CFA Institute

INVESTMENT IDEA GENERATION GUIDE

Jason A. Voss, CFA
Sloane Ortel

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If we have left anyone out, please forgive us and let us know. We take responsibility for any errors and omissions.

INTRODUCTION

> The thing that differentiates scientists is a purely artistic ability to discern what is a good idea, what is a beautiful idea, what is worth spending time on, and most importantly, what is a problem that is sufficiently interesting yet sufficiently difficult that it hasn't yet been solved, but the time for solving it has come now.
>
> —*Dr. Savas Dimopoulos (theoretical physicist), Stanford University, from the 2014 documentary "Particle Fever"*

KEY IDEAS

- Creativity and alpha are the same thing.
- Engaging in the exercises will improve your learning experience.
- Each chapter is written as a standalone, so there is some overlap.

What cash flow stream do you want to own a claim on? This simple question is often lost among such presupposed assertions as "we are value investors," "we are a bottom-up shop," or "we are a global macro fund." But beware! When investment philosophy becomes your sole investment filter, your thinking becomes a subscription to that most dreaded of behavioral biases: anchoring. An investment philosophy should be a way of examining an idea, not the source of the idea itself.

If you are having difficulty identifying new investment ideas, it's not because the world got smaller and less complex; it's because how you look at the world has become less flexible, less creative, and more ritualized. Our goal is, first, awareness of possibility and, second, the probability of that possibility occurring. It is possibility that has primacy, not probability.

This is a classic problem: The person with only a hammer (an investment philosophy) finds only nails (bland sameness) interesting. But there is an obvious solution: Fill your toolbox with more than just hammers and don't look for just nails. In fact, see the entire world as a range of creative opportunities that require you to use new and different tools.

It is what you are *not* doing that is the source of the solution. Put another way, if you want to earn higher investment returns than your peers, you must do what they (and you) are not doing. Hence, this *Investment Idea Generation Guide*.

We have designed this volume to be useful, short, and to the point. But there are mutual responsibilities to consider: Our responsibility is to spark new ways of thinking and seeing; your responsibility is to explore what fires may rise from the sparks. And to get the most benefit, you must be willing to do the suggested exercises. Retraining yourself to think creatively takes practice.

The *Investment Idea Generation Guide* begins with the most creative tools and then, on a continuum, moves to the least creative tools. There is no need to read the entire work front to back. Instead, feel free to read the tools à la carte because they are meant to stand on their own. Note that because of the guide's structure, there is some overlap between chapters.

Chapter 1 discusses how to increase creativity to best facilitate new and valuable thinking through "mind maps." Chapter 2 shows how to use scenario planning to find the seeds of the future planted in the current world and also map other ways of viewing the world to see it afresh. Investment opportunities often are found in the areas we are not already exploring. Chapter 3 presents the Investment Idea Generation Matrix, which offers an alternative way to discern your mindset by seeing the ways other investors have looked at and categorized the world. All you need to do is follow their paths to see where your mindset fits on the Matrix and thus help you potentially identify new investment opportunities. Chapter 3 also offers a large-scale, linked list of suggested readings that provide further information about specific investment styles. Finally, Appendix 1 presents an example scenario plan, which takes you step-by-step through the scenario development process.

SUGGESTED PATHWAYS TO USE THIS GUIDE

Challenge	Suggested Pathway
I feel I am not creative enough.	Read Chapter 1 and participate in its exercises.
I am routinely surprised by important events.	Read Chapter 2 because it demonstrates how to use scenario planning, a powerful tool used globally by businesses to better anticipate future states.

Challenge	Suggested Pathway
I am harried with limited time and need a way to discover new ways of solving old investment problems.	Read Chapter 3 to see which of the 24 investment styles presented in the Investment Idea Generation Matrix are nearest and furthest from your own. Knowing that there are existing tools that you normally overlook may help point you in a new direction. If you need resources to master these new styles, then also use the extensive list of suggested readings in Chapter 3.
I am in a new investment idea rut and need a lot of help.	Read the entirety of *The Investment Idea Generation Guide* because it is designed to teach you many skills to help you become more creative.

CHAPTER 1

HOW TO INCREASE YOUR CREATIVITY

> In exploration, and science is exploration, there needs to be the set of people who have no rules. And they are going into the frontier and come back with the strange animals, and the interesting rocks, and the amazing pictures, and show us what's out there and discover something.
>
> *—Dr. Martin Aleksa (theoretical physicist), CERN, from the 2014 documentary "Particle Fever"*

KEY IDEAS

- Creating a knowledge map is key to unlocking your creativity.
- Creativity requires doing something new or unknown.
- Creativity does respond to method.

OVERVIEW

This chapter considers different ways to increase your general creativity. First up is creating a comprehensive Map of What You Know and then identifying how your knowledge interacts with the current state of the world. Next is a proven technique for unleashing your creativity: mind maps. Your mental models can then be used in a different way to suggest new, creative possibilities. Finally, we present a simple model for achieving radical creative breakthroughs.

Each of the creativity-enhancing tools benefits from your participation in the exercises, so be prepared to spend some time working through them. You do not need to do all of them; your level of engagement is up to you.

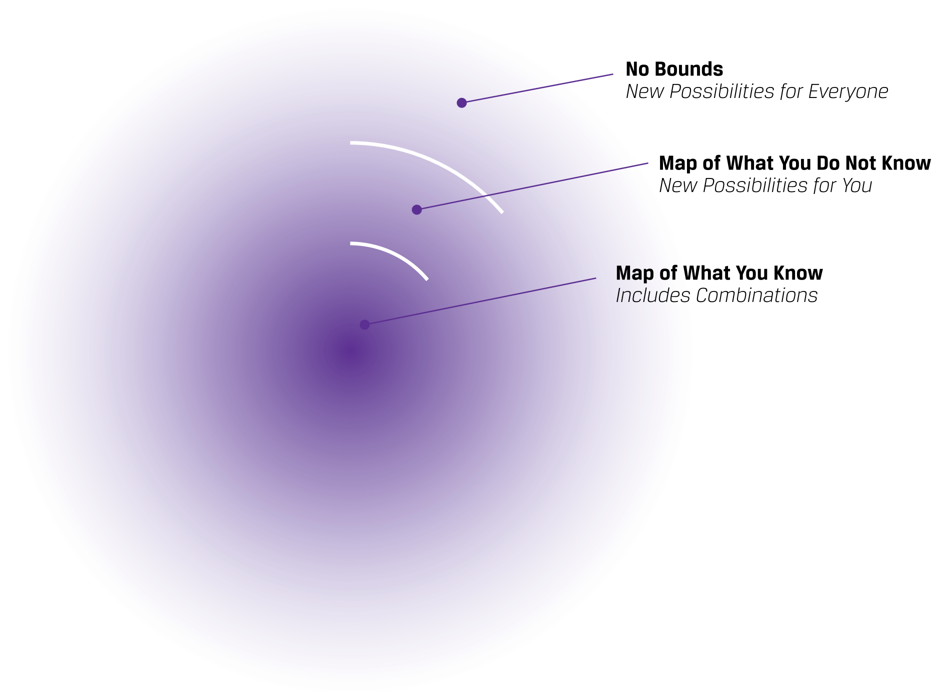
CREATIVE POSSIBILITIES MAP

Creativity means bringing into existence something that did not exist before, something that is *outside the bounds* of our current knowledge or understanding. Notice the accord here with the problem of active investors: how to generate returns that are outside the bounds of what their peers are earning. Therefore, it is not a stretch to say that if you are an active manager who wants to earn better returns than your peers, you must get creative about generating new and unique investment ideas or about identifying ways to make fewer investment mistakes. If you work on increasing your creativity, you are simultaneously working on your ability to create new investment ideas.

Both creativity and the alpha quest are explorations of boundaries, especially about how to move past them. Of course, proper demarcation of knowledge requires mapping what you know now. So, though it may seem counterintuitive, the first step to increasing creativity is to identify what you know and what you do not know.

The following diagram helps illustrate the creative possibilities and the creative process.

CREATIVE POSSIBILITIES MAP



WHAT YOU KNOW

In the middle of the diagram is what you know and what you are doing now. It also includes all the things you have done previously. In short, it marks the bounds of what you have explored and can explore so long as you choose to remain limited by this mental space.

This diagram even includes new combinations of things you already know about and do, and it brings together disparate ideas into a cohesive whole. An example is finding new uses for old tools, such as applying your knowledge of real estate cap rates to the valuation of equities. In this case, you already know about both those things, but this is a new combination of skills: real estate cap rates and equity valuation. Operating solely within your circle of current competency provides creative opportunities but is limited by what you know and the limited combinations of those possibilities.

Before discussing the major skills of *The Investment Idea Generation Guide,* it bears mentioning that there are two routes to growing the Map of What You Know and hence your options as an investor: become more creative (the focus of this guide) and gain more knowledge. This is a strong argument for continuing education, but not just reinforcing what you already know. Instead, it is advocating for a constant identification of the boundaries of your knowledge and a constant pushing out of those boundaries.

WHAT YOU DO NOT KNOW

Once you map your limitations (i.e., what you know), you can move past them into uncharted territory. But what would cause you to move past your boundaries? Perhaps you are struggling to develop new investment ideas or you chronically trail your peers' investment returns. The pain of these circumstances makes you willing to explore ideas already charted by others but that are perhaps new and discomforting to you.

For example, say that you read a journal article about a new skill, such as Monte Carlo simulation. Normally, learning something so different from what you already know might cause you anxiety, but now you choose to learn something new and apply it to your financial modeling. If so, you have just pushed past your boundaries and learned something new. Congratulations!

NO BOUNDS

New ideas are acts of creation: The creative bring into existence what did not exist before. Clearly, these are the rarest of all humanity's advances. An example in finance is the creation of discounted cash flow analysis, a tool now used by millions globally. Although it may seem improbable in this post-information age, it is still possible to engage in creative acts of this magnitude.

All these forms of creativity—from the incremental to the radical—require a good map of your knowledge and limitations.

CREATIVITY SKILL 1: CREATING A MAP OF WHAT YOU KNOW

To begin the creative process, you must begin by creating a Map of What You Know. Although the other exercises in this book are optional, this initial exercise is essential because it is the foundation for many of the other exercises. A completed Map of What You Know helps you identify what ideas to focus on that then lead to new investment ideas.

Time needed: An investment of at least 45–60 minutes

Materials needed: A way to record your thoughts

STEPS:

1. Preparation
2. Inventory
3. Drawing interconnections
4. Honest evaluation of yourself
5. Evaluation of next steps

Note: Your work here can be used in Chapter 2 as well, so time spent here earns double the returns!

1. PREPARATION

Ideally, you should spend *at least* 45–60 minutes engaged in this exercise. Make sure that you are uninterrupted, because neuroscience research documents that it takes at least 20 minutes to return to a deep-thinking mental state after being interrupted. You may want to close your e-mail program and turn off your smartphone for this exercise.

Next, ensure that you have a way of recording your thoughts, such as pen and paper or document software. You can return to this document over the years, so consider this exercise a necessary building of a foundation. The Map of What You Know is an investment in your becoming more creative and in generating more investment ideas. Be sure to date your document so that future iterations of this exercise can be made more comparable.

2. INVENTORY

Primary Skills

List the areas of your Primary life skills; these are the same as what you would list on your curriculum vitae (CV) or résumé as well as things you are expert at that would come up in cocktail party conversations.

EXAMPLE: PRIMARY SKILLS

- Finance
- History
- Economics
- Meditation
- Arts
- Sports
- Mathematics
- Writing
- Computers
- Social media
- Investing
- Martial arts
- Creative expression
- Psychology
- Animal behavior

Resist the urge to self-edit, because creativity is hampered when the analytical parts of the mind intercede to begin reducing problem sets. Grant yourself the freedom to list your major skills—from finance to animal behavior. The more, the better.

Secondary Skills

Take some time to review your list and then identify secondary skills in your skill set, things that you have an affinity for but wouldn't list on a résumé or bring up in conversation (i.e., "soft skills"). Are you good at investor relations (inspiring others)? Are you good at establishing trust in the first two minutes of a conversation (listening)? Do you know how to balance cultural differences to better facilitate dialogue between different branches of your organization (mediation)? Remember, do not self-edit!

EXAMPLE: SECONDARY SKILLS

- Listening
- Model selection
- Providing feedback
- "Connecting the dots"
- Time management
- Music
- Poetry
- Translating feelings into words
- Mediation
- Inspiring others
- Organization
- Financial modeling
- Cleaning
- Dancing
- Pre-Raphaelite art
- Art Nouveau
- Recognizing balance/imbalance
- Intuition
- Describing the world via math
- Ancient Egypt
- Geopolitical analysis

Functions Underlying Skills

Next, spend some time identifying the underlying functions of your skills. To generate new investing ideas, you want to undertake actions that you cannot currently do; so, knowing the actions you can take, given your knowledge and skills, is paramount. These actions are encapsulated in your skills' functions. A list of skills is just a list of nouns, but you want to understand the verbs—the actions—you are capable of undertaking to achieve those skills.

EXAMPLE: FUNCTIONS UNDERLYING SKILLS

- "Connecting the dots"—ability to think creatively and bring together disparate pieces of information to construct a meaningful story or idea.
- Music—helps connect you to emotions and work with them instead of against them, which minimizes judgment errors.
- Meditation—reduces stress, allows for clearer thinking and the ability to better avoid judgment errors.
- Financial modeling—ability to take complex, real world, multi-dimensional phenomena and describe them quantitatively. This ability allows for the use of mathematics, statistics, and logical thinking in solving problems.
- Cleaning—helps increase peace of mind so you can focus on problems.
- Dancing—a form of exercise that can help you "blow off" pent-up emotions to increase focus.

- Recognizing balance/imbalance—allows quick recognition of distorting influences on people's ideas, models, and theories, including your own.
- Intuition—allows you to connect to another sense/source of information, which is directly connected to the mind's ability to recognize multi-dimensional phenomena (as opposed to linear, logical, empirical analysis).

What You Are Not Good At

Now turn the list of skills on its head. List what you are not good at and/or what makes you anxious. Areas where you have a lack of skill are likely to be blind spots and unintentional drivers of your worldview; people usually avoid or compensate for what makes them uncomfortable. (Ideally, of course, you make investment decisions on the basis of merit and not on the basis of anxieties about your skill set.)

Listing your anxieties is not meant to create a tidal wave of worry, so do not be anxious (easier said than done, of course). Uncovering your anxieties will help you see what you need to learn to overcome them and develop your creativity in the process.

EXAMPLE: WHAT YOU ARE NOT GOOD AT

• Cooking	• Shorting stocks	• Visual Basic for Applications
• Econometrics	• Yield curve construction	• Microsoft Access
• Thinking in terms of more than five dimensions	• Following social trends	• Brevity
• Quant/machine trading	• Snorkeling	• Biology

An analysis of this list seems to suggest that there is anxiety around sophisticated mathematics, especially as it intersects with computers. With your own inventory of what you are not good at, consider for each item:

- Does this limit the opportunity set of investment possibilities? If so, how? Is this something that can be overcome?

Current State of the World

Next, record what you believe about the state of the world, especially the first things that come to mind. Write down facts, observations, people, companies, papers, and ideas that you consider important right now. Keep writing until you think you have written down most of what you believe about the state of the world. You may have more than one page of information, which is a good thing. To limit what could be a “brain dump” of everything, however, try to record only those thoughts that inform how you see the world now.

Why write down the first things that come to mind? It is likely that they are the default mental models that you use to understand new information. These default models probably serve as the subconscious and automatic filters that instantaneously spring into action to influence how you see the world and, consequently, investment opportunities.

This also means that you are likely to be looking for new investment ideas only *inside* the bounds of your default mental models, even though you might be aware of and know much more. If you want something new, then actual new ideas are much more likely to come from *outside* the bounds of your default models.

Yes, you probably invested intelligent and considered reasoning in creating your default models. What’s more, chances are that you have tested them against reality repeatedly and they work for you. But to generate new investment ideas, either new information has to enter the default models or you have to be willing to consider other mental models for something creative to happen. Either way, an opening must occur—that is, a reconsideration of your beliefs.

EXAMPLE: CURRENT STATE OF THE WORLD

- Since the Great Recession, I believe global consumers are *resolute*. That is, they are not upbeat or likely to be spendthrifts. Instead, they seem hunkered down and prepared for more bad news. What is the effect on consumer spending and, consequently, GDP?
- The world has a shortage of discipline = too much excess, as represented by consumerism, pollution, debt, waste, government regulation. This cannot be fixed with policy, but only with individual introspection led by individual initiative to change.

- Africa is the next frontier in investing, because there is no need to reinvent the wheel—just build out infrastructure in the form of roads, bridges, ports, schools, telecommunications, and so forth.
- Markets are horribly distorted by regulation, monetary policy, and insiders exploiting the system. This means the pricing mechanism of markets is shaky. Can we trust the prices for goods and services to be stable over the next decade?
- Social media are destroying borders. People now have views into other cultures and how others live their lives. For how long can a citizen in a totalitarian society tolerate oppression?
- Labor will soon demand to be as mobile as capital. Currently, capital can cross borders freely—businesses may invest, as well as sell their goods, globally—but laborers cannot sell their labor as easily. For how long will this persist?
- Growth in the major economies will accrete:
  - Population growth: 1–3%+
  - Some productivity gains: 1–2%
- Low-hanging fruit of building out infrastructure (e.g., roads, grid, rail, internet) is nearing completion in the Second World/BRICS nations.
- Information technology will get faster and more reliable.
- Neuroscience, psychology, and physics must cross-pollinate and get the right model/theory/understanding about consciousness for there to be advances in human thinking.

Thoughts about the Future

Now list and describe your thoughts about the future, both near term and long term. How do you think major events will unfold in the future? What is no one paying attention to that you think will affect the future?

Again, your initial thoughts are important to document because they are likely to be your default mental models, representing your "business as usual" state of mind. Upon review, these may be robust and accurately describe the world. But for now, the goal is simply to map what you know and who you are relative to the investment landscape.

EXAMPLE: THOUGHTS ABOUT THE NEAR-TERM FUTURE

- Near-term future = 2–3 years.
- North America: more of the same (MOTS); that is, lack of interesting, game-changing capital investment on the part of businesses; projects will be incremental; continued "de-equitying" of financial markets; fiscal gridlock in the United States will relax, but leadership will remain ineffectual. Growth will be low and steady, and consumers will remain resolute and certainly not giddy. Operative concept: MOTS.
- South America: build-out of key infrastructures; movement from Third World to Second World status; unorthodox associations geopolitically and economically; Brazil will sell natural resources to China and East Africa. Operative word: CONSOLIDATION.
- Europe: demographic-driven ossification; if the pressure increases or does not abate, there may be movement in the stilted political apparatus. Individual countries will shine, but the continent will be disjointed. Operative word: MUDDLE.
- Asia: instability in all the usual places: Middle East, Pakistan, and so on; uneven economic growth; flirtations with democracy; ineffectual implementation of capitalism; some growth from regional recoveries and selling to Africa. Operative word: AGORAPHOBIC.
- Australia: movement away from natural resources. Operative word: ISOLATED.
- Africa: death of old and odd dictators will create openings for change and inspire relief among the populace; corruption in North and West Africa; will have the attention of the world because growth here is so much easier (i.e., build out what we already know how to do elsewhere). Education, health care, democratization = essential. Operative word: DYNAMISM.

EXAMPLE: THOUGHTS ABOUT THE LONG-TERM FUTURE

- United States will start to delever and fiscal policy will get effectual; Mexico will stabilize more.
- China will look more and more like India = madness and corruption writ large.

- Labor will demand to cross borders.
- Middle East will implode on itself, although new leaders may change the possibility set if they invest in something besides hydrocarbons.
- Russia will meddle in neighbors' affairs and win influence, but it will lose overall because of poor demographics.
- Japan will meddle more in world affairs and within its own government but will do little else.
- Europe will grind out a new way of thinking and slowly get more dynamic, led by Germany, the United Kingdom, and maybe Poland, France, and Spain.
- Big Data investment returns will come, but too slowly to justify valuations.
- 3D printing will pale in comparison with the internet boom of the 1990s, when the cost of information discovery was reduced almost to zero.
- Biotech will continue to destroy more capital than it creates.
- The *real* technology evolution will be increased awareness of ourselves and our interconnection with others =
    - Decreased consumerism
    - Increased "environmental, social, governance" (ESG) concerns
    - Decreased birth rate
    - Real estate recycling
    - More international coordination at the social movement level rather than at the governmental or corporate level
    - Easing of pressure on the environment
    - Increased leisure time because of lower demand, coupled with increased awareness = emphasis on inexpensive luxury in housing, home goods, clothes

3. DRAWING INTERCONNECTIONS

Once you have written down your assumptions about the world, take stock of your thoughts. Re-read what you have recorded. Do these initial thoughts reflect the world as you see it?

In re-reading your thoughts, do you see connections among the ideas? What is missing that needs to be included in your description of "how I see the world" to ensure it is more *descriptive*? What definitely belongs because it certainly affects how you see and understand the world? What does not belong?

Take particular stock of the thoughts that "don't belong" (you'll see why in a moment). If you want to extend the exercise, keep at this review until the thoughts residing in your consciousness and subconsciousness make it onto the page and you feel that your mental map is complete.

4. HONEST EVALUATION OF YOURSELF

Next, you need to honestly ask yourself (after all, it is just you looking) whether what you recorded makes sense. Does what you recorded describe the world well? Are your mental models still descriptive? Most important, are your mental models consistent with one another? If not, why not? Is some paradox understandable given that investing is a vast topic in which contradictory information is, if not the norm, common? Are you ignorant of anything for which you need some knowledge?

If what you wrote down does not make sense to you, then you have just had a creative idea: Update or improve your models so that they do make sense. Perhaps you now realize that your mental models are outmoded. If so, you can put your creative firepower to work creating new mental models for yourself or explore other models developed by others. Again, you have achieved a creative realization. If you feel ignorant about something, there is a ready-made creative solution: Get more knowledge on the subject.

5. EVALUATION OF NEXT STEPS

Congratulations, you have demarcated the boundaries of the Map of What You Know! At this stage, you have a choice. You can look for new permutations and combinations of knowledge and skills within what you already know. Or, you can look to push past your boundaries into uncharted territory. If you choose to push past your boundaries, you can do so either incrementally or radically.

Whichever choice you make—new combinations within your boundaries or moving past your boundaries—is fine. But the techniques for the two pathways are different. When making your choice, be guided by your intuition.

If you feel that you need to sort out what you have written down in the Map of What You Know exercise before adding anything new to the mix, read the next section, "Creativity Skill 2: Mind Mapping."

But if you are bored with "the same old stuff again" as you review your map, then skip ahead to the section "Moving Past Your Boundaries" in this chapter.

CREATIVITY SKILL 2: MIND MAPPING

After reviewing your mental models and perhaps updating them, you may think your models are sound and consistently reflect reality. Does this mean you are still stuck with the same problem—a lack of new investment ideas? No, because new combinations of old ideas can be a viable path to a new investment idea and even breakthrough thinking. Creativity of this kind is incremental, or evolutionary, rather than radical.

One time-tested tool for such breakthroughs is mind mapping. Mind maps are an idea pioneered by Tony Buzan in his best-selling book *The Mind Map Book: How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential*. Although Buzan's book is the definitive source for this creative technology, mind mapping can be described fairly simply. In essence, a mind map is a way to see at a glance the interconnections and relatedness of information that pertains to a single idea.

Advocates of mind mapping believe that one of the reasons for the success of this technology is that information in our minds is not naturally structured hierarchically but, rather, is organized in a tree-like fashion. A single idea serves as the trunk of the tree and related ideas branch off from the trunk, and still more detailed, related information branches off from these branches.

What follows are some sample steps for creating a mind map. You can also see the sample mind map later in this chapter that represents the major ideas of the best-selling book *How to Think like Leonardo da Vinci* at a glance, in one diagram.

Time needed: An investment of about 30–45 minutes

Materials needed: A way to record your thoughts

STEPS:

1. Preparation
2. Choosing the trunk
3. Branches
4. Branches of branches
5. Looking for meaning

1. PREPARATION

Start with a clean piece of paper that is large enough to capture your ideas before creating a mind map. Many who use mind maps routinely also recommend that if you are using a rectangular piece of paper, you should turn the paper so that it is longer horizontally than vertically. Doing so can help activate the more creative aspects of consciousness that prefer holistic, interconnected analysis rather than linear analysis.

2. CHOOSING THE TRUNK

Next, choose a central idea for which you would like an incremental creative insight. This is the trunk of your mind map. For example, if you are a research analyst covering wearable technologies, you may want a better understanding of whether such technologies are "the next big thing." If so, this idea—the next big thing—would be placed at the center of your mind map.

Traditionally in mind mapping, the more visual you make your mind map, the better. Again, this is because creativity is best unleashed when you engage your senses and make your ideas more concrete and less abstract. So, is there an image of your trunk that is emblematic of its essence? Are there colors that are symbolic of the idea? For example, is your idea "golden" or are there "dark storm clouds on the horizon"? You get the idea. Be visual, be colorful; avoid straight lines if you can.

If you feel bold about the future of wearables, for example, you might represent your trunk as a train locomotive. Or if you think the world is uncertain, you might make your emblem for this idea a mini-drawing of choppy seas. Don't worry if you can't draw. You are the only one viewing your mind map, and remember that the reward may be new investment ideas or actionable insights.

If you find that the prospect of drawing stifles your flow, then look for an image of your emblem to copy and paste in the center of your mind map. If you anticipate a bear market, you could use an image of a bear to represent that idea. Put the image somewhere on your piece of paper, making sure to leave room for other emblems and ideas.

3. BRANCHES

Once you have your mind map's trunk, you can start to add branches to it. Here, you can think about the ideas that are tangent to your central idea. Keeping with the wearables example, you might include such branches as fashion, functionality, and price. Place these branches around the central idea/trunk. Again, pictures can help activate your creativity. So, for fashion you might have an image of a futuristic wearable device. For price, you might choose to use an image of a euro or some other currency (maybe even gold).

Once you have placed these branches on your paper, draw arrows from the branches back to the trunk. Try to label each branch with a single word—fashion, functionality, price—so that they cue your consciousness when thinking about these tangential ideas.

4. BRANCHES OF BRANCHES

Now that you have branches on your trunk, you need to identify the ideas and thoughts that branch off your main branches. In the wearables example, branching off price might be manufacturing and distribution. From the fashion branch, you might have life cycle or viral. Place these smaller branches around the main branches. Again, be as visual as possible.

Depending on how far you would like to pursue a new insight about your idea, you could have many branches from branches from branches. The main factor driving your choice should be answering *yes* to the following question: Is the way I think about this idea largely described in image? If so, you can stop.

5. LOOKING FOR MEANING

Incremental creativity, the kind you are striving for with a mind map, works because the mind likes to associate disparate pieces of information to seek meaning in these disparate ideas. So, look at your mind map and begin to soak up the different parts of it. Do interconnections naturally occur? Compare lesser branches on one branch with lesser branches on another branch; is there an important connection that you might have missed? In the wearables example, you might realize that the need for wearables to be fashionable each year increases their cost, which unites previously separate branches: fashion and price; life cycle and manufacturing.

If there are no connections between your various ideas and models, imagine what would join them together. What are the implications of a lack of connections? What was the state of your mental map six months ago? Twelve months ago? Can you imagine it being different in six months? Twelve months? What would cause this change?

If you find new connections, draw lines linking these ideas together on the paper. Next, assign a new name or label to the link. An example would be linking together a greater global interest in electronic gadgets and a greater use of electricity per capita globally with a line labeled "global power companies will benefit." Here, you formalize a connection between the two disparate ideas with a new creative realization—global power companies will benefit—that links the two together.

Do you have an emotional reaction to any part of the mind map? That is, in looking at one part of it, are you excited? Or alternatively, are you anxious? If so, spend some time contemplating what the source of these emotions might be. Could it be that you bought into the wearables "story" because of an artfully delivered sell-side presentation rather than a careful analysis? Has the fashion element always bothered you?

If executing a mind map does not result in a new insight or investment idea, *relax*. As with most endeavors, it can take time to become proficient at mind mapping. In particular, if you are used to using only the hard, analytical functions of your mind, it may take a while to believe that drawing pictures will improve your investment results. But research has demonstrated that mind maps improve people's creativity,[1,2] and I think you will agree that doing what no one else is doing—or seeing something in a way that no one else is seeing it—can be a source of alpha generation. Maybe, just maybe, the space you are looking at is so well trodden that a radical creative breakthrough is called for.

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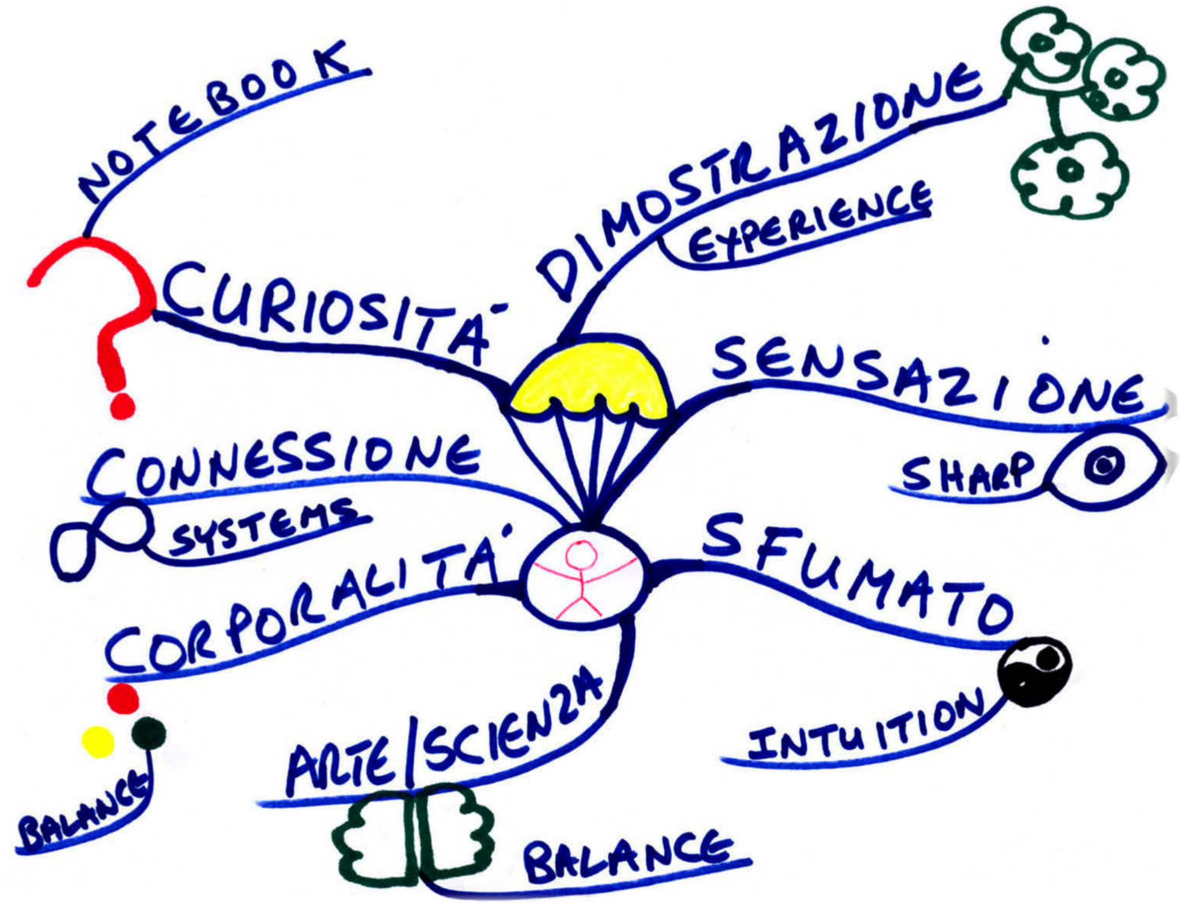
[1]R. Al-Jarf, "Enhancing Freshman Students' Writing Skills with a Mind Mapping Software," paper presented at the 5th International Scientific Conference, eLearning and Software for Education, Bucharest (April 2009).
[2]S. Margulies, *Mapping Inner Space: Learning and Teaching Mind Mapping*, 2nd ed. (Tucson, AZ: Zephyr Press, 1991).

MIND MAP FROM *HOW TO THINK LIKE LEONARDO DA VINCI*



Source: Courtesy of Michael J. Gelb (http://michaelgelb.com).

MOVING PAST YOUR BOUNDARIES

Thus far with regard to the Creative Possibilities Map, we have cultivated creativity exclusively within the domain of the Map of What You Know, the central portion of the diagram. But suppose you already know, or discovered in the mind map exercise, that your mental models and current ideas need updating?

In that case, you will want to exit the Map of What You Know portion of the Creative Possibilities Map and explore the new territory of the Map of What You Do Not Know. Of course, this map exists theoretically; if you truly knew what you do not know, it would be part of your Map of What You Know. Nonetheless, in the exercises you have done so far, you have probably identified ideas that pique your curiosity and that you want to know more about.

There are two possibilities: Make either an incremental or a radical break from the Map of What You Know. Incremental breaks are ideas that lie just outside your comfort zone and require, at most, one leap of faith to arrive at new, creative thinking. An example might be if you are traditionally a growth equity investment manager and you want to consider valuation more routinely in your assessment of an investment opportunity. Here, valuation is an idea just outside your comfort zone. In fact, you may already know something about valuation, but now you can commit to exploring the subject in greater detail.

Radical breaks are more than one leap of faith outside the bounds of your Map of What You Know. An example might be a pure equity investment manager learning about how to use convertible securities to enhance the defensive and yield characteristics of her portfolio. Or perhaps you feel inspired to invent something entirely new. Whether to take one leap of faith or more—or to try to create something completely new—is entirely up to you. Let your inspiration be your guide.

CREATIVITY SKILL 3: EVALUATING MENTAL MODELS (INCREMENTAL CREATIVITY)

Time needed: An investment of at least 15–30 minutes

Materials needed: A way to record your thoughts

STEPS:

1. Preparation
2. Considering gray areas
3. Reclaiming abandoned ideas

1. PREPARATION

You should have at the ready your Map of What You Know from Creativity Skill 1.

Moving just slightly past your boundaries—an incremental creativity break—is harder than it may sound because often we arrive at our understanding of the world through reductionism. That is, we start with a wide array of possibilities and then eliminate them systematically.

For example, "Europe will not recover this year," or "central banks must maintain easy-money policies," or "bank profit margins will be squeezed because of new regulation," and so on. Your mental models are in place because they survived an intellectual gauntlet. That is, if parts of your mental model *should* be included, then hopefully they already *are* in the model. If elements should not be in the model, then you may have already rejected them. We tend to think of our current models as the right models because they are time tested or because we believe they have passed intellectual muster.

2. CONSIDERING GRAY AREAS

There always remains a gray area where even hypothetical probabilities are difficult to ascribe. It is in this realm where there is room for incremental creativity. Let's return to the mind map you just created. Now, rather than look for connections between disparate branches on the main trunk, list beside each of the end branches the assumptions implicit in the branch. Make explicit how you came to your point of view.

Examples include assumptions about why you believe prices for wearables will remain stable, assumptions about why you believe the shape of the yield curve will remain upward sloping, or assumptions about why commodity prices will decrease. Pay particular attention to those assumptions that you believe have a 50-50 chance of occurring or for which there is a high degree of uncertainty.

Now imagine slight changes to these assumptions that would radically shift your belief in the idea or model. You are looking for the ideas in which you have little conviction and for which you need to take a leap of faith in order to strengthen your conviction. An example: "If the European Central Bank agrees to backstop the euro, that would strengthen my conviction that credit default swap spreads will narrow and indicate an end to the crisis," uttered early in 2012.

In summary, you are looking for the ideas and beliefs that lie just on the other side of your confidence. You can then imagine what conditions must be in place in order for your conviction to change. Is there evidence that these conditions are beginning to be met? What would be indirect evidence of the conditions being in place? For example, are demolition crews in Spain on a waiting list, indicating a removal of supply from Spanish real estate markets and a likely improvement in real estate prices in depression-wracked Spain?

3. RECLAIMING ABANDONED IDEAS

Alternatively, are there ideas and concepts about the world that you previously held but then abandoned? Perhaps you moved a model to the scrapheap because it failed to predict or explain a state change. One example is "real estate prices always go up in the aggregate." Return to some of these abandoned models and use your imagination to come up with conditions that need to be in place to restore the sanctity of the model.

If you have never returned to the old models and evaluated their failings, now is the time to do so. Frequently, failed concepts and mental models are abandoned by investors in the heat of a crisis when a decision needs to be made fast. Weeks, months, or years later, a review of an idea's failings remains uncompleted. If you have models of this kind, return to them now and ask yourself where the model failed. Can the conditions present then be replicated now, or have market conditions (including regulations) adapted to the new environment? Might the discarded concept still be robust under current conditions?

This exercise is not designed to get you to return to old ways of thinking. Rather, the effort is simply intended to jar your consciousness out of its thinking rut. In the process of exploring new or "forbidden" ideas, your mind may take you to realizations about new possibilities or missed understandings—all of which may lead you to new investment ideas.

Hopefully, engaging in "what if" scenarios that surround your mental models' assumptions will help you creatively identify further areas for exploration and additional investment ideas. If not, perhaps it is time for a radical context break.

CREATIVITY SKILL 4: RADICAL CONTEXT BREAK (RADICAL CREATIVITY)

Time needed: An investment of at least 30–45 minutes

Materials needed: A way to record your thoughts

STEPS:

1. Preparation
2. Considering absurd ideas
3. Getting interdisciplinary

1. PREPARATION

You should have at the ready your Map of What You Know from Creativity Skill 1.

Imagining the radical context break is much easier than the incremental push past your boundaries. Why? Mental models are usually established by examining the world and comparing it with your own logic and then evaluating the soundness of your models. Thus, ways of viewing the world that you find illogical are discarded. But your next great idea may reside in the intellectual scrapheap.

2. CONSIDERING ABSURD IDEAS

To radically break from your context, you need only consider ideas that seem absurd to you. Essentially, you need to identify ideas that are the opposite of your own, or at the least *very* different.

For example, you now consider the case that "equities are massively *under*valued" as opposed to your normal description of the state of the world, "equities are massively *over*valued." You now insist on identifying reasons for why the opposite state could be true. Do this systematically for each of the points described in your "current state of the world" and "thoughts about the future" portions of the Map of What You Know.

You are not necessarily looking to "lose your religion" or to fall in love with the intellectually seductive idea that what you have been missing all along is simply the opposite, counterintuitive point of view from your own. No, instead, you are unshackling how you usually see the world in a forceful, radical way in order to uncover new ways of viewing the world.

After all, the results of investment performance are objectively, not subjectively, measured. Are any successful investors consistently earning benchmark-beating returns? If so, what are they doing that you are not doing? Is it their philosophy that is superior? Is it the tools they use to sift the information landscape?

3. GETTING INTERDISCIPLINARY

Another source for the radical context break is to consider an interdisciplinary approach to uncovering your next great investment filter. For example, there was a brief period in the early 1990s when science's chaos/complexity theory gained investment adherents. These investors borrowed the mathematics of this niche science to better understand market dynamics and movements.

Is there a reading in simian anthropology that aptly describes the behavior of masses of human beings (i.e., "the market") and not just that of the apes that are the focus of the anthropological research? Can understanding the science of road traffic help you understand market gyrations? If either answer is "yes," it may be time to broaden your reading horizons into crazy realms previously left unexplored because there was no obvious tangential link to your own ideas.

You know that you are doing this process well if you are uncomfortable with the process or if you laugh at some of the ideas under consideration. Likewise, good evidence that you are too rooted or tied to your normal thinking is that you cannot imagine any state under which ideas opposite to your own could be valid. Here, you can get a clear and direct sign from the response of your deeply rooted belief system.

CREATIVITY TIPS

CATEGORIZATION

Analysts are not generally renowned for their creativity, so these exercises may leave you feeling uprooted. If you have difficulty with these exercises, perhaps some additional structure would help you unmoor your mind.

As in the Map of What You Know exercise, it may be useful for you to record your views about the following categories (these same categories appear again in Chapter 2). By organizing your thoughts in such a structured way, new thoughts may emerge or forgotten thoughts may be remembered.

- Geopolitical state of the world by major region
    - Africa
    - Asia Pacific
    - Australia
    - Central Asia
    - Europe
    - Middle East
    - North America
    - Russia
    - South America

- Politics
    - Taxation policy
    - Social policy
    - Budgetary policy
    - Diplomatic policy
    - Environmental policy
    - Military policy
- Demographics
    - Domestic versus international
    - Young versus old
    - Poor versus wealthy
    - Educated versus less educated
- Industries
    - Overperforming versus underperforming
    - Most interest rate sensitive versus least interest rate sensitive
    - Most volume sensitive versus least volume sensitive
    - Most margin sensitive versus least margin sensitive

Continue to apply your creative powers to categorizing the state of the world. Frame your categories with opposing ideas as described in Creativity Skill 4. Sometimes, just by recognizing new ways of categorizing the world, you come up with new ideas, which, in turn, can spark an avalanche of new *investment* ideas. For example, when considering the future of wearables, if you categorize the industry for such devices as "fashion" and not "technology" it is likely to lead to different insights. If you do what you have always done, you will get what you have always gotten. So, it might be time to cut loose from your normal thinking and explore the wilds of the unknown.

ASK SOMEONE ELSE FOR HIS OR HER POINT OF VIEW

It may seem obvious, but asking someone else for his or her point of view can sometimes jar loose stuck thinking. The key to success here is to ask someone you respect but whose ideas you may normally disagree with. It may also help to ask someone who works outside your firm because culture can sometimes lead to that enemy of alpha, "groupthink." Good examples include people you play sports with, fellow club members, relatives, and so on.

READ VIEWS DIFFERENT FROM OR OPPOSITE TO YOUR OWN

If you do not know of a good candidate to bounce your ideas off of, try to read points of view that are as far from your own as possible in order to gain a new perspective. If, for example, your economic policy preferences tend to be left leaning, consider the points of view of right-leaning economists. If you are an aggressive growth fund equity manager who is bullish on the domestic equity markets, seek out those who are bearish on valuations.

Again, the goal is to unshackle your mind so it can make new connections or, better still, identify entirely new ways of thinking about the world. What do you have to lose?

READ THE IDEAS OF FUTURISTS

Futurists are people who offer their "crazy" views about the coming possibilities to the business community. Perhaps surprisingly, many futurists make a consistent living by offering their predictions. Some well-known futurists are Alvin Toffler, Buckminster Fuller, Anne Lise Kjaer, Barbara Marx Hubbard, Christian Schoyen, David Houle, and Marshall McLuhan.

Again, consider those prognosticators whose views seem different from anything you can imagine. Then ply your creative powers to see whether you can connect their worldviews to your own. What are the missing links? Does the cause and effect chain connecting their ideas to your own seem probable, improbable, or just plain crazy? Remember, you are not looking to identify the "best futurist" or the "most consistently accurate futurist." Your work here is to see the world through the eyes of another person in hopes of opening up your own worldview.

DO WHAT REJUVENATES YOU

Increasingly, scientific research demonstrates that if you want a creative solution to a problem, focusing on the problem is counterproductive. Instead, do an activity that is more likely to shift your mind from analytical functioning to creative functioning.

Here is an easy, yet powerful, method for putting yourself in a more creative mindset.

- Ask yourself: What do you do that rejuvenates you? For example, many people like to exercise, clean their home or office, do a hobby, or meditate in order to rejuvenate themselves.
- Do those things that rejuvenate you.

Why does this technique work? It works because exercise, cleaning, hobbies, and meditation all provide a mundane focus for analytical consciousness—catching a ball, sweeping up dirt, painting a fence, or repeating a mantra—that allows the more creative functions of the brain to flourish. Try it!

SUMMARY

Creativity is about creating something new, which involves an exploration of connections and boundaries. Thus, a way to trigger greater creativity is to take the time to map how you see the world. After identifying where you stand in terms of the Map of What You Know, it is easier to see what you are not doing. New investment ideas lie in the realm of what you are not already doing. Doing things differently includes

- recombining what you already know via permutations as revealed by mind maps,
- doing things incrementally close and perhaps tangential to what you are already doing via a review of your mental models, and
- breaking free from your existing context radically.

Each skill discussed in this chapter asks you to risk change and to exit your comfort zone, so get creative!

CHAPTER 2

A TOOL FOR THINKING ABOUT POSSIBLE FUTURES: SCENARIO PLANNING

KEY IDEAS

- Scenario planning is about creating narratives about multiple plausible futures and identifying strategies that make sense no matter which narrative unfolds.
- It is not about single-point forecasts.
- It is not about probability-weighting scenarios to identify a quantifiable "most likely" scenario.
- It is not about extrapolating the status quo and then considering an outperform and underperform scenario.

OVERVIEW

You may be prepared to move past your boundaries after learning in Chapter 1 about how to unleash your creativity, but many investors prefer proven hard-skill tools to (what sometimes feels like) the squishiness of creative exploration. "Put away the finger paints and tell me how investors can come up with new investment ideas!"

For those who prefer the concrete and actionable, you are in luck because scenario planning is a tool specifically designed to help thinkers better map, think about, evaluate, and understand the future. It is radically different from the forecasting, with which every investor is familiar. Because investing is about discounting the future, with the improved understanding of the future that scenario planning affords, investors can generate a greater quantity and quality of investment ideas.

BACKGROUND

Scenario planning was first developed by the United States Air Force following World War II to develop prepared responses to actions likely to be undertaken by its enemies. In the 1960s, futurist and ex–Air Force member Herman Kahn turned scenario planning into a tool for businesses at the Hudson Institute.[3] Then famously, Royal Dutch/Shell and its scenario-planning innovator, Pierre Wack, not only anticipated the OPEC oil embargo of the early 1970s but also prepared a nimble response that allowed the company to leap far ahead of its competitors.[4]

In addition to Kahn and Wack, Peter Schwartz, Kees van der Heijden, and Napier Collyns are among the giants of scenario planning. More recently, scenario planners, including Thomas Chermack, have been trying to update the technique for current generations.

WHAT SCENARIO PLANNING IS AND WHAT IT IS NOT

So, what exactly is scenario planning? Here are the views of some of the creators of scenario planning on the tool that they all helped develop.

From the godfather of modern scenario planning, Pierre Wack:

> Scenarios deal with two worlds: the world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision-makers. Their purpose is to gather and transform information of strategic significance into fresh perceptions. This transformation process is not trivial—more often than not it does not happen. When it works, it is a creative experience that generates a heartfelt "Aha!" from your managers and leads to strategic insights beyond the mind's previous reach.[5]

In *The Art of the Long View*, Peter Schwartz says of scenario planning:

> Scenarios are a tool for helping us to take a long view in a world of great uncertainty. . . . Scenarios are stories about the way the world might turn out tomorrow, stories that can help us recognize and adapt to changing aspects of our present environment. They are a method for articulating the different pathways that might exist for you tomorrow, and finding your appropriate movements down each of those possible paths.[6]

BusinessDictionary.com defines scenario planning succinctly as the

> process of visualizing (1) what future conditions or events are probable, (2) what their consequences or effects would be like, and (3) how to respond to, or benefit from, them.

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[3]Kees van der Heijden, *Scenarios: The Art of Strategic Conversation*, 2nd ed. (West Sussex, UK: John Wiley & Sons, 2005): 3.
[4]Peter Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World* (New York: Crown Business, 1996): 7.
[5]Schwartz, *The Art of the Long View*: 36–37.
[6]Schwartz, *The Art of the Long View*: 3–4.

These definitions demonstrate that scenario planning is a tool that every investor should understand because it is a tool designed to solve the perennial investment problem: making investment decisions about the uncertain future.

Despite scenario planning's proven ability to solve the perennial investment problem, most investors remain oblivious of scenario planning's 65-year history. This might be because many business schools still do not teach scenario planning or because even though scenario planning includes rigorous research and analysis, it is perceived by the investment community as not being sufficiently quantitative.

Scenario planning is not a form of strategic forecasting. Forecasting is designed to create single-point quantitative outcomes: For example, the electric utility industry will see revenue growth of 5%–7% next year. In scenario planning, however, multiple possible futures are imagined, not just a single forecast.

Also, probabilities are decidedly *not* applied to scenarios to develop a weighted average single-point outcome as is frequently done in finance. For example, "expected value" and its weighted average probability calculations are part of most investors' toolkits.

Jim Butcher, a former Morgan Stanley managing director in charge of its Strategic Engagement Group, aptly describes the difference between scenario planning and forecasting:

> Scenario planning often provides the right answer but wrong timing. Often scenario planning will reveal a problem that triggers a prepared response. It is often the case that the problem that created the solution never materializes, *but* a problem similar to it does arise and the solution is then easily implemented. During the run-up to Y2K (remember, the nonevent!), Morgan Stanley did a scenario exercise and came up with a risk concern that banks, say like a Bank of New York, wouldn't be able to clear trades if computers goofed up. So, as we know, Y2K came and went with a whimper, but then 9/11 sadly happened, and guess what? Banks weren't able to clear trades. Having thought about this the previous year, MS knew what to do and a crisis was averted.[7]

This is an excellent example of how scenario planning is very different from the forecasting approach to investing. Forecasters would consider Y2K a failure because it never materialized as forecasted. But scenario planners would see it as a success story because the issue at hand was not Y2K but, rather, a more general problem not unique to Y2K—namely, "What if banks aren't able to clear trades?"

Additionally, scenario planning works best when the natural tendency to create an expected, better than expected, and worse than expected set of scenarios is avoided. The classic discounted cash flow model is a good example of this "Status Quo Scenario." Most analysts

[7]See http://blogs.cfainstitute.org/investor/2012/02/06/generating-investment-ideas-interview-with-entegras-jim-butcher-part-2/.

grow a company's current-year revenues by some assumption for growth—say, 7%—to get a baseline scenario for next year's revenues. When combined with historical common-size analysis, a full income statement is generated. Then, of course, most analysts would say that the "outperform" scenario would be if the company actually grows at 10%, and the "underperform" scenario would be if the company's revenues grow at only 5%. This extrapolation of current trends in to the future is decidedly *not* scenario planning.

Instead, scenario planning offers unique narratives for each scenario that describe various plausible futures. For discounted cash flow, the "Status Quo Scenario" would be only one of a suite of scenarios. Other scenarios could include the following: a scenario in which the company is acquired ("The Acquisition Scenario"); a new disruptive technology usurps the most lucrative part of the business ("The Creative Destruction Scenario"); a new manufacturing technology dramatically lowers expenses ("The Amazing Logistics Scenario"); and a war takes place in the company's major markets, disrupting supply chains ("The Disaster Scenario"). These scenarios are qualitative stories about the business and not just forecasts for one data point. These qualitative narratives also have quantitative aspects, but the heart of an investor's understanding comes not from getting the precise earnings estimate right but, rather, from seeing the entire company relative to the unfolding of possible future business realities.

Scenario planning often suggests new ways of looking at the world that allow key driving forces to be identified ahead of time so that investment strategies can be either changed or deployed relative to the new understanding. Schwartz states:

> In a scenario process, [investors] invent and then consider, in depth, several varied stories of equally plausible futures. The stories are carefully researched, full of relevant detail, oriented toward real-life decisions, and designed (one hopes) to bring forward surprises and unexpected leaps of understanding. Together, the scenarios comprise a tool for ordering one's perceptions. The point is not to "pick one preferred future," and hope for it to come to pass. . . . Nor is the point to find the most probable future and adapt to it or "bet the company" on it. Rather, the point is to make strategic [or investment] decisions that will be sound for all plausible futures.[8]

Scenario analysis can be scaled to whatever future problem you are trying to understand. That is, you can consider various plausible futures for a single cash flow–generating entity (e.g., a business and its cash flows, a pool of mortgage-backed securities and the cash generated by its tranches, a nation and its GDP) and how those futures would affect its ability to pay those cash flows. Or you can scale scenario planning up to the macro level to consider the effect of various narratives on global GDP and then select preferred investment regions, industries, or securities for further analysis according to the narratives created. It is up to you how you choose to use scenario planning.

[8]Schwartz, *The Art of the Long View*: xiii–xiv.

HOW TO CREATE A SCENARIO PLAN

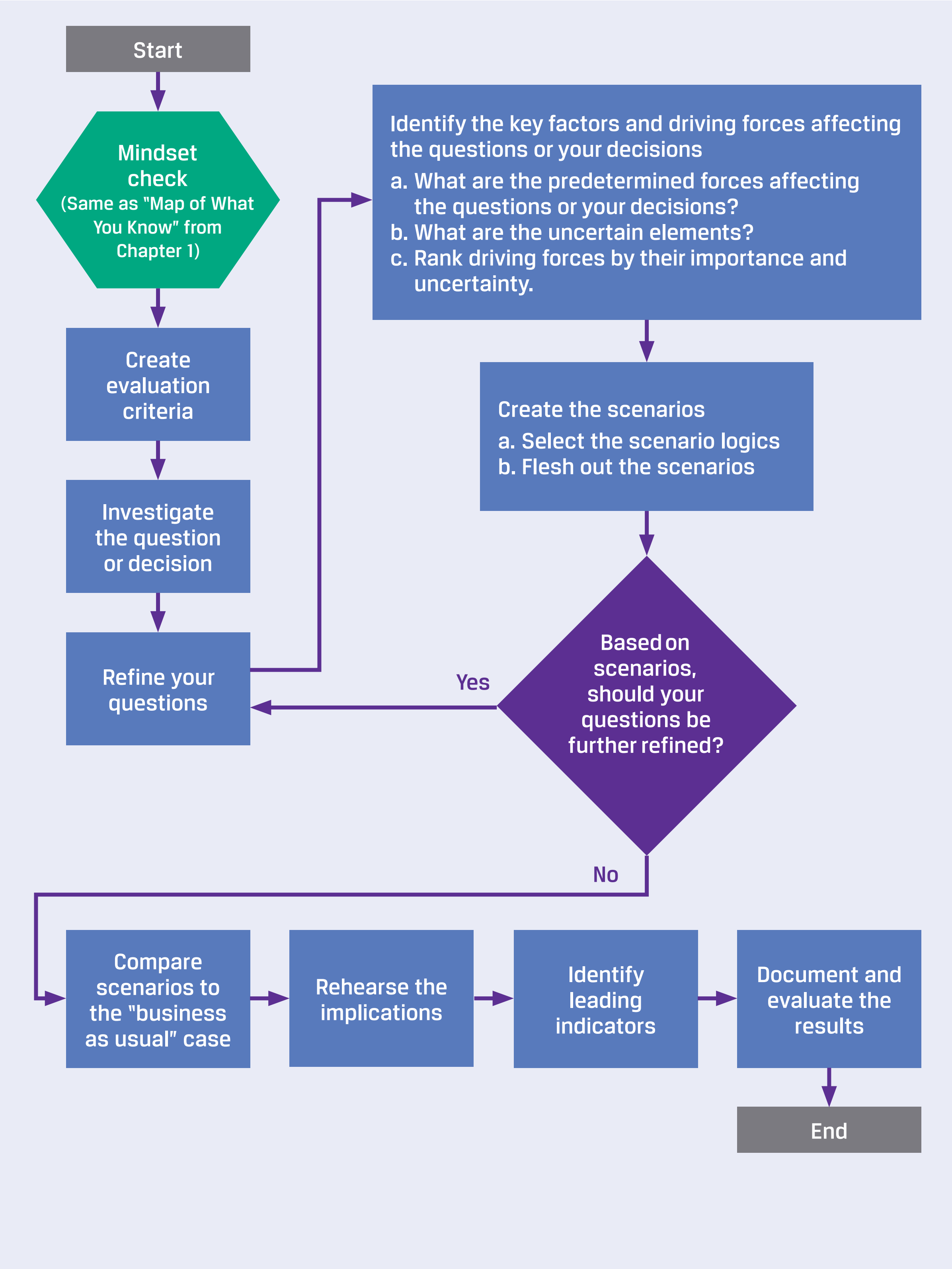
Time needed: An investment of many hours once per year or after a major state change

Materials needed: A way to record your thoughts

STEPS:

1. Checking your mindset (the Map of What You Know from Chapter 1 can be used here)
2. Identifying the questions or decisions to consider
3. Creating evaluation criteria
4. Investigating your questions or decisions
5. Refining your questions
6. Identifying the key factors and driving forces affecting your questions or decisions
   a. What are the predetermined (i.e., certain) elements impossible to change?
   b. What are the uncertain elements?
   c. How do people—individuals and groups—fit in?
   d. Is ranking appropriate?
7. Creating the scenarios
   a. Selecting the scenario logics
   b. Fleshing out the scenarios
8. Comparing scenarios with the “business as usual” case
9. Rehearsing the implications
10. Identifying the leading indicators
11. Documenting and evaluating the results

Note: Fleshing out scenarios (step 7) often results in a new understanding of the questions under consideration (step 5). You may find that this works best as an iterative process where you move back from step 7 to step 5 until you are satisfied with the results before moving on to step 8.


Start
Mindset check
(Same as "Map of What You Know" from Chapter 1)
Create evaluation criteria
Investigate the question or decision
Refine your questions
Identify the key factors and driving forces affecting the questions or your decisions
a. What are the predetermined forces affecting the questions or your decisions?
b. What are the uncertain elements?
c. Rank driving forces by their importance and uncertainty.
Create the scenarios
a. Select the scenario logics
b. Flesh out the scenarios
Based on scenarios, should your questions be further refined?
Yes
No
Compare scenarios to the "business as usual" case
Rehearse the implications
Identify leading indicators
Document and evaluate the results
End

Scenario planning can be a very intensive process for the uninitiated. Once a comprehensive scenario plan is created, however, it can be updated rapidly. Moreover, scenario planning is so potent that it is likely to permanently change how you see the world. By engaging in a scenario-planning exercise, you are broadening your "investor vision."

To help guide you through the creation of a scenario plan, Sloane Ortel and I created an example abbreviated scenario plan that is woven throughout the following steps. Our full example scenario plan—including our predictions and three possible scenarios—is available in Appendix 1.

For this process to have meaning for you and in order to develop a new and extraordinarily powerful tool, you need to go through each step for yourself. Looking at our examples should help you better understand how to engage with the steps as well as how they work together to create a scenario plan.

1. CHECKING YOUR MINDSET

Feel free to use your work from the previous chapter's Creativity Skill 1 (Map of What You Know) here because every scenario plan begins with a mindset check. The mindset check is a deep dive inward, as opposed to researching the world outside oneself.

The first step in creating a scenario plan is to create a record of your current view of the world—including general observations, your loosely held opinions, your most certain conclusions, and your preferred mental models. Special attention must be paid to your most cherished mindsets. After all, any distortions in perceiving the world are likely to be rooted in the beliefs that are most rigidly held.

Peter Schwartz elegantly describes the ruinous effects that mindset can have on the accurate perception of the world:

> People often do not realize that their decision agendas are usually unconscious. Thus, the first step of the scenario process is making it conscious. Each of us responds, not to the world, but to our image of the world. This "mind-set" includes attitudes about every situation in our lives and every person we come across. In many cases, these mind-sets have been built up, slowly, from childhood and may not have much to do with actual reality.[9]

[9]Schwartz, *The Art of the Long View*: 49–50.

He goes on to say:

> It's all part of a process of self-reflection: understanding yourself and your biases, identifying what matters to you, and perceiving where to put your attention. It takes persistent work and honesty to penetrate our internal mental defenses. To ensure the success of our efforts, we need a clear understanding of the relationship between our own concerns and the wider world around us. To achieve that, it helps to have a constant stream of rich, diverse, and thought-provoking information.[10]

Your goal at this step is *awareness of your current thinking*. Scenario planning—with its emphases on research, asking many and new questions, and distilling future possibilities from current probabilities—is likely to jar loose fixed viewpoints. Scenario planning works best when you are open to new possibilities.

To better chart your current mental map, it may be helpful to list (and to maintain thereafter) your views about the world, organized by such commonly recurring categories as the following:

- Culture
- Demographics
- Economics
- History
- Models
- Politics
- Psychology
- Resources
- Technology
- Interconnections

Culture

What are your long-held beliefs about values, work, and marriage? What is the state of these beliefs internationally, as compared with your home country or neighboring countries? Do people seem happy and fulfilled or sanguine and resolute? What is your view of how these cultural influences may affect investments?

[10]Schwartz, *The Art of the Long View*: 59.

Demographics

What is your view of population trends, educational levels, and diversity? How do you think these forces affect the landscape of investment ideas? Does a population decline in your home country mean lower and slower economic growth? Does the trend toward a better-educated workforce benefit the economy?

Economics

Many of your cherished beliefs are probably in the economics domain, including direction of interest rates, global growth, and industries likely to succeed, as well as such preferred economic philosophies as the invisible hand, central planning, and trickle-down economics. Consequently, pay close attention to your "sacred cows" in this category.

History

In turbulent times, it is natural and common to use history and its lessons to try to understand the present. What events in history are dominating the current topical conversation? Has the "conventional wisdom" failed to realize that the historical moment has passed? Is history being used to explain the present even applicable or appropriate? What other events in history and your personal history are part of your mental apparatus? What periods in history do you reference frequently to try to understand your life and the investment landscape? For example, do you default to the German hyperinflation of the 1920s? Does the Russo–Japanese War influence your understanding of Southeast Asia?

Models

What mental models shape your thinking? Do you prefer price-to-EBITDA more than price-to-earnings ratios? Do you accept or reject the capital asset pricing model? Do leftist politicians always tax and spend? Do conservative politicians always cut taxes and spending? Do value stocks outperform growth stocks? Is the velocity of money speeding up or down? Is the mind fully described by System 1 and System 2 thinking as defined by Daniel Kahneman?[11] Are women more empathetic? Are men more analytical?

Most of us have mental models in place that are summoned from our subconscious without our even noticing their activation. Therefore, it is extremely important to begin documenting these mental models and to have a roster of them. Once you are aware of your models, you are more likely to see how they may bias your thinking and decision

[11]Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2013).

making. Likewise, you are then more able to change your mental models. Ask yourself how these mental models limit your investment universe positively or negatively.

Politics

Is fiscal policy in your country or at the global level at an impasse? How does this affect investment possibilities? Is monetary policy appropriate, overwrought, or not at all adequate? Which political issues show up in your choices of security selection? In which political issues is there emotional pain? Taxes? Environment? Immigration?

Psychology

What events in your personal history affect how you see the world? Were you born in a Communist country or in a country just emerging from Communism? Were you born in a country that saw itself as fighters of Communism? Does seeking praise from your risk-taking father lead you to seek unnecessary risks in investments? Have you lost your job, and, if so, how does that change how you see the realm of investment possibilities?

Resources

What is your view of the state of global commodities—including water, energy, construction materials, minerals, heavy metals, gemstones, and knowledge? What are the constraints on these resources, and how do they corrupt your ability to see the world more clearly?

Technology

Given the dominance of electronic gadgetry and information technology, most people tend to think of technology as a development in computing or in personal electronics. But what about the state of logistics technology, the state of transportation technology, or the state of academic research into better options-pricing models? What is your view of technology in general, and how does this shape how you see the world's possibilities for returns on capital and their inherent risks? Technology differs from many other investment factors, such as culture or politics, because once a new innovation is made public it never goes away; we still have buggy whips. Technology is refined and improved upon, but the solutions to problems it provides do not go away.

Interconnections

Reviewing the log of your mindset, what bridges between categories are apparent? What interconnections are present? Which forces affect which other forces? Are there feedback effects such that a change in monetary policy in one country would change your view of the yield curve in your home country? Document the interconnections you think are important. How does your connection of categories change how you see investment possibilities generally?

Making Your Mind More Malleable

Once you have logged your mindset about many issues, it is important to make your mind malleable to new possibilities and as free of bias as possible. Take a look at one of your viewpoints and experiment to see whether your views change if you consider three different viewpoints on the same issue: the status quo is maintained, things get worse, or things get better. Does altering your mindset change your understanding?

It is also useful to consider viewpoints directly opposite to your own. If you believe in Keynesian economics, then consider the world from the point of view of Austrian economics. If you are a cultural liberal or conservative, then consider the world from the opposite viewpoint. The goal is not for you to lose your values, but rather to see the world inclusive of the suite of full possibilities.

Because recording your mindset honestly and authentically is likely to be difficult, it is important to remember the words of Kees van der Heijden about the power of scenario planning to construct innovative strategies:

> Scenarios can be . . . a reframing tool. By breaking out the uncertainties, you gradually get into view what is driving the system and its underlying structural relationships, and what is already "in the pipeline." Once you have arrived there, your strategy will be laid out in front of you. . . . But this is not a process for the squeamish; only the strong with tenacity and staying power will get there.[12]

[12]van der Heijden, *Scenarios: The Art of Strategic Conversation*: xiv–xv.

EXAMPLE SCENARIO: MINDSET CHECK

In this example, Sloane Ortel and I share the raw copy of our mindset checks to show how the nature of scenario planning is a creative process. Consequently, some of our mental models have nothing to do with investing. Yet, mapping our default ways of thinking about and responding to the world was part of the process we used to unshackle our minds, get creative, and generate new ideas for investing. We go into some detail about the mental models so that they do not appear as gobbledygook.

EXAMPLE MENTAL MODELS FOR SLOANE ORTEL:

- Valuation:
    - Non-monetary resources are difficult to value properly.
    - Growth is valued differently at different times in the marketplace, and enthusiasm for the force itself often replaces an understanding of what an entity may grow into.
    - Novelty can be a key value driver.
    - The most valuable thing on earth is the reason a business can't grow. The second most valuable is the reason a person isn't happy.
    - Value created by advantaged tax status is personal, not universal, and will never be fully valued.
- Perception:
    - Anything you can understand quickly is vastly simplified. Facts don't change, but "truth" evolves and will fill the amount of room you give it.
    - I am capable of understanding a business given enough time to spend on it.
    - Described and named problems (subprime, baht crisis, etc.) often become "responsible" for all sorts of stuff that is pretty unrelated to them.
    - Segmenting businesses into industries creates a false impression of uniformity.
- Knowledge transmission:
    - Information wants to be free. Data and information will naturally resist attempts to contain them.
    - Most people can teach you something. The big trick is to be open to learning. People who didn't go to the "right" school are often more informative than those who did.

    - What my parents knew when they were "in the mix" is still relevant.
    - Communication is the only way that humans understand other humans to be intelligent.
    - Situations evolve gradually, but change is noticed suddenly. This can create sharp changes in the perception of value.
- Limits of knowledge:
    - Most macro trends are nearly impossible to predict, but they can form structural arguments for investments.
    - Most academic work is puffery, and most published research is either wrong or not applicable. "A professor" is as credible a source as "some guy" until proven otherwise.
- Competition:
    - Long sales cycles can make for big competitive moats.
    - Dominant businesses in uncompetitive industries are more valuable than the obverse.
    - Reputations are made by being hip; fortunes are made by being mainstream. It's way more competitive to be hip.
- Evolution:
    - Disorganized areas of the economy (criminal, retail, poverty) will organize given time and peace.
    - Companies form in ecosystems with willing customers, qualified employees, and venture capital as key support mechanisms.
    - Nothing will ever fully organize and be 100% automated. There will always be a hole in the process.
- Macro:
    - You either have liquidity or you don't.
    - We are trending toward anarcho-socialism, where no power is truly "in charge" but citizens of wealthy nations are somehow looked after.
    - Nuclear war is inevitable but probably won't end the world.
    - Wars of aggression are not gone forever.

EXAMPLE MENTAL MODELS FOR JASON VOSS:

- Calories burned > calories consumed = weight loss.
- Five elements: earth, water, fire, air, void—borrowed from Asian philosophy. Earth-type things are rooted, fixed. Demographics have earth qualities because they are immutable once in place. Water-type things flow, recede, and return. In investing, mean reversion is like the water element. Fiery things are short-lived and explosive. In investing, market crashes are fiery. Air-type things flow and are ungrounded. Technology has air-like qualities because it is ever changing, and much of it seems done just because it can be done (i.e., is ungrounded). Last, the void element is the space for possibility. In investing, possibilities and probabilities as well as risks and uncertainties are all void-like elements.
- Yin and yang. Again, a mental model from Asian philosophy. Things tend to be active or passive, strong or weak. This mental model says that everything has an opposite and that both are in dynamic tension because defining something immediately suggests also what it is not. By demarcating opposites, issues can be placed on a value continuum. On the temperature continuum, data can be mapped between absolute zero and the temperature just after the big bang.
- Harmonization is the key to understanding. To fully grasp something, you must do that thing; it is not enough to read about it abstractly. One has to become/harmonize with the thing one is trying to understand.
- Incentives work.
- Markets, as opposed to central planning, allocate resources most efficiently.
- Supply and demand describes most markets well.
- Capitalism is as much about cooperation as it is about competition.
- Consciousness is the ground of reality. In material realism, the predominant philosophy of science, matter is real. I believe in mind over matter.
- Ecosystems, as opposed to hierarchies or causal chains, are the appropriate description for the complex interactions of living systems.
- Effects follow causes.
- Logic is an appropriate intellectual framework. However, it does a poor job of explaining the irrational.
- Conscious choice is like a camera switching between telephoto and wide angle, or like switching between a telescope and a microscope.
- Paradox is part of all defined systems. See yin and yang.

- Stakeholder capitalism is superior to shareholder capitalism.
- Most things can be priced.
- Consumer surplus is a rich source of opportunity.
- Growth investing is riskier than value investing.
- Risks are more certain than opportunities.
- Growth investing requires a short-term time horizon to justify the costs of capital.

2. IDENTIFYING THE QUESTIONS OR DECISIONS TO CONSIDER

Having mapped your mindset and the mental models you use to make sense of the world and its investment possibilities, you need to begin to develop questions to ask in your scenario planning.

Do you want to find opportunities within demographic trends? Do you want to identify new investments on the basis of technological shifts? Are certain industries overvalued because of a change in political calculus? What question or questions do you want answered?

Kees van der Heijden says of this stage of scenario planning:

> Some scenario projects are undertaken to address a specific problem or question; some are meant to install a permanent capability. Some are intended to open up minds, some to create closure around strategy. Some aim to make sense of a puzzling situation; some intend to produce ideas for action. Some aim to develop anticipatory skills; others are intended to turn participants into experiential learners. And so on.[13]

To develop questions for consideration, it may be helpful to either review your Map of What You Know (Chapter 1) or your responses to the mindset check. Ask narrow questions about the beliefs you recorded, such as: Over the next year, will my assumptions about global GDP affect oil production? Then switch to broader questions; for example: What does oil production look like under various GDP and time horizon assumptions?

[13]van der Heijden, *Scenarios: The Art of Strategic Conversation*: 17.

Have the mental flexibility to adjust your mental contexts for considering investment possibilities. What questions naturally arise under your context adjustments? What questions seem to exist no matter how you adjust your contexts or assumptions?

Recognize that the broader your scope and scale, the more likely you are to consider questions that affect wide swaths of the investment landscape. Narrower questions are likely to lead you into unique and valuable insights that other investors and market participants may have missed. Yet, sometimes the greatest opportunity is recognizing how the status quo worldview is wrong, and these larger issues may drive every investment in ways that few others truly appreciate.

In developing your questions, you want to focus on causes, not effects. Instead of asking yourself, What if an increase in military tensions in the South China Sea affects Chinese manufacturing?, ask, What events might lead to military tensions in the South China Sea? Ideally, your questions will lead to scenario planning that puts your understanding at earlier moments into the cause and effect chain; that is, you want new insights "before it's too late." If you can recognize and understand causes earlier than other investors, you can position your portfolio to capture more beneficial effects—or avoid more detrimental ones. Remember, scenario planning is not about predicting the future; it is "about perceiving futures in the present."[14]

Pay particularly close attention to events, assumptions, mindsets, and stories about the status quo that make you uncomfortable. You may not be acknowledging an important understanding by favoring or defending a status quo understanding of the world. Alternatively:

> Most companies . . . have looming somewhere at the edge of their collective consciousness . . . "the big unarticulated issue." Everybody feels it, it is there, always present, the imminent threat or the unseized opportunity. The challenge that nobody can face. It is so vast, so different from Business-As-Usual, that existing management thinking just can't cope. But all the time there's that nagging worry: what should we be doing about the big issue, the challenge we're not yet ready to tackle?[15]
>
> These are the feelings of discomfort worthy of your attention.

[14]Schwartz, *The Art of the Long View*: 36–37.
[15]van der Heijden, *Scenarios: The Art of Strategic Conversation*: 56.

EXAMPLE SCENARIO: IDENTIFYING THE QUESTIONS OR DECISIONS TO CONSIDER

In Ortel's and my example scenario plan, we want to break open our normal contexts and get creative. We find ourselves using the same mental models to understand the world, and our research results are becoming conventional.

So, our question is, **What will the world look like at the opening of the 22nd century?**

We hope that such a radically broad question permits us to think new, possibly crazy, thoughts.

3. CREATING EVALUATION CRITERIA[16]

Before writing formal scenarios, it is important to define criteria for evaluating the success of your scenarios. By establishing the criteria ahead of time, the review of your scenario plan is more objective.

As discussed previously, if you hope to earn investment returns greater than those of your competition, you must do something different from (and better than) your competition. Thus, uniqueness of insights is one of the criteria for evaluating the success of a scenario.

Is your scenario merely a variation of a status quo theme? For example: You think the consensus GDP forecast is off by half a percent. If so, this is a strong indication that your scenario planning has not led to actionable or unique insights about the future. Better criteria are an insight that you cannot have previously imagined or that you have not read or been told about elsewhere.

Applicability of your scenario planning is also an important criterion. After all, what use is a unique investment insight that you cannot implement?

Do not be constrained by convention in defining your evaluation criteria. The best way to evaluate the success of a scenario may be the silent and earnest listening of your chief investment officer as you describe your view of the future. Be as original in creating your success criteria as you would be in creating your scenario plan.

[16]Thomas J. Chermack, *Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios* (San Francisco: Berrett-Koehler, 2011).

EXAMPLE SCENARIO: CREATING EVALUATION CRITERIA

Success for our example scenario is measured by

- the degree to which we break out of our preferred contexts and mental models,
- identifying harbingers of state changes,
- providing a framework for understanding/contextualizing new events,
- providing suggested courses of action given the framework,
- providing an understanding of "what won't work" in the new world, and
- shifting the way we evaluate investment opportunities.

We want our view of the world at the opening of the 22nd century to inform how we see major developments, events, and the news. In turn, we hope this informs our entire portfolio management and security selection process.

4. INVESTIGATING YOUR QUESTIONS OR DECISIONS

Now that you have examined your personal biases and formed your question, it is time to examine the world for evidence of the future contained in the present.

Many of the facts and data relevant to constructing a scenario are not generic, and they are usually unique to the question or decision under consideration. Yet, there are perennial influences worth examining that indicate important global changes or that are guaranteed to help you see things in a new way. Besides the categories of influence identified previously in the mindset check, here are additional ones to help inform your investment question or decision:

- Axes of perception
- Fringes
- Curious surprises
- Intellectual grazing
- Remarkable people
- Travel

Axes of Perception

In considering perception-shaping events, it is important to engage in communication media that shape the public's perceptions of events. The more visual a communication medium, the greater its effect on perceptions. So, audio-visual media, such as television and internet video, affect perceptions more than radio does.

Print media with images trump content without pictures. Images reflect what people think is important as well as influencing them. What you are after is to understand the center of gravity or axes around which public perception revolves.

An example is the shock felt by many in the United States when they read about the Abu Ghraib prison scandal in print, which did not shock in the same way as when they saw the images on television, in a magazine, or online.

Fringes

Earlier, we discussed exploring information and ideas just outside your comfort zone, frequently the domain of fringe thoughts. They are not entirely radical but not entirely conventional either; rather, fringe ideas can inform the important questions or decisions you should be considering as an investor. What questions or decisions are fringe thinkers concerned about right now? Can you use their thoughts to filter or inform your own?

Curious Surprises

As discussed in Chapter 1, developing new and different ideas requires a journey outside your comfort zone: You need to do something you are not already doing. Read magazines diametrically opposed to your current viewpoint. Read a newspaper that flies away from your normal intellectual perches. Allow your curiosity to guide an exploration, as opposed to a steely analysis designed solely to answer a question. As an exercise, prevent answers from popping into your head and put your mental energy into asking as many questions as possible. Actively try to be surprised, and when you are surprised, take the time to explore why you are surprised.

Intellectual Grazing

Many futurists, such as David Houle, describe themselves as intellectual grazers. That is, they rarely take a deep dive into a subject. Instead, when they go to an airport bookstore, they look for patterns in the stories listed on the covers of dozens of magazines, as opposed to reading the stories that the cover copy describes.

Similarly, I read over 60 different sources of news a day, but I hardly ever read an entire article—not because I am too busy but because I am interested in understanding the breadth of information. Instead of whole articles, I peruse the titles of stories and add them as tiles to my mental mosaic to form more complete and detailed pictures. As an example, in the 2015 iteration of the Greek-EU crisis, the vote of the Greek people against the proposed EU solution was widely covered in North America and in Europe, but Chinese newspapers did not mention the story at all. This is noteworthy information gleaned by simply noting the story titles of articles globally.

Filter a breadth of information as much as you do a depth of information. If you come across a story that is not something you already know about, then by all means, read it to deepen your knowledge. But most information in stories is incremental in nature. After all, what is the likelihood that a story about the movement of the euro/yen exchange rate contains new, deep information?

Remarkable People

Scenario planner Pierre Wack is famous for his term "remarkable people," which describes individuals who consistently and uniquely anticipate big movements or upheavals. There are also remarkable people not influenced by the status quo. If you seek your own remarkable people, do not examine only those whose ideas have come true. This may seem like poor advice, but you look to remarkable people not to hand you the correct answers to your questions but to jolt your thinking into new territory. A remarkable person's wrong idea may be exactly the point of view that triggers your correct thinking about an important investment question or decision. Remarkable people can be found in traditional and online media, at conferences, or on your contacts list.

Travel

Getting out of your comfort zone is frequently just a taxi ride away. How do people in other neighborhoods in your hometown solve the problems of their lives? Do they have access to the same things that you do? If not, how do they make their lives work? If your town has a homogeneous experience of life, then travel until you find places where lives are made better by solving problems differently. What problems do these people need help with, and what investment opportunities are there to create solutions? How does your thinking about the world change when confronted with these new environments? Travel unlocks new perceptions and new solutions and thus new investment opportunities.

EXAMPLE SCENARIO: INVESTIGATING YOUR QUESTIONS OR DECISIONS

Here we outline a portion of the materials we used to investigate the central question of our example scenario plan: What will the world look like at the opening of the 22nd century? Naturally, your choices will differ.

- Axes of perception:
  - There is too much debt = inflation and/or default and/or very low returns on capital.
  - There is growing economic inequality as income and wealth flow to nimble capital and labor but flow away from fixed capital and labor.
  - Current generations of young people are disadvantaged.
- Fringe sources of information read frequently include the following (most are blogs; others are people's views, etc.):
  - Blog: NakedCapitalism.com
  - ZeroHedge.com
  - Blog: CalculatedRisk.com
  - Disinfo.com
  - *Nerve*
  - Thomas Piketty
  - Libertarian views
  - Richard Koo
  - Ron and Rand Paul
  - Book: *Abundance: The Future Is Better Than You Think*, by Peter H. Diamandis (2014)
  - Blog: CommunistResearchCluster.wordpress.com
  - Blog: Pitchfork.com
- Curiously surprising sources of information:
  - Reddit.com
  - Vice (news.vice.com)
  - YouTube

  - *New York Post*
  - *Daily Mail*
- Remarkable people

Various experts were queried about what the world will look like as it enters the 22nd century. Respondents came from finance, public relations, journalism, and retail and were consultants, futurists, ESG pros, best-selling authors, or CEOs.

They commented on a number of major themes:

- Not widely recognized social movements
- Artificial intelligence and merging of mind with machine
- Decentralization of transportation, electricity, political power, business power, and residence
- Labor becoming borderless
- Improvements in medicine, including advances in biotechnology and extending of human lifespans
- A greater understanding of the mind, leading to a new view of the mind and thus of psychology and new tools to support this understanding
- Growth of mindfulness practice, leading to a greater sense of interconnected responsibility
- Africa
- Water
- Decline of the middle class globally
- New ideas about luxury

5. REFINING YOUR QUESTIONS

Now that you are equipped with the important question or decision to consider in a scenario plan, it is time to refine the question or decision under consideration. Is the question too broad or too narrow? Is the decision one that scenario planning cannot hope to address? Is your question or decision one for which a quantifiably right answer already exists or that can be quantifiably determined? Perhaps you want to abandon the question or decision altogether. Or, perhaps you realize that your initial take on the investment question or decision is correct. Work spent on refinement saves you time in the scenario-planning process because of the time needed to properly research and construct your scenarios.

It is entirely possible that as you do additional research or as you begin crafting your scenarios, you end up back at this step, where having the exactly right question is exactly the right context for creating a new suite of investment ideas via scenario planning. In other words, there is an important connection between "refining your questions" and "fleshing out your scenarios."

6. IDENTIFYING THE KEY FACTORS AND DRIVING FORCES AFFECTING YOUR QUESTIONS OR DECISIONS

By now, you have the right question or decision in place to uncover new investment ideas or new perspectives about existing investments. Your attention then switches to identifying the key factors and driving forces that affect your question or decision.

Essentially, this is a process of distilling what you know. Then, it is a process of separating your knowledge into distinct categories that help you craft differentiated and insightful scenarios. Identifying the driving forces requires a lot of research and analysis of causal forces, which, in turn, ensures that your categorization of elements is accurate.

This is the beginning of the fun part of scenario planning, where you get to let your intellectual and creative firepower soar. Kees van der Heijden offers some advice about executing this scenario-planning step:

> Think in terms of asking the why question, trying to find the causes of the causes of the causes. It therefore needs to be a process that uses all cognitive aspects, experience, existing insights, predetermineds, predictable structures, uncertainty, doubts, expert knowledge, remarkable people and their original ideas, intuition, curiosity, courage (to suspend disbelief), invention, originality, emotion, intellectual sparkle. It takes time and it cannot be forced. . . . You must spend time hunting for surprises. If you have limited time, it is difficult not to come up with the obvious.[17]

[17]van der Heijden, *Scenarios: The Art of Strategic Conversation*: 59.

Begin by looking at the world as you know it—making use of the work you have done so far in the preceding steps—and then divide the world and your understanding of it into several large categories:

- What are the driving forces that affect your question?
- What information affects your question but is predetermined?
- What information affects your question but is uncertain?

Driving Forces

Driving forces are the people, institutions, and events that affect your question. They are the major causes that lead to noticeable and impactful effects. Unlocking the cause and effect chains allows you to make more informed investment choices as you fast-forward from the present moment into possible future scenarios. Armed with insight into the cause and effect chains, you can buy now what will be more valuable in the future.

As you begin to consider driving forces and how they affect your question, it becomes immediately obvious that some driving forces are more important than others and that some driving forces can be discarded from your analysis. Also, in considering the driving forces, you will probably move into a deeper understanding of hidden but nonetheless important fundamental forces that shape the investment landscape.

Identifying the right driving forces is key. To make this easier, use the categories identified in your inward exploration (the Map of What You Know or the mindset check) by turning them outward to explore driving forces.

If you have engaged in scenario planning before (especially with a similar question), it makes sense to revisit some of your previously identified categories of driving forces, which makes looking for powerful causes much easier. But don't forget to also look for forces unique to your current question that you have not considered in previous scenario plans. Throughout this entire process, it is critically important to explicitly list your driving forces.

Peter Schwartz refers to driving forces as "what we know we care about," and he provides guidance about what kinds of forces to pay attention to:

> Every enterprise, personal or commercial, is propelled by particular key factors. Some of them are within the enterprise: your workforce and goals. Others, such as government regulation, come from outside. But many outside factors, in particular, are not intuitively obvious. Identifying

> and assessing these fundamental factors is both the starting point and one of the objectives of the scenario method.
>
> In other words, driving forces are the elements that move the plot of a scenario, that determine the story's outcome. In *Romeo and Juliet*, the romantic love of the two young principals is one driving force. Another is the concept of filial responsibility that binds them. The third is the rivalry between the families. Without all three forces, there would be no story.
>
> Without driving forces, there is no way to begin thinking through a scenario. They are a device for honing your initial judgment, for helping you decide which factors will be significant and which factors will not.[18]

When identifying driving forces in each of the categories, pay particular attention to those that truly make a difference in the outcome of the story. If a critical driving force were changed, would the outcome of the story change dramatically? If not, then that driving force can probably be ignored.

EXAMPLE SCENARIO: DRIVING FORCES

Our driving forces are the categories created for framing our thoughts about our question: What will the world look like as it enters the 22nd century?

The driving forces we identified as critical to answering our question are augmentation, demographics, environment, information, interconnection, money, power, simplicity, and singularity. In this chapter, we provide examples of these driving forces for our predetermined and uncertain elements. We reiterate these in Appendix 1 and also include them for our predictions as well.

6a. Predetermined Elements

Next, identify which of the driving forces are predetermined. These forces cannot be changed or influenced by you or by the investment under consideration. Think of the unswerving influence of population demographics on the world. Can any company change the fact that there are population bubbles in certain generations and population deficits in others? No, because these facts are predetermined.

[18]Schwartz, *The Art of the Long View*: 101–102.

Predetermineds are elements that will be true and present no matter what scenario ends up unfolding in the future, and thus they must be included in each scenario you end up describing.

There are other predetermineds beyond demographics—for example, massive societal-level building projects, such as hydroelectric power dams, highways, and canals.

Other predetermined elements might be changeable but would be extremely difficult to change because of external constraints. An example would be global central banks in the aftermath of the Great Recession of 2008–2009 being constrained by the need to keep interest rates at record-low levels to stave off a deepening economic crisis. Although they might have been afraid of triggering inflation, they were constrained by a deeper fear of a runaway economic crisis.

Another way of thinking about predetermined elements is to think of them as similar to sunk costs. An example would be the economic culture of Russia, which, despite the official fall of Communism, nonetheless is not fully capitalist either. The business culture in Russia may change over time, but its existing culture is essentially a sunk cost of doing business.

Last, another category of predetermineds involves inevitable consequences. For example, as the economy of China grows, its demand for energy grows as well. Yet, China is constrained by its geography; it has few native fossil fuel reserves and so must import much of its energy. Oil is transported from the Middle East to China through narrow straits in the South China Sea. Consequently, it seems inevitable that China will clash politically, and perhaps militarily, with the countries that occupy the South China Sea in the future.

EXAMPLE SCENARIO: PREDETERMINED ELEMENTS

Among the overarching driving forces identified here are the aspects of the driving forces we believe are predetermined:

- **Augmentation**
  - People will continue to seek to merge machines and people.
  - Artificial intelligence will augment a growing and essentially infinite number of processes/services.
  - Android scientists, in their desire to prove they have created machines with consciousness, will start to focus on consciousness as an issue = greater scientific exploration of consciousness from a practical point of view.

- **Demographics**
  - Population growth will slow. There will never be growth based on "more mouths to feed" after an inflection point in population growth.
  - Urbanization will accelerate.
  - Public transit networks will be re-evaluated and rebuilt.
  - Human lifespans will lengthen. Contributing factors:
    - Disease diagnosis
    - Growing organs in labs
    - Stem cells
    - Hygiene
    - Psychology (delivered better and sought more)
  - There will be demographic-driven migration to more economically suitable climates.
- **Environment**
  - Environmental criteria will become a crucial part of business and political decision making.
  - Energy consumption will grow faster than population growth.
  - Energy efficiency will continue to improve (growing importance of alternative energy; co-generation; battery storage; better architectures).
  - Fresh-water access will increase in importance economically and geopolitically.
  - Urban agriculture will become a permanent part of culture. Rooftops and other currently unused urban spaces will be converted to farms and parks; every space will be used.
- **Information**
  - More and more information about everything; therefore, information and discovery costs will get lower and lower.
    - Services will be built to leverage specific information.
    - The means of interaction will evolve greatly; barriers to communication of everything but taste and smell will be vastly lower.

  - Atomization of work and geography will be driven by technological decentralization.
  - We will have greater transparency into the workings of human biology.
  - Greater availability of "interdisciplinary" data, where multiple disciplines' data sources will be combined in a relatable and structured way. When combined with smart curation, it will create a form of "conjugated intelligence."
  - Network effects of new infrastructure and services will accelerate growth because of productivity.
- **Interconnection**
  - More and more interconnection of information and of people at the social level:
    - Social media (a constant tension will be people power vs. government power).
    - Comparability of life experiences will enable new global norms.
  - Most/all devices will be made digital and will become connected to the internet.
  - Increase in the power of the individual relative to institutions, such as businesses and governments, because of social media.
  - Entertainment will be hyperpersonal and unconstrained by distribution.
- **Money**
  - New business language will evolve to better encapsulate benefits and risks of operating a business.
  - There will be money-driven migration to more economically suitable climates.
  - "Good food" vs. "cheap food." Good food (i.e., local, organic, healthy) will be available, but for a price. "Cheap food" (processed, high in fat) will be free.
  - There will be a preference for debt capital, which means required rates of return will be lower.
  - Creativity will be the primary source of added value.
  - Increased customization in manufacturing processes.
  - Companies will be managed in a decentralized fashion.

- Managers will act to remove a layer of middle management where possible/affordable.
- The cost singularity will exist where there's no creativity.
- Capital will be misallocated because of the artificially low cost of capital.

- **Power**
  - The United States will retain significant, near-permanent competitive advantages in power.
  - A global technology disaster will occur (e.g., cyberhack, EMP, solar flares). The payments systems will be interrupted in a separate or related attack.
  - There will be a nuclear event (involving civilian or military nuclear facilities).
  - Freshwater access will increase in importance economically and geopolitically.
  - China will assert international power and lead significant global initiatives.
  - Likely quagmires:
    - United States, if fiscal gridlock becomes more extreme (perhaps a switch to parliamentary-style democracy?)
    - EU
    - Middle East
    - India/Pakistan
    - Venezuela
    - North Korea
    - Parts of Africa
      - Boundaries will change.
      - Tribes, not boundaries, will become relevant.
      - Progress will be unequal.
  - Russia will collapse under its poor demographics.
  - Japan will almost collapse because of demographics and the rigidity of its culture.
- **Simplicity**
  - Whatever makes life simpler will be massively valuable.

- There will be a move toward taxation simplicity.
- Discovery of new, simplifying goods and services will be hugely valuable.

- **Singularity**
    - "Cost singularity" in individual industries is coming.
    - Quality-of-life parity: basic services will become universal, including entertainment.
    - We will continue approaching (if never quite reaching) gender parity on a global basis in terms of pay.
    - Cross-functional/interdisciplinary approaches will become the norm in all walks of life, driven by convergence between home and work life.
    - Complete convergence between home and work life will become the norm; the challenge will be to separate them and parse the workflow.
    - The line between military and police forces will blur.
    - The regulatory environment may move toward singularity.
    - Taxation may move toward singularity.

6b. Uncertain Elements

Now, separate out driving forces that are not predetermined. That is, identify driving forces where change is possible or where the future outcome is uncertain. This might be an assumption about a society's opinions about renewable energy, for example, as opposed to the factual existence of renewable energy, which is predetermined.

One useful technique for identifying uncertain elements is to revisit your list of predetermined elements and question your assumptions. Are you able to imagine a strategy or solution that counters a predetermined element? If so, you can move the predetermined element into your "uncertain" category.

Uncertain elements, by definition, will not appear in every scenario you create. It may be that an uncertain element appears in several scenarios, but it cannot appear in all your scenarios. If it did, it would be a fixture of the investment possibility landscape and thus should be considered predetermined.

Keep in mind that it can be difficult to separate the world into "predetermined" and "uncertain" elements; many elements could likely fit in both categories. Do not worry about this potential ambiguity, however. Scenario planning is about breaking rigid boundaries, so it is actually counterproductive to create new, rigid boundaries around driving forces. What *is* important is to begin to pull patterns out of the information fog that will serve as the basis for your scenarios.

EXAMPLE SCENARIO: UNCERTAIN ELEMENTS

Among the overarching driving forces identified here are those subfactors we believe are uncertain. Note that because they are uncertain, they are listed as questions rather than statements.

- **Augmentation**
    - Will advances in medical technology lead to adverse selection?
        - To what degree will a better understanding of human biology lead to better well-being and longevity?
    - To what degree will AI lead to more leisure time, leading to greater creativity and more specialization?
    - What will the world look like with added time for creativity and leisure?
- **Demographics**
    - Will advances in medical technology lead to adverse selection?
    - Will the people with high human capital concentrate geographically?
    - Will knowledge workers still have a human capital premium?
    - How will wealth and income be distributed (by country, city, class, race, etc.), and will it matter in a world of quality-of-life parity?
    - Will arbitrary boundaries give way where there's no affinity, such as cultural, economic, or common enemies? Examples of arbitrary boundaries include Iraq, countries whose names end in "stan," the United States and Canada, Mali and sub-Saharan Africa.
    - How will farming in cities reshape the urban landscape and change the environmental degradation discussion?
    - Will demographic-driven migration lead to greater cooperation or competition between nations?
    - Who will benefit and lose from climate change?

- **Environment**
  - Is the environment still going to be hospitable to human life?
  - To what degree will water price increases due to excess demand and shrinking supply become a global issue? Will this lead to a "VAT"-like taxation structure, where those who make the best use of water are taxed less?
  - Will the nuclear event involve malicious intent?
  - How will farming in cities reshape the urban landscape and change the environmental degradation discussion?
  - Who will benefit and lose from climate change?
- **Information**
  - Will social media have a harmonious or negative impact on social organization?
    - What rules: empathy or self-interest?
    - What rules: fellowship of people or xenophobia?
  - Will greater access to information decrease the value of particular skills (e.g., knowledge/"white collar" workers)?
  - What will the world look like with added time for creativity and leisure?
  - To what degree will a better understanding of human biology lead to better well-being and longevity?
  - Will access to information spur political action on the part of citizens (as quality of life equalizes)?
  - What element of the pay gap between genders will remain?
  - To what degree will social media act as a check on government power/oppression?
- **Interconnection**
  - To what degree will distributed trust networks and protocols subvert traditional power institutions?
  - To what degree will people power begin to usurp governmental power in the "military power > business power > governmental power > people power" framework?
  - To what degree will humanity take up contemplative/introspective practices (e.g., mindfulness, meditation)?

- **Money**
  - Will creativity and human capital differences mean higher profit margins?
  - To what degree will supply chains shorten or become decentralized?
  - How will energy be priced?
  - Will knowledge workers still have a human capital premium?
  - To what degree will cogeneration of electricity be taken up?
  - Will lower required returns on capital lead to misallocation?
  - Will increasing technical complexity of business processes boost switching costs/destroy nimbleness?
  - How important will growth based on "more mouths to feed" be?
  - To what degree will a shrinking economy shrink "hours worked"?
  - How will health care be delivered and paid for?
  - How will governments fund themselves? Pay-for-services model?
  - Nuance vs. novelty? Culture has tended to be dominated by left-brained thinking, which requires ever-greater levels of hedonistic novelty to make an impression. Will people up the ante on hedonism or go in the opposite direction, moving inward and toward a greater appreciation of nuance?
  - Which new metrics will be adopted and when? And will the business community (especially low-margin businesses) advocate for this or resist it?
  - Who will benefit/lose from climate change?
  - Will multiple alternative currencies be created?
  - Will advertising be the predominant internet business model?
- **Power**
  - Will the inevitable nuclear event involve malicious intent?
  - Will arbitrary boundaries give way where there's no affinity, such as cultural, economic, or common enemies? Examples are Iraq, countries whose names end in "stan," the United States and Canada, and Mali and sub-Saharan Africa.
  - Will the evolution of police toward a military force prompt a meaningful public conversation?
  - How will governments fund themselves? Pay-for-services model?
  - Will the EU stay together?

- **Simplicity**
  - Will driverless cars be seen as simplifying life or as taking away freedom?
  - Will urbanization be seen as simplifying life, with homes close to transportation, work, and necessities? Or will it be seen as increasing complexity?
- **Singularity**
  - What element of the pay gap between genders will remain?
  - Will there be parity/convergence in:
    - Cost
    - Everything that isn't a "creative" undertaking (e.g., new widget, new process, new viewpoint)
    - Quality of living
    - Gender
    - Knowledge worker parity
    - Salary/compensation (for globally competitive industries)

6c. People

After putting driving forces into categories of predetermined and uncertain elements, you can then evaluate the individuals and their cultures that are behind the forces. Often, a consideration of the incentives, cultural traditions, and cultural anxieties of a people reveals an opportunity for dramatic shifts in the investment landscape. One example is the initial hesitancy of the public to purchase personal computers in the 1980s, but then later the public capitulated and it became the norm to own a PC. Here, understanding a people and its norms allows for important insights.

Another example of the importance of individuals is the creation of Dubai as a major tourist destination in the early 2000s. With the death of one king came another to power, and his desire for economic development trumped the normally conservative mores of the Middle East. Without considering the personality behind the development of Dubai, it would be impossible to see its development as anything but shocking.

Groups also can shape driving forces. After major wars, for example, it is common for the people of the United States to become more isolationist and to desire withdrawing from the global geopolitical stage. An analysis of the US budget deficit and its effect on interest rates and the value of the US dollar might should consider this aspect of the culture.

6d. Ranking

You do not need to rank your driving forces as to their importance. By doing so, you may end up paying too much attention to one driving force above all others, especially if you are more familiar with that particular driving force. Remember that scenario planning is about new insights rather than business as usual and its emphasis on specific forecasts.

7. CREATING THE SCENARIOS

This step is the most important in scenario planning. Creating scenarios is where your facts and assumptions are artfully woven into narratives about the future. These narratives then serve as ways to understand the world better so that you begin to see new investment ideas. Here, creativity and intuition are just as important as analysis. Because of their length, our three sample scenarios are included in Appendix 1. If you have trouble crafting your scenarios, refer to ours for guidance in terms of what they should look like.

Creating scenarios is similar to writing stories. In the case of scenario planning, your stories are plausible plots that star real-life nations, institutions, personalities, ideas, cultures, and forces. These forces, such as institutions and personalities, all interact to create possible futures, all of which create changes in the investment landscape.

It is useful to begin crafting narratives that incorporate the information discovered in your research. Ideally, you create three or four stories that address the investment question you are considering. With two stories, you have only a “fork in the road,” but with more than four stories, the stories may become too nuanced in their differences and thus dilute the impact.

Your primary goal in scenario planning is to craft stories about possible futures that affect you so strongly that they lead to entirely new insights about the world, and most important, lead you to action. Each of these stories is a plausible explanation for your predetermined elements and how they affect the uncertain elements in the future.

7a. Selecting the Scenario Logics

In crafting the narratives for each of your scenarios, consider the following classic story elements:

- Actors
- Setting
- Timing
- Genre
- Events

Actors

It may seem tempting to craft plots that feature individuals at the center, but single personalities rarely shape important movements. Instead, movements are usually a reflection of forces already under way within society. However, there are notable exceptions (see the earlier example of Dubai). Still, try to focus your story around larger actors. In investing, these actors may be central banks, major corporations, important regulators, investment banks, innovative industries, militaries, accounting-standards setters, business schools, or entire nations.

Spend time identifying the actors important to your investment question or decision. From your work in earlier sections, this should be fairly obvious. Next, think about how these actors interact with one another.

What is each actor's opinion of the other major actors? Are there rivalries, behavioral tendencies, or necessary dependencies? Is there history between the actors? And so on. Imagine yourself as an author of a serious piece of fiction. Do the interactions you imagine happening have the whiff of truth about them? Does your understanding of the actors lead to new views about the future and hence new investment ideas?

Setting

The choice of setting dramatically affects the plot of a story. For example, the pursuit of energy independence takes on entirely different dimensions if the story is set in Saudi Arabia than if it is set in Japan. A story about real estate is different set in Kenya than in England. To reveal insights that lead to new investment ideas, intentionally change the setting of your stories.

Timing

Similar to setting, the timing of a plot has critical implications. A story about commodities is different during boom times than during post-bust times. Does the plot take place just before a collapse in liquidity in global bond markets? Does the story take place after a major medical advance, such as the prevention of aging or a cure for cancer? Again, toggle your story's time horizons to see whether new ways of looking at the world are revealed.

Genre

One useful way to write scenarios is to keep the same players, setting, timing, and events of your scenario planning but imagine it taking place in a completely different genre. For example, instead of an action-adventure story, what if it is science fiction, a comedy, a horror story, a political thriller, or a romantic story? What insights are gained by changing the type of story told?

By altering the genre of the scenario, you will probably get unique insights. For example, if your scenario is trying to consider what business leadership looks like in the next 20 years, a Western provides a different setting than a spy thriller or a story about sports heroes. Thus, changing genres may be a way to see your world so differently that it becomes how you create your various scenarios.

If you are having trouble shifting genres to gain new investment ideas, try to see whether you can craft a story that scares you. If you are anxious about the implications of such a scenario, you are likely to achieve new insights from exploring the scenario.

Events

Once you have a sense of the genre or genres of your story, the actors, the setting, and the timing, you then need to describe what happens. That is, what is the plot for each story?

Scenario plans are stories about cause and effect chains: The first event shapes the next event, which, in turn, affects the next event, and so on, until the entire tale is told. If you are stumped and cannot imagine the beginning of your story, try to start at the end and fill in the intervening periods up until the present moment. If you cannot imagine a beginning or an end, start with the story from a point where you do understand.

For example, in the late 1990s, if you were trying to craft scenarios to understand the future of cellular communications, it might have been difficult to describe a cause and effect chain that incorporated the predetermined and uncertain elements into multiple stories because the entire industry was in flux and developing rapidly. A scenario planner might then choose to start crafting the story in the future, where most people have a mobile communications device. Then, the same planner might work backward from there, asking, "What led to the success/what caused the success of cellular communications to ensure that most people have a mobile communications device?" Such a planner might conclude, "A killer application that every consumer wanted." With this insight the scenario planner investor could then spend time identifying possible candidates for the "killer app." (By the way, it turned out to be ring tones and custom cell phone covers.)

If the idea of writing a story or a novella seems daunting, then imagine telling a mythological tale to a child that involves the elements you have researched and feel are important. It may be helpful to exaggerate certain elements in order to reveal new and interesting events in your plotline that you might otherwise have missed. Which elements of the story seem easy to exaggerate and make larger than life? Which elements resist exaggeration?

An example of exaggeration is to assume that an uncertain event really does occur, such as a nation in Europe exiting the eurozone. You could further exaggerate and assume that this touches off other exits and thus an end of the euro as a currency.

Examining these kinds of observations should lead to additional insights. If you can imagine Apple Computer getting larger and larger and turning into a Godzilla, that is certainly useful information about either Apple Computer or your opinion about Apple Computer. But if you cannot easily stretch the credibility of a story element, that is also a useful realization.

Regarding the events that lead to good scenario plots, Peter Schwartz says:

> There are only a few plots relevant in scenarios. Most are derived from the behavior of real-life economies, political systems, technologies, and social perceptions. In most good scenarios, several plot lines intersect, just as a good film often includes several subplots. The scenario-planner looks at converging forces and tries to understand how and why they might intersect—then extends that imagination into coherent pictures of alternative futures.[19]

Ideally, you craft scenarios that lead you to make different decisions than you otherwise would have made. If you contextualize your scenario writing as "I must write scenarios that make me do something different," you are likely to uncover investment ideas you never would have considered previously. Scenarios need to have an emotional component in order to jar you loose from "business-as-usual" thinking.

[19] Schwartz, *The Art of the Long View*: 138.

Schwartz has this to say about the importance of emotional content in scenarios:

> It is a common belief that serious information should appear in tables, graphs, numbers, or at least sober scholarly language. But important questions about the future are usually too complex or imprecise for the conventional languages of business and science. Instead, we use the language of stories and myths. Stories have a psychological impact that graphs and equations lack. Stories are about meaning; they help explain why things could happen in a certain way. They give order and meaning to events—a crucial aspect of understanding future possibilities. . . . Scenarios are stories that give meaning to events.[20]

He continues:

> In writing scenarios, we spin myths—old and new—that will be important in the future. . . . These myths in scenarios help us come to grips with forces and feelings that would not otherwise exist in concrete form. They help us describe them, envision them, bring them to life—in a way that helps us make use of them. Story-telling in the form of myths can reveal something about what we feel, hope, expect, fear for the future.[21]

Yet it is also important that your scenarios be grounded in the research you have done: if they stretch credibility too much, they are likely to be easily dismissed by the rational part of your mind and by the investment committee or chief investment officer you share them with.

Again, ideal stories are one or two leaps of faith beyond your current comfort zone, but not more. Each of us is prepared to make at least one leap of faith so long as we are certain of our starting point. That is why we do so much research when crafting scenarios—to ensure that if we do not like what we discover after leaping on faith, we can retreat to something known and tame the anxiety tempests sure to arise if we are too far from our core beliefs. Still, try not to let a preference for comfort distract you from the task at hand, which is to generate new investment ideas that others are overlooking or have overlooked.

Thankfully, most investors are already used to crafting stories, though at a much smaller scale than most scenario plans call for. Here, I am referring to the many stories used by investors to describe the reasons for their individual investments. In fact, when asked

[20]Schwartz, *The Art of the Long View*: 37–39.
[21]Schwartz, *The Art of the Long View*: 43.

why individual securities were purchased, investment pros often answer with, "I liked their story." Better still, most investors can also reliably tell you the story!

Scenario plans ask that you begin telling different stories about the world than you normally would and usually on a larger scale. Choose those story-making skills to describe more meaningful events. Or use them to imagine how your view of the world could be different or even completely wrong.

Ask dozens of questions about your various scenarios. Play devil's advocate and try to poke holes in your logic and conclusions. Look for evidence that contradicts your most important points. Mental dexterity is key, as is discernment. You must be able to maintain intellectual rigor while balancing artful consideration of new possibilities.

7b. Fleshing Out the Scenarios

Here are some common scenario themes that may spur development of your own plots:

- Competition
- Adaptation
- Evolution

Competition

In the competition scenario, there is a fixed amount of resources and many competitors for those resources. Consequently, if one side gains, other sides must lose. These types of scenarios put the emphasis on a competitive process that results in one big winner. One example: Only one cellular phone company can win. Another example: Only one country can dominate the global economy.

A hallmark of competition is that friction between competitors is inevitable, like large tectonic plates shoving against one another to create earthquakes. Following earthquakes, such as patent battles, there is a settling of differences among the competitors—think licensing agreements or mergers and acquisitions. Fierce competition often leads to an easy peace among surviving oligopolists and to such business decisions as price collusion or tacitly agreed-on non-competes.

Adaptation

In stark contrast to the competition plotline is adaptation. Here, characters in the story face an initial and large challenge, perhaps one that seems insurmountable. However, rather than collapsing, the characters adapt to their circumstances and perpetuate their survival.

The business world is replete with examples of adaptation stories. Take IBM's transformation in the 1990s amid a new world of information technology led by Intel and Microsoft that seemed sure to swallow IBM. Instead of succumbing to what seemed an inevitable fate, IBM invested heavily in technology services and new products, utterly adapting itself to the state of the world.

Evolution

Characteristic of evolution plotlines are changes that are slow and hence barely perceptible. Yet, there is a large opportunity for analysts who note the minor changes occurring precisely because evolution proceeds slowly. Intercede early, and you can capture excess returns.

An example of an evolutionary change is the movement of computing away from large-scale devices to small-scale devices—from mainframes to desktops, to laptops, to tablets, to large-form cellular phones. Analysts who anticipated this shift early made investments to take advantage of these slow changes.

An important hallmark of evolutionary story lines is that they build on previous ecosystems rather than creating entirely new ones. For example, microelectronics rested on a number of innovations of the late 19th and early 20th centuries, such as mathematics, physics, electronics, and manufacturing. A critical development for the computer was born from a necessity of the geopolitics of World War II: Complex codes had to be broken. Thus, culture, history, sociology, psychology, and other large factors play into evolution-style plotlines. Evolutionary developments do not appear suddenly out of the ether.

Other Scenario Types

Just as there are many plotlines for novels and films, there are many possible stories for investing. Can you think of other common plotlines from the world of fiction that can serve as useful frameworks for scenario construction? Think of the plotlines suggested by words that end in "tion"—intervention, innovation/destruction, revolution, reduction, and so on.

Another useful suggestion made by expert scenario planners is to develop new scenario logics by looking at the world of 10 years ago and imagining the plotline that would have helped reveal then the world as it stands now.[22]

[22]Schwartz, *The Art of the Long View*: 161.

Cause and Effect Chains

Other experts take a different approach to scenario planning than the story methodology. Specifically, many, such as Kees van der Heijden, recommend creating cause and effect chains:

> Developing scenario logics from driving forces and critical uncertainties, the scenario planner implicitly uses systems thinking concepts, finding causes, and the causes of the causes, looking behind events for patterns of behavior and system structure that might explain how this scenario might come about.[23]

This approach involves taking your research and beginning to imagine the likely effects of the causes you have identified. You then create a cause and effect chain advancing into the future until you reach your targeted time horizon.

If in creating your chain you encounter an uncertainty that cannot be addressed easily by your existing research, then you do more research to demystify your scenario logics. This is likely to generate new insights into the questions you are exploring, requiring you to return to the "refining your questions" phase of scenario planning and to advance through the steps again. Although this may sound laborious, remember that your goal is to uncover investment opportunities overlooked by the multitudes of your competition. Or, it could be that the obstacle is not all that important and can be dropped entirely.

Caveats

In creating scenarios, it is tempting to begin judging the scenarios so that some plotlines are favorites. Favored scenarios, however, often are those that require little change to current thinking or almost no adjustments to your portfolio. You must resist this temptation! Scenario planning is less about the scenarios and more about the insights gained into your initial question or decision in light of considering multiple possible futures.

Another caveat is that if you are not used to deploying your powers of creativity in the ways that scenario planning demands, then creating plotlines is likely to be difficult. In other words, persevere. If you do what you have always done, then you are likely to get what you have always gotten.

[23]van der Heijden, *Scenarios: The Art of Strategic Conversation*: 122–123.

8. COMPARING SCENARIOS WITH THE "BUSINESS AS USUAL" CASE

One way to ensure that the results of your scenario planning include new, actionable ideas is to compare them with the “business as usual” scenario; that is, the scenario that assumes you change nothing about your process or portfolio. If your scenarios are barely different from your business-as-usual case, you need to take more chances in creating your scenarios.

To check that you are engaging in cutting-edge work, ask a peer to review your scenarios to see whether they read like business as usual, insights from a prescient analyst at an intelligence agency, or a record written by a historian of the future. If, upon review, your scenarios are too much of the typical, you need to start your scenario writing over.

If you find yourself with only variations on a business-as-usual theme, consider writing one “crazy” scenario in which you pull out all the stops. **You can always temper it later.**

9. REHEARSING THE IMPLICATIONS (THE PROMISED LAND!)

Now that you have three or four scenarios, you need to weave your initial question or decision through each scenario to see what unique answers are revealed under each scenario. With your question or decision in mind, consider answers by rotating through the unique contexts provided by each scenario. How does your possible investment decision hold up? Record your thoughts about the implications for each of your scenarios.

Once you have created your scenarios, you can then look for investment ideas that do well no matter which of your future plots unfolds. This is the promised land of scenario planning: a portfolio that is poised to take advantage of whatever happens in the future. You have generated new insights, new investment strategies, new investment ideas, and (hopefully) greater returns for your clients!

Also consider how your question or decision might be adapted to make it more robust. If no amount of tweaking changes the outcomes, you need to abandon this choice. This, too, is valuable information, because it likely means capital preservation for your firm and your investors.

10. IDENTIFYING THE LEADING INDICATORS

Among the most valuable benefits of scenario planning is the insight gained about leading indicators. In your scenario plots, there are probably harbingers of change written into your imagined dramas. Likewise, as you develop your cause and effect chains, you will identify the early causes of the future events described in your scenarios.

Consequently, as an analyst, you now have extraordinarily valuable contexts with which you can compare the daily, weekly, monthly, or yearly news flow. Are the events described in your scenarios beginning to happen? If so, you will be able to act sooner than your competition by having engaged in the scenario-planning process.

Be sure to record these leading indicators and make sure they become part of your mental framework. If you work with colleagues, ensure that they are aware of your scenarios and your leading indicators.

For example, suppose your scenarios consider the possibility of political secession and one of your important causes/leading indicators is the formation of fringe parties within turbulent countries that gain widespread support. If, in fact, you begin seeing the formation of such political parties, it might be an indication of the direction of the next election in that country. What are the investment implications if this important change takes place?

11. DOCUMENTING AND EVALUATING THE RESULTS

Critical to improving in any endeavor is recording your results. By comparing your results with how reality actually unfolds, you can improve your scenario planning. The proper criterion is not absolute precision. Your criteria should be to compare the following in order of preference:

- Did my scenario planning lead to useful insights that resulted in new, alpha-generating investment ideas?
- Did my scenario planning lead to identification of leading indicators that allowed me to act sooner than most others?
- Did my scenario planning allow me to identify a change in direction where others only extrapolated the future?
- Did my scenario planning allow me to identify a useful time horizon for scenario-planned events to occur?
- Did my scenario planning allow me to properly frame the magnitude of important changes?

Scenario planning is indeed a time-consuming process. Therefore, investment firms that use scenarios typically update them only once a year or once every strategic planning cycle. Yet, while the amount of time invested may seem large, scenario planning is one of the few analytical tools designed to break contexts and to lead to unique alpha-generating insights. I hope that you find scenario planning as beneficial as the firms that are using it successfully do.

SUMMARY

As investing is about making capital choices today about an uncertain future, and scenario planning is about identifying robust choices today about the uncertain future, scenario planning is an ideal tool for investors. It demands that investors carefully think about an initial question or decision to make. Extensive research is then done to scrutinize the strength of the question or decision.

From this, research questions are refined and strengthened. From the gathered data, predetermined elements are separated from uncertain elements. Scenarios are then constructed with predetermined elements present in every scenario and with uncertainties driving differentiation among scenarios.

The initial question or decision is then compared with each scenario to identify the implications of each scenario. Insights are then examined, including any buy or sell decisions, and importantly, leading indicators are identified and documented. Last, the results of the scenario planning are reviewed and documented and ideally, alpha occurs and learning transpires.

CHAPTER 3

INVESTMENT IDEA GENERATION MATRIX

KEY IDEAS

- A matrix map of the investment landscape shows which investment styles are related to one another and which are different from one another.
- Seeing where your style maps in relation to others suggests natural next steps for exploring new investment tools.

OVERVIEW

If the preceding chapters did not help unleash your creativity and thus lead you to new investment ideas, this chapter introduces a tool you can use to more directly point you where to look for new investment ideas: the Investment Idea Generation Matrix (the Matrix). It is designed to provide a graphical map of the investment landscape. With this map, you can easily compare your preferred idea generation tools with other such tools. Seeing tools similar to but different from your own suggests new ways to look for and examine investment opportunities. But perhaps you want something more radical? Then you can choose an idea generation technique very different from your own preferred means.

This chapter also provides a curated list of investment idea generation resources so that you can further learn about and then help you deploy the new investment philosophy that you are interested in.

HOW THE MATRIX WAS CREATED

Investment professionals were asked to map 24 investment styles based on the following axis definitions:

- The horizontal Q axis maps mental processes. The left end is analogous to analytical thinking, or what is popularly referred to as "left-brain" functioning; it is therefore labeled "quantitative." An example would be the use of a quantitative, machine-learning computer to execute trades based only on data flow.

The further right one travels on the continuum, the more multidimensional, holistic, creative, and intuitive the thinking. This end is analogous to the "right-brain" functioning of the mind and is labeled "qualitative." An example of such thinking is "trusting your gut" when it comes to evaluating the prospects of a brand-new company in a cutting-edge, unproven industry.

Scores range from –5 for "pure quantitative" to +5 for "pure qualitative."

- The vertical M axis maps the mental scale to which you direct your consciousness. The bottom end of the axis is analogous to using tools to understand things on the individual, personal scale. An example would be having a conversation with an investor relations professional about the prospects of a company. This end of the "mental scale" continuum is labeled "micro."

  The top end is analogous to the global scale and is labeled "macro." An example would be an attempt to identify factors that might affect the global economy.

  Scores on the mental scale continuum range from –5 for the "individual scale" to +5 for the global scale.

The following table assigns descriptive labels to the Q and M axes' scales to provide more meaning for the Investment Idea Generation Matrix.

SCALE	QUAL. VS. QUANT. (Q)	MACRO VS. MICRO (M)
+5.000	Intuition	Global
+3.333	Anecdotal	Region
+1.667	Interview	Country
0.000	Heuristic	Neutral
–1.667	Model	Industry
–3.333	Theory	Company
–5.000	Pure Data	Individual

USER GUIDE FOR THE MATRIX

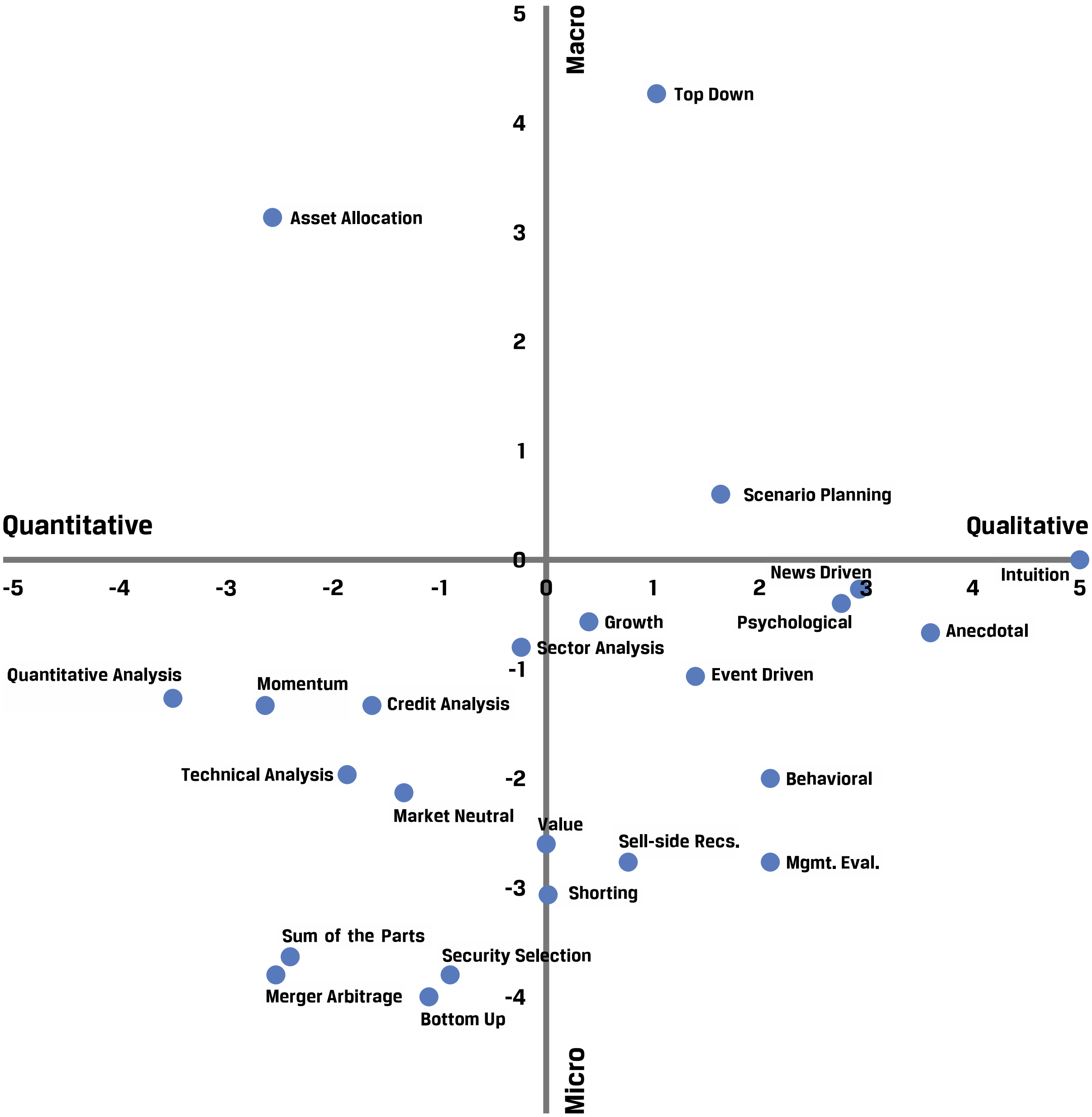
- Start by identifying your preferred investment style from the following list.
- Then look at the Matrix to see where your investment style maps on it.
- If you are looking for an incremental context break, identify the investment styles nearest to your own.
- If you are looking for a radical context break, look at the investment styles most opposite to your own. If that is too radical, you can look at an investment style close to your own on one axis but very different as evaluated on the other axis.

STYLES

The following 24 investment styles are mapped on the Matrix:

Anecdotal	Management evaluation	Sector analysis
Asset allocation	Market neutral	Security selection
Behavioral	Merger arbitrage	Sell-side recommendations
Bottom up	Momentum	Shorting
Credit analysis	News driven	Sum of the parts
Event driven	Psychological	Technical analysis
Growth	Quantitative analysis	Top down
Intuition	Scenario planning	Value

INVESTMENT IDEA GENERATION MATRIX



STYLE DESCRIPTIONS

Here are brief descriptions of each investment style or analysis technique. They include the scores for the quantitative/qualitative (Q) and the micro/macro (M) axes as well as which styles are most similar to, tangent to, and most radical to your preferred style. These evaluations were done on the basis of quantitatively derived nearness scores. High nearness scores are evaluated as incremental context breaks, starting with the style that is most near/similar. Low nearness scores are evaluated as radical context breaks and are ranked starting with the most radical/different style.

Tangential context breaks require further explanation. In calculating nearness, an investment style is compared with other styles on the basis of both its quant/qual dimension and its micro/macro dimension. An investment style may be similar to your preferred investment style on the basis of one dimension but not another. An example would be the investment style "asset allocation" as compared with "momentum." Although the two are far apart on the M dimension, +3.133 vs. –1.333, they are very similar on the Q dimension, –2.567 vs. –2.633. So, if you are looking for a bigger context break than suggested by the incremental break but less than that implied by the radical break, you may want to consider a tangential break.

Anecdotal

Q/M score: +3.600/–0.667

Incremental: news driven, psychological, intuition

Tangential: growth, sector analysis

Radical: asset allocation, quantitative analysis, asset allocation

Here, the analyst relies on information gathered from conversations—such as at home, in the grocery store, or with fellow airplane passengers—and other information gleaned from daily living.

Asset allocation

Q/M score: –2.567/+3.133

Incremental: top down, momentum, quantitative analysis

Tangential: merger arbitrage, sum of the parts, scenario planning

Radical: intuition, management evaluation, bottom up

Analysts who rely on asset allocation are primarily concerned with portfolio construction rather than individual security selection, which relies on fundamental analysis. Emphasis is on such measures as a security's beta or covariance, the construction of the efficient frontier, and other such statistical measures.

Behavioral

Q/M score: +2.100/–2.000

Incremental: management evaluation, event driven, sell-side recommendations

Tangential: scenario planning, psychological, technical analysis, market neutral, value

Radical: asset allocation, top down, quantitative analysis

Here, the biases identified by behavioral economists—such as anchoring, confirmation bias, loss aversion, mental accounting, overconfidence, and representativeness—are used to identify investment opportunities.

Bottom up

Q/M score: –1.100/–4.000

Incremental: security selection, sum of the parts, merger arbitrage

Tangential: market neutral, credit analysis

Radical: top down, intuition, asset allocation

Investors here are generating ideas by evaluating businesses as an ongoing concern and trying to find those that will perform relatively better in the future than other businesses. The thought is that the asset price (stock, bond, convertible, etc.) will eventually correlate with the economic success of the business.

Credit analysis

Q/M score: –1.633/–1.333

Incremental: technical analysis, market neutral, momentum

Tangential: bottom up, quantitative analysis, event driven

Radical: intuition, top down, anecdotal

Credit analysts concern themselves primarily with evaluating the ability to pay and consistency of payment of a cash flow–generating entity—such as a business issuing a bond, preferred stock, or convertible security—or an asset-backed security.

Event driven

Q/M score: +1.400/–1.067

Incremental: growth, behavioral, psychological

Tangential: scenario planning, sell-side recommendations, quantitative analysis, credit analysis, momentum

Radical: top down, asset allocation, intuition

Analysts here try to take advantage of corporate events, such as restructurings, mergers, or shareholder activism.

Growth

Q/M score: +0.400/–0.567

Incremental: sector analysis, event driven, scenario planning

Tangential: sell-side recommendations, shorting, value, anecdotal, psychological

Radical: top down, asset allocation, intuition

Growth investors tend to be "bottom-up" investors and are primarily focused on the ability of the company to grow its business (both revenues and profits). They believe that the business is undervalued relative to the growth prospects of the business.

Intuition

Q/M score: +5.000/0.000

Incremental: anecdotal, news driven, psychological

Tangential: growth

Radical: quantitative analysis, merger arbitrage, sum of the parts

Here, analysts rely on their intuition to help guide their investment process.

Management evaluation

Q/M score: +2.100/–2.767

Incremental: behavioral, sell-side recommendations, event driven

Tangential: scenario planning, psychological, value, shorting

Radical: asset allocation, top down, quantitative analysis

Here, quality managers are identified and management is consulted in order to understand the business, the industry, and the larger economy. It is believed that quality management can generate higher worth for an asset in the long term. In some cases, assets will be bought solely on the basis of the past ability of a manager to create value from an asset. Additionally, some investment ideas come directly from management; it is hoped that managers, being closer to the action, are more informed than investors and thus can provide better insight into an industry or the economy.

Market neutral

Q/M score: –1.333/–2.133

Incremental: technical analysis, credit analysis, value

Tangential: bottom up, security selection, behavioral

Radical: top down, intuition, asset allocation

In this strategy, analysts look to construct portfolios that do well in rising or falling markets. They may focus on long–short portfolios of securities within single markets or long–short portfolios across multiple markets.

Merger arbitrage

Q/M score: –2.533/–3.800

Incremental: sum of the parts, bottom up, security selection

Tangential: asset allocation, momentum

Radical: top down, intuition, asset allocation

Ideas are sought where a business is felt to be a good takeover candidate. It is believed that an outside entity will pay a premium over the current price of the asset and investors will then recognize an increase in the price of their investment.

Momentum

Q/M score: –2.633/–1.333

Incremental: quantitative analysis, technical analysis, credit analysis

Tangential: asset allocation, merger arbitrage, sum of the parts, event driven

Radical: intuition, top down, anecdotal

This style looks at what other investors are doing that is leading to outsized returns (losses) and then imitates (refrains from) that activity.

News driven

Q/M score: +2.933/–0.267

Incremental: psychological, anecdotal, scenario planning

Tangential: behavioral, intuition, growth

Radical: quantitative analysis, merger arbitrage, asset allocation

Here, the manager tries to identify assets whose prices are correlated with major news events. An example is being long such commodities as lumber or copper before an expected announcement of improved GDP in a market.

Psychological

Q/M score: +2.767/–0.400

Incremental: news driven, anecdotal, scenario planning

Tangential: behavioral, management evaluation, growth

Radical: asset allocation, quantitative analysis, merger arbitrage

Analysts spend time trying to evaluate the psychology of major market entities. Examples include the management of a business, central bankers, or the market itself (think the "mood of the market").

Quantitative analysis

Q/M score: –3.500/–1.267

Incremental: momentum, technical analysis, credit analysis

Tangential: asset allocation, merger arbitrage, event driven

Radical: intuition, top down, anecdotal

Quantitative criteria are entered into a computer, and then the computer is fed with data. Possible investment ideas that meet the criteria are generated via algorithms of varying complexity. These could be based on covariance, cross-correlations, PEG ratios, and so on. The goal is to identify the appropriate criteria believed to provide the best investment prospects. A computer is then programmed to invest in the assets that meet the criteria, with little interference from investment managers.

Scenario planning

Q/M score: +1.633/+0.600

Incremental: psychological, news driven, event driven

Tangential: behavioral, management evaluation, intuition

Radical: merger arbitrage, sum of the parts, quantitative analysis

Investment analysts undertake extensive research on the prospects of economies, industries, or businesses and construct three or four story lines about the future. Investments are chosen that do well regardless of which scenario unfolds.

Sector analysis

Q/M score: –0.233/–0.800

Incremental: growth, credit analysis, event driven

Tangential: value, shorting, anecdotal

Radical: intuition, top down, asset allocation

Investment ideas are generated by first looking at economic sectors and evaluating the prospects of each. Then, those with better/worse prospects than the average are used to identify assets within each sector worth going long or short.

Security selection

Q/M score: –0.900/–3.800

Incremental: bottom up, shorting, value

Tangential: market neutral, sector analysis, merger arbitrage, sum of the parts

Radical: top down, asset allocation, intuition

The focus is on the characteristics of an individual security, such as a stock, bond, ETF, option, future, ABS, MBS, or CDO. The emphasis is on things like liquidity, maturity, coupons, embedded options, covenants, and number of payments. In the case of convertible arbitrage, differences between a convertible security's volatility and its underlying stock's volatility are arbitraged.

Sell-side recommendations

Q/M score: +0.767/–2.767

Incremental: value, shorting, management evaluation

Tangential: growth, event driven

Radical: top down, asset allocation, intuition

Analysts spend their time evaluating the quality of sell-side research analysts. Purchases and sales are made on the basis of the recommendations of the sell-side analysts.

Shorting

Q/M score: +0.017/–3.067

Incremental: value, sell-side recommendations, security selection

Tangential: sector analysis, growth, management evaluation

Radical: top down, asset allocation, intuition

Analysts who short conduct fundamental analysis to identify overvalued assets. Overvaluation can occur because the market is thought not to be discounting a particular business nuance or because the price of the company's assets is overbid.

Sum of the parts

Q/M score: –2.400/–3.633

Incremental: merger arbitrage, bottom up, security selection

Tangential: asset allocation, momentum

Radical: top down, intuition, asset allocation

Sum of the parts, also known as spin-off arbitrage, is buying companies whose current share price is lower than the total price suggested by calculating the value of the entirety of a company's business lines. By buying the shares, it is hoped that the company will spin off the undervalued assets in the market, leading shareholders to higher returns.

Technical analysis

Q/M score: –1.867/–1.967

Incremental: market neutral, credit analysis, momentum

Tangential: sum of the parts, behavioral

Radical: intuition, top down, anecdotal

Graphs showing relationships, usually over some period of time, are used to identify investment opportunities. Some people consider this style a form of quantifying behavioral effects in the marketplace.

Top down

Q/M score: +1.033/+4.267

Incremental: scenario planning, asset allocation, growth

Tangential: sell-side recommendations, event driven, intuition

Radical: merger arbitrage, sum of the parts, bottom up

Large trends are identified, and then countries, sectors, or assets that stand to do well given these trends are purchased or shorted. Econometric modeling is a form of top-down analysis.

Value

Q/M score: 0.000/–2.600

Incremental: shorting, sell-side recommendations, market neutral

Tangential: sector analysis, growth, management evaluation

Radical: top down, asset allocation, intuition

Value investors conduct a bottom-up analysis but focus on the price paid for the underlying asset; valuation is key. They frequently look for assets whose price is lower than their calculation of fair value. If the valuation is greater than the asset price, the asset is purchased. Conversely, if the valuation is less than the asset price, it is a candidate for selling or shorting. Other numerical data qualifying for investment ideas here include an asset's volatility, delta, gamma, theta, or vega.

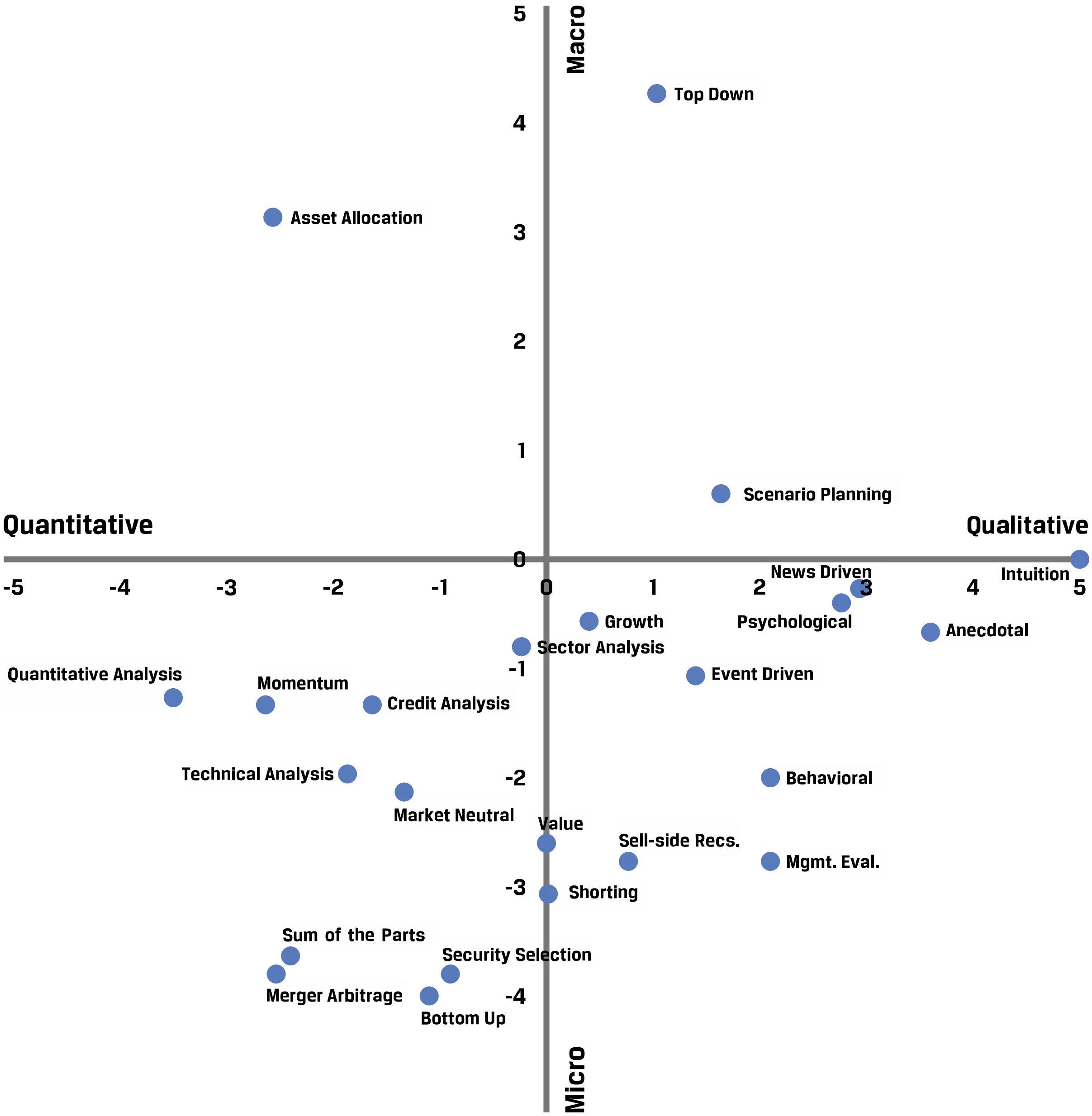
Value investing is "most near" relative to all other investment styles, followed by sector analysis and market neutral. Given the predominance of such analytical techniques as financial statement analysis, discounted cash flow analysis, and multiple analysis, it is probably not surprising that value, as an investing style, would be the most generic of the styles described in the Matrix.

Surprisingly, the most different from all the styles is top-down analysis, followed by asset allocation and intuition. This highlights the lack of tools for investing in larger, more macro-level trends, as well as a failure to explore the strengths of the right brain's role in investing success (or failure). In turn, this suggests natural areas for future research by practitioners and academics alike.

SUGGESTED READINGS FOR THE 24 INVESTMENT STYLES

This section can be used either as an accompaniment to the Investment Idea Generation Matrix or as a standalone list of suggested readings (i.e., investment idea generation resources). If you want to explore investment styles from the Matrix, look for materials under the style that you are curious about. The list may also be used as a standalone resource for exploring other investment styles. This list has been curated by practitioners who are familiar with the resources and have suggested the ones they believe to be the most helpful. Still, please note that this list is not intended to be fully comprehensive.

INVESTMENT IDEA GENERATION MATRIX GRAPH



ANECDOTAL

The analyst relies on information gathered from conversations—such as at home, in the grocery store, or with fellow airplane passengers—and other information gleaned from daily living.

Learning from Anecdotal Information: Toward Epistemology of Professional Queries
Lubomir Popov and Margarita Popova
Paper presented at the Annual Meeting of the Seventh International Congress of Qualitative Inquiry, University of Illinois at Urbana-Champaign (17 May 2011).

Media Mythmakers: How Journalists, Activists, and Advertisers Mislead Us
Benjamin Radford
Amherst, NY: Prometheus Books. 2003.

ASSET ALLOCATION

Analysts who rely on asset allocation are primarily concerned with portfolio construction rather than individual security selection, which relies on fundamental analysis. The emphasis is on such measures as a security's beta or covariance, the construction of the efficient frontier, and other such statistical measures.

The Adaptive Markets Hypothesis: Market Efficiency from an Evolutionary Perspective
Andrew Lo
Journal of Portfolio Management, vol. 30, no. 5 (2004).

Alternative Investments Portfolio Management in *Managing Investment Portfolios: A Dynamic Process*, 3rd ed.
Jot K. Yau, CFA, Thomas Schneeweis, Thomas R. Robinson, CFA, and Lisa R. Weiss, CFA
Charlottesville, VA: CFA Institute. 2007.

The Art of Asset Allocation: Principles and Investment Strategies for Any Market, 2nd ed.
David M. Darst, CFA
New York: McGraw-Hill. 2008.

Asset Allocation: Balancing Financial Risk, 5th ed.
Roger Gibson, CFA
New York: McGraw-Hill. 2013.

Asset Allocation Update—Resources for the Practitioner
Mark Harrison, CFA (Editor)
Charlottesville, VA: CFA Institute. 2013.

Asset Management: A Systematic Approach to Factor Investing
Andrew Ang
Oxford, UK: Oxford University Press. 2014.

Evolutions in Sustainable Investing: Strategies, Funds and Thought Leadership
Cary Krosinsky, Nick Robins, and Stephen Viederman (Editors)
Hoboken, NJ: John Wiley & Sons. 2012.

Expected Returns on Major Asset Classes (A Summary)
Antti Ilmanen
Charlottesville, VA: Research Foundation of CFA Institute (June 2013): 13–18.

Frontiers of Modern Asset Allocation
Paul D. Kaplan, CFA, and Laurence B. Siegel
Hoboken, NJ: John Wiley & Sons. 2011.

The Importance of Asset Allocation
Roger G. Ibbotson
Financial Analysts Journal, vol. 66, no. 2 (March/April 2010).

Liability-Relative Strategic Asset Allocation Policies
M. Barton Waring
CFA Institute Conference Proceedings Quarterly, vol. 2004: 43–64.

Managing Investment Portfolios: A Dynamic Process, 3rd ed.
John L. Maginn, CFA, Donald L. Tuttle, CFA, Jerald E. Pinto, CFA, and
Dennis W. McLeavey, CFA
Hoboken, NJ: John Wiley & Sons. 2007.

Mega Hedge Fund Firms: Performance Characteristics
William Fung
CFA Institute Conference Proceedings Quarterly, vol. 29, no. 4 (December 2012).

Portfolio Design: A Modern Approach to Asset Allocation
Richard C. Marston
Hoboken, NJ: John Wiley & Sons. 2011.

Private Equity: Performance, Risk, and Fund Selection
Ludovic Phalippou
CFA Institute Conference Proceedings Quarterly, vol. 27, no. 3 (September 2010).

Style Investing: Unique Insight into Equity Management
Richard Bernstein
New York: John Wiley & Sons. 1995.

Sustainable Investing: The Art of Long-Term Performance
Cary Krosinsky and Nick Robins (Editors)
Sterling, VA: Earthscan. 2008.

BEHAVIORAL

The biases identified by behavioral economists—such as anchoring, confirmation bias, loss aversion, mental accounting, overconfidence, and representativeness—are used to identify investment opportunities.

Behavioral Finance and Investment Management
Arnold S. Wood
Charlottesville, VA: Research Foundation of CFA Institute. 2010.

Behavioral Investment Management: An Efficient Alternative to Modern Portfolio Theory
Greg B. Davies and Arnaud de Servigny
New York: McGraw-Hill. 2012.

Behavioral Portfolio Management: How Successful Investors Master Their Emotions and Build Superior Portfolios
C. Thomas Howard
Hampshire, UK: Harriman House. 2014.

Market Mind Games: A Radical Psychology of Investing, Trading, and Risk
Denise Shull
New York: McGraw-Hill. 2011.

The Psychology of Investing, 5th ed.
John R. Nofsinger
Upper Saddle River, NJ: Prentice Hall. 2013.

Thinking, Fast and Slow
Daniel Kahneman
New York: Farrar, Straus and Giroux. 2013.

BOTTOM UP

Investors generate ideas by evaluating businesses as an ongoing concern and trying to find those that will perform relatively better in the future than other businesses. The thought is that the asset price (stock, bond, convertible, etc.) will eventually correlate with the economic success of the business.

Analysis for Financial Management, 10th ed.
Robert C. Higgins, CFA
New York: McGraw-Hill Education. 2011.

A Bottom-Up Approach to Investing in Bonds and Loans
Russ Covode
W*all Street Transcript*, vol. 191, no. 8 (2013): 52–54.

Bottom-Up, Contrarian and Fundamental Investing Strategies
Nathan Snyder, CFA
Wall Street Transcript, vol. 191, no. 9 (2013): 51–55.

Bottom-Up, Value Investing in Catalysts and Merger Arbitrages
Salvatore Muoio, CFA
Wall Street Transcript, vol. 191, no. 3 (2013): 59–63.

Equity Asset Valuation, 2nd ed.
Jerald E. Pinto, CFA, Elaine Henry, CFA, Thomas R. Robinson, CFA, and
John D. Stowe, CFA.
Hoboken, NJ: John Wiley & Sons. 2010.

Financial Valuation: Businesses and Business Interests
James H. Zukin
Boston: Warren, Gorham & Lamont. 1990.

Security Analysis, 6th ed.
Benjamin Graham and David L. Dodd
New York: McGraw-Hill. 2009.

Security Analysis on Wall Street: A Comprehensive Guide to Today's Valuation Methods, 2nd ed.
Jeffrey C. Hooke
New York: John Wiley & Sons. 2010.

CREDIT ANALYSIS

Credit analysts concern themselves primarily with evaluating the ability to pay and consistency of payment of a cash flow–generating entity—such as a business issuing a bond, preferred stock, or convertible security—or an asset-backed security.

Credit Analysis throughout the Cycle
Dana M. Emery, CFA
CFA Institute Conference Proceedings Quarterly, vol. 30, no. 2 (June 2013): 31–43.

Distressed Debt Analysis: Strategies for Speculative Investors
Stephen G. Moyer, CFA
Plantation, FL: J. Ross Publishing. 2004.

The End of the Risk-Free Rate: Investing When Structural Forces Change Government Debt
Ben Emons
New York: McGraw-Hill Education. 2013.

Fixed Income Analysis, 2nd ed.
Frank J. Fabozzi, CFA
Hoboken, NJ: John Wiley & Sons. 2007.

Hedge Fund Risk Factors and the Value at Risk of Fixed Income Trading Strategies
Geoff Loudon, John Okunev, and Derek White
Journal of Fixed Income, vol. 16, no. 2 (2006): 46–61.

Standard & Poor's Fundamentals of Corporate Credit Analysis
Blaise Ganguin and John Bilardello
New York: McGraw-Hill. 2004.

Structured Finance and Collateralized Debt Obligations: New Developments in Cash and Synthetic Securitization
Janet M. Tavakoli
Hoboken, NJ: John Wiley & Sons. 2008.

EVENT DRIVEN

Analysts try to take advantage of corporate events, such as restructurings, mergers, or shareholder activism.

Bottom-Up, Value Investing in Catalysts and Merger Arbitrages
Salvatore Muoio, CFA
Wall Street Transcript, vol. 191, no. 3 (2013): 59–63.

Investing in Event-Driven Special Situations
Jamie Zimmerman
Wall Street Transcript, vol. 180, no. 11 (2008): 1–10.

Investment Banking: Valuation, Leveraged Buyouts, and Mergers & Acquisitions, 2nd ed.
Joshua Rosenblum and Joshua Pearl, CFA
Hoboken, NJ: John Wiley & Sons. 2013.

Leveraged Buyouts: A Practical Guide to Investment Banking and Private Equity
Paul Pignataro
Hoboken, NJ: John Wiley & Sons. 2013.

Merger Arbitrage: A Fundamental Approach to Event-Driven Investing
Lionel Melka and Amit Shabi
Hoboken, NJ: John Wiley & Sons. 2014.

Profiting from Chaos: Using Chaos Theory for Market Timing, Stock Selection, and Option Valuation
Tonis Vaga
New York: McGraw-Hill. 1994.

GROWTH

Growth investors tend to be "bottom-up" investors and are primarily focused on the ability of the company to grow its business (both revenues and profits). They believe that the business is undervalued relative to the growth prospects of the business.

Analysis for Financial Management, 10th ed.
Robert C. Higgins, CFA
New York: McGraw-Hill Education. 2011.

Common Stocks and Uncommon Profits and Other Writings
Philip A. Fisher and Kenneth L. Fisher
New York: John Wiley & Sons. 2003.

Equity Asset Valuation, 2nd ed.
Jerald E. Pinto, CFA, Elaine Henry, CFA, Thomas R. Robinson, CFA, and
John D. Stowe, CFA
Hoboken, NJ: John Wiley & Sons. 2010.

Security Analysis on Wall Street: A Comprehensive Guide to Today's Valuation Methods, 2nd ed.
Jeffrey C. Hooke
New York: John Wiley & Sons. 2010.

INCREASING CREATIVITY

Creativity Tools: Develop Creative Solutions to Business Problems
MindTools.com
http://www.mindtools.com/pages/main/newMN_CT.htm; retrieved 16 July 2014.

How to Think like Leonardo da Vinci: Seven Steps to Genius Every Day
Michael J. Gelb
New York: Bantam Dell. 1998.

The Mind Map Book: How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential
Tony Buzan with Barry Buzan
New York: Plume. 1996.

The Three Basic Principles behind All Tools for Creative Thinking: Attention, Escape, and Movement
DirectedCreativity.com
http://www.directedcreativity.com/pages/Principles.html; retrieved 16 July 2014.

INTUITION

Analysts rely on their intuition to help guide their investment process.

The Emotionally Intelligent Investor: How Self-Awareness, Empathy and Intuition Drive Performance
Ravee Mehta
LES Publishing. 2012.

The Intuitive Investor: A Radical Guide for Manifesting Wealth
Jason A. Voss, CFA
New York: SelectBooks. 2010.

Strategic Intuition: The Creative Spark in Human Achievement
William Duggan
New York: Columbia University Press. 2007.

MANAGEMENT EVALUATION

Quality managers are identified and management is consulted in order to understand the business, the industry, and the larger economy. It is believed that quality management can generate higher worth for an asset in the long term. In some cases, assets will be bought solely on the basis of the past ability of a manager to create value from an asset. Additionally, some investment ideas come directly from management; it is hoped that managers, being closer to the action, are more informed than investors and thus can provide better insight into an industry or the economy.

Detecting Lies and Deceit: The Psychology of Lying and the Implications for Professional Practice
Aldert Vrij
Chichester, UK: John Wiley & Sons. 2000.

The Evaluation of Management
Douglas A. Hayes
Financial Analysts Journal, vol. 24, no. 4 (July/August 1968): 39–42.

The Hows and Whys of Lies
Bella DePaulo
CreateSpace Independent Publishing Platform. 2010.

Interrogating to Detect Deception and Truth: Effects of Strategic Use of Evidence
Maria Hartwig
Göteborg, Sweden: Göteborg University (Department of Psychology). 2005.

Investing Between the Lines: How to Make Smarter Decisions by Decoding CEO Communications
L.J. Rittenhouse
New York: McGraw-Hill. 2013.

Which CEO Characteristics and Abilities Matter?
Steven N. Kaplan, Mark M. Klebanov, and Morten Sorensen
Journal of Finance, vol. 67, no. 3 (June 2012): 973–1007. Summarized by Marc L. Ross, CFA, in *CFA Digest*, vol. 42, no. 4 (November 2012): 122–124.

MARKET NEUTRAL

In this strategy, analysts look to construct portfolios that do well in rising or falling markets. They may focus on long–short portfolios of securities within single markets or long–short portfolios across multiple markets.

Market Neutral Strategies
Giovanni Beliosi
Journal of Alternative Investments, vol. 5, no. 2 (Fall 2002): 93–96.

Market Neutral Strategies
Bruce I. Jacobs, Kenneth N. Levy, CFA, and Mark Anson, CFA
Hoboken, NJ: John Wiley & Sons. 2004.

MERGER ARBITRAGE

Ideas are sought where a business is felt to be a good takeover candidate. It is believed that an outside entity will pay a premium over the current price of the asset and investors will then recognize an increase in the price of their investment.

Investment Banking: Valuation, Leveraged Buyouts, and Mergers & Acquisitions, 2nd ed.
Joshua Rosenblum and Joshua Pearl, CFA
Hoboken, NJ: John Wiley & Sons. 2013.

Merger Arbitrage: How to Profit from Event-Driven Arbitrage
Thomas Kirchner
Hoboken, NJ: John Wiley & Sons. 2009.

Merger Deal Structures and Investment Strategies
Ben Branch and Taewon Yang
Journal of Alternative Investments, vol. 9, no. 3 (2006): 8–23.

MOMENTUM

This style takes as a starting point what other investors are doing that is leading to outsized returns or losses and then imitates that activity.

How to Make Money in Stocks: A Winning System in Good Times and Bad, 4th ed.
William O'Neil
New York: McGraw-Hill. 2009.

News, Analysis & Strategies for Futures, Options & Derivatives Traders
Art Collins
Futures, vol. 32, no. 10 (2003): 42–45.

News, Not Trading Volume, Builds Momentum
James Scott, Margaret Stumpp, and Peter Xu
Financial Analysts Journal, vol. 59, no. 2 (March/April 2003): 45–54.

Profiting from Chaos: Using Chaos Theory for Market Timing, Stock Selection, and Option Valuation
Tonis Vaga
New York: McGraw-Hill. 1994.

Profitability of Price Momentum Strategies
Paul Ryan
Journal of Investing, vol. 13, no. 2 (Summer 2004): 55–62.

Reminiscences of a Stock Operator
Edwin Lefèvre
New York: John Wiley & Sons. 1994.

Technical Analysis Explained: The Successful Investor's Guide to Spotting Investment Trends and Turning Points, 5th ed.
Martin J. Pring
New York: McGraw-Hill. 2014.

NEWS DRIVEN

The manager tries to identify assets whose prices are correlated with major news events. An example is being long such commodities as lumber or copper before an expected announcement of improved GDP in a market.

Market Mind Games: A Radical Psychology of Investing, Trading and Risk
Denise Shull
New York: McGraw-Hill. 2012.

News, Analysis & Strategies for Futures, Options & Derivatives Traders
Art Collins
Futures, vol. 32, no. 10 (2003): 42–45.

News, Not Trading Volume, Builds Momentum
James Scott, Margaret Stumpp, and Peter Xu
Financial Analysts Journal, vol. 59, no. 2 (March/April 2003): 45–54.

Profiting from Chaos: Using Chaos Theory for Market Timing, Stock Selection, and Option Valuation
Tonis Vaga
New York: McGraw-Hill. 1994.

PSYCHOLOGICAL

Analysts spend time trying to evaluate the psychology of major market entities. Examples include the management of a business, central bankers, or the market itself (think the "mood of the market").

Basic Organizational Behavior, 2nd ed.
John R. Schermerhorn, Jr., James G. Hunt, and Richard N. Osborn.
New York: John Wiley & Sons. 1997.

Emotional Intelligence and Investor Behavior
John Ameriks, Tanja Wranik, and Peter Salovey
Charlottesville, VA: Research Foundation of CFA Institute. 2009.

Market Mind Games: A Radical Psychology of Investing, Trading and Risk
Denise Shull
New York: McGraw-Hill. 2012.

QUANTITATIVE ANALYSIS

Quantitative criteria are entered into a computer, and then the computer is fed with data. Possible investment ideas that meet the criteria are generated via algorithms of varying complexity. These could be based on covariance, cross-correlations, PEG ratios, and so on. The goal is to identify the appropriate criteria believed to provide the best investment prospects. A computer is then programmed to invest in the assets that meet the criteria, with little interference from investment managers.

21st Century Asset Management: Facing the Great Divide
Clifford S. Asness
CFA Institute Conference Proceedings Quarterly, vol. 31, no. 4 (Fourth Quarter 2014).

Active Portfolio Management: A Quantitative Approach for Producing Superior Returns and Controlling Risk, 2nd ed.
Richard Grinold and Ronald Kahn
New York: McGraw-Hill. 1999.

The Complete Guide to Capital Markets for Quantitative Professionals
Alex Kuznetsov
New York: McGraw-Hill. 2006.

A Factor Approach to Asset Allocation
Roger G. Clarke, Harindra de Silva, CFA, and Robert Murdock, CFA
Journal of Portfolio Management, vol. 32, no. 1 (Fall 2005):10–21. Summarized by Frank T. Magiera, CFA, in *CFA Digest*, vol. 36, no. 2 (May 2006): 74–75.

Factor Investing: When Alpha Becomes Beta
Deborah Kidd, CFA
Investment Risk and Performance, vol. 2014, no. 1.

Financial Modeling, 4th ed.
Simon Benninga
Cambridge, MA: MIT Press. 2014.

Fractal Market Analysis: Applying Chaos Theory to Investment and Economics
Edgar E. Peters
New York: John Wiley & Sons. 1994.

Modeling Structured Finance Cash Flows with Microsoft Excel: A Step-by-Step Guide
Keith Allman
Hoboken, NJ: John Wiley & Sons. 2007.

Profiting from Chaos: Using Chaos Theory for Market Timing, Stock Selection, and Option Valuation
Tonis Vaga
New York: McGraw-Hill. 1994.

The Quant Delusion: Financial Engineering in the Post-Lehman Dodd–Frank Landscape
Stephen Blyth
CFA Institute Conference Proceedings Quarterly, vol. 29, no. 1 (March 2012).

Quantitative Equity Portfolio Management: An Active Approach to Portfolio Construction and Management
Ludwig B. Chincarini, CFA, and Daehwan Kim
New York: McGraw-Hill. 2006.

Quantitative Investment Analysis, 2nd ed.
Richard A. DeFusco, CFA, Dennis W. McLeavey, CFA, Jerald E. Pinto, CFA, and David E. Runkle, CFA
Hoboken, NJ: John Wiley & Sons. 2007.

SCENARIO PLANNING

Investment analysts undertake extensive research on the prospects of economies, industries, or businesses and construct three or four story lines about the future. Investments are chosen that do well regardless of which scenario unfolds.

The Art of the Long View: Planning for the Future in an Uncertain World
Peter Schwartz
New York: Crown Business. 1996.

Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios
Thomas J. Chermack
San Francisco: Berrett-Koehler. 2011.

Scenarios: The Art of Strategic Conversation, 2nd ed.
Kees van der Heijden
West Sussex, UK: John Wiley & Sons. 2005.

SECTOR ANALYSIS

Investment ideas are generated by first looking at economic sectors and evaluating the prospects of each. Then, those with better/worse prospects than the average are used to identify assets within each sector worth going long or short.

The Appraisal of Real Estate, 14th ed.
Chicago: Appraisal Institute. 2013.

Entertainment Industry Economics: A Guide for Financial Analysis, 9th ed.
Harold L. Vogel, CFA
Cambridge, UK: Cambridge University Press. 2014.

Evolutions in Sustainable Investing: Strategies, Funds and Thought Leadership
Cary Krosinsky, Nick Robins, and Stephen Viederman (Editors)
Hoboken, NJ: John Wiley & Sons. 2012.

Financial Valuation: Businesses and Business Interests
James H. Zukin
Boston: Warren, Gorham & Lamont. 1990.

Incorporating Consumer Demographics in Industry Analysis
Richard F. Hokenson
AIMR Conference Proceedings (January 1996): 4–17.

Let's Talk an Oil Deal: Your Key to Oil Patch Lingo
John Orban III
Oklahoma City: Meridian Press. 1991.

Money in the Ground: Insider's Guide to Oil and Gas Deals, 4th ed.
John Orban III
Oklahoma City: Meridian Press. 2001.

Sustainable Investing: The Art of Long-Term Performance
Cary Krosinsky and Nick Robins (Editors)
Sterling, VA: Earthscan. 2008.

SECURITY SELECTION

The focus is on the characteristics of an individual security, such as a stock, bond, ETF, option, future, ABS, MBS, or CDO. The emphasis is on things like liquidity, maturity, coupons, embedded options, covenants, and number of payments. In the case of convertible arbitrage, differences between a convertible security's volatility and its underlying stock's volatility are arbitraged.

The Complete Guide to Option Pricing Formulas
Espen Gaarder Haug
New York: McGraw-Hill. 1998.

Convertible Arbitrage: Insights and Techniques for Successful Hedging
Nick P. Calamos
Hoboken, NJ: John Wiley & Sons. 2003.

Equity Asset Valuation, 2nd ed.
Jerald E. Pinto, CFA, Elaine Henry, CFA, Thomas R. Robinson, CFA, and
John D. Stowe, CFA
Hoboken, NJ: John Wiley & Sons. 2010.

Evolutions in Sustainable Investing: Strategies, Funds and Thought Leadership
Cary Krosinsky, Nick Robins, and Stephen Viederman (Editors)
Hoboken, NJ: John Wiley & Sons. 2012.

Factor Analysis Approach to Analyzing Individual Securities
Andrew Rudd
AIMR Conference Proceedings, vol. 1993, no. 7 (December 1993): 19–28.

Fixed Income Analysis, 2nd ed.
Frank J. Fabozzi, CFA
Hoboken, NJ: John Wiley & Sons. 2007.

Futures, Options & Swaps, 3rd ed.
Robert W. Kolb
Malden, MA: Blackwell. 1999.

Modeling Structured Finance Cash Flows with Microsoft Excel: A Step-by-Step Guide
Keith Allman
Hoboken, NJ: John Wiley & Sons. 2007.

News, Analysis & Strategies for Futures, Options & Derivatives Traders
Art Collins
Futures, vol. 32, no. 10 (2003): 42–45.

Real Options: Managing Strategic Investment in an Uncertain World
Martha Amran and Nalin Kulatilaka
Boston: Harvard Business School Press. 1999.

Sustainable Investing: The Art of Long-Term Performance
Cary Krosinsky and Nick Robins (Editors)
Sterling, VA: Earthscan. 2008.

Structured Finance and Collateralized Debt Obligations: New Developments in Cash and Synthetic Securitization, 2nd ed.
Janet M. Tavakoli
Hoboken, NJ: John Wiley & Sons. 2008.

SELL-SIDE RECOMMENDATIONS

Analysts spend their time evaluating the quality of sell-side research analysts. Purchases and sales are made on the basis of the recommendations of the sell-side analysts. Note that the following resources lend insight into how sell-side research reports are created, but they do not explicitly teach how to evaluate the quality of sell-side recommendations or how to utilize such reports. However, understanding how analysis is created should allow you to infer how to better use sell-side recommendations.

Best Practices for Equity Research Analysts: Essentials for Buy-Side and Sell-Side Analysts
James J. Valentine, CFA
New York: McGraw-Hill. 2011.

Security Analysis on Wall Street: A Comprehensive Guide to Today's Valuation Methods, 2nd ed.
Jeffrey C. Hooke
New York: John Wiley & Sons. 2010.

SHORTING

Analysts who short conduct fundamental analysis to identify overvalued assets. Overvaluation can occur because the market is thought not to be discounting a particular business nuance or because the price of the company's assets is overbid.

Bottom-Up, Value Investing in Catalysts and Merger Arbitrages
Salvatore Muoio, CFA
Wall Street Transcript, vol. 191, no. 3 (2013): 59–63.

Demystifying the Addition of Short Positions to an Equity Portfolio
Mark S. Tyler, CFA
Journal of Investing, vol. 16, no. 4 (Winter 2007): 60–63.

The New Sell and Sell Short: How to Take Profits, Cut Losses, and Benefit from Price Declines, 2nd ed.
Alexander Elder
Hoboken, NJ: John Wiley & Sons. 2011.

SUM OF THE PARTS

Sum of the parts, also known as spin-off arbitrage, is buying companies whose current share price is lower than the total price suggested by calculating the value of the entirety of a company's business lines. By buying the shares, it is hoped that the company will spin off the undervalued assets in the market, leading shareholders to higher returns.

The Aggressive Conservative Investor
Martin J. Whitman, CFA, and Martin Shubik
Hoboken, NJ: John Wiley & Sons. 2005.

Financial Valuation: Businesses and Business Interests
James H. Zukin
Boston: Warren, Gorham & Lamont. 1990.

Margin of Safety: Risk-Averse Value Investing Strategies for the Thoughtful Investor
Seth A. Klarman
New York: Harper-Collins. 1991.

Security Analysis on Wall Street: A Comprehensive Guide to Today's Valuation Methods, 2nd ed.
Jeffrey C. Hooke
New York: John Wiley & Sons. 2010.

TECHNICAL ANALYSIS

Graphs showing relationships, usually over some period of time, are used to identify investment opportunities. Some people consider this style a form of quantifying behavioral effects in the marketplace.

Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation
Andrew W. Lo, Harry Mamaysky, and Jiang Wang
Journal of Finance, vol. 55, no. 4 (August 2000): 1705–1770.

Reminiscences of a Stock Operator
Edwin Lefèvre
New York: John Wiley & Sons. 1994.

Technical Analysis Explained: The Successful Investor's Guide to Spotting Investment Trends and Turning Points, 5th ed.
Martin J. Pring
New York: McGraw-Hill. 2014.

Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications
John J. Murphy
New York: New York Institute of Finance. 1999.

TOP DOWN

Large trends are identified, and then countries, sectors, or assets that stand to do well given these trends are purchased or shorted. Econometric modeling is a form of top-down analysis.

The Econometrics of Financial Markets
John Y. Campbell, Andrew W. Lo, and A. Craig MacKinlay
Princeton, NJ: Princeton University Press. 1996.

Forecasting: Methods and Applications, 3rd ed.
Spyros G. Makridakis, Steven C. Wheelwright, and Rob J. Hyndman
New York: John Wiley & Sons. 1997.

Global Trends 2030: Alternative Worlds
National Intelligence Council
CreateSpace Independent Publishing Platform. 2012.

Incorporating Consumer Demographics in Industry Analysis
Richard F. Hokenson
AIMR Conference Proceedings (January 1996): 4–17.

Recursive Models of Dynamic Linear Economies (The Gorman Lectures in Economics)
Lars Peter Hansen and Thomas J. Sargent
Princeton, NJ: Princeton University Press. 2013.

Top-Down Value Investing
Bryan Sadoff
Wall Street Transcript, vol. 175, no. 12 (2007): 1–8.

VALUE
Value investors conduct a bottom-up analysis but focus on the price paid for the underlying asset; valuation is key. They frequently look for assets whose price is lower than their calculation of fair value. If the valuation is greater than the asset price, the asset is purchased. Conversely, if the valuation is less than the asset price, it is a candidate for selling or shorting. Other numerical data qualifying for investment ideas here include an asset's volatility, delta, gamma, theta, or vega.

Analysis for Financial Management, 10th ed.
Robert C. Higgins, CFA
New York: McGraw-Hill Education. 2011.

Bottom-Up, Value Investing in Catalysts and Merger Arbitrages
Salvatore Muoio, CFA
Wall Street Transcript, vol. 191, no. 3 (2013): 59–63.

Equity Asset Valuation, 2nd ed.
Jerald E. Pinto, CFA, Elaine Henry, CFA, Thomas R. Robinson, CFA, and
John D. Stowe, CFA
Hoboken, NJ: John Wiley & Sons. 2010.

Financial Valuation: Businesses and Business Interests
James H. Zukin
Boston: Warren Gorham Lamont. 1990.

The Intelligent Investor: The Definitive Book on Value Investing
Benjamin Graham
New York: Collins Business. 2006.

Investment Valuation: Tools and Techniques for Determining the Value of Any Asset, 2nd ed.
Aswath Damodaran
New York: John Wiley & Sons. 2002.

Poor Charlie's Almanack: The Wit and Wisdom of Charles T. Munger, 3rd ed.
Charles T. Munger, Peter D. Kaufman, and Warren E. Buffet
Virginia Beach, VA: PCA Publications. 2008.

Security Analysis, 6th ed.
Benjamin Graham and David L. Dodd
New York: McGraw-Hill. 2009.

Security Analysis on Wall Street: A Comprehensive Guide to Today's Valuation Methods, 2nd. ed.
Jeffrey C. Hooke
New York: John Wiley & Sons. 2010.

Top-Down Value Investing
Bryan Sadoff
Wall Street Transcript, vol. 175, no. 12 (2007): 1–8.

CHAPTER 4

CONCLUSION

We have covered a lot of territory in *The Investment Idea Generation Guide*—namely, bringing a systematic approach to training your mind to be more nimble so that you can see the world for what it is more frequently. Yet, this guide represents only the early stages of the conversation. Unfortunately, the investment industry for too long has avoided the importance of creativity and the development of tools to support it. I hope that this guide provides some relief—and that numerous such guides are written that make this one seem primitive and obsolete.

If you desire more guidance, here are additional suggestions:

- If you jumped ahead to Chapter 3, consider working your way backward through the book, reading Chapters 1 and 2 in whichever order is most appealing to you.
- Revisit Chapter 1 (How to Increase Your Creativity) and engage in the Creativity Skill 1 exercise (Map of What You Know). Because creativity is doing or thinking something you are not currently doing or thinking, you need to have a firm grasp of your default modes of thinking about investing and investments. Once these defaults are mapped, it is easier to identify *what you are not doing* and to explore those new possibilities.
- Revisit some of the other ideas in Chapters 1 and 2 to free your mind and to unleash your creativity.
- Ask yourself whether you want an incremental context break or a radical context break to help you better activate your creativity.
    - If you want an incremental context break, explore the resources that lie near your default investment style on the Investment Idea Generation Matrix (Chapter 3).
    - If you desire a radical context break, explore the resources that lie farthest from your default investment style on the Investment Idea Generation Matrix (Chapter 3).
- Learn a new investment skill. For example, you could learn how to value illiquid businesses or how to use a computer program to sift data more quickly to uncover more investment ideas. When you learn something new, it opens up the possibilities of what you can do. In turn, your mind is free to consider new possibilities.

APPENDIX 1. EXAMPLE SCENARIO PLAN

In this Appendix, we provide a full iteration of our example scenario plan—from stating the research question; to defining evaluation techniques; to discussing driving forces for predetermined elements, uncertain elements, and our predictions; to developing three scenarios that together create a useful model for understanding power within a culture.

QUESTION UNDER CONSIDERATION

How do you manage money in a world awash in capital? This question was answered by also considering what the world will look like at the opening of the 22nd century.

- Return on invested capital (ROIC)?
- Absolute vs. relative returns?
- For maximum happiness?
- Or what?

HOW WILL WE KNOW THE SCENARIO PLAN IS A SUCCESS?

Time horizon for evaluation: 3–7 years

Our scenario plan must

- shift the way we evaluate investment opportunities,
- identify harbingers of state changes,
- provide a framework for understanding/contextualizing new events so that we better understand the world,
- provide suggested courses of action given the frameworks, and
- provide an understanding of "what won't work" in the new world.

DRIVING FORCES AFFECTING THE QUESTION AND DECISIONS

Each scenario is framed by our views on major 21st century themes, all expected to be in place by the end of the century. Here are our driving forces:

> Augmentation, demographics, environment, information, interconnection, money, power, simplicity, and singularity

Further, each scenario shares the same predetermined elements, and they vary based on the uncertain elements.

PREDETERMINED ELEMENTS

AUGMENTATION

People will continue seeking to merge machines and people.

Artificial intelligence will augment a growing and essentially infinite number of processes/services.

Android scientists, in their desire to prove they have created machines with consciousness, will start to focus on consciousness as an issue = greater scientific exploration of consciousness from a practical point of view.

DEMOGRAPHICS

Population growth will slow. There will never be growth based on "more mouths to feed" after an inflection point in population growth.

There will be demographic-driven migration to more economically suitable climates.

Urbanization will accelerate.

Public transit networks will be re-evaluated and rebuilt.

Human lifespans will lengthen. Contributing factors:

- Disease diagnosis
- Growing organs in labs
- Stem cells
- Hygiene
- Psychology (delivered better and sought more)

ENVIRONMENT

Environmental criteria will become a crucial part of business and political decision making.

Energy consumption will grow faster than population growth.

Energy efficiency will continue to improve (growing importance of alternative energy; co-generation; battery storage; better architectures).

Freshwater access will increase in importance economically and geopolitically.

Urban agriculture will become a permanent part of culture. Rooftops and other currently unused urban spaces will be converted to farm and park; every space will be used.

INFORMATION

More and more information about everything; therefore, information and discovery costs will get lower and lower, approaching zero.

Services will be built to leverage hyperspecific information.

The means of interaction will evolve greatly; barriers to transmitting most experiences, except smell and taste, will be vastly lower.

Atomization of work and geography will be driven by technological decentralization.

We will have greater transparency into the workings of human biology.

Greater availability of "interdisciplinary" data, where multiple disciplines' data sources will be combined in a relatable and structured way. When combined with smart curation, it will create a form of "conjugated intelligence."

Network effects of new infrastructure and services will accelerate growth because of productivity.

INTERCONNECTION

Greater and greater interconnection of information and of people at the social level:

- Social media (a constant tension will be people power vs. government power).
- Comparability of life experience will enable new global norms to develop. That is, people will no longer tolerate dictatorship if they can see other ways of living.

Most/all devices will be made digital and will become connected to the internet.

Increase in the power of the individual relative to institutions, such as businesses and governments, because of social media.

Entertainment will be hyperpersonal and unconstrained by distribution.

MONEY

New business language will evolve to better encapsulate benefits and risks of operating a business. Currently, there is a lack of good descriptors for the evolving technologies that merge information with conscious understanding.

There will be money-driven migration to more economically suitable climates.

"Good food" vs. "cheap food." Good food (i.e., local, organic, healthy) will be available, but for a price. "Cheap food" (processed/high in fat) will be free.

There will be a preference for debt capital, which means required rates of return will be lower.

Creativity will be the primary source of added value.

Increased customization in manufacturing processes.

Companies will be managed in a decentralized fashion.

Managers will act to remove most layers of middle management where possible/affordable.

The cost/price singularity will exist where there's no creativity.

Capital will be misallocated because of the artificially low cost of capital.

POWER

The United States will retain significant, near-permanent competitive advantages in power.

A global technology disaster will occur (e.g., cyberhack, EMP, solar flares). The payments system will be interrupted in a separate or related attack.

There will be a nuclear event (involving civilian or military nuclear facilities).

Fresh-water access will increase in importance economically and geopolitically.

China will assert international power and lead significant global initiatives.

Likely quagmires:

- United States, if fiscal gridlock becomes more extreme (a possible switch to parliamentary-style democracy)
- EU
- Middle East
- India/Pakistan

- Venezuela
- North Korea
- Parts of Africa
  - Boundaries will change.
  - Tribes, not boundaries, will become relevant.
  - Progress will be unequal.
- Russia will collapse under its poor demographics.
- Japan will almost collapse, owing to demographics and the rigidity of its culture.

SIMPLICITY

Whatever makes life simpler will be massively valuable.

There will be a move toward taxation simplicity.

Discovery of new, simplifying goods and services will be hugely valuable.

SINGULARITY

"Cost singularity" in individual industries is coming.

Quality-of-life parity: Basic services will become universal, including entertainment.

We will continue approaching (if never quite reaching) gender parity on a global basis in terms of pay.

Cross-functional/interdisciplinary approaches will become the norm in all walks of life, driven by convergence between home and work life.

Complete convergence between home and work life will become the norm; the challenge will be to separate them and parse the workflow.

The line between military and police forces will blur.

The regulatory environment may move toward singularity.

Taxation may move toward singularity.

UNCERTAIN ELEMENTS

AUGMENTATION

Will advances in medical technology lead to adverse selection?

To what degree will a better understanding of human biology lead to better well-being and longevity?

To what degree will AI lead to more leisure time, leading to greater creativity and more specialization?

What will the world look like with added time for creativity and leisure?

DEMOGRAPHICS

Will advances in medical technology lead to adverse selection?

Will the people with high human capital concentrate geographically?

Will knowledge workers still have a human capital premium?

How will wealth and income be distributed (by country, city, class, race, etc.), and will it matter in a world of quality-of-life parity?

Will arbitrary boundaries give way where there's no affinity, such as cultural, economic, or common enemies? Examples of arbitrary boundaries include Iraq, countries whose names end in "stan," the United States and Canada, Mali and sub-Saharan Africa.

How will farming in cities reshape the urban landscape and change the environmental degradation discussion?

Will demographic-driven migration lead to greater cooperation or competition between nations?

Who will benefit and lose from climate change?

ENVIRONMENT

Is the environment still going to be hospitable to human life?

To what degree will water price increases due to excess demand and shrinking supply become a global issue? Will this lead to a "VAT"-like taxation structure, where those who make the best use of water are taxed less?

Will the nuclear event involve malicious intent?

How will farming in cities reshape the urban landscape and change the environmental degradation discussion?

Who will benefit and lose from climate change?

INFORMATION

Will social media have a harmonious or negative impact on social organization?

- What rules: empathy or self-interest?
- What rules: fellowship of people or xenophobia?

Will greater access to information decrease the value of particular skills (e.g., knowledge/“white collar” workers)?

What will the world look like with added time for creativity and leisure?

To what degree will a better understanding of human biology lead to better well-being and longevity?

Will access to information spur political action on the part of citizens as quality of life equalizes?

What element of the pay gap between genders will remain?

To what degree will social media act as a check on government power/oppression?

INTERCONNECTION

To what degree will distributed trust networks and protocols subvert traditional power institutions?

To what degree will people power begin to usurp governmental power in the “military power > business power > governmental power > people power” framework?

To what degree will humanity take up contemplative/introspective practices (e.g., mindfulness, meditation)?

MONEY

Will creativity and human capital differences mean higher profit margins?

To what degree will supply chains shorten or become decentralized?

How will energy be priced?

Will knowledge workers still have a human capital premium?

To what degree will cogeneration of electricity be taken up?

Will lower required returns on capital lead to misallocation?

Will the increasing technical complexity of business processes boost switching costs/destroy nimbleness?

How important will growth based on “more mouths to feed” be?

To what degree will a shrinking economy shrink “hours worked”?

How will health care be delivered and paid for?

How will governments fund themselves? Pay-for-services model?

Nuance versus novelty? Culture has tended to be dominated by left-brained thinking, which requires ever-greater levels of hedonistic novelty to make an impression. Will people up the ante on hedonism or go in the opposite direction, moving inward and toward a greater appreciation of nuance?

Which new metrics will be adopted and when? And will the business community (especially low-margin businesses) advocate for this or resist it?

Who will benefit and lose from climate change?

Will multiple alternative currencies be created?

Will advertising be the predominant internet business model?

POWER

Will the inevitable nuclear event involve malicious intent?

Will arbitrary boundaries give way where there is no natural and obvious affinity, such as cultural, economic, or common enemies? Examples of arbitrary boundaries include Iraq, countries whose names end in “stan,” and sub-Saharan Africa.

Will the evolution of police toward a military force prompt a meaningful public conversation?

How will governments fund themselves? Pay-for-services model?

Will the EU stay together?

SIMPLICITY

Will driverless cars be seen as simplifying life or as taking away freedom?

Will urbanization be seen as simplifying life, with homes close to transportation, work, and necessities? Or will it be seen as increasing complexity?

SINGULARITY

Will there be a cost singularity for competitors because of hyperdata? Hyberdata lead to inefficiencies being wrung out of global supply chains, as well as many workplace inefficiencies. Thus, competition can no longer occur solely on the basis of price. There must be other differentiators, such as quality, brand/affinity, and creativity.

Will everything that isn't a "creative" undertaking (e.g., new widget, new process, new viewpoint) become a commodity?

Will there be quality-of-life parity because of a commensurate drop in consumption, cost singularities, and a rise in pursuit of qualitative goals (e.g., happiness)?

Will gender differences in pay and health disappear?

Will there be knowledge worker parity because knowledge can be digitized and analyzed?

Will there be parity in salary/compensation (for globally competitive industries))?

PREDICTIONS

AUGMENTATION

A "flexible user interface" for almost all services/transactions will arise that allows individuals to shape the world to their preference.

A rise in AI's prevalence will boost leisure time, a reduction in the number of knowledge/white-collar workers, and a decline in the number of hours worked; however, employment will increase. That is, there will be more jobs but people will work fewer hours. Also, millennials and generations after them will be less interested in consumption, thus reducing the desire to work long hours, to earn money, and to consume. Because of quality-of-life parity, people will be comfortable making this trade-off.

"Conjugated consciousness" (commonly referred to as artificial intelligence) will become advanced, but never conscious.

People will become their own dataset providers and parsers.

Physicists, chemists, biologists, neuroscientists, psychologists, and computer scientists will encounter consciousness as a central area of research and begin crafting a holistic science.

DEMOGRAPHICS

Demographic issues will get solved, optimizing for maximum wealth creation given huge social tensions.

Millennials and generations after them will be less interested in consumption, thus reducing the desire to work long hours, to earn money, and to consume.

ENVIRONMENT

Social responsibility will become a hygiene factor (e.g., Toms, Warby Parker) for consumers and investors.

A war will be fought where access to fresh water is the central issue; potential combatants will be those in currently semi-arid areas.

Nuclear events will be more likely to involve incompetence rather than malice.

Society will have a serious conversation about true economic value and economic costs. That is, economic profits will seek to calculate a net income that includes all costs, including environmental and social. Companies that don't create actual economic value will be punished by regulation and by investors.

INFORMATION

Medical diagnostics will get unbelievably precise as the human genome's massive amounts of data are better and better understood.

Developing cures for all diseases will remain Sisyphean; treatments will lag diagnostics and continuously disappoint. Greater consciousness may lead to better habits because greater information will require ever-micro-focused drugs and treatments; still, the costs will remain prohibitive. Major genetic disease categories will probably be cured or therapies will be developed.

Social media will provide transparency into oppressive governments, making heavy-handed responses more difficult.

Psychology will become better integrated into the economy and the way we think:

> Businesses will be likely to employ a "chief psychology officer," responsible for the mental well-being of employees.
>
> Biometric and psychometric will become the same discipline. That is, overall quality of life or health of the entire person will become the norm.
>
> Rise of "mind science" as stress reliever, cognitive enhancer, and ethics enhancer.

INTERCONNECTION

Education will become decentralized (i.e., not centered on a specific location) and personalized. The idea of the university as a central learning location will become quaint as education is tailor-made for individual needs and is distributed in a decentralized fashion. What is missing is a degree of underwriting or accreditation. Leading universities will lead the charge.

Economic interconnectivity will make war harder as governments will be loath to upset businesses and people by interrupting key goods and services. Social media will provide transparency into oppressive governments, making heavy-handed responses more difficult.

MONEY

Those sourcing and producing the raw materials for 3D printing will do well.

Businesses that succeed will be taking outsized risks based on normalized costs of capital. That is, they will use absolute costs of capital based on long-term historical run rates, rather than relative costs of capital where the hurdle rates are artificially low owing to too much capital. Those that do not use normalized costs of capital will destroy capital in the long run and become also-rans.

Because capital is likely to be massively misallocated, winners will be those that structure themselves for creativity.

As creativity becomes either the sole or dominant competitive advantage, competitive advantage will become known as "creative advantage."

Africa's economies will hugely improve, leading to a greater say for them in international conversations.

Innovative economic solutions to reward women for childbearing and child rearing will be part of the public dialogue. This is meant to redress the pay gap that exists when women check out of the workforce to raise children. Instead, their time raising children will be seen as a public economic good.

People will give up hours of work because of the quality-of-life parity: shorter workweeks = more leisure time.

The professional services and entertainment industries will continue to grow their share of the total global economic pie because of creative advantage.

For many, the broad availability of novel items and experiences will lead to a terminal level of diminishing marginal utility; others will change their mental focus entirely to an appreciation of nuance.

Luxury will become increasingly defined by having things the way you want them and less by how much money you spent on them. This means there will be a creative advantage for those firms that are skilled at mass customization and low-cost manufacturing of furnishings, appliances, and housing.

Society will have a serious conversation about true economic value and economic costs. That is, economic profits will seek to calculate a net income that includes all costs, including environmental and social. Companies that don't create actual economic value will be punished by regulation and by investors.

Demographic gaps will be solved through immigration, which will create wealth but also social strife.

Finance will either migrate to a true investment fiduciary role or become marginalized because of a massive race to commoditize services and costs. The only way to sustain profit margins will be if finance migrates to a true "life counselor" role, whereby investment professionals help people make many important life choices.

Finance will exist to provide a trusted interface/adviser between people and their resources.

"Life product" as a concept and as a practice will subsume the current "investment product."

Investment professionals, including financiers, will become curators of information used by individuals to make more intelligent and wiser decisions about their time, energy, assets, and capital. This will be in stark contrast to the rent extraction model, where money is made on the basis of the size and quantity of transactions.

Finance will return to being a profession.

POWER

Economic interconnectivity will make war harder as governments will be loath to upset businesses and people by interrupting key goods and services. Social media will provide transparency into oppressive governments, making heavy-handed responses more difficult.

Africa's economies will hugely improve, leading to a greater say for them in international conversations and in global geopolitics.

A war will be fought where access to fresh water is the central issue; potential combatants will be those in currently semi-arid areas.

Nuclear events will be more likely to involve incompetence rather than malice.

Powerful, unused military forces will become one of the last vestiges of the power of nation-states because most other externalities will be handled through business activity.

Demographic issues will get solved, optimizing for maximum wealth creation given huge social tensions.

SIMPLICITY

People will give up hours of work because of the quality-of-life parity: shorter workweeks = more leisure time.

Luxury increasingly will become defined by having things the way you want them and less about how much money you spent on them.

Businesses and governments that create simplicity for customers/citizens will accrue loyalty and near-mythic status with constituents.

SINGULARITY

If an expense is subject to global competition (e.g., financial analysis, accounting, transcription), costs will approach a global average—save for "place-specific" work, where prices are locally, not globally, determined (e.g., construction, car repair).

Where industries have reached cost singularity, businesses hitting singularity first will begin selling services that help others reach singularity.

Knowledge workers will become commoditized in deference to creative workers.

Much of what was considered genius will be seen as just a euphemism for "knowledgeable." In a world of ubiquitous and near-zero cost access to information, plus augmentation, genius based on knowledge will become an obsolete concept. Instead, genius will re-attain its preeminence as a concept that means hypercreative.

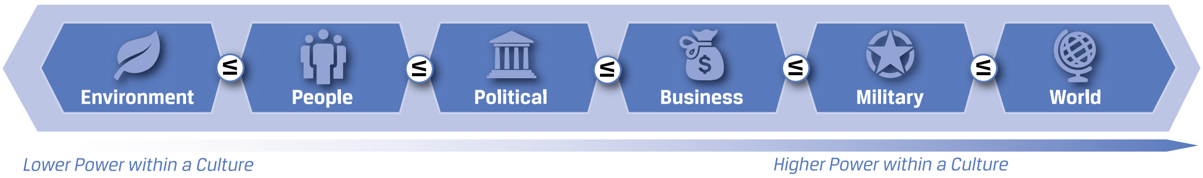
People will give up hours of work because of the quality-of-life parity: shorter workweeks = more leisure time.

A USEFUL MODEL

In the development of the following scenario plan, we experienced a fit of creativity and ended up inventing what we think is an extremely useful mental model for understanding the state of (and relationship between) individual types of power within a "culture" to answer our question: What will the world look like at the opening of the 22nd century?

Here, culture could be defined by the model's user as a nation (e.g., China), a region (e.g., Baku Valley), a continent (e.g., Europe), and so on.

SOURCES OF POWER MODEL



Our model recognizes six different main sources of power (listed alphabetically): business, environment, military, people, political, and world.

Power sources on the right have the highest power, shrinking in power the farther to the left on the continuum traveled.

Cultures are, in general, in a state of equilibrium. So, even though power sources on the right are more powerful, the entire culture is usually in a state of equilibrium, as indicated by the "less than or equal to" (≤) separating different power sources.

Different cultures have different relative positions on the continuum of power. For example, in the United States, we see the military as the largest form of power because the military possesses the greatest ability to enforce its will on the other categories of power. That said, the US military historically tends to cede its power to entities with less power. Environment is listed as the least powerful because concern about the environment is usually an afterthought for most people once their business, political, and personal needs are met. World power, meaning the global culture and all its combined power sources, is seen as greater than the power of the United States.

In the previous example, almost all economic power is based on the environment, flowing up to people who then change the environment to create goods and services.

Scenarios are easier to map and therefore to understand when using the model. For example, if you identify a major predetermined trend affecting "people," then you would expect agitation relative to power sources around people, such as political and environment. If people power is disturbed, it will try to increase its power.

Units of account for the power sources help frame issues:

World: ceiling

Business: 1 dollar = 1 vote

Military: 1 bullet = 1 vote

Political: 1 person = 1 vote

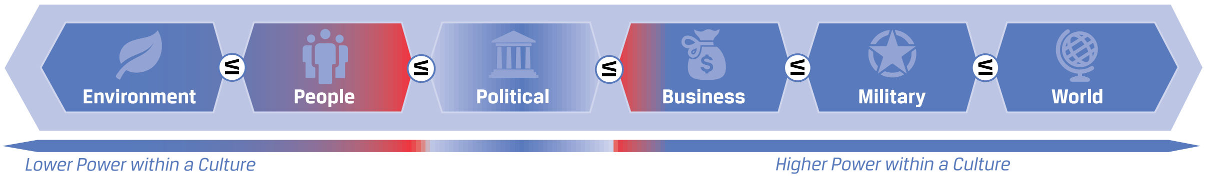
People: 1 minute = 1 vote

Environment: floor

For each of the following scenarios, we have used this mental model to quickly show the tensions between power sources that exist in each scenario.

EXAMPLE SCENARIO 1

WEAKLINGS VS. BODYBUILDERS VS. WEIGHTLIFTERS



Bodybuilders are muscular, but are they strong? They are renowned for comely physiques designed to make muscles look good through a combination of specific resistance exercises; high protein, low-fat diets designed to ensure the full display of muscle structures and vascularity; and the use of strength-enhancing substances and even perhaps steroids. Bodybuilders navigate to a specific appearance rather than to a specific capability.

As a result, most bodybuilders are not as strong as those who focus solely on their functional ability to lift high amounts of weight. The distinction between bodybuilders and weightlifters is the difference between doing things for form, or appearances, and doing things for substance, or functionality. Weaklings, of course, are neither strong nor sculpted, and they suffer by comparison with these two classes of athletes.

Many businesses engage in capital investment projects designed to sculpt a particular appearance, yet they cannot lift heavy amounts of weight or execute game-changing capital investment projects. This delineation is also evident at the political level. "Weightlifter" societies are those willing to take on the "big" issues to solve problems today rather than delaying cultural conversations until future generations. Examples include a society's willingness to tackle issues concerning the environment, immigration, discrimination, geopolitics, and taxation. By contrast, bodybuilder societies are those that make cosmetic changes to affect important policy areas. An example is tweaking the US health care system rather than overhauling it completely.

In the power sources framework, businesses are losing power, especially relative to people power, as they engage in low-return projects.

NEW CONCEPT: NORMALIZED COST OF CAPITAL

Important to understanding this scenario is the concept of "normalized cost of capital." Traditionally, cost of debt and cost of equity for businesses are calculated using market-based rates with the (misnamed) "risk-free rate" serving as the root of all other costs of capital. However, central banks' loose monetary policy creates too much capital and artificially holds down costs of capital. It is our belief that this proliferation of capital leads to poor long-term capital investments. Why?

Most capital budgeting decisions are based on earning a spread over the weighted average cost of capital (WACC). Yet, when WACC is held artificially low, many projects are accepted that would previously never have been considered viable if costs of capital were evaluated on an absolute, normalized basis. In the United States, we estimate a normalized long-term after-tax WACC of around 6.5% versus an estimated late-2014 WACC of only 3.2%. With current costs of capital less than half its normalized figure, we would expect at least 100% more projects being approved than under normal cost of capital scenarios. However, this high figure may vastly understate the number of excess projects being funded. This is because as cost of capital asymptotically approaches zero, the actual number of projects thought of as viable may follow a power law distribution instead of behaving linearly.

IN A WORLD AWASH IN CAPITAL

We would expect businesses to be distracted by the profligate availability of capital. This distraction comes from a "free money" mentality brought about by the availability of historically low-cost capital. Businesses, therefore, invest too much money in low-absolute-return, though normal-marginal-return, projects.

"Good business" comes in two flavors: extracting more value from the same amount of resources or extracting the same value from fewer resources. Here, the operative word is "value," such that an incremental dollar earned through a new revenue-generating activity is seen as more valuable than a dollar earned through an expense-saving activity. Traditional analysis evaluates both dollars equally rather than seeing the important qualitative distinctions in value. Here is why they are different: Activities that are easily replicated, like saving money via a tax loophole, are not as valuable as those that allow a business to set its own destiny and/or create new markets. Organizations cannot "hire revenues," yet they can hire for all other business activities.

Consultant activities typify the bodybuilder attitude, such as investment in new IT projects that allow management to wring 100 basis points of expenses from the income statement, investments in online application submission forms that lower the costs of human resources' talent acquisition, and tax jurisdiction shopping. Another manifestation of this is financial engineering, including capital structure rationalization, share buybacks, and frequent M&A transactions. In this last case, businesses have purchased their revenues for the sake of appearances rather than inventing them. In short, if a consultant can do it, then it is not a weightlifting activity. If expertise can be hired, what is the value proposition of the company hiring it?

For money managers, revenue and its growth dominate the hunt for value. Companies may seem to be generating record profits, but the location of profit growth on the income statement has never been more important. There are a limited number of truly valuable products and services that grow organically, and they will command a premium.

Wise analysts should spend time fully analyzing management's strategic plans (i.e., revenue generators), revenue growth and its sources, research and development budgets, and all the contributors to bottom-line EPS growth. Using multiple analysis (e.g., price to EBITDA, P/E) will identify bodybuilders, whereas discounted cash flow analysis will identify weightlifters. Additionally, common-size analysis done for both revenues and total assets will separate out bodybuilders from weightlifters. Stacked-line graphs that show profit contributions of various income statement items over time quickly show outperformers.

Most organizations morph into bodybuilders, and if they fail, they become weaklings owing to tremendous amounts of value destruction brought about by the bodybuilder mentality. In the short run, the differences between bodybuilders and weightlifters will not be obvious. However, in the long run, weightlifters will lift more weight/deliver more permanent, accelerated earnings growth. This is because bodybuilders will have stranded valuable capital in projects that deliver one-time, limited bumps to value. The opportunity costs of undertaking too many suboptimal projects should also not be overlooked: Management cannot focus on a new project when it is constantly looking for low-hanging fruit.

What is a worthy project? It's one that is revolutionary rather than evolutionary. Apple's invention of the iPod and its interactivity with iTunes changed forever how people related to their music collection. Whereas the many competing evolutionary offerings—the Zune, the Rio, and others—were relegated to the scrapheap of history because they offered only more device functionality rather than changing the entire ecosystem itself.

Weightlifter governments are those that take advantage of profligate capital to invest in such highly productive projects as increasing communications bandwidth, transportation infrastructure, free-trade treaties, and labor empowerment, including education and labor-free agency. Bodybuilder governments often get things done, but accomplishments are of a "lowest common denominator" kind; nothing of long-term significance happens.

Weightlifter governments are also those that recognize their function in society and the limits of their power. Thus, these governments exit projects that are dated, are bloated, or can be handled by other societal functionaries—such as communities, state and local governments, or charities. For all weightlifter countries, the distinguishing characteristic is a focus on highest-return benefits for society.

It is important to distinguish rhetoric from execution in this evaluation. Politicians almost always sound like weightlifters at political rallies. "What have you done?" is the operative question. If a government finds itself consistently appealing to political gridlock as an excuse for inaction, it is a weakling.

SPOTTING WEIGHTLIFTERS

Companies dubbed "weightlifters" are notable for a focus on revenue growth as well as a long-term strategic orientation. They are more likely to use normalized costs of capital in budgeting, but the projects they pursue are likely to be focused on creating new revenue as distinct from reducing costs or growing earnings. Management teams that enthusiastically pursue such projects as long-tailed research and development or a rethought supply chain are probably weightlifters. These companies may also pursue incremental growth projects, but it is unlikely that discussion of these will predominate quarterly earnings calls or management discussion and analysis (MD&A) sections of annual filings.

Though they may create value through tax policy or retooling internal systems, these actions and strategic orientations are likely to translate into growing net margins (as distinct from mere EPS growth), as well as growth in profit per employee. To develop certainty that a given company is a weightlifter, the analyst should develop a conviction that the bulk of management creativity is devoted to generating new revenue rather than saving it or wringing it out of regulatory and structural arbitrage. Also, keep in mind that weightlifters tend to be price makers rather than price takers. It is difficult to adopt the sort of long-term focus necessary to be a weightlifter without significant pricing power.

SPOTTING BODYBUILDERS

Bodybuilders differ from weightlifters predominantly in their focus on capital investments that reduce incremental expenses. Capital budgeting decisions are focused on relative costs of capital, rather than absolute costs of capital. For example, in an environment awash in capital and historically low cost of debt, projects that would never be greenlighted in a more normal interest rate environment are put to the front of the capital budgeting line. Think new accounting systems, new advertising campaigns, and a focus on logistics. When the cost of after-tax debt capital is 2% versus its historical average of 4%, many minor, non-game-changing projects receive the greenlight. These greenlighted projects result in one-time evolutionary changes to the company that are easily replicated by competitors (who are often talking to the same investment banks and consultants).

Bodybuilders may still engage in revenue-enhancing strategies and share buybacks, but the bulk of management creativity is in saving money, not in earning it. Indications of body-builder companies include a frequent reliance on consultants rather than internal expertise; capital budgeting decisions that focus on costs instead of benefits; myopic strategy that delivers low absolute returns (vs. historical returns) and is not updated; management's presumption of a permanent competitive advantage; and a high proportion of quarterly earnings conference calls and updates from management that are spent discussing projects that do not relate to new revenue.

SPOTTING WEAKLINGS

As compared with both weightlifters and bodybuilders, weaklings among businesses are fairly easy to spot. Frequently, these companies have a sole focus on growing earnings per share (EPS) or have no focus at all. Management conversations about the business frequently center on below-top-line revenue growth and usually discuss how to generate cash for the benefit of share buybacks.

Weaklings lack an effective long-term strategy, a commanding market share, and a high return on assets relative to GDP growth. Weaklings also have boards structured to benefit management to the detriment of other stakeholders. There is a lack of independent directors, boards with more than nine members, staggered board terms, poison pill plans, and split-share classes. These companies routinely cut research and development budgets because they recognize they cannot generate game-changing results internally. Weaklings may also have a homogeneous employee base that looks the same today as it did 10 years ago.

HARBINGERS

If a country (or the globe) orients itself primarily toward solving businesses' problems, then this scenario is applicable.

Ten-year rolling economic growth is well below preceding historical periods.

Costs of capital remain at historic lows, including interest rates and cost of equity.

There is a decline in the number of public equity listings as companies borrow low-cost debt to take themselves private. Capital-rich primary markets reduce the necessity of ever going public.

There is a lack of significant progress on major technological trends, such as "big data" becoming "big information."

Companies that are creative and that focus on long-term normalized costs of capital become hegemons in their industries.

Increased levels of consolidation in most industries lead to oligopoly for most industries.

A number of businesses are decoupling from the "quarterly earnings" madness.

Governments remain gridlocked.

Increased numbers of people are looking inward, but rather than launching social movements and challenges to business and governmental power, it leads to an ever more desensitized pursuit of novelty.

Discussions occur around social taboos.

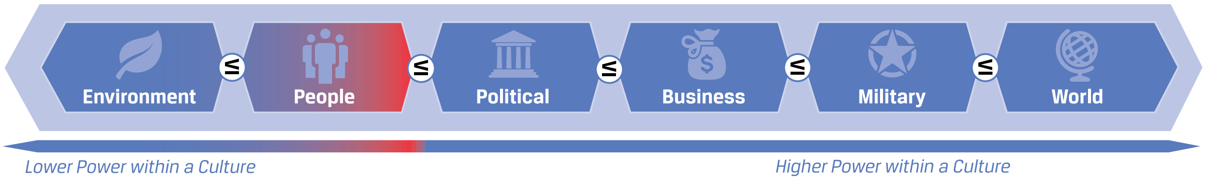
There are high correlations between social openness, class mobility, happiness, and economic growth.

Resource problems are handled politically, but they lead to gridlock, not solutions—think WTO.

Venture capital's "batting average" (number of successes to number of failures) gets worse as marginal companies receive investment because costs of capital are too low, and the pursuit of high returns is amplified.

EXAMPLE SCENARIO 2

HUMANITY RISES AGAIN



Central to this scenario is the idea of universal media. This is the evolution of content, information, and sensation/experience into a combined hypernetworked whole.

In media, there exist three crucial layers: content, interface, and user. In traditional media, content creators imagine content as well as the appearances, sounds, and other sensations meant to best present the content. This content is distributed (radio, cable, satellite, internet, mobile) to users. Standing between content and users is the interface. Interfaces, however, distort and separate users from content. In current terms, web browsers filter code as dictated by the server of information (e.g., *WSJ*) to ensure the user sees the code the way the server wants the user to see the code. In universal media, this chain is reversed. Web browsers ("the interface") instead filter code from content providers and reconstruct the HTML at the dictate/preferences of the user.

A massive opportunity exists for the design of an artificial intelligence-driven software that becomes the "personal lens" of users. Here, the software interface works for the user rather than the content creator. The personal lens notes the browsing peculiarities of users, as well as being open to user inputs, and then it filters all content through the lens to provide a universal experience of information and content for the user. For example, a user may love the layout of the *Wall Street Journal* and want all his news regardless of source to appear as it appears on the *WSJ* site. The personal lens, having noted user preferences, then takes Bloomberg's HTML and shapes the content automatically through the user's personal lens so the same content is presented to the user exactly as she prefers it to be presented.

Essentially, information becomes undifferentiated from a sensory experience for users. In universal media, content functions more like our limbic systems: a vital network that produces sensations, such as sights, sounds, and touch, and consequently new sensations, emotions, experiences, thoughts, skills, and learning. Universal media lead to ever-greater empowerment of greater proportions of human beings. Empowerment occurs because of the ability of people to interconnect, and therefore organize, to create seats of power that counter the traditional power of governments and businesses.

People use nearly universal access to free information to vote on individual political issues. Governmental representatives continue to be elected, but primarily to draft legislation as opposed to voting on it. Additionally, the increased ability of individuals to peer into the lives of people in other cultures via social media leads not to xenophobia but to greater tolerance. This also diminishes the power of militaries and governments. Governments also cede power to businesses as businesses solve a greater number of human problems more quickly and efficiently, with commensurate cost savings in a world of universal, nearly free information.

Humanity is also likely to become more urbanized, leading to greater resource efficiencies, including rooftop agriculture and solar panels. Hence, there will be lower levels of pollution and greater demand for luxury, including a premium on silence and non-activity. The definition of luxury switches from its current emphasis on the expense of something to a notion of how closely goods and services accord with deeply felt preferences for personal technology, living spaces, furniture, fashion, and travel. Luxury businesses that focus on creativity, low-cost/high-quality production, and design capability at the individual level massively succeed.

Labor now moves across borders almost as easily as capital has for centuries. As labor increasingly becomes knowledge oriented and work can be delivered through information networks, labor begins to sell itself internationally, going to where the demand for skill sets resides. In the long run, this lowers unemployment. Additionally, individuals begin selling their skills to the highest bidder. Businesses do not own an employee's workday but instead own a product output from the employee that they bid on versus other companies vying for similar products. Also, capital for many businesses is crowdsourced, diminishing the power of businesses relative to people.

There is also a nearly universally available suite of goods and services for huge swaths of humanity that we refer to as "quality-of-life parity." A combination of high population growth, a lower preference for consumption, a movement toward exploring the "great within," and quality-of-life parity leads to shorter workweeks for many employees globally. This is done, in part, to accommodate higher preferences for leisure time but also to distribute and share wealth more broadly. Fewer working hours for certain individuals create more working hours for the unemployed; thus, higher numbers of people are employed but are working fewer hours. Because of quality-of-life parity, however, people become more content.

With massive amounts of cheap data and refined information available, excess costs are excised from both supply chains and other business processes, resulting in a "cost singularity" in individual industries. Another implication is that the number of factors an industry can compete in diminishes because competitive advantage lasts only as long as it takes for ideas and processes to be subsumed. Crazy competition leads to wringing excess profits in industries, ultimately leading to competition grinding to a halt and to oligopoly in many industries.

The combined singularities of quality-of-life parity and cost singularity produce the ultimate disintermediation. Much is available at cost, and most (or all) of the excess returns of business accrue to the individuals doing valuable work rather than the capitalist class. In the medium term, businesses that reach cost singularity in their industries look to sell their cost-savings expertise to their competitors or across industries. Ultimately, though, even this advantage is competed away.

In the long term, excess profit generation is based on the places where businesses touch people. These exchanges must be between human beings (or technology that is human-like) and include user/customer sensations, the "interface," emotive design, and brands evolving past marketing positions to identities. Each of these must express an understanding of a person's concerns and how those concerns are addressed. All businesses have content components.

IN A WORLD AWASH IN CAPITAL

With universal and cheap information driving "cost singularities," as well as limited profit opportunities, businesses manage themselves for risk minimization. Many businesses become utility-like, in that profits come mostly from population growth and not efficiency gains. For example, Walmart's growth was always generated by same-store sales growth as well as new-store openings. Yet, sales gains from quality information will plateau or be competed away by others in its space while cost savings from quality IT reach bottom. This leaves new-store openings, which exposes Walmart to greater risks—including market saturation, cannibalization, and market rejection.

It will be seen as prudent to manage such businesses conservatively; however, this will not lead to excess returns. Instead, it may lead to capital destruction because of underestimated risks of disruption and costs of capital that are too low.

Traditionally, new capital came from external, capitalist sources (i.e., equity and debt holders) and internal sources (i.e., profits). In a world of surplus and cheap capital, companies use internal capital to continue necessary business activities, including incremental, low-growth projects. But minimal new internal capital is generated because of the low returns on capital of incremental projects. External capital for new ventures is raised by the relationships a business has with its stakeholders, including customers, suppliers, and employees.

Markets for almost all products approach the level of efficiency experienced in financial market trading desks. Consider the technological arc that such organizations have experienced over the past 40 years. In 1974, commissions on trades were fixed. Beginning in the 1980s, hypernimble trading desks arose that were able to rapidly transmit trade ideas to clients based on recent news and market movement. As that nimble approach to business has become more widely adopted, efficiency has built upon efficiency to bring us to a market where space-age algorithms compete to wring pennies out of execution costs. With big data and other advances in technology, it will be possible to bring this level of efficiency to almost all functional goods.

Companies that succeed will be as nimble as their consumers. They will minimize the distance between themselves and their stakeholders. Product substance ("what it does") and product form ("how it looks") merge. Selling these products is an immersive multimedia experience for the consumer. These companies

- source, produce, and sell their goods and services locally;
- have identities that are closely aligned with their stakeholders, thus minimizing the sense of "other" for stakeholders and creating a desire for people to do business with these organizations;
- listen to and understand their customers; and
- provide hypercustomized offerings of goods and services, perhaps delivered by microbrand managers in charge of hypersliced consumer segments (e.g., Prada bag lovers who love goth rock but have a soft spot for Ayn Rand: "Here's a bag just for you!").

As mentioned previously, there is an ultra-opportunity for the company or companies that develop the "personal lens" that merges content, information, and sensation/experience into a deeply personalized hypernetworked whole.

In the next 5–15 years, firms that increase access to information, as well as those working to lend understanding to information, will do well. Supply chain logistics firms that help wring excess costs for businesses are likely to do very well. And industries that make urban areas more livable, such as rooftop agriculture and public transportation firms, will do well.

HARBINGERS

The central organizing unit of the culture is people power. The court of "public opinion" predominates in politics. People cease being employees and instead sell what they produce to the highest bidder (think Uber for labor).

Traditionally non-public-facing businesses are discussing such things as content, user experience, and brand.

Higher education is being delivered nonlocally. Possibly, accreditation is provided globally or nationally by significant educational institutions. Think INSEAD or the London

School of Economics providing and accrediting a skills-specific MOOC (massive open online course) involving the world's best topical educators.

Degrees of urbanization.

Rise in the use of alternative fuels.

Environmental mandates.

Further impotence of governments in solving the problems of people.

Problems increasingly solved by decentralized, ad hoc, temporary social movements.

Increase proportion of economies composed of service or knowledge workers.

Governmental issues are being delegated to the population-at-large, rather than to elected representatives.

Downsizing of governments.

Many industries become oligopolies.

Changes in immigration laws to permit freer movement of people to work, if not to claim rights of citizenship.

Cooperation between governments, rather than competition. Example: Demographically challenged Japan imports excess Chinese labor to maintain its economic growth.

Traditional conflict zones have tensions relieved by cooperation.

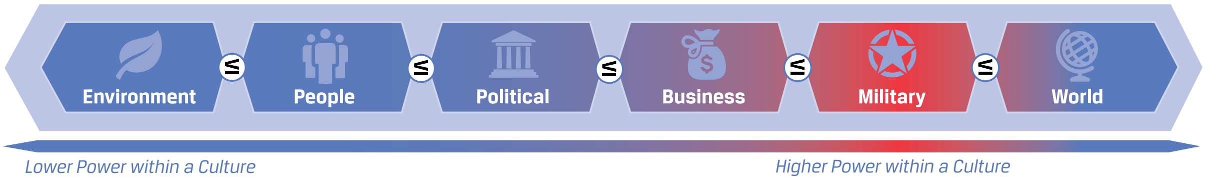
Increased public discourse about "stakeholder" capitalism.

Destigmatization of previous taboos.

"Slacker" becomes a compliment.

EXAMPLE SCENARIO 3

STRIFE



Greater transparency into the lives of other cultures globally leads not to a greater desire for interconnection but to greater strife. Clashes occur because of the following:

- nationalism;
- differences in culture, especially urban versus rural and modern versus anti-modern; and
- gridlocked political systems, such as conservative versus liberal.

As is the case throughout human history, people's response to resource/social strife is to cling to old values, including nationalism. Additional stress comes from age-old enmities between cultures that lead to a continuation of ancient ideas about the military and governance—namely, hegemons subjugating unruly populations, as well as the initiation of regional conflicts against weaker neighbors, such as those in Russia and its near periphery in the 20th century.

Large differences also exist between the portions of a nation that can afford to move to urban economic centers and those that are left behind in the poverty and uncertainty of rural hinterlands. China, India, Brazil, Mexico, and Western versus Eastern Europe, in particular, confront this issue. Further strife comes from elements within nations that believe technological progress has been too rapid and has led people away from traditional values. These forces will be most acutely felt in China, India, Brazil, Venezuela, Southeast Asia (including Indonesia, Myanmar, Cambodia, Laos, and Malaysia), the Middle East, North Africa, and sub-Saharan Africa.

Violence can originate anywhere; disaffected groups find it increasingly easy to get the resources they need to perpetrate incursions and wars. "We can't afford this war" is not an active construct. As business power and people power grow relative to political power, there is increased gridlock because problems previously addressed by governments are made more intractable by less powerful governments.

Hypernetworked populations find communal support for their extreme minority points of view, leading to a decline in the power of democracy. This leads, in turn, to the rise of political parties far from the mainstream, making government even less effective as a power source and problem solver. A vicious circle results, leading many nations into extreme economic difficulty as fiscal policy all but disappears, at worst, or is impotent, at best. Additionally, gridlocked politics leads to revolutions in states with high income inequality, poor natural resources, and limited access to life necessities. North Africa, sub-Saharan Africa, the Middle East, Southern Europe, China, Andean South America, Argentina, and Central Asia are all susceptible to such forces.

Overconfident leaders are birthed, taking license from the supposed quality-of-life parity they have brought their people and leading to many poor decisions stemming from the "hot hand" and "overconfidence" biases. Where a government is strong, there is a tendency to look to weak neighbors and attempt to meddle in geopolitics. This creates strife within individual nations, as citizens begin to recognize their government's overreaching, and also on the international stage, as underqualified leaders aggressively pursue poorly considered policies that often conflict.

Additional strife is caused by intense competition for resources. Competition for access to fresh water is especially fractious in semi-arid countries whose neighbors have ample water supplies. As electronics continue to dominate modern life, competition for extraordinarily scarce rare-earth minerals intensifies, especially in Asia. Asian economies are expected to grow at a faster pace than the global average, yet China is the sole supplier of rare-earth minerals in Asia and borders 14 other nations. Increased population growth, coupled with a reduction in pastureland brought on by climate change, leads to fierce differences over access to dietary proteins. Further, the age-old pursuit of viable energy sources to power a nation, its economic growth, and the comfort of its people will ramp up. Competition for these scarce resources is likely to grow into military conflicts in critical regions.

LIKELY RESOURCE-CONFLICT HOT SPOTS

- US-Mexican border, over the issue of water
- South China Sea and the Strait of Malacca, over the issue of energy transport to China
- Central Asia—including Azerbaijan, Armenia, Georgia, and Turkey—over the issue of energy and proteins
- Russia and Eastern Europe—including Ukraine, Poland, Romania, Estonia, Latvia, and Lithuania—over the issue of energy and proteins
- Russia, China, and Mongolia, over the issue of energy and rare-earth minerals
- Middle East and North Africa, over the issue of water, energy, and proteins

Many First and Second World nations face rapidly declining populations, including Europe, Russia, China, and Japan. This leads to economic dislocation as massive amounts of capital investments are reduced for roads, schools, hospitals, police, and bureaucracy. Shrinking tax bases lead to societal decay. Additionally, economic models and policy have all been developed in a world of increasing population growth. How do you “grow” an economy with a shrinking population? Many nations with histories of xenophobia (e.g., China and Japan) will turn to immigration to re-create their population bases, leading to tremendous social strife and stratification into class systems. Also, differences in demographics lead to increased differences between “have” and “have not” nations. Differences are especially felt between the United States and the European Union.

IN A WORLD AWASH IN CAPITAL

Key to the “strife” scenario is a focus on risk rather than return. Additionally, a broadening of the definition of “investment” to include nonfinancial assets is essential to success. Most people think of investing as investments in such financial assets as stocks, bonds, derivatives, and money market securities. Yet, investing is also possible in often overlooked ways, such as in hard assets, education, and leisure time.

Regarding the focus on risk rather than return, the key word to remember is “avoidance.” Specifically, the ability to skirt unstable countries and industries or to invest in stable countries and industries are keys to success. Consequently, investments in hard assets in non-conflict zones are likely to do very well because they will be subject to a minimum level of volatility relative to financial assets. Owning commodities—including gold, diamonds, oil, natural gas, minerals, and water rights—is extremely important.

Investments in industries that support infrastructure are likely to perform poorly, because they will probably be capital starved by governments. However, investments in “cold war” industries—such as steel, aerospace, and logistics firms—are likely to perform well. Assets subject to wide swings in value (i.e., those that trade in daily markets) should be kept to stable nations.

Individuals organized into large social groups will seek to store value in places that cannot be easily meddled with by governments. Thus, cryptocurrencies are likely to proliferate because they allow currency risk, and hence geopolitical risk, to be divorced from the return versus risk equation. For example, imagine a Sunni-oriented cryptocurrency that allows Sunni Muslims to unite transnationally to avoid the currency risk introduced by a regional conflict in the Middle East. Alternatively, imagine a Judaism-based currency that allows Jews to unite their economic interests despite being in disparate global locations. Cryptocurrencies are likely to be adopted for other salient reasons, including the following:

- Too much sovereign debt (owing to its cheapness) and the commensurate massive misallocation of capital in home countries, which leads to a desire to denominate domestic assets in other than domestic currency
- The increased paranoia of governments, leading to confiscatory policies
- Efficiencies of the transaction network relative to credit cards
- Access to a currency not tied to a troubled economy
- Global cryptocurrencies backed by markets

This last concern leads to capital markets that are not denominated solely in the several major currencies and destroys the advantage that the United States and Great Britain have long enjoyed, whereby their borrowing costs are artificially low as a result of the popularity of their specie. This, as well as the profligate use of debt by governments, has significant ramifications for the credit quality of sovereign debt, because governments are no longer intrinsically more creditworthy than other organizations.

Strife is likely to halt globalization and limit international capital flows as well as labor mobility. Concentrations of high-quality laborers in nonconflict zones see wages bid higher because they manufacture that which cannot be manufactured in strife-ridden locations. Therefore, enterprises located in places where knowledge workers are concentrated have vast competitive advantages from better margins as compared with enterprises relying solely on scale volumes.

HARBINGERS

Resources being directed to the build-out of navies indicate states wanting to be players on the international stage.

Heightened suspicion between China and Japan.

Degree of offensive militarization of Japan, China, India, Pakistan, Russia, and Central Europe.

Activities in the South China Sea, which may be resolved peacefully or through brinksmanship and displays of force.

Access to key resources—such as water, rare earths, and proteins—is used as a bargaining chip in large-scale international negotiations.

Increase in the number of wars fought over resource tensions, such as water, rare earths, and proteins.

Alignment within nations of military, political, business, and people sources of power because of a perceived common enemy.

Proportion of state monies directed toward military spending.

Election of far-from-the-mainstream candidates in First and Second World countries.

An increase in the number of political alliances among marginalized nations.

Strange bedfellows. An example is Germany breaking free from the EU and entering into an alliance with Russia.

In the arts, various media begin portraying strife as well as casually representing such taboo subjects as racism and xenophobia.