surface. . . .But at the heart of the [modernist's] vision and what makes sense of his or her passion, is the belief that there are or must be some fixed, permanent constraints to which we can appeal and which are secure and stable. [Bernstein, 1983, page 18]

Postmodern finance is indeed a methodological free-for-all that is bound to be disturbing to those who think that finance can emulate physics. But if, like Alice, we have enough courage to follow the rabbit underground, we may find a richer understanding to replace our meager knowledge.

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