



INVESTING BY DESIGN

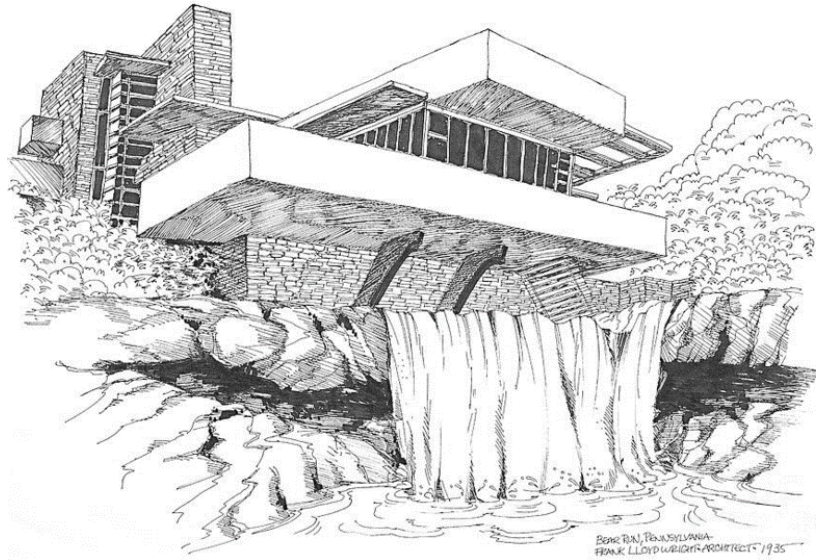
PARALLELS BETWEEN ARCHITECTURE AND INVESTING

THINK SIMPLE . . . REDUCE THE WHOLE OF ITS PARTS INTO THE SIMPLEST TERMS,
GETTING BACK TO FIRST PRINCIPLES.

– Frank Lloyd Wright

YOU MUST KNOW THE BIG IDEAS IN THE BIG DISCIPLINES, AND USE THEM ROUTINELY —
ALL OF THEM, NOT JUST A FEW.

– Charlie Munger



Source: Robert Birkenes

As a child, I dreamed of becoming an architect. I had a drafting table by middle school and took drafting classes through high school. After high school graduation, I was one of 30 or so students selected for Penn State’s architecture program and later interned for an architectural firm based out of a Frank Lloyd Wright home in New Jersey while home for the summer.

What appealed to me about architecture was the combination of creativity and problem solving it required. Luckily for me, this combination of skills has applications outside of architecture as well. Successful investing requires creativity in problem solving and independent thinking. It requires a child-like curiosity. And it requires the humility to know when you are wrong, or as Frank Lloyd Wright once said, “Early in life I had to choose between honest arrogance and hypocritical humility. I chose the former and have seen no reason to change.”

My home office today is littered with *Legos Architecture* sets. A *Cut & Assemble* model of Frank Lloyd Wright’s Robie House rests on the conference table in my office. But the majority of my time is now spent constructing different types of models.

Much has been said about Charlie Munger's approach to *Worldly Wisdom*. Munger suggests that leveraging different models from different disciplines can improve the decision-making process. A broad array of experiences allows us to think more broadly. And thinking more broadly allows us to become better investors. This piece aims to make some of those connections presented by author Matthew Frederick in [101 Things I Learned in Architecture School](#), published by The MIT Press in 2007.

“The most effective, most creative problem solvers engage in a process of meta-thinking, or thinking about the thinking. Meta-thinking means that you are aware of how you are thinking as you are doing the thinking. Meta-thinkers engage in continual internal dialogue of testing, stretching, criticizing, and redirecting their thought processes.”¹



Source: 101 Things I Learned in Architecture School

The best investors are aware of how they are thinking. Martin Fischer, a German-born American physician and author advised, “A good teacher must know the rules; a good pupil, the exceptions.”

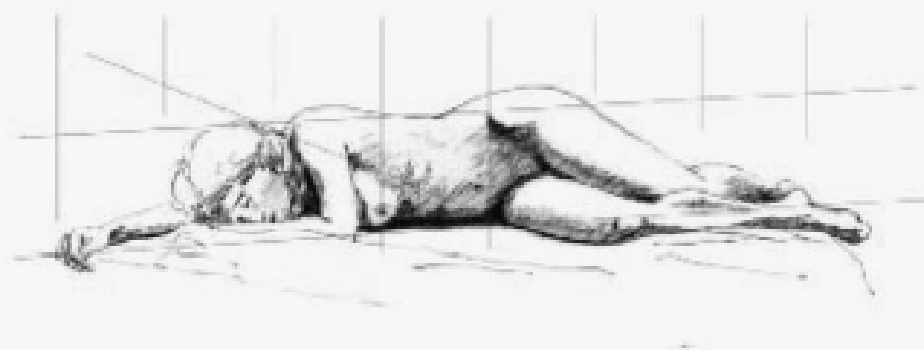
Tim Ferriss describes Meta as learning to mimic the world's fastest learners. Focus on the extremes, “because if we understand what the extremes are, the middle will take care of itself.” In other words, the extremes inform the meaning, but not vice versa. Fredrick describes three levels of knowing – simplicity, complexity, and informed simplicity. As Frank Lloyd Wright proposed, “Less is only more where more is no good.”

Every idea must be subjected to probing and testing. Asking the right questions is critical. I keep four questions on my whiteboard at all times: What do I really know? What don't I know? What do I really need to know that I don't know? How do I learn that? Successful investing requires an insatiable desire to learn combined with the patience to do nothing. A disciplined research process will uncover plenty of good businesses, but more research will not make those businesses available for sale at attractive prices.

¹ Frederick, M. (2007). *101 Things I Learned in Architecture School*. The MIT Press.

It is hard to sit on your hands and remain rational but successful investing requires more waiting than doing. New ideas can appear more appealing than existing ones, but rarely offer a large enough benefit to justify new investment given limited capital.

“Draw hierarchically. When drawing in any medium, never work at a “100% level of detail” from one end of the sheet toward the other, blank end of the sheet. Instead, start with the most general elements of the composition and work gradually toward the more specific aspects of it. Begin by laying out the entire sheet. Use light guide lines, geometric alignments, visual gut-checks, and other methods to cross-check the proportions, relationships, and placement of the elements you are drawing. When you achieve some success at this schematic level, move to the next level of detail. If you find yourself focusing on details in a specific area of the drawing, indulge briefly, then move to other areas of the drawing. Evaluate your success continually, making local adjustments in the context of the entire sheet.”²



Source: 101 Things I Learned in Architecture School

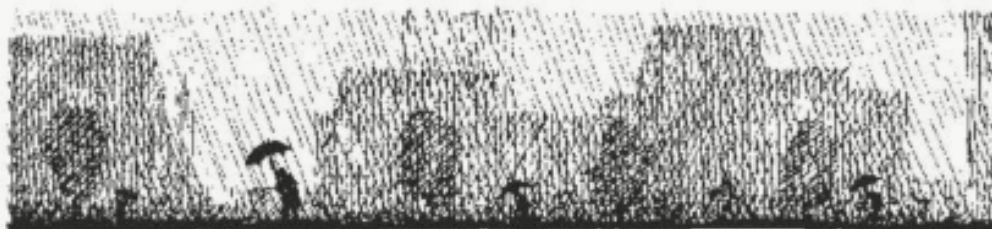
When researching potential investments, start with the basics. It is all too easy to get lost in the details. Investors must remain focused on the big picture, understand the key components of the thesis and flush out only those factors that have the greatest impact on value. The first bullet on our investment checklist reads as follows, “Explain how the business makes money to a fifth grader.”

Before interpreting any piece of new information, review the initial thesis. Doing this, before the release of new information, helps to dampen white noise, which can obscure clear thought. We keep an updated summary of every position in the portfolio, which includes an overview of the thesis, risks, and milestones to monitor which might suggest deviation from our original thinking. **All new information is assessed relative to the thesis.**

² Frederick, M. (2007). *101 Things I Learned in Architecture School*. The MIT Press.

When an investment problem is so overwhelming, don't wait for 100% clarity before beginning your analysis. Start with the most general elements and work gradually toward the specifics. In his classic, *Zen and the Art of Motorcycle Maintenance*,³ Robert Pirsig recalls how a student in his creative-writing class struggled to write a 500-word essay on the United States. He tells her to start with the upper left-hand brick of the opera house. Puzzled, she goes away, sits in a coffee shop, starts writing about the brick, and couldn't stop writing. Within every large problem are many smaller problems struggling to get out. **Use Pirsig's brick to break down big problems into smaller chunks.**

“Being process-oriented, not product-driven, is the most important and difficult skill for a designer to develop. Being process-oriented means:1) seeking to understand a design problem before chasing after solutions;2) not force-fitting solutions to old problems onto new problems;3) removing yourself from prideful investment in your projects and being slow to fall in love with your ideas;4) making design investigations and decisions holistically (that address several aspects of a design problem at once) rather than sequentially (that finalize one aspect of a solution before investigating the next);5) making design decisions conditionally-that is, with the awareness that they may or may not work out as you continue toward a final solution;6) knowing when to change and when to stick with previous decisions;7) accepting as normal the anxiety that comes from not knowing what to do;8) working fluidly between concept-scale and detail-scale to see how each informs the other;9) always asking "What if?" regardless of how satisfied you are with your solution.”⁴



Source: 101 Things I Learned in Architecture School

Good investors, above all else, demonstrate good process. A good process will inevitably produce bad results from time to time; but over the long term, a sound investment process will pay the greatest dividends. One may occasionally see terrific results derived from a poor process, but this is not reason to celebrate. In the absence of process, one-time-wonders are unlikely to be repeated.

The management of return is impossible – outcomes are extremely unpredictable in investing and timing is uncertain at best. Consequently, it is better to focus on what one can control – process. Judging past decisions based solely on short-term results leads to unintended consequences. Focusing on process allows one to concentrate on long-term objectives and the management of risk, free from the short-term distractions beyond our control.

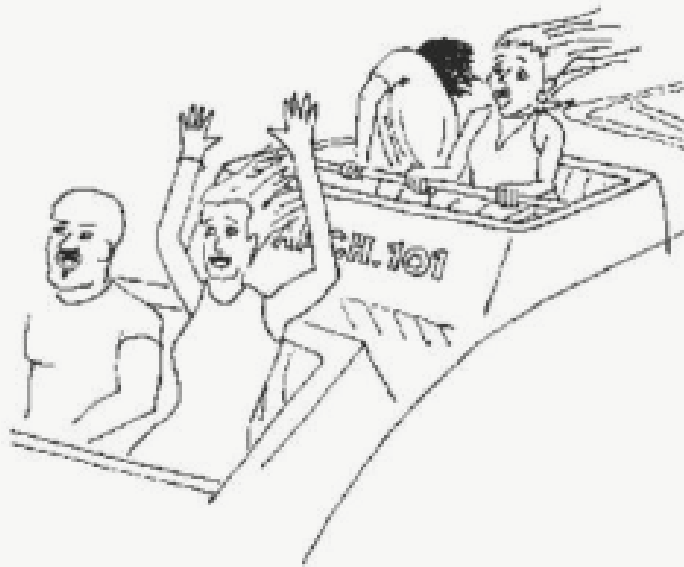
³ Pirsig, R. M. (1974). *Zen and the Art of Motorcycle Maintenance*. William Morrow.

⁴ Frederick, M. (2007). *101 Things I Learned in Architecture School*. The MIT Press.

Being process-oriented means examining all possibilities. It means estimating ranges of outcomes rather than seeking absolute truths. No process will provide all the answers – many things that are not quantifiable require judgment and interpretation. Even a sound process is imperfect and will result in mistakes; skilled analysis of historical data is simply not enough. This is where process and professional judgment are necessary.

A sound process encourages investors to remain cognizant of inherent biases, and better understand where we may stumble. Process is deliberate practice, continually refined to improve decision-making and inspire self-observation.

“Properly gaining control of the design process tends to feel like one is losing control of the design process. The design process is often structured and methodical, but it is not a mechanical process. Mechanical processes have predetermined outcomes, but the creative process strives to produce something that has not existed before. Being genuinely creative means that you don't know where you are going, even though you are responsible for shepherding the process. This requires something different from conventional, authoritarian control; a loose velvet tether is more likely to help. Engage the design process with patience. Don't imitate popular portrayals of the creative process as depending on a singular, pell-mell rush of inspiration. Don't try to solve a complex building in one sitting or one week. Accept uncertainty. Recognize as normal the feeling of lostness that attends to much of the process. Don't seek to relieve your anxiety by marrying yourself prematurely to a design solution; design divorces are never pretty.”⁵



Source: 101 Things I Learned in Architecture School

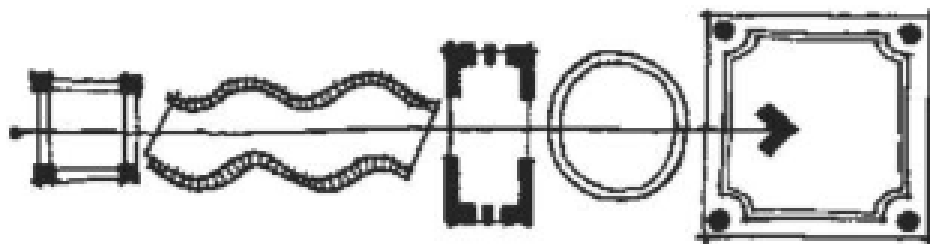
⁵ Frederick, M. (2007). *101 Things I Learned in Architecture School*. The MIT Press.

Don't try to solve a complex problem in one sitting. If we rush towards the problem too quickly, we risk never getting to the answer at all. Conan Doyle's Sherlock Holmes favors a "three-pipe solution" - rather than jumping right in, he sits with his pipe and gives his mind time to reflect and strengthen neural connections in a resting state. I don't have a pipe, but a couple hours with a good cigar by a mountain creek does wonders for creative thinking and problem solving. Guy Claxton, author of *Hare Brain, Tortoise Mind*, proposes there are two kinds of thinking: one dependent on reason and logic, and one that's less purposeful, more playful and leisurely. We need the tortoise mind as much as we need the hare brain:

"The hare brain loves clarity; it wants everything to be expressed in a very simple, straightforward clear way. Tortoise mind doesn't expect clarity; it doesn't know where the illumination is going to come from. The language of the unconscious is images. That also means a lot of times when you're being very creative you can feel very confused. You don't know where you are or where you're going. And you can tolerate that and continue to defer the decision. Because you're taking your time in tortoise mind, if you have a question, you're much more likely to get interested in the question."⁶

Investing is more art than science. It requires something different from conventional, authoritarian control. Successful investing requires creativity. Creativity requires novelty - opening your mind to uncertainty, the nonlinear and the improbable. Being genuinely creative means being comfortable not knowing where you are going, while remaining confident you are on the right path.

*"Our experience of an architectural space is strongly influenced by how we arrive in it. A tall, bright space will feel taller and brighter if counterpointed by a low-ceilinged, softly lit space. A monumental or sacred space will feel more significant when placed at the end of a sequence of lesser spaces. A room with south-facing windows will be more strongly experienced after one passes through a series of north-facing spaces."*⁷



Source: *101 Things I Learned in Architecture School*

Anchoring refers to our tendency to rely on one piece of information when assessing another. That first piece of information is the anchor and sets the tone for what follows. Good designers understand that how we experience architectural space can be manipulated by its surroundings. "Space is the breath of art," as Frank Lloyd Wright once said. Wright used space as a way of controlling the experience within his buildings. Narrow and confining spaces often led to expansive openings. Ceilings were often lowered to a more human scale to create a feeling of comfort within his homes. Those who have walked through a Wright home firsthand can appreciate this feeling of "confine and release" which demonstrates Wright's masterful application of contrasts.

⁶ Claxton, G. (1999). *Hare Brain, Tortoise Mind: How Intelligence Increases When You Think Less*. Harper Perennial.

⁷ Frederick, M. (2007). *101 Things I Learned in Architecture School*. The MIT Press.



Source: [Curbed LA](#)

An investor's understanding of contrast is perhaps the greatest differentiator between average and superior performance. The failure to distinguish between relative bargains and absolute value can be detrimental to long-term returns. Dr. Robert Cialdini's classic book, *Influence*, offers additional perspective on perceptual contrast:

“There is a principle in human perception, the contrast principle, that affects the way we see the difference between two things that are presented one after another. Simply put, if the second item is fairly different from the first, we will tend to see it as more different than it actually is. So if we lift a light object first and then lift a heavy object, we will estimate the second object to be heavier than if we had lifted it without first trying the light one. The contrast principle is well established in the field of psychophysics and applies to all sorts of perceptions besides weight. If we are talking to a beautiful woman at a cocktail party and are then joined by an unattractive one, the second woman will strike us as less attractive than she actually is.

A nice demonstration of perceptual contrast is sometimes employed in psychophysics laboratories to introduce students to the principle firsthand. Each student takes a turn sitting in front of three pails of water—one cold, one at room temperature, and one hot. After placing one hand in the cold water and one in the hot water, the student is told to place both in the lukewarm water simultaneously. The look of amused bewilderment that immediately registers tells the story: Even though both hands are in the same bucket, the hand that has been in the cold water feels as if it is now in hot water, while the one that was in the hot water feels as if it is now in cold water. The point is that the same thing—in this instance, room-temperature water—can be made to seem very different, depending on the nature of the event that precedes it.”⁸

⁸ Cialdini, R. (1984). *Influence: The Psychology of Persuasion*. William Morrow & Co.

CONCLUDING THOUGHTS

The best investors rely on a vast set of experiences to shape their thinking, as value may emerge in many forms. A wider lens provides the generalist with a broader perspective to uncover opportunities, relative to a specialist operating only within narrow silos.

Successful investing requires knowledge of many disciplines, while remaining mindful of what cannot be known. A good investor must have an appreciation for history, sociology, mathematics, psychology, political science, and countless other schools of thought. Portfolios must conform to evolving regulations, withstand the ravages of inflation, and the threat of deflation. But protection from loss is not enough. An investor must do all of this while generating returns to satisfy the multifaceted needs of the client.

Models help the architect, as well as the investor, approach problems from a different perspective. Financial models may assist in our understanding and analysis, but the output is only as good as the underlying assumptions. Meticulously constructed, highly “precise” models are not as useful as sound logic, independent judgment or rational decision-making.

No investment is perfect. Investors are often hindered by the false assumption that a good investment requires perfect knowledge. No decision is perfect, nor can it be. Investors must learn how to make good decisions with less than perfect information. More information is not necessarily better information. Remember that some information will always remain unobtainable no matter how much research is performed. And even if an investor could know everything, profit is still not guaranteed. **The best investment an investor can make is in a sound process.**

Learning to balance so many variables takes time and requires dedication to succeed over the long term. But the journey is its own reward. Good investors are like good wine. They improve with age.

Even the most successful investors experience periods of underperformance. Mr. Market is a humbling mentor. Good investors understand that they are never as *bad* as they think they are when the stars refuse to align. The best investors know that they are never as *good* as they think they are, when they actually do! In other words, successful investing requires humility and the constant tutelage of one’s ego.

THERE IS PERHAPS NO OTHER PROFESSION THAT REQUIRES ONE TO INTEGRATE SUCH A BROAD RANGE OF KNOWLEDGE INTO SOMETHING SO SPECIFIC AND CONCRETE.

– Mathew Frederick

APPENDIX: IN THE CAUSE OF ARCHITECTURE

Source: [Frank Lloyd Wright](#)⁹

Simplicity and Repose are qualities that measure the true value of any work of art. But simplicity is not in itself an end nor is it a matter of the side of a barn but rather an entity with a graceful beauty in its integrity from which discord, and all that is meaningless, has been eliminated. A wildflower is truly simple. Therefore:

A building should contain as few rooms as will meet the conditions which give it rise and under which we live and which the architect should strive continually to simplify. Openings should occur as integral features of the structure and form, its natural ornamentation. An excessive love of detail has ruined more fine things from the standpoint of fine art or fine living than any one human shortcoming - it is hopelessly vulgar. Assimilate appliances and fixtures with all appurtenances into the design of the structure. Pictures should be decorative and incorporated in the general scheme as decoration. The most truly satisfactory apartments are those in which most or all the furniture is built in as a part of the original scheme considering the whole as an integral unit.

There should be as many kinds of houses as there are kinds of people. A man who has individuality has a right to its expression in his own environment.

A building should appear to grow easily from its site. The prairie has a beauty of its own, and we should recognize and accentuate this natural beauty, its quiet level. Hence, gently sloping roofs, low proportions, quiet skylines, suppressed heavysset chimneys and sheltering overhangs, low terraces and outreaching walls sequestering private gardens.

Colors require the same process to make them fit to live with that natural forms do. Go to the woods and fields for color schemes. Use the soft, warm, optimistic tones of earths and autumn leaves in preference to the pessimistic blues, purples, or cold greens and grays of the ribbon counter; they are more wholesome and better adapted in most cases to good decoration.

Bring out the nature of the materials, let their nature intimately into your scheme. Strip the wood of varnish and leave it alone. Develop the natural texture of the plastering and stain it. Reveal the nature of the wood, plaster, brick, or stone, they are all by nature friendly and beautiful.

A house that has character stands a good chance of growing more valuable as it grows older. A house in the prevailing mode, whatever that mode may be, is soon out of fashion, stale, and unprofitable.

Buildings like people must first be sincere, must be true, and then withal as gracious and lovable as may be. Above all, integrity. The machine is the normal tool of our civilization. I give it work that it can do well-nothing is of greater importance. To do this will be to formulate new industrial ideals, sadly needed.

⁹ *Wright, F. L. (1908). In the Cause of Architecture.*

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