1. Be the House


6. See chapter 5.


11. Nassim Nicholas Taleb, *Fooled By Randomness: The Hidden Role of Chance in Markets and in Life* (New York: Texere, 2001), 89–90. Taleb takes to task the well-known investor Jim Rogers for arguing against investing in options because of the frequency of loss. Says Taleb, “Mr. Jim Rogers seems to have gone very far in life for someone who does not distinguish between probability and expectation.”

12. See chapter 3.


2. Investing—Profession or Business?


2. Special thanks to Gary Mishuris for creating the initial list and prompting this line of inquiry.


3. The Babe Ruth Effect

1. I am not equating investing to gambling. In fact, long-term investing is really the opposite of gambling. In gambling, the more you play the greater the odds that you lose. In investing, the longer you invest, the greater the odds that you generate positive returns.


4. Taleb points out that well-known investor Jim Rogers avoids options because “90 percent of all options expire as losses.” Rogers is confusing frequency with how much money is made on average.


4. Sound Theory for the Attribute Weary

2. Professor Burton Malkiel: “It’s like giving up a belief in Santa Claus. Even though you know Santa Claus doesn’t exist, you kind of cling to that belief. I’m not saying that this is a scam. They generally believe they can do it. The evidence is, however, that they can’t.” 20/20, ABC News, November 27, 1992. See http://www.ifa.tv/Library/Support/Articles/Popular/NewsShowTranscript.htm.


5. Risky Business


6. See chapter 3.

### 6. Are You an Expert?


11. Ibid., 73–75.
7. The Hot Hand in Investing


5. Gould, “The Streak of Streaks.”

6. Here’s the math: DiMaggio had 7,671 plate appearances in 1,736 career games, or 4.42 plate appearances per game. He also had 2,214 career hits, for a 0.289 hit-per-plate appearance average. With a 0.289 hit-per-appearance average, DiMaggio would be expected to get a hit in 0.778 percent of his games. So the probability of getting a hit in fifty-six straight games is (0.778)56, or 1-in-1.279 million. See Rob Neyer, ESPN Baseball Archives, January 2002, http://espn.go.com/mlb/s/2002/0107/1307254.html. For DiMaggio’s career statistics, see Major League Baseball Historical Player Stats, http://mlb.mlb.com/NASApp/mlb/stats/historical/individual_stats_player.jsp?c_id=mlb&playerID=113376.

7. Amazingly, DiMaggio’s fifty-six-game streak wasn’t his longest. As a teenager in the Pacific Coast League, DiMaggio had a sixty-one-game streak. Of note, too, is immediately after DiMaggio’s fifty-six-game streak was broken, he went on to a sixteen-game hitting streak. So he got a hit in seventy-two of seventy-three games during the course of the 1941 season.


9. Baer and Gensler, *The Great Mutual Fund Trap*, 17. Baer and Gensler only consider the streak’s first ten years (even though the book came out after the eleventh year was complete). The difference between ten- and fifteen-year streaks is significant.

10. Miller also ran a second fund, Opportunity Trust, which has a different composition but beat the market for the six years ended 2005. The probability of beating the market twenty-one years consecutively (assuming a 44 percent fund outperformance rate) is roughly 1 in 31 million.

11. While the Value Trust streak is Miller’s longest, it is not his only streak. In the six years that ended with 1993, Miller’s Special Investment Trust beat the market every year.

8. *Time Is on My Side*


9. The Low Down on the Top Brass


4. When an interviewer recently asked Nokia CEO Jorma Ollila how he ensures that he knows all that he needs to know, he replied, “I think you just have to read a lot.” (See David Pringle and Raju Narisetti, “Nokia’s Chief Guides Company Amid Technology’s Rough Seas,” The Wall Street Journal, November 24, 2003.) Charlie Munger said it more bluntly, “In my whole life, I haven’t known any wise person who didn’t read all the time.”


9. Take Pfizer as an example. From 1998 to 2002, roughly 85 percent of Pfizer’s $192 billion in investments have been M&A related.


10. Good Morning, Let the Stress Begin

1. Sapolsky has spent over twenty summers in Africa studying baboons to understand the link between stress and social hierarchy in primates. Writes Sapolsky: “The baboons work maybe four hours a day to feed themselves; hardly anyone is likely to eat them. Basically, baboons have about a half dozen solid hours of sunlight a day to devote to being rotten to each other. Just like our society . . . We live well enough to have the luxury to get ourselves sick with purely social, psychological stress.” See Robert M. Sapolsky, *A Primate’s Memoir* (New York: Scribner, 2001).


5. This does not mean that stock prices reflect short-term expectations.


8. This is not to say that the stock market is short-term oriented. The research consistently shows that stocks reflect expectations for ten to twenty years of
value-creating cash flow. Increasingly, though, investors are making short-term bets on long-term outcomes.


10. John Spence, “Bogle Calls for a Federation of Long-Term Investors,” *Index Funds, Inc.*, http://www.indexfunds.com/articles/20020221_boglespeech_com_gen_JS.htm. By my calculations, the weighted average return in 2001 was −4.8 percent for the funds with 20 percent turnover or less, −7.8 percent for the funds with turnover over 100 percent, and −10.5 percent for the funds that had over 200 percent turnover. See http://www.indexfunds.com/articles/20020221_boglespeech_com_gen_JS.htm.


13. Yahoo provides the risk classifications (above average, average, and below average) based on the standard deviation of portfolio performance. I quantified the three levels, allocating a value of 1 for funds with below-average risk, 2 for average-risk funds, and 3 for above-average-risk funds, in order to attain an average risk level for each turnover range. The numbers are on an asset-weighted basis.

11. All I Really Need to Know I Learned at a Tupperware Party


3. See chapter 11.


12. All Systems Go


13. Guppy Love

1. More accurately, the choice depends on how much the males diverged in coloration. When the difference was small, the females chose the less orange of the two. But if the male colors were sufficiently different, the females disregarded the cues from the others and went with the brighter hue. See Lee Alan Dugatkin and Jean-Guy J. Godin, “How Females Choose Their Mates,” *Scientific American*, April 1998, 56–61.


5. Investors should also note that feedback operates at different levels. There can be feedback at the product level, the company level, and the market level. Sometimes these layers of feedback are correlated; at other times they’re not.


14. Beware of Behavioral Finance


8. This is not true for corporate executives. Individual decision-making errors can have a significant negative effect on shareholder value. One good example is the winner’s curse, where a company that wins an auction for an asset (winner) tends to overpay for the asset (curse).

9. See chapter 11.

15. Raising Keynes


5. Ibid., 159.


7. This section relies heavily on Arthur, “Inductive Reasoning.”


16. Right from the Gut


2. Ibid.


6. Ibid., 162–63.

9. Stewart, “How to Think with Your Gut.”

### 17. Weighted Watcher

6. The 2003 sale of the Sears credit card portfolio is a vivid illustration of this point. Some investors were short the stock, believing the disposition price for the business would be below management guidance, and many potential buyers for the asset confirmed this view. But the buyer ended up paying more than what the average bidder thought the business was worth.
7. One example is of a former CSFB analyst, who in 2000 spent two days as a temporary employee, filling orders for an Amazon.com distribution center. Some generous math suggests he filled no more than $15,000 worth of orders in a quarter when the company generated $1 billion in sales. Yet the experience generated a research report and plenty of press.
10. See chapter 1.

18. The Wright Stuff

1. Evolutionary economists Richard Nelson and Sidney Winters echo the same theme. They write, “Innovation in the economic system—and indeed the creation of any sort of novelty in art, science, or practical life—consists to a substantial extent of a recombination of conceptual and physical materials that were previously in existence. The vast momentum in scientific, technological, and economic progress in the modern world derives largely from the fact that each new achievement is not merely the answer to a particular problem, but also a new item in the vast storehouse of components that are available for use, in ‘new combinations,’ in the solution of other problems in the future.” Richard R. Nelson and Sidney G. Winter, An Evolutionary Theory of Economic Change (Cambridge, Mass.: Harvard University Press/Belknap Press, 1982), 130.


4. The evolution of technique in sports shows the power of nonrival goods. Examples include the crawl swim stroke (which only became widespread within the past 200 years), overhand free-throw shots in basketball, and the Fosbury flop for high jumpers.

5. “Moore’s law is the empirical observation that at our rate of technological development, the complexity of an integrated circuit, with respect to minimum component cost will double in about 24 months” (http://en.wikipedia.org/wiki/Moore’s_Law).


19. Pruned for Performance


20. Staying Ahead of the Curve

1. In fact, one of the new leader’s first actions is often to kill all of the cubs in the pride. This allows the new leader to sire new cubs that carry his genes.


21. Is There a Fly in Your Portfolio?

1. For readers with too much time on their hands, see: http://www.ceolas.org/ fly/intro.html.


7. While I believe this hypothesis is likely true, I’m less convinced that the data support it. The main reason is that the later years of the study included historically high levels of write-offs and restructuring charges that likely distorted the accounting data.


---

### 22. All the Right Moves


4. This is reminiscent of Puggy Pearson’s advice to gamblers. See Michael J. Mauboussin and Kristen Bartholdson, “Puggy Pearson’s Prescription,” *The Consilient Observer* 1, no. 11 (June 4, 2002).
23. Survival of the Fittest

24. You’ll Meet a Bad Fate If You Extrapolate

1. See http://www.socialsecurity.gov/history/hfaq.html.

25. I’ve Fallen and I Can’t Get Up


6. Ibid., 7–9.


8. HOLT analysts Christopher Catapano, Katie Dunne, and Craig Sterling performed the retail industry analysis.

9. To illustrate, we created a model with two companies that had 8 percent operating-income growth rates, initial returns on incremental invested capital of 100 percent, and identical costs of capital. We faded the first company’s returns to zero over ten years, and the second company’s returns to zero over twenty years. The second company—again, with identical growth—was 33 percent more valuable than the first, representing more than six price-earnings points.


11. See chapter 1.

26. Trench Cooperation


3. George Lakoff and Mark Johnson, Metaphors We Live By (Chicago, Ill.: The University of Chicago Press, 1980).


5. Ibid., 81. Axelrod quotes S. Gillon, The Story of the 29th Division (London: Nelson & Sons, n.d.). Eventually, the British, French, and German high commands undermined the live-and-let-live system by forcing raids, undermining the stability necessary to support the tacit agreements.


8. The choice to add capacity gets both companies to the Nash equilibrium.


11. Ibid., 293–302.


### 27. Great (Growth) Expectations


3. I mention this because voluminous evidence suggests that mergers and acquisitions are a value negative or, at best, a value neutral activity. So growth via acquisition is often not value creating.


5. This is an inappropriate use of the term “law of large numbers.” For a further explanation, see Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk* (New York: John Wiley & Sons, 1996), 122–23.


28. Diversify Your Mind


29. From Honey to Money


### 30. Vox Populi


3. Some companies are trying to create an internal mechanism to match questions with answers. For example, Hewlett-Packard has a system called SHOCK (Social Harvesting of Community Knowledge); see http://www.hpl.hp.com/research/idl/projects/shock.


31. A Tail of Two Worlds

1. This process is known as Brownian motion. Albert Einstein pointed out that this motion is caused by random bombardment of heat-excited water molecules on the pollen.


6. See chapter 22.


32. Integrating the Outliers

4. See chapter 29.
6. If you assume that you flipped a coin nonstop sixteen hours a day (estimating eight hours of sleep), and if each coin flip takes three seconds, it would take 14.3 years to complete 100 million coin tosses.

33. The Janitor’s Dream


4. See chapter 11.


### 34. Chasing Laplace’s Demon


35. More Power to You


2. For example, in log 10 the scale would be $10^1 (= 10)$, $10^2 (= 100)$, and $10^3 (= 1,000)$ versus the more familiar 10, 11, 12.


5. These modifications are lucidly explained in Murray Gell-Mann, *The Quark and the Jaguar: Adventures in the Simple and the Complex* (New York: W. H. Freeman, 1994), 92–100.


7. These include self-organized criticality, highly optimized tolerance (HOT), and the Gibrat process. Not all of these processes are mutually exclusive.


36. The Pyramid of Numbers

1. See chapter 35.
10. At the time this essay was written, the upcoming year (T + 1), embedded-asset growth is 8.8 percent for the fifty largest market-capitalization companies versus 5.6 percent for the S&P 500, and CFROI is 8.8 percent against 7.6 percent. For 2008 (T + 5), the large companies reflect asset growth and CFROI of 8.9 percent and 10.9 percent, respectively. For the S&P 500, the corresponding numbers are 7.2 percent and 9.0 percent.
11. Financial services stands out as a sector that has increased significantly as a percentage of S&P 500 earnings (about 30 percent, excluding finance arms) and as a percentage of the GDP (roughly 21 percent versus 15 percent in 1980). Historically, sectors that have risen to such levels (energy and technology) have seen their importance wane. For more on this, see Paddy Jilek, Bradford Neuman, and Arbin Sherchan, “U.S. Investment Digest: Five Tidbits,” *Credit Suisse First Boston Equity Research*, September 5, 2003.
37. Turn Tale


38. Stairway to Shareholder Heaven


7. Mandelbrot, “A Multifractal Walk Down Wall Street.” Stock price changes are more accurately described as multifractal. Multifractals accommodate some adjustments to get to statistical similarity on various levels. For example, for asset prices, time (the horizontal axis) is lengthened or shortened to show level similarity.


Conclusion: The Future of Consilience in Investing

