Motivation

I am an outsider. Once I noticed how unfathomably exciting the realm of investing is, my objective was to absorb as much knowledge as possible. I feel I have a bottomless informational void to fill. Understanding how competitive of a landscape we operate in further fuels such sensation. However, I did not count on any mentor, of any sort. It was therefore up to me to scan through the world of written content and try come across the most suitable liquid to fill the vessel.

The path I took was the logical one. I decided that I was going to read as much as possible and hope for the best. This includes books, letters, papers, essays and research articles. Hundreds of them. After paying careful attention to the different pieces' theses, I couldn't help but realize that there is a high degree of irrelevant information in most books, and that it is on the more esoteric writings where true value is. I suspect the value per page in some letters and essays is unmeasurably higher than in the average book.

My question was then: "Why don't more people read these?". The answer came in a sequence of three observations:

1. Gems are hidden within igneous rocks. Truly high-value essays and letters are encompassed in compilations that include tens or hundreds of them, reaching thousands of pages. The length not only scares one, but rapidly triggers the "I don't have the time for that" reflex.
2. Some are written by unfamiliar names to outsiders.
3. Most people don't count on an insider in the narrow niche of fundamental equity investing. Possessing such a resource would provide a great head start. These people know where the value is and happily point that out to newcomers.

To bridge this gap and help people get closer to what I believe are writings that enhance our cognitive ability, I am doing this “Reads Delivery Service”. I will select a series of write-ups from different investors and compile them in a book, like the one you are holding. Each volume will be around 50/100 PDF-pages, and I will make sure the value per word is as high as possible.

By including several authors in these ‘books’, the task of going through the completeness of it should not be exhausting. Moreover, printed versions provide, I believe, a sense of delight, not to be found in their digital counterparts. This appearance will help reduce friction and invite oneself to go through it. Ultimately, doing so proves not only satisfying, but astonishingly worth intellectually.

Finally, at the beginning of each volume, I will share my reasoning behind each selection, alongside a brief description of the pieces included. At the end of it, pertinent articles written by myself. The latter will act as a form of interpretation, conclusion, and summary to facilitate internalization of ideas discussed.

Introduction

This first selection was made with the intention of spreading three unbelievably insightful writings. My thesis for each is the following: (1) An overlooked concept that's fundamental when thinking about valuing a business; (2) Warren Buffett's approach with his partnership, prior to Berkshire, and; (3) The most profound single-piece I've encountered in this field, introducing important and new concepts.

Competitive Advantage Period "CAP": The Neglected Value Driver

CAP is a research report written by Michael Mauboussin and Paul Johnson, published by Credit Suisse in 1997. The competitive advantage period is 'the life expectancy of a company's moat'. It is the expected period, in years, in which a business is expected to generate excess returns on capital.

When companies' returns on capital exceed their cost of capital, the underlying business is creating value. Logically, given everyone's intention to create and capture value, excess returns attract competitors. Economic theory states that, as a consequence of competition, companies' returns on capital tend, in a linear fashion, to their cost of capital, where no value is created.

The competitive advantage period is not taught in regular academics, and it is a fundamental element of valuation. Mauboussin and Johson find that most analysts' DCFs are incorrect due to ignoring companies' CAP and, furthermore, that economic theory does not go in accordance with reality.

Warren Buffett's 1965 Shareholder Letter

I suspect there is a large discrepancy between Buffett's perceived investment philosophy and the one he follows. Even though his current philosophy widely differs from the one he practiced in the 1960s, understanding where Warren comes from helps get a better glance of how the best investor that has ever lived operates. Buffett is a person I believe belongs more to the realm of philosophy than of investing. This is a recurrent theme among some of the greatest investors, and it appears to be Warren who takes it the furthest in his writing.

In his 1965 shareholder letter, Buffett extensively shared his thoughts on strategy and portfolio management. He writes about the partnership's method of operation, goal, avenues for investing and the importance of thinking. Finally, it is incredible literature.

Investing in the Unknown and Unknowable, by Richard Zeckhauser

The entirety of this writing transcends investing. Richard states corporate finance and modern portfolio theory's limitations when dealing with a novel concept, the unknown and unknowable. In this essay, Zeckhauser expands on what this concept means and develops a framework for improving one's thinking process for these types of situations. At the same time, information about biases and some interesting statistical experiments are included.

I find most valuable the write-ups that question everything we know, by introducing a world we do not. Essays, such as Zeckhauser's, force one to re-think their approach. Further, it is novelty what causes this form of impact. Investing in the Unknown and Unknowable is a one-of-a-kind piece that forces unstoppable meditations.

Competitive Advantage Period "CAP": The Neglected Value Driver

Michael Mauboussin and Paul Johnson; 1997

Why CAP Matters

In 1991, a Goldman Sachs limited partner, Barrie Wigmore, released a study that attempted to determine what factors drove the stock market's above-average returns in the decade of the 1980s. After carefully accounting for earnings growth, interest rate declines, M&A activity and analysts' "too-rosy" forecasts, it appeared a full 38% of the shareholder value created in the 1980s remained unexplained. Dubbed the "X" factor, this mysterious driver of value left Wigmore and the Wall Street Journal, which published a feature article on the study, at a loss. Given overwhelming evidence of well-functioning capital markets, it appears completely unsatisfactory to attribute such a large component of share price performance to some unidentifiable and seemingly inexplicable force.

Fortunately, we believe there is an answer to this problem. However, to understand the solution there must be a recognition that share prices are not set by capitalizing accounting-based earnings, which are at best flawed and at worst substantially misleading. It appears that this was precisely the paradigm under which both Mr. Wigmore and the Wall Street Journal were operating. The focus must be on the economic drivers of a business, which can be defined as cash flow (cash-in versus cash-out), risk (and appropriate demanded return) and what we have dubbed "competitive advantage period"— CAP— or how long returns above the cost of capital will be earned. CAP is also known as "value growth duration" and "T" in the economic literature. CAP is also similar in concept to "fade rate."

In this context, we believe Mr. Wigmore's "X" factor can be explained by the market's extension of expectations for above-cost-of-capital returns. As Mr. Wigmore's analysis suggests, the length and relative change of CAP can have a substantial impact on the value of a business and the market overall. For example, the revision in expectations of Corporate America's ability to generate returns above its cost of capital is a powerful indicator that investors believed that America was more competitive at the end of the 1980s than it was entering the decade. This conclusion was later supported by economic analysis.

It should be noted that in a well-functioning capital market all assets, including bonds and real estate, are valued using similar economic parameters. In the case of bonds, for example, the coupon rate (or cash flow) is contractually set, as is the maturity. The bond price is set so that the expected return of the security is commensurate with its perceived risk. Likewise for most commercial real estate transactions. At the end of the day, the process of investing returns to the analysis of cash flow, risk and time horizon. Since these drivers are not contractually set for equity securities, they are by definition expectational and, in most cases, dynamic.

Remarkably, in spite of CAP's importance in the analytical process— which we will attempt to demonstrate below— it remains one of the most neglected components of valuation. This lack of focus appears attributable to two main factors. First, the vast majority of market participants attempt to understand valuation and subsequent stock price changes using an accounting-based formula, which generally defines value as a price/earnings multiple times earnings. Thus CAP is rarely explicitly addressed, even though most empirical evidence suggests that the stock market deems cash flow to be more important than earnings, holds true to the risk/reward

relationship over time, and recognizes cash flows many years into the future.

Second, most companies use a forecast period for strategic planning purposes (usually three to five years) that is substantially different from their CAP. As a result, investor communication is geared more toward internal company-based expectations rather than external market-based expectations. If the determination of stock prices is approached with an economically sound model, as we argue it should be, the concept of CAP becomes immediately relevant, as we show below.

CAP Defined

Competitive advantage period (CAP) is the time during which a company is expected to generate returns on incremental investment that exceed its cost of capital. Economic theory suggests that competitive forces will drive returns down to the cost of capital over time (and perhaps below it for a period). Said differently, if a company earns above market required returns, it will attract competitors that will accept lower returns, eventually driving industry returns lower.

The notion of CAP has been around for some time; nonetheless, not much attention has been paid to it in the valuation literature. The concept of CAP was formalized by Miller & Modigliani through their seminal work on valuation (1961). The M&M equation can be summarized as follows:

$$\text{Value} = \frac{\text{NOPAT}}{\text{WACC}} + \frac{\text{I(R-WACC)CAP}}{\text{(WACC) (1+WACC)}}$$

where

NOPAT = net operating profit after tax
WACC = weighted average cost of capital
I = annualized new investment in working and fixed capital
R = rate of return on invested capital
CAP = competitive advantage period

Rearranged, the formula reads:

$$\text{CAP} = \frac{\text{(Value*WACC-NOPAT)(1+WACC)}}{\text{I(R-WACC)}}$$

These formulas have some shortcomings that make them limiting in practice, but they demonstrate, with clarity, how CAP can be conceptualized in the valuation process.

A company's CAP is determined by a multitude of factors, both internal and external. On a company-specific basis, considerations such as industry structure, the company's competitive position within that industry, and management strategies define the length of CAP. The structured competitive analysis framework set out by Michael Porter can be particularly useful in this assessment. Important external factors include government regulations and antitrust policies. CAP can also reflect investor psychology through implied optimism/pessimism regarding a firm's prospects.

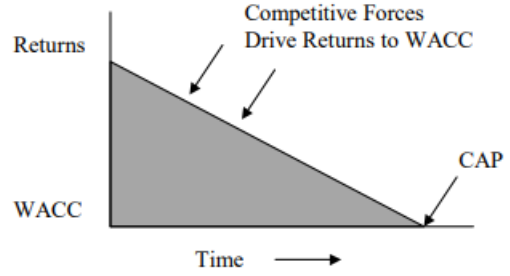
We believe that the key determinants of CAP can be largely captured by a handful of drivers. The first is a company's current return on invested capital. Generally speaking, higher ROIC businesses within an industry are the best positioned competitively (reflecting scale economies, entry barriers and management execution). As a result, it is often costlier and/or more time consuming for competitors to wrest competitive advantage away from high-return companies. Second is the rate of industry change. High returns in a rapidly changing sector (e.g., technology) are unlikely to be valued as generously as high returns in a more prosaic industry (e.g., beverages). The final driver is barriers to entry. High barriers to entry— or in some businesses, "lock-in" and increasing returns— are central to appreciating the sustainability of high returns on invested capital.

Note that CAPs are set at the margin by self-interested, motivated and informed investors. That is, if an implied CAP is "too short" (too long) for the shares of a given company, astute investors will purchase (sell) those shares in an attempt to generate excess returns. Accordingly, changes in CAP are a critical driver in

valuation. Experience shows that CAPs are rarely static, and are usually in the process of expanding or shrinking.

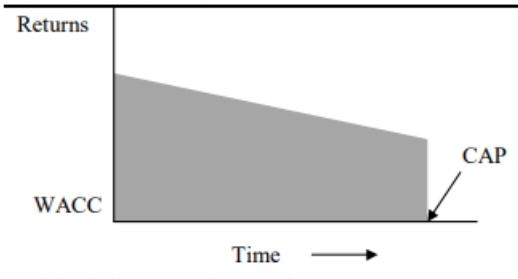
Graphically, CAP can be represented by the accompanying two figures. In Figure 1, the Y axis represents expected return spread (return on invested capital less the cost of capital) while the X axis is time. As time goes on, competitive forces drive returns to a level equal to the cost of capital. The shaded area under the curve, therefore, is what the market is trying to determine, and is the basis for P/E ratios, cash flow multiples and various rate of return measures. Figure 1 presents the theoretical decay in excess returns as competitors are drawn into the industry. Figure 2, on the other hand, is how we believe the market actually works. Although value creation may occur beyond the CAP, as shown in this figure, risk-averse investors are only willing to go so far into the future. This notion has implications that will be explored below.

Figure 1
Theoretical Decay in Excess Returns



*shaded area = value creation

Figure 2
How the Market Works



*shaded area = value creation

A careful look at these figures also reveals that they capture the three traditional components of a discounted cash flow model. The first is a “prestrategy,” or “steady state” 10 value— the worth of the company if no value is created. This point is represented by the intersection of the X and Y axis. The second component is the value created by the company’s pursued strategy, represented by the shaded area. Finally, there is the terminal value, which often, but not always, assumes no further value creation. The terminal value is where the “CAP” line intersects the X axis.

From a practical standpoint, we find that the discounted cash flow analysis done by most analysts and strategic planners has a forecast period, or CAP, that is too short and a terminal value that incorporates too much of the overall value. As a result, the calculation of value becomes highly sensitive to the implicit growth assumptions beyond the forecast horizon that are imbedded in the terminal value. For example, it is not unusual for 75% or more of a company’s value to be attributable to a terminal value. In contrast, a DCF model incorporating CAP usually has a longer forecast horizon, all growth assumptions are explicitly stated, and the terminal value is usually a modest contributor to overall value.

In a theoretical sense, the allocation of intrinsic value among the components is not important; in real life, valuations vary widely as a result of different CAPs and methods employed to calculate terminal value. To paraphrase John Maynard Keynes, we would rather be vaguely right than precisely wrong.

We often hear that it is completely unreasonable to forecast beyond two or three years, because “anything beyond that is guessing”. This logic misses the point, which is that the market often does impound cash flows beyond the near term. Accordingly, an analyst must gain an understanding of why cash

flows are recognized for so long and whether or not those cash flow expectations are reasonable.

Our discussion so far has dwelled on those companies that generate returns above the cost of capital, a universe which represents roughly one-third of corporate America (another one-third are estimated to be value-neutral with the last third value destroying). Two points are noteworthy about value-neutral and value-destroying companies. First, the CAP for a value-neutral company is of little consequence, since returns are assumed to be equal to the cost of capital (i.e., the second part of the M&M formula has little or no value). Applying such performance to either Figure 1 or Figure 2 would show little area under the curve, thus having a minimal impact on value. Second, value-destroying companies are often tricky to model, because many of them appear to have an "imbedded option" for better performance. That is, the market is willing to pay more for these companies than one would otherwise expect due to the possibility that the company will restructure, and hence generate better returns in the future.

How Long Are CAPs and How Should They Be Determined

The CAP for the U.S. stock market, as a whole, is estimated to be between 10 and 15 years. However, within that aggregate, individual company CAPs can vary from 0-2 years to over 20 years. As a general rule, companies with low multiples tend to have shorter CAPs (interestingly, these low multiples are accompanied by above-market-average earnings growth in some industries). Alternatively, companies with high multiples typically have long CAPs. For example, companies like Microsoft and Coca-Cola have CAPs well in excess of 20 years, demonstrating their perceived market dominance, the sustainability of high returns, and the market's willingness to take the long view. If a substantial percentage of the value of a company can be attributed to cash

flows beyond a few years, it is difficult to argue persuasively that the market is short-term-oriented. In turn, it follows that the forecast periods used in most valuation models are not long enough.

As we will argue below, it may be more important for the investor to try to quantify CAP than to pass judgment on its correctness. As noted earlier, the components of value are all expectational, and therefore must be considered relative to one another and against the expectations for the business overall.

There are a number of ways of estimating CAP, but one of the most useful methods was developed by Al Rappaport. We have chosen to borrow and slightly alter Rappaport's name for the technique— market-implied duration— and call it market-implied CAP (MICAP). Determination of the MICAP has a few steps. First, the analyst needs a proxy for unbiased market expectations as the key input into a discounted cash flow model (we use Value Line long-term estimates). Since, by definition, there is no value creation assumed after CAP, the model uses a perpetuity assumption (NOPATCAP/WACC) for the terminal value. Next, the length of the forecast horizon is stretched as many years as necessary to achieve the current stock price. This period is the company's MICAP.

Scrutiny of the MICAP determination process would correctly identify it as a circular exercise. That is, if a stock price increases without changes in cash flow expectations and/or risk, the MICAP will necessarily expand. This in no way weakens CAP's value as an analytical tool, however, as the next section will explain. In fact, we believe this tight link with valuation highlights the power of including CAP as a key tool in the analytic toolbag.

We believe that MICAPs can be key to the analytic process. For instance, a calculated MICAP can be compared to previous MICAPs for the same company, an average MICAP for the industry (if

possible and appropriate), and the company's historical cash-on-cash return on invested capital. We have done this analysis for the packaged food industry over the past few years, and have consistently derived industry MICAPs in the range of 14-16 years.

How Can CAP Be Used For Security Analysis?

he first use for CAP in security analysis is to help translate the market expectations impounded in a share price into value drivers that are easy to understand and assess. The value of any asset can be expressed with a limited number of variables— in particular, cash flow, risk and CAP. As such, the analyst can hold constant one of the three main drivers and consider what the security price is implying about the other two. For example, consider the shares of the Kellogg Company. With the shares at about $70 and a weighted average cost of capital of 11%, the market is impounding roughly 10% cash flow growth18 for about 15 years. If the analyst lowers his or her projection of CAP to 10 years, the cash flow growth rate would have to rise just to equal the current share price. Similarly, if the CAP were deemed to be 20 years, the implied cash flow growth rate would decline to a rate under 10%.

Table 1
Relation of FCF, WACC and CAP for Kellogg

Scenario	Estimated FCF Growth	Estimated WACC	CAP (Years)	Equity Value Per Share
A	10%	11%	15	$70
B	>10	11	10	70
C	<10	11	20	70

Source: CREDIT SUISSE FIRST BOSTON CORPORATION.

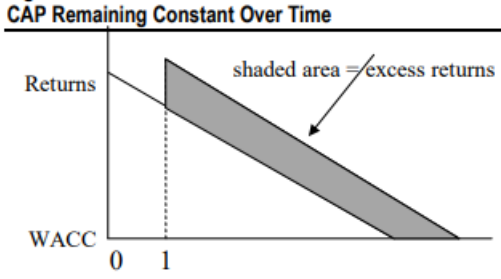
By breaking cash flow down into its essential drivers— including sales, margins, capital needs and taxes— this technique can help analysts translate intuitive assessments about a business into an economically correct, multidimensional framework. Rappaport uses an analogy of a high jumper. The analyst has a feeling for the future performance of the company— how "high" the business can jump— and using CAP in analysis can help determine how "high" the bar is set. If the anticipated performance of the

business is greater (worse) than the implied performance, the stock is a buy (sell).

A second important concept is that if the CAP for a value-creating company remains constant, an investor can expect to generate excess returns over time. Note that a constant CAP is contrary to economic theory, but it may be achieved through outstanding management (i.e., resource allocation, acquisitions). To illustrate this point, refer to Figure 3. Imagine going from year 0 to year 1. As the length of CAP remains unchanged, a year of value creation is added, and the past year of value creation is lopped off. As the investor purchased the shares expecting above-cost-of-capital returns for the implied period, the additional year of value creation represents a "bonus," or excess returns.

It appears that Warren Buffett has used this concept for years in his investment process. He buys businesses with "high returns on capital" (returns in excess of the cost of capital) that have "deep and wide moats" (sustainable CAPs) and holds them "forever" (hoping that the CAPs stay constant). Although this technique seems fairly straightforward, finding businesses with enduring CAPs is not simple. Witness IBM. Although the company is reemerging as a formidable competitor, the company's CAP shortened dramatically in the early 1990s as the result of changes within the industry and several management missteps. Once considered impenetrable, the company came to be viewed as a weakened giant, and its MICAP shortened as a consequence.

Figure 3
CAP Remaining Constant Over Time



Finally, understanding the concept of CAP helps reconcile relationships that appear counterintuitive when viewed through the accounting-based lens. For example, a relatively slow-growth, high-return company in a stable industry may well command a higher valuation (i.e., higher P/E, price/book value, etc.) than a fast-growing, high-return company in rapidly changing industry. While part of such a multiple discrepancy could be explained by different risk profiles, we believe that the market implied CAPs would also be justifiably different for the two companies. Without CAP, we believe that it would be difficult to explain the differences in valuation between the companies. Accounting-based valuation techniques are not helpful in resolving these disparities.

Value Versus Growth Investing- CAP's Importance

In his 1992 letter to shareholders, Warren Buffett suggests that differentiating between growth and value investing is "fuzzy thinking." Buffett points out that stocks with low price-to-book ratios, low P/E ratios or high dividend yields are not necessarily good values while stocks with high valuations are not necessarily bad values. We concur with Buffett's dismissal of the growth versus value debate, and believe the inclusion of CAP in the dialogue helps explain the seeming success of some investors, irrespective of their stated approach. Said differently, the techniques employed by most successful money managers— no matter how they are characterized— collapse into a model that is rooted in the drivers of cash flow, risk and CAP.

The essence of growth investing, it appears, is to purchase stocks of companies with high returns, and stable or expanding CAPs. We would note that CAP is unlikely to expand if the rate of return on incremental investment is declining sharply or is below the cost of capital. Value investing, on the other hand, appears to either seek out those value-creating companies that have particularly short

CAPs for reasons that can be identified as transitory, or to identify businesses with improving returns, and hence potential for widening CAPs. Investing that focuses solely on statistically cheap companies often leaves portfolio managers with a number of value neutral or value-destroying companies that show little potential to improve their performance.

Can CAP Work for Growth Companies?

It is generally accepted that discounted cash flow analysis, and therefore the use of CAP, is not helpful in valuing fast-growing companies, such as technology businesses. These companies, it is asserted, are "earnings driven." We will argue that in fact "earnings-driven" companies are implicitly valued by the market based on cash flow projections and that CAP is a very important consideration in the analysis of these businesses.

Microsoft has been one of the most successful companies in Corporate America over the past ten years. The company has grown sales from under $200 million in fiscal 1986 (the year it went public) to $8.7 billion in the most recent fiscal year. The company has created a phenomenal amount of shareholder value in the process. When the company went public on March 13, 1986, it had a market capitalization of $519 million. The company's market value was approximately $100 billion at year-end 1996. Microsoft created roughly $100 billion in shareholder value over a decade.

How is this possible? We argue that approximately two-thirds of the increase in shareholder value was the result of a dramatic lengthening of the company's implied CAP. We calculate that Microsoft's CAP was eight to ten years the day it went public—using then-prevailing consensus estimates. Interestingly, the

actual CAP at the time proved to be only about three years, as the company's actual results far exceeded expectations.

We calculate that Microsoft's current implied CAP is 17-20 years. If the company still had an implied CAP of eight to ten years, the current market value would be roughly $33 billion. Therefore, we argue that two-thirds of the company's current valuation is the result of an expansion in its implied CAP. Without the concept of CAP, we believe that most of Microsoft's massive value creation cannot be explained.

Intel is also an impressive company. During calendar 1996, the stock increased approximately 135% as investor expectations for the company's growth and profitability increased dramatically. Interestingly, once again we think that CAP played a critical role in the company's reevaluation. In May 1996, Intel announced that it would not lower pricing in the fall of 1996 as it had in each of the prior years. This announcement proved to be a watershed event as it implied that— as the result of lower production costs and economies of scale— earnings and returns on invested capital (ROIC) would expand. From the time of this announcement to the end of the year, the stock doubled.

Again, we ask the question: How can a stock with such a large capitalization (roughly $120 billion at year-end) better than double in one year? We estimate that Intel's market implied CAP was roughly five years at the beginning of 1996, but expanded to about nine years by the end of the year. Expectations of net operating profit after tax (NOPAT) increased during the year as a result of the strategic change in pricing strategy, but we calculate that 65% of the increase in market capitalization— $45 billion— was related to a lengthening in the implied CAP. Once again, the dramatic change in market value cannot be explained without CAP.

We have also used CAP as a heuristic in our analysis. An example is the semiconductor industry in late 1995. At the time, the sector had produced excellent appreciation for three years. Expectations about the future of the industry were generally upbeat. However, there was growing evidence that significant new capacity would begin to come onstream during the second half of 1996, negatively affecting the profitability of the industry and causing the industry ROIC to fall. These concerns notwithstanding, industry capacity at the time remained constrained, allowing the leading vendors to post impressive financial results.

However, the leading semiconductor stocks were beset with peculiar behavior. The companies reported record earnings— easily beating consensus expectations— but their stocks failed to rise. In fact, the stocks started to show considerable weakness (some dropped as much as 50% in the ensuing three to six months) in the face of the impressive financial performance. How could this have happened? As earnings estimates continued to rise, a valuation based solely on price/earnings multiples was clearly of no help.

We assert that the market-implied CAPs shortened because of concerns surrounding the impending capacity additions. Future expectations for ROICs were effectively being cut by investors, even as short-term earnings forecasts were rising. Once again, CAP proved to be a critical component in the valuation process.

Lengthening CAP Could Explain the "X" Factor

In an effort to demonstrate how changing CAPs can affect stock prices— and explain the "X" factor— we studied a handful of companies within the packaged food industry in the September 1982 to August 1989 period. As our goal was to identify approximate CAPs in each period, we used Value Line long-term

forecasts as a proxy for consensus cash flows and used then-current risk-free rates, betas and equity risk premiums to estimate expectations for the cost of capital. These drivers, when considered next to the stock price, allowed for an estimate of CAP. As we accounted for changes in perceived growth rates and actual interest rates in each period, extraordinary changes in the share values could be largely attributable to CAP.

Table 3 summarizes our findings. The prevailing CAP for this group roughly doubled in the seven-year period (the food group stock index outperformed the S&P 500 index during those years), implying that the industry had become better competitively positioned. In fact, most of the companies in the group streamlined their business portfolios, cut costs, increased vital marketing spending and increased their cash flows sharply. Further, an active market for corporate control in the sector forced managements to focus on shareholder value improvement.

Table 3
Variation in Food Industry CAPs, 1982–1989

Company	1982 CAP	1989 CAP
Campbell Soup	4	20*
CPC International	10	15
H.J. Heinz	5	13
Hershey Foods	6	20
Kellogg	18	19
Average	8.6	17.4

(*) = This number was actually higher, as CPB was the subject of takeover rumors. We normalized the estimate for this exercise.
Source: *Value Line*, Kidder Peabody, authors estimates.

We suspect that a similar expansion in CAPs— albeit less dramatic— occurred in the broader market, allowing for shareholder returns to outstrip both historical averages and those that could be justified based on changes in cash flows and interest rates alone. In fact, the business-friendly environment that prevailed through much of the 1980s— and the growing pressure on managements to create shareholder value or run the risk of losing the entire company— may have been enough of a driver

itself to create this sentiment of increased competitiveness and enhanced confidence.

Summary

Although competitive advantage period has unassailable importance in valuation, it is a subject that has not been explicitly addressed in finance textbooks in a way commensurate with its importance. Further, many analysts and strategic planners that adhere to a DCF framework reduce the model's validity by using explicit forecast periods that do not reflect CAP. We believe that CAP can play an important role in linking valuation theory and practice.

BUFFETT PARTNERSHIP, LTD.

810 KIEWIT PLAZA

OMAHA 31, NEBRASKA

January 18, 1965

Our Performance in 1964

Our Performance in 1964 Although we had an overall gain of $4,846,312.37 in 1964, it was not one of our better years as judged by our fundamental yardstick, the Dow-Jones Industrial Average (hereinafter called the "Dow"). The overall result for BPL was plus 27.8% compared to an overall plus 18.7% for the Dow. The overall result for limited partners was plus 22.3%. Both the advantage of 9.1 percentage points on a partnership basis and 3.6 points by the limited partners were the poorest since 1959, which was a year of roughly comparable gains for the Dow.

Nevertheless, I am not depressed. It was a strong year for the general market, and it is always tougher for us to outshine the Dow in such a year. We are certain to have years when the Dow gives us a drubbing and, in some respects, I feel rather fortunate that 1964 wasn't the year. Because of the problems that galloping markets pose for us, a Dow repeat in 1965 of 1964 results would make it most difficult for us to match its performance, let alone surpass it by a decent margin.

To bring the record up to date, the following summarizes the year-by-year performance of the Dow, the performance of the Partnership before allocation to the general partner, and the limited partner's results:

Year	Overall Results From Dow (1)	Partnership Results (2)	Limited Partners' Results (3)
1957	-8.4%	10.4%	9.3%
1958	38.5%	40.9%	32.2%
1959	20.0%	25.9%	20.9%
1960	-6.2%	22.8%	18.6%
1961	22.4%	45.9%	35.9%
1962	-7.6%	13.9%	11.9%
1963	20.6%	38.7%	30.5%
1964	18.7%	27.8%	22.3%

(1) Based on yearly changes in the value of the Dow plus dividends that would have been received through ownership of the Dow during that year. The table includes all complete years of partnership activity.

(2) For 1957-61 consists of combined results of all predecessor limited partnerships operating throughout the entire year after all expenses, but before distributions to partners or allocations to the general partner.

(3) For 1957-61 computed on the basis of the preceding column of partnership results allowing for allocation to the general partner based upon the present partnership agreement, but before monthly withdrawals by limited partners.

On a cumulative or compounded basis, the results are:

Year	Overall Results From Dow	Partnership Results	Limited Partners' Results
1957	-8.4%	10.4%	9.3%
1957 – 58	26.9%	55.6%	44.5%
1957 – 59	52.3%	95.9%	74.7%
1957 – 60	42.9%	140.9%	107.2%
1957 – 61	74.9%	251.0%	181.6%
1957 – 62	61.6%	299.8%	215.1%
1957 – 63	94.9%	454.5%	311.2%
1957 – 64	131.3%	608.7%	402.9%
Annual Compounded Rate	**11.1%**	**27.7%**	**22.3%**

Investment Companies

We regularly compare our results with the two largest open-end investment companies (mutual funds) that follow a policy of being typically 95-100% invested in common stock, and the two largest diversified closedend investment companies. These four companies, Massachusetts Investors Trust, Investors Stock Fund, TriContinental Corporation, and Lehman Corporation, manage about $4.5 billion, are owned by about 550,000 shareholders, and are probably typical of most of the $30 billion investment company industry. My opinion is that their results roughly parallel those of the overwhelming majority of other investment advisory organizations which handle, in aggregate, vastly greater sums.

The purpose of this tabulation, which is shown below, is to illustrate that the Dow is no pushover as an index of investment achievement. The advisory talent managing just the four companies shown commands annual fees of over $8 million and this represents a very small fraction of the professional investment management industry. The public batting average of this highly-paid and widely respected talent indicates performance a shade below that of the Dow, an unmanaged index.

YEARLY RESULTS

Year	Mass. Inv. Trust (1)	Investors Stock (1)	Lehman (2)	Tri-Cont (2)	Dow	Limited Partners
1957	-11.4%	-12.4%	-11.4%	-2.4%	-8.4%	9.3%
1958	42.7%	47.5%	40.8%	33.2%	38.5%	32.2%
1959	9.0%	10.3%	8.1%	8.4%	20.0%	20.9%
1960	-1.0%	-0.6%	2.5%	2.8%	-6.2%	18.6%
1961	25.6%	24.9%	23.6%	22.5%	22.4%	35.9%
1962	-9.8%	-13.4%	-14.4%	-10.0%	-7.6%	11.9%
1963	20.0%	16.5%	23.7%	18.3%	20.6%	30.5%
1964	15.9%	14.3%	13.6%	12.6%	18.7%	22.3%

(1) Computed from changes in asset value plus any distributions to holders of record during year.

(2) From 1964 Moody's Bank & Finance Manual for 1957-63. Estimated for 1964.

COMPOUNDED

Year	Mass. Inv. Trust (1)	Investors Stock (1)	Lehman (2)	Tri-Cont (2)	Dow	Limited Partners
1957	-11.4%	-12.4%	-11.4%	-2.4%	-8.4%	9.3%
1957 – 58	26.4%	29.2%	24.7%	30.0%	26.9%	44.5%
1957 – 59	37.8%	42.5%	34.8%	40.9%	52.3%	74.7%
1957 – 60	36.4%	41.6%	38.2%	44.8%	42.9%	107.2%
1957 – 61	71.3%	76.9%	70.8%	77.4%	74.9%	181.6%
1957 – 62	54.5%	53.2%	46.2%	59.7%	61.6%	215.1%
1957 – 63	85.4%	78.5%	80.8%	88.9%	94.9%	311.2%
1957 – 64	114.9%	104.0%	105.4%	112.7%	131.3%	402.9%
Annual Compounded Rate	**10.0%**	**9.3%**	**9.4%**	**9.9%**	**11.1%**	**22.3%**

The repetition of these tables has caused partners to ask: "Why in the world does this happen to very intelligent managements working with (1) bright, energetic staff people, (2) virtually unlimited resources, (3) the most extensive business contacts, and (4) literally centuries of aggregate investment experience?" (The latter qualification brings to mind the fellow who applied for a job and stated he had twenty years of experience - which was corrected by the former employer to read “one year's experience -twenty times.”)

This question is of enormous importance, and you would expect it to be the subject of considerable study by investment managers and substantial investors. After all, each percentage point on $30 billion is $300 million per year. Curiously enough, there is practically nothing in the literature of Wall Street attracting this problem, and discussion of it is virtually absent at security analyst society meetings, conventions, seminars, etc. My opinion is that the first job of any investment management organization is to analyze its own techniques and results before pronouncing judgment on the managerial abilities and performance of the major corporate entities of the United States.

In the great majority of cases the lack of performance exceeding or even matching an unmanaged index in no way reflects lack of either intellectual capacity or integrity. I think it is much more the

product of: (1) group decisions - my perhaps jaundiced view is that it is close to impossible for outstanding investment management to come from a group of any size with all parties really participating in decisions; (2) a desire to conform to the policies and (to an extent) the portfolios of other large well-regarded organizations; (3) an institutional framework whereby average is "safe" and the personal rewards for independent action are in no way commensurate with the general risk attached to such action; (4) an adherence to certain diversification practices which are irrational; and finally and importantly, (5) inertia.

Perhaps the above comments are unjust. Perhaps even our statistical comparisons are unjust. Both our portfolio and method of operation differ substantially from the investment companies in the table. However, I believe both our partners and their stockholders feel their managements are seeking the same goal - the maximum longterm average return on capital obtainable with the minimum risk of permanent loss consistent with a program of continuous investment in equities. Since we should have common goals, and most partners, as an alternative to their interest in BPL, would probably have their funds invested in media producing results comparable with these investment companies, I feel their performance record is meaningful in judging our own results.

There is no question that an important service is provided to investors by investment companies, investment advisors, trust departments, etc. This service revolves around the attainment of adequate diversification, the preservation of a long-term outlook, the ease of handling investment decisions and mechanics, and most importantly, the avoidance of the patently inferior investment techniques which seem to entice some individuals. All but a few of the organizations do not specifically promise to deliver superior investment performance although it is perhaps not

unreasonable for the public to draw such an inference from their advertised emphasis on professional management.

One thing I pledge to you as partners - just as I consider the previously stated performance comparison to be meaningful now, so will I in future years, no, matter what tale unfolds. Correspondingly, I ask that you, if you do not feel such a standard to be relevant, register such disagreement now and suggest other standards which can be applied prospectively rather than retrospectively.

One additional thought - I have not included a column in my table for the most widely-used investment advisor in the world - Bell management. People who watch their weight, golf scores, and fuel bills seem to shun quantitative evaluation of their investment management skills although it involves the most important client in the world - themselves. While it may be of academic interest to evaluate the management accomplishments of Massachusetts Investors Trust or Lehman Corporation, it is of enormous dollars-and-cents importance to evaluate objectively the accomplishments of the fellow who is actually handling your money - even if it’s you.

The Question of Conservatism

In looking at the table of investment company performance, the question might be asked: “Yes, but aren't those companies run more conservatively than the Partnership?" If you asked that question of the investment company managements, they, in absolute honesty, would say they were more conservative. If you asked the first hundred security analysts you met, I am sure that a very large majority of them also would answer for the investment companies. I would disagree. I have over 90% of my net worth in BPL, and most of my family have percentages in that area, but of

course, that only demonstrates the sincerity of my view - not the validity of it.

It is unquestionably true that the investment companies have their money more conventionally invested than we do. To many people conventionality is indistinguishable from conservatism. In my view, this represents erroneous thinking. Neither a conventional nor an unconventional approach, per se, is conservative.

Truly conservative actions arise from intelligent hypotheses, correct facts and sound reasoning. These qualities may lead to conventional acts, but there have been many times when they have led to unorthodoxy. In some corner of the world they are probably still holding regular meetings of the Flat Earth Society.

We derive no comfort because important people, vocal people, or great numbers of people agree with us. Nor do we derive comfort if they don't. A public opinion poll is no substitute for thought. When we really sit back with a smile on our face is when we run into a situation we can understand, where the facts are ascertainable and clear, and the course of action obvious. In that case - whether other conventional or unconventional - whether others agree or disagree - we feel - we are progressing in a conservative manner.

The above may seem highly subjective. It is. You should prefer an objective approach to the question. I do. My suggestion as to one rational way to evaluate the conservativeness of past policies is to study performance in declining markets. We have only three years of declining markets in our table and unfortunately (for purposes of this test only) they were all moderate declines. In all three of these years we achieved appreciably better investment results than any of the more conventional portfolios.

Specifically, if those three years had occurred in sequence, the cumulative results would have been:

Tri-Continental Corp.	-9.7%
Dow	-20.6%
Mass. Investors Trust	-20.9%
Lehman Corp.	-22.3%
Investors Stock Fund	-24.6%
Limited Partners	+45.0%

We don't think this comparison is all important, but we do think it has some relevance. We certainly think it makes more sense than saying "We own (regardless of price) A.T. &T., General Electric, IBM and General Motors and are therefore conservative." In any event, evaluation of the conservatism of any investment program or management (including self-management) should be based upon rational objective standards, and I suggest performance in declining markets to be at least one meaningful test.

The Joys of Compounding

Readers of our early annual letters registered discontent at a mere recital of contemporary investment experience, but instead hungered for the intellectual stimulation that only could be provided by a depth study of investment strategy spanning the centuries. Hence, this section.

Our last two excursions into the mythology of financial expertise have revealed that purportedly shrewd investments by Isabella (backing the voyage of Columbus) and Francis I (original purchase of Mona Lisa) bordered on fiscal lunacy. Apologists for these parties have presented an array of sentimental trivia. Through it all, our compounding tables have not been dented by attack.

Nevertheless, one criticism has stung a bit. The charge has been made that this column has acquired a negative tone with only the financial incompetents of history receiving comment. We have been challenged to record on these pages a story of financial

perspicacity which will be a bench mark of brilliance down through the ages.

One story stands out. This, of course, is the saga of trading acumen etched into history by the Manhattan Indians when they unloaded their island to that notorious spendthrift, Peter Minuit in 1626. My understanding is that they received $24 net. For this, Minuit received 22.3 square miles which works out to about 621,688,320 square feet. While on the basis of comparable sales, it is difficult to arrive at a precise appraisal, a $20 per square foot estimate seems reasonable giving a current land value for the island of $12,433,766,400 ($12 1/2 billion). To the novice, perhaps this sounds like a decent deal. However, the Indians have only had to achieve a 6 1/2% return (The tribal mutual fund representative would have promised them this.) to obtain the last laugh on Minuit. At 6 1/2%, $24 becomes $42,105,772,800 ($42 billion) in 338 years, and if they just managed to squeeze out an extra half point to get to 7%, the present value becomes $205 billion

So much for that.

Some of you may view your investment policies on a shorter term basis. For your convenience, we include our usual table indicating the gains from compounding $100,000 at various rates:

	4%	8%	12%	16%
10 Years	$48,024	$115,892	$210,584	$341,143
20 Years	$119,111	$366,094	$864,627	$1,846,060
30 Years	$224,337	$906,260	$2,895,970	$8,484,940

This table indicates the financial advantages of:

(1) A long life (in the erudite vocabulary of the financial sophisticate this is referred to as the Methusalah Technique)

(2) A high compound rate

(3) A combination of both (especially recommended by this author)

To be observed are the enormous benefits produced by relatively small gains in the annual earnings rate. This explains our attitude which while hopeful of achieving a striking margin of superiority over average investment results, nevertheless, regards every percentage point of investment return above average as having real meaning.

Our Goal

You will note that there are no columns in the preceding table for the 27.7% average of the Partnership during its eight-year lifespan or the 22.3% average of the limited partners. Such figures are nonsensical for the long term for several reasons: (Don't worry about me "holding back" to substantiate this prophecy.)

(1) Any significant sums compounded at such rates take on national debt proportions at alarming speed.

(2) During our eight-year history a general revaluation of securities has produced average annual rates of overall gain from the whole common stock field which I believe unattainable in future decades. Over a span of 20 or 30 years, I would expect something more like 6% - 7% overall annual gain from the Dow instead of the 11.1% during our brief history. This factor alone would tend to knock 4 points or so off of our annual compounding rate. It would only take a minus 20.5% year in 1965 for the Dow to bring it down to a 7% average figure for the nine years. Such years (or worse) should definitely be expected from time to time by those holding equity investments. If a 20% or 30% drop in the market value of your equity holdings (such as BPL) is going to produce emotional or financial distress, you should simply avoid common stock type investments. In the words of the poet - Harry Truman – “If you can’t stand the heat, stay out of the kitchen. It is preferable, of course, to consider the problem before you enter the “kitchen.”

(3)We do not consider it possible on an extended basis to maintain the 16.6 percentage point advantage over the Dow of the Partnership or the 11.2 percentage point edge enjoyed by the limited partners. We have had eight consecutive years in which our pool of money has out-performed the Dow, although the profit allocation arrangement left the limited partners short of Dow results in one of those years. We are certain to have years (note the plural) when the Partnership results fall short of the Dow despite considerable gnashing of teeth by the general partner (I hope not too much by the limited partners). When that happens our average margin of superiority will drop sharply. I might say that I also think we will continue to have some years of very decent margins in our favor. However, to date we have benefited by the fact that we have not had a really mediocre (or worse) year included in our average, and this obviously cannot be expected to be a permanent experience.

So what can we expect to achieve? Of course, anything I might say is largely guesswork, and my own investment philosophy has developed around the theory that prophecy reveals far more of the frailties of the prophet than it reveals of the future.

Nevertheless, you, as partners, are entitled to know my expectations, tenuous as they may be. I am hopeful that our longer term experience will unfold along the following basis:

(1)An overall gain from the Dow (including dividends, of course) averaging in the area of 7% per annum, exhibiting customarily wide amplitudes in achieving this average -- say, on the order or minus 40% to plus 50% at the extremes with the majority of years in the minus 10% to plus 20% range;

(2)An average advantage of ten percentage points per annum for BPL before allocation to the general partner - again with

large amplitudes in the margin from perhaps 10 percentage points worse than the Dow in a bad year to 25 percentage points better when everything clicks; and

(3) The product of these two assumptions gives an average of 17% to BPL or about 14% to limited partners. This figure would vary enormously from year to year; the final amplitudes, of course, depending, on the interplay of the extremes hypothesized in (1) and (2).

I would like to emphasize that the above is conjecture, perhaps heavily influenced by self-interest, ego, etc. Anyone with a sense of financial history knows this sort of guesswork is subject to enormous error. It might better be left out of this letter, but it is a question frequently and legitimately asked by partners. Long-range expectable return is the primary consideration of all of us belonging to BPL, and it is reasonable that I should be put on record, foolish as that may later make me appear. My rather puritanical view is that any investment manager, whether operating as broker, investment counselor, trust department, Investment Company, etc., should be willing to state unequivocally what he is going to attempt to accomplish and how he proposes to measure the extent to which he gets the job done.

Our Method of Operation

In past annual letters I have always utilized three categories to describe investment operations we conduct. I now feel that a four-category division is more appropriate. Partially, the addition of a new section - "Generals Relatively Undervalued" - reflects my further consideration of essential differences that have always existed to a small extent with our "Generals" group. Partially, it reflects the growing importance of what once was a very small sub-category but is now a much more significant part of our total portfolio. This increasing importance has been accompanied by excellent results to date justifying significant time and effort

devoted to finding additional opportunities in this area. Finally, it partially reflects the development and implementation of a new and somewhat unique investment technique designed to improve the expectancy and consistency of operations in this category. Therefore, our four present categories are:

1. “Generals -Private Owner Basis” - a category of generally undervalued stocks, determined by quantitative standards, but with considerable attention also paid to the qualitative factor. There is often little or nothing to indicate immediate market improvement. The issues lack glamour or market sponsorship. Their main qualification is a bargain price; that is, an overall valuation of the enterprise substantially below what careful analysis indicates its value to a private owner to be. Again, let me emphasize that while the quantitative comes first and is essential, the qualitative is important. We like good management - we like a decent industry - we like a certain amount of “ferment” in a previously dormant management or stockholder group. But, we demand value.

Many times in this category we have the desirable "two strings to our bow" situation where we should either achieve appreciation of market prices from external factors or from the acquisition of a controlling position in a business at a bargain price. While the former happens in the overwhelming majority of cases, the latter represents an insurance policy most investment operations don't have. We have continued to enlarge the positions in the three companies described in our 1964 midyear report where we are the largest stockholder. All three companies are increasing their fundamental value at a very satisfactory rate, and we are completely passive in two situations and active only on a very minor scale in the third. It is unlikely that we will ever take a really active part in policy-making in any of these three companies, but we stand ready if needed.

2. "Generals -Relatively Undervalued" - this category consists of securities selling at prices relatively cheap compared to securities of the same general quality. We demand substantial discrepancies from current valuation standards, but (usually because of large size) do not feel value to a private owner to be a meaningful concept. It is important in this category, of course, that apples be compared to apples - and not to oranges, and we work hard at achieving that end. In the great majority of cases we simply do not know enough about the industry or company to come to sensible judgments -in that situation we pass.

As mentioned earlier, this new category has been growing and has produced very satisfactory results. We have recently begun to implement a technique, which gives promise of very substantially reducing the risk from an overall change in valuation standards; e.g. I we buy something at 12 times earnings when comparable or poorer quality companies sell at 20 times earnings, but then a major revaluation takes place so the latter only sell at 10 times.

This risk has always bothered us enormously because of the helpless position in which we could be left compared to the "Generals -Private Owner" or "Workouts" types. With this risk diminished, we think this category has a promising future.

3. "Workouts" - these are the securities with a timetable. They arise from corporate activity - sell-outs, mergers, reorganizations, spin-offs, etc. In this category we are not talking about rumors or "inside information" pertaining to such developments, but to publicly announced activities of this sort. We wait until we can read it in the paper. The risk pertains not primarily to general market behavior (although that is sometimes tied in to a degree), but instead to something upsetting the applecart so that the expected development does not materialize. Such killjoys could include anti-trust or other negative government action, stockholder disapproval, withholding of tax rulings, etc. The gross

profits in many workouts appear quite small. It's a little like looking for parking meters with some time left on them. However, the predictability coupled with a short holding period produces quite decent average annual rates of return after allowance for the occasional substantial loss. This category produces more steady absolute profits from year to year than generals do. In years of market decline it should usually pile up a big edge for us; during bull markets it will probably be a drag on performance. On a long-term basis, I expect the workouts to achieve the same sort of margin over the Dow attained by generals.

4. "Controls" - these are rarities, but when they occur they are likely to be of significant size. Unless we start off with the purchase of a sizable block of stock, controls develop from the general - private owner category. They result from situations where a cheap security does nothing pricewise for such an extended period of time that we are able to buy a significant percentage of the company's stock. At that point we are probably in a position to assume a degree of or perhaps complete control of the company's activities. Whether we become active or remain relatively passive at this point depends upon our assessment of the company's future and the managements capabilities.

We do not want to get active merely for the sake of being active. Everything else being equal, I would much rather let others do the work. However, when an active role is necessary to optimize the employment of capital, you can be sure we will not be standing in the wings.

Active or passive, in a control situation there should be a built-in profit. The sine qua non of this operation is an attractive purchase price. Once control is achieved, the value of our investment is determined by the value of the enterprise, not the oftentimes irrationalities of the market place.

Any of the three situations where we are now the largest stockholders mentioned under Generals - Private Owner could, by virtue of the two-way stretch they possess, turn into controls. That would suit us fine, but it also suits us if they advance in the market to a price more in line with intrinsic value enabling us to sell them, thereby completing a successful generals - private owner operation.

Investment results in the control category have to be measured on the basis of at least several years. Proper buying takes time. If needed, strengthening management, redirecting the utilization of capital, perhaps effecting a satisfactory sale or merger, etc., are also all factors that make this a business to be measured in years rather than months. For this reason, in controls, we are looking for wide margins of profit -if it appears at all close, we quitclaim.

Controls in the buying stage move largely in sympathy with the Dow. In the later stages their behavior is geared more to that of workouts.

You might be interested to know that the buyers of our former control situation, Dempster Mill Manufacturing, seem to be doing very well with it. This fulfills our expectation and is a source of satisfaction. An investment operation that depends on the ultimate buyer making a bum deal (in Wall Street they call this the "Bigger Fool Theory") is tenuous indeed. How much more satisfactory it is to buy at really bargain prices so that only an average disposition brings pleasant results.

As I have mentioned in the past, the division of our portfolio among categories is largely determined by the accident of availability. Therefore, in any given year the mix between generals, workouts, or controls is largely a matter of chance, and this fickle factor will have a great deal to do with our performance relative to the Dow. This is one of many reasons why single year's

performance is of minor importance and good or bad, should never be taken too seriously.

To give an example of just how important the accident of division between these categories is, let me cite the example of the past three years. Using an entirely different method of calculation than that used to measure the performance of BPL in entirety, whereby the average monthly investment at market value by category is utilized, borrowed money and office operating expenses excluded, etc., (this gives the most accurate basis for intergroup comparisons but does not reflect overall BPL results) the generals (both present categories combined), workouts, and the Dow, shape up as follows:

Year	Generals	Workouts	Dow
1962	-1.0%	14.6%	-8.6%
1963	20.5%	30.6%	18.4%
1964	27.8%	10.3%	16.7%

Obviously the workouts (along with controls) saved the day in 1962, and if we had been light in this category that year, our final result would have been much poorer, although still quite respectable considering market conditions during the year. We could just as well have had a much smaller percentage of our portfolio in workouts that year; availability decided it, not any notion on my part as to what the market was going to do. Therefore, it is important to realize that in 1962 we were just plain lucky regarding mix of categories.

In 1963 we had one sensational workout which greatly influenced results, and generals gave a good account of themselves, resulting in a banner year. If workouts had been normal, (say, more like 1962) we would have looked much poorer compared to the Dow. Here it wasn't our mix that did much for us, but rather excellent situations.

Finally, in 1964 workouts were a big drag on performance. This would be normal in any event during a big plus year for the Dow such as 1964, but they were even a greater drag than expected because of mediocre experience. In retrospect it would have been pleasant to have been entirely in generals, but we don't play the game in retrospect.

I hope the preceding table drives home the point that results in a given year are subject to many variables - some regarding which we have little control or insight. We consider all categories to be good businesses and we are very happy we have several to rely on rather than just one. It makes for more discrimination within each category and reduces the chance we will be put completely out of operation by the elimination of opportunities in a single category.

Taxes

We have had a chorus of groans this year regarding partners' tax liabilities. Of course, we also might have had a few if the tax sheet had gone out blank.

More investment sins are probably committed by otherwise quite intelligent people because of "tax considerations" than from any other cause. One of my friends - a noted West Coast philosopher maintains that a majority of life's errors are caused by forgetting what one is really trying to do. This is certainly the case when an emotionally supercharged element like taxes enters the picture (I have another friend -a noted East Coast philosopher who says it isn't the lack of representation he minds -it's the taxation).

Let's get back to the West Coast. What is one really trying to do in the investment world? Not pay the least taxes, although that may be a factor to be considered in achieving the end. Means and end should not be confused, however, and the end is to come away with the largest after-tax rate of compound. Quite obviously if two courses of action promise equal rates of pre-tax compound and

one involves incurring taxes and the other doesn't the latter course is superior. However, we find this is rarely the case.

It is extremely improbable that 20 stocks selected from, say, 3000 choices are going to prove to be the optimum portfolio both now and a year from now at the entirely different prices (both for the selections and the alternatives) prevailing at that later date. If our objective is to produce the maximum after-tax compound rate, we simply have to own the most attractive securities obtainable at current prices, And, with 3,000 rather rapidly shifting variables, this must mean change (hopefully “tax-generating” change).

It is obvious that the performance of a stock last year or last month is no reason, per se, to either own it or to not own it now. It is obvious that an inability to "get even" in a security that has declined is of no importance. It is obvious that the inner warm glow that results from having held a winner last year is of no importance in making a decision as to whether it belongs in an optimum portfolio this year.

If gains are involved, changing portfolios involves paying taxes. Except in very unusual cases (I will readily admit there are some cases), the amount of the tax is of minor importance if the difference in expectable performance is significant. I have never been able to understand why the tax comes as such a body blow to many people since the rate on long-term capital gain is lower than on most lines of endeavor (tax policy indicates digging ditches is regarded as socially less desirable than shuffling stock certificates).

I have a large percentage of pragmatists in the audience so I had better get off that idealistic kick. There are only three ways to avoid ultimately paying the tax: (1) die with the asset - and that's a little too ultimate for me even the zealots would have to view this "cure" with mixed emotions; (2) give the asset away - you certainly

don't pay any taxes this way, but of course you don't pay for any groceries, rent, etc., either; and (3) lose back the gain if your mouth waters at this tax-saver, I have to admire you -you certainly have the courage of your convictions.

So it is going to continue to be the policy of BPL to try to maximize investment gains, not minimize taxes. We will do our level best to create the maximum revenue for the Treasury -at the lowest rates the rules will allow.

An interesting sidelight on this whole business of taxes, vis-à-vis investment management, has appeared in the last few years. This has arisen through the creation of so-called "swap funds" which are investment companies created by the exchange of the investment company's shares for general market securities held by potential investors. The dominant sales argument has been the deferment (deferment, when pronounced by an enthusiastic salesman, sometimes comes very close phonetically to elimination) of capital gains taxes while trading a single security for a diversified portfolio. The tax will only finally be paid when the swap fund's shares are redeemed. For the lucky ones, it will be avoided entirely when any of those delightful alternatives mentioned two paragraphs earlier eventuates.

The reasoning implicit in the swapee's action is rather interesting. He obviously doesn't really want to hold what he is holding or he wouldn't jump at the chance to swap it (and pay a fairly healthy commission - usually up to $100,000) for a grab-bag of similar hot potatoes held by other tax-numbed investors. In all fairness, I should point out that after all offerees have submitted their securities for exchange and had a chance to review the proposed portfolio they have a chance to back out but I understand a relatively small proportion do so.

There have been twelve such funds (that I know of) established since origination of the idea in 1960, and several more are currently in the works. The idea is not without appeal since sales totaled well over $600 million. All of the funds retain an investment manager to whom they usually pay 1/2 of 1% of asset value. This investment manager faces an interesting problem; he is paid to manage the fund intelligently (in each of the five largest funds this fee currently ranges from $250,000 to $700,000 per year), but because of the low tax basis inherited from the contributors of securities, virtually his every move creates capital gains tax liabilities. And, of course, he knows that if he incurs such liabilities, he is doing so for people who are probably quite sensitive to taxes or they wouldn't own shares in the swap fund in the first place.

I am putting all of this a bit strongly, and I am sure there are some cases where a swap fund may be the best answer to an individual's combined tax and investment problems. Nevertheless, I feel they offer a very interesting test-tube to measure the ability of some of the most respected investment advisors when they are trying to manage money without paying (significant) taxes.

The three largest swap funds were all organized in 1961, and combined have assets now of about $300 million. One of these, Diversification Fund, reports on a fiscal year basis which makes extraction of relevant data quite difficult for calendar year comparisons. The other two, Federal Street Fund and Westminster Fund (respectively first and third largest in the group) are managed by investment advisors who oversee at least $2 billion of institutional money.

Here's how they shape up for all full years of existence:

Year	Federal Street	Westminster	Dow
1962	-19.0%	-22.5%	-7.6%
1963	17.0%	18.7%	20.6%
1964	13.8%	12.3%	18.7%
Annual Compounded Rate	2.6%	1.1%	9.8%

This is strictly the management record. No allowance has been made for the commission in entering and any taxes paid by the fund on behalf of the shareholders have been added back to performance.

Anyone for taxes?

Miscellaneous

In the December 21st issue of AUTOMOTIVE NEWS it was reported that Ford Motor Co. plans to spend $700 million in 1965 to add 6,742,000 square feet to its facilities throughout the world. Buffett Partnership, Ltd., never far behind, plans to add 227 1/4 square feet to its facilities in the spring of 1965.

Our growth in net assets from $105,100 (there's no prize for guessing who put in the $100) on May 5, 1956 when the first predecessor limited partnership.(Buffett Associates, Ltd.) was organized, to $26,074,000 on 1/1/65 creates the need for an occasional reorganization in internal routine. Therefore, roughly contemporaneously with the bold move from 682 to 909 ¼ square feet, a highly capable is going to join our organization with responsibility for the administrative (and certain other) functions. This move will particularly serve to free up more of Bill Scott's time for security analysis which is his forte. I'll have more to report on this in the midyear letter.

Bill (who continues to do a terrific job) and his wife have an investment in the Partnership of $298,749, a very large majority of their net worth. Our new associate (his name is being withheld

until his present employer has replaced him), along with his wife and children, has made an important investment in the Partnership. Susie and I presently have an interest of $3,406,700 in BPL which represents virtually our entire net worth, with the exception of our continued holding of Mid-Continent Tab Card Co., a local company into which I bought in 1960 when it had less than 10 stockholders. Additionally, my relatives, consisting of three children, mother , two sisters, two brothers-in-law, father-in-Law, four aunts, four cousins and six nieces and nephews, have interests in BPL, directly or indirectly, totaling $1,942,592. So we all continue to eat home cooking.

We continue to represent the ultimate in seasonal businesses -- open one day a year. This creates real problems in keeping the paper flowing smoothly, but Beth and Donna continue to do an outstanding job of coping with this and other problems.

Peat, Marwick, Mitchell has distinguished itself in its usual vital role of finding out what belongs to whom. We continue to throw impossible deadlines at them --and they continue to perform magnificently. You will note in their certificate this year that they have implemented the new procedure whereby they now pounce on us unannounced twice a year in addition to the regular yearend effort.

Finally -and most sincerely -let me thank you partners who cooperate magnificently in getting things to us promptly and properly and thereby maximize the time we can spend working where we should be -by the cash register. I am extremely fortunate in being able to spend the great majority of my time thinking about where our money should be invested, rather than getting bogged down in the minutiae that seems to overwhelm so many business entities. We have an organizational structure which makes this efficiency a possibility, and more importantly, we have a group of

partners that make it a reality. For this, I am most appreciative and we are all wealthier.

Our past policy has been to admit close relatives of present partners without a minimum capital limitation. This year a flood of children, grandchildren, etc., appeared which called this policy into question; therefore, I have decided to institute a $25,000 minimum on interests of immediate relatives of present partners.

Within the coming two weeks you will receive:

(1) A tax letter giving you all BPL information needed for your 1964 federal income tax return. This letter is the only item that counts for tax purposes.

(2) An audit from Peat, Marwick, Mitchell & Co. for 1964, setting forth the operations and financial position of BPL as well as your own capital account.

(3) A letter signed by me setting forth the status of your BPL interest on 111165. This is identical with the figure developed in the audit.

(4) Schedule “A” to the partnership agreement listing all partners.

Let Bill or me know if anything needs clarifying. Even with our splendid staff our growth means there is more chance of missing letters, overlooked instructions, a name skipped over, a figure transposition, etc., so speak up if you have any question at all that we might have erred. My next letter will be about July 15th" summarizing the first half of this year.

Cordially,

Warren E. Buffett

Investing in the Unknown and Unknowable

Richard Zeckhauser, 2006

Abstract

From David Ricardo making a fortune buying British government bonds on the eve of the Battle of Waterloo to Warren Buffett selling insurance to the California earthquake authority, the wisest investors have earned extraordinary returns by investing in the unknown and the unknowable (UU). But they have done so on a reasoned, sensible basis. This essay explains some of the central principles that such investors employ. It starts by discussing "ignorance," a widespread situation in the real world of investing, where even the possible states of the world are not known. Traditional finance theory does not apply in UU situations.

Strategic thinking, deducing what other investors might know or not, and assessing whether they might be deterred from investing, for example due to fiduciary requirements, frequently point the way to profitability. Most big investment payouts come when money is combined with complementary skills, such as knowing how to develop real estate or new technologies. Those who lack these skills can look for "sidecar" investments that allow them to put their money alongside that of people they know to be both capable and honest. The reader is asked to consider a number of such investments.

Central concepts in decision analysis, game theory, and behavioral decision are deployed alongside real investment decisions to unearth successful investment strategies. These strategies are distilled into eight investment maxims. Learning to invest more wisely in a UU world may be the most promising way to significantly bolster your prosperity.

KEYWORDS: investing, unknown, unknowable, sidecar investment, fat-tailed distribution, Buffett, Kelly Criterion, asymmetric information

David Ricardo made a fortune buying bonds from the British government four days in advance of the Battle of Waterloo. He was not a military analyst, and even if he were, he had no basis to compute the odds of Napoleon's defeat or victory, or hard-to-identify ambiguous outcomes. Thus, he was investing in the unknown and the unknowable. Still, he knew that competition was thin, that the seller was eager, and that his windfall pounds should Napoleon lose would be worth much more than the pounds he'd lose should Napoleon win. Ricardo knew a good bet when he saw it.

This essay discusses how to identify good investments when the level of uncertainty is well beyond that considered in traditional models of finance. Many of the investments considered here are one-time only, implying that past data will be a poor guide. In addition, the essay will highlight investments, such as real estate development, that require complementary skills. Most readers will not have such skills, but many will know others who do. When possible, it is often wise to make investments alongside them.

Though investments are the ultimate interest, the focus of the analysis is how to deal with the unknown and unknowable, hereafter abbreviated UU. Hence, I will sometimes discuss salient problems outside of finance, such as terrorist attacks, which are also unknown and unknowable.

This essay takes no derivatives, and runs no regressions. In short, it eschews the normal tools of my profession. It represents a blend of insights derived from reading academic works and from trying

to teach their insights to others, and from lessons learned from direct and at-a-distance experiences with a number of successful investors in the UU world. To reassure my academic audience, I use footnotes where possible, though many refer to accessible internet articles in preference to journals and books. Throughout this essay, you will find speculations and maxims, as seems called for by the topic. They will be labeled in sequence.

This informal approach seems appropriate given our present understanding of the topic. Initial beliefs about this topic are highly uncertain, or as statisticians would phrase it: “Prior distributions are diffuse.” Given that, the judicious use of illustrations, and prudent attempts to provide taxonomies and sort tea leaves, can substantially hone our beliefs, that is, tighten our future predictions.

Part I of this essay talks about risk, uncertainty, and ignorance, the last carrying us beyond traditional discussions. Part II looks at behavioral economics, the tendency for humans to deviate in systematic ways from rational decision, particularly when probabilities are involved, as they always are with investments. Behavioral economics pervades the UU world. Part III addresses the role of skilled mathematical types now so prevalent in finance. It imparts a general lesson: If super-talented people will be your competitors in an investment arena, perhaps it is best not to invest. Its second half discusses a dispute between math types on money management, namely how much of your money to invest when you do have an edge. Part IV details when to invest when you can make more out of an investment, but there is a better informed person on the other side of the transaction. Part V tells a Buffett tale, and draws appropriate inferences. Part VI concludes.

1. Risk, Uncertainty and Ignorance

Escalating challenges to effective investing. The essence of effective investment is to select assets that will fare well when

future states of the world become known. When the probabilities of future states of assets are known, as the efficient markets hypothesis posits, wise investing involves solving a sophisticated optimization problem. Of course, such probabilities are often unknown, banishing us from the world of the capital asset pricing model (CAPM), and thrusting us into the world of uncertainty.

Were the financial world predominantly one of mere uncertainty, the greatest financial successes would come to those individuals best able to assess probabilities. That skill, often claimed as the domain of Bayesian decision theory, would swamp sophisticated optimization as the promoter of substantial returns.

The real world of investing often ratchets the level of non-knowledge into still another dimension, where even the identity and nature of possible future states are not known. This is the world of ignorance. In it, there is no way that one can sensibly assign probabilities to the unknown states of the world. Just as traditional finance theory hits the wall when it encounters uncertainty, modern decision theory hits the wall when addressing the world of ignorance. I shall employ the acronym UU to refer to situations where both the identity of possible future states of the world as well as their probabilities are unknown and unknowable.

Table 1 outlines the three escalating categories; entries are explained throughout the paper.

Table 1. Escalating Challenges to Effective Investing

	Knowledge of States of the World	Investment Environment	Skills Needed
Risk	Probabilities known	Distributions of returns known	Portfolio optimization
Uncertainty U	Probabilities unknown	Distributions of returns conjectured	Portfolio optimization, Decision theory
Ignorance UU	States of the world unknown	Distributions of returns conjectured, often from deductions about other's behavior. Complementary skills often rewarded along side investment	Portfolio optimization. Decision theory. Complementary skills (ideal) Strategic inference.

This essay has both dreary and positive conclusions about investing in a UU world. The first dreary conclusion is that unknowable situations are widespread and inevitable. Consider the consequences for financial markets of global warming, future terrorist activities, or the most promising future technologies. These outcomes are as unknowable today as were the 1997 Asian meltdown, the 9/11 attacks, or the NASDAQ soar and swoon at the end of the century, shortly before they were experienced.

These were all aggregate unknowables, affecting a broad swath of investors. But many unknowables are idiosyncratic or personal, affecting only individuals or handfuls of people, such as: If I build a 300-home community ten miles to the west of the city, will they come? Will the Vietnamese government let me sell my insurance product on a widespread basis? Will my friend's new software program capture the public fancy, or if not might it succeed in a completely different application? Such idiosyncratic UU situations, I argue below, present the greatest potential for significant excess investment returns.

The second dreary conclusion is that most investors – whose training, if any, fits a world where states and probabilities are assumed known – have little idea of how to deal with the unknowable. When they recognize its presence, they tend to steer clear, often to protect themselves from sniping by others. But for all but the simplest investments, entanglement is inevitable – and when investors do get entangled they tend to make significant errors.

The first positive conclusion is that unknowable situations have been and will be associated with remarkably powerful investment returns. The second positive conclusion is that there are systematic ways to think about unknowable situations. If these ways are followed, they can provide a path to extraordinary expected investment returns. To be sure, some substantial losses are inevitable, and some will be blameworthy after the fact. But the net expected results, even after allowing for risk aversion, will be strongly positive.

Do not read on, however, if blame aversion is a prime concern: The world of UU is not for you. Consider this analogy. If in an unknowable world none of your bridges fall down, you are building them too strong. Similarly, if in an unknowable world none of your investment looks foolish after the fact, you are staying too far away from the unknowable.

Warren Buffett, a master at investing in the unknowable, and therefore a featured player in this essay, is fond of saying that playing contract bridge is the best training for business. Bridge requires a continual effort to assess probabilities in at best marginally knowable situations, and players need to make hundreds of decisions in a single session, often balancing expected gains and losses. But players must also continually make peace with good decisions that lead to bad outcomes, both one’s own

decisions and those of a partner. Just this peacemaking skill is required if one is to invest wisely in an unknowable world.

The nature of unknowable events. Many of the events that we classify as unknowable arrive in an unanticipated thunderclap, giving us little or no time to anticipate or prepare. But once they happen, they do not appear that strange. The human mind has an incredible ability to find a rationalization for why it should have been able to conjecture the terror attack of 9/11; or the Asian tsunamis of 1997 and 2005, respectively caused by currency collapse and underwater earthquake. This propensity to incorporate hindsight into our memories – and to do so particularly when Monday morning quarterbacks may attack us – hinders our ability to anticipate extreme events in the future. We learn insufficiently from our misestimates and mistaken decisions.

Other unknowable events occur over a period of time, as did the collapse of the Soviet Union. Consider most stock market swings. Starting in January 1996, the NASDAQ rose five-fold in four years. Then it reversed field and fell by two thirds in three years. Such developments are hardly thunderclaps. They are more like blowing up a balloon and then dribbling out the air. In retrospect, these remarkable swings have lost the flavor of an unknowable event, even though financial markets are not supposed to work that way. If securities prices at any moment incorporate all relevant information, a property that is usually posited, long-term movements in one direction are hardly possible, since strong runs of unanticipated good news or bad news will be exceedingly rare. Similarly, the AIDS scourge now seems familiar territory, though 25 years ago – when there had been only 31 cumulative deaths in the U.S. from AIDS – no one would have predicted a world-wide epidemic killing tens of millions and vastly disrupting the economies of many poor nations.

Are UU events to be feared? Warren Buffett (1996) once remarked: “It is essential to remember that virtually all surprises are unpleasant.” Most salient UU events seem to fall into the left tail of unfortunate occurrences. This may be more a matter of perception than reality. Often an upside unknowable event, say the diminution of terror attacks or recovery from a dread disease, is difficult to recognize. An attack on any single day was not likely anyway, and the patient still feels lousy on the road to recovery. Thus, the news just dribbles in, as in a financial market upswing. B.F. Skinner, the great behavioral psychologist, taught us that behavior conditioned by variable interval reinforcement – engage in the behavior and from time-to-time the system will be primed to give you a payoff – was the most difficult to extinguish. Subjects could never be sure that another reward would not be forthcoming. Similarly, it is hard to discern when a string of inconsistently spaced episodic events has concluded. If the events are unpleasant, it is not clear when to celebrate their end.

Let us focus for the moment on thunderclap events. They would not get this title unless they involved something out of the ordinary, either good or bad. Casual empiricism – judged by looking at local, national and international headlines – suggests that thunderclap events are disproportionately adverse. Unlike in the old television show, The Millionaire, people do not knock on your door to give you a boatload of money, and in Iraq terror attacks outnumber terrorist arrests manifold.

The financial arena may be one place with an apparently good ratio of upside to downside UU events, particularly if we include events that are drifts and not thunderclaps. By the end of 2004, there were 2.5 million millionaires in the United States, excluding housingwealth.

Many of these individuals, no doubt, experienced upside UU events. Some events, such as the sustained boom in housing

prices, were experienced by many, but many upside events probably only affected the individual and perhaps a few others; such events include an unexpected lucrative job, or having a business concept take a surprisingly prosperous turn, or having a low-value real estate holding explode in value, etc.

We hear about the lottery winner -- the big pot, the thunderclap, and the gain for one individual makes it newsworthy. In contrast, the tens of thousands of UU events that created thousands of new real estate millionaires are mostly reported in dry aggregate statistics. Moreover, contrary to the ads in the back of magazines, there is usually not a good way to follow these “lucky folks,” since some complementary skill or knowledge is likely to be required, not merely money and a wise choice of an investment. Thus, many favorable UU financial events are likely to go unchronicled.

While still in this Pollyannish frame, it is worth noting the miracles of percentage symmetry given extreme events. Posit that financial prices move in some symmetric fashion. Given that negative prices are not possible, such changes must be in percentage rather than absolute terms.4 We will not notice any difference between percentage and absolute if changes are small relative to the mean. Thus, if a price of 100 goes up or down by an average of 3 each year, or up by a ratio of 103/100 or down by 100/103 hardly matters. But change that 3 to a 50, and the percentage symmetry helps a great deal. The price becomes 100(150/100) or 100(100/150)), which has an average of 117. If prices are anything close to percentage symmetric, as many believe they are, then big swings are both enemy and friend: enemy because they impose big risks, friend because they offer substantial positive expected value.

Many millionaires have made investments that multiplied their money 10- fold, and some 100-fold. The symmetric geometric model would expect events that cut one’s stake to 1/10th or

1/100th of its initial value to be equally likely. The opportunity to get a 10 or 100 multiple on your investment as often as you lose virtually all of it is tremendously attractive.

There is, of course, no reason why investments must yield symmetric geometric returns. But it would be surprising not to see significant expected excess returns to investments that have three characteristics addressed in this essay: (1) UU underlying features, (2) complementary capabilities are required to undertake them, so the investments are not available to the general market, and (3) it is unlikely that a party on the other side of the transaction is better informed. That is, UU may well work for you, if you can identify general characteristics of when such investments are desirable, and when not.

These very attractive three-pronged investments will not come along everyday. And when they do, they are unlikely to scale up as much as the investor would like, unlike an investment in an underpriced NYSE stock, which scales nicely, at least over the range for most individual investors. Thus, the UUsensitive investor should be constantly on the lookout for new opportunities. That is why Warren Buffett trolls for new businesses to buy in each BerkshireHathaway annual report, and why most wealthy private investors are constantly looking for new instruments or new deals.

Uniqueness. Many UU situations deserve a third U, for unique. If they do, arbitrageurs – who like to have considerable past experience to guide them – will steer clear. So too will anybody who would be severely penalized for a poor decision after the fact. An absence of competition from sophisticated and wellmonied others spells the opportunity to buy underpriced securities.

Most great investors, from David Ricardo to Warren Buffett, have made most of their fortunes by betting on UUU situations. Ricardo allegedly made 1 million pounds (over $50 million today) – roughly

half of his fortune at death – on his Waterloo bonds. Buffett has made dozens of equivalent investments. Though he is best known for the Nebraska Furniture Mart and See's Candies, or for long-term investments in companies like the Washington Post and Coca Cola, insurance has been Berkshire Hathaway's firehose of wealth over the years. And insurance often requires UUU thinking. A whole section below discusses Buffett's success with what many experts saw as a UUU insurance situation, so they steered clear; but he saw it as offering excess premium relative to risk, so he took it all.

Speculation 1: UUU investments – unknown, unknowable and unique – drive off speculators, which creates the potential for an attractive low price.

Some UU situations that appear to be unique are not, and thus fall into categories that lend themselves to traditional speculation. Corporate takeover bids are such situations. When one company makes a bid for another, it is often impossible to determine what is going on or what will happen, suggesting uniqueness. But since dozens of such situations have been seen over the years, speculators are willing to take positions in them. From the standpoint of investment, uniqueness is lost, just as the uniqueness of each child matters not to those who manufacture sneakers.

Weird Causes and Fat Tails. The returns to UUU investments can be extreme. We are all familiar with the Bell Curve (or Normal Distribution), which nicely describes the number of flips of a fair coin that will come up heads in a large number of trials. But such a mechanical and controlled problem is extremely rare. Heights are frequently described as falling on a Bell Curve. But in fact there are many too many people who are extremely tall or extremely short, due say to glandular disturbances or genetic abnormalities. The standard model often does not apply to observations in the

tails. So too with most disturbances to investments. Whatever the explanation for the October 1987 crash, it was not due to the usual factors that are used to explain market movements.

More generally, movements in financial markets and of investments in general appear to have much thicker tails than would be predicted by Brownian motion, the instantaneous source of Bell Curve outcomes. That may be because the fundamental underlying factors produce thicker tails, or because there are rarely occurring anomalous or weird causes that produce extreme results, or both. The UU and UUU models would give great credence to the latter explanation, though both could apply.

Complementary skills and UU investments. A great percentage of UU investments, and a greater percentage of those that are UUU, provide great returns to a complementary skill. For example, many of America's great fortunes in recent years have come from real estate. These returns came to people who knew where to build, and what and how. Real estate developers earn vast amounts on their capital because they have complementary skills. Venture capitalists can secure extraordinary returns on their own monies, and charge impressive fees to their investors, because early stage companies need their skills and their connections. In short, the return to these investments comes from the combination of scarce skills and wise selection of companies for investment. High tech pioneers – Bill Gates is an extreme example – get even better multiples on their investment dollars as a complement to their vision and scientific insight.

Alas, few of us possess the skills to be a real estate developer, venture capitalist or high tech pioneer. But how about becoming a star of ordinary stock investment? For such efforts an ideal complementary skill is unusual judgment. Those who can sensibly determine when to plunge into and when to refrain from UUU investments gain a substantial edge, since mispricing is likely to be

severe. Bill Miller, the famed manager of the Legg Mason Value Fund, had a unique record of beating the S&P; his string through December 2005 was 15 years in a row. In October 2004 he spoke at Harvard University, and explained in detail why he made major purchases of Google at its public offering, surely a UUU situation given the nature of the company and the fact that it was offered through a Dutch auction.9 Virtually all in the audience were impressed that he made this decision -- the stock came out at $85 in August that year and had run up to $140. But Miller recognized that explaining past successes is not a challenge. He went on to proclaim Google a great investment for the future. How right he was. Google was selling at $380 in September 2006, when this essay was completed. Alas, 2006 was not kind to Miller. By September, his Value Fund was 12% behind the S&P for the year. Only time will tell whether Miller has lost his touch or is merely in a slump.

Warren Buffett's unusual judgment operates with more prosaic companies, such as oil producers and soft drink firms. He is simply a genius at everyday tasks, such as judging management capability or forecasting company progress. He drains much of the unknowable in judging a company's future. But he has other advantages. A number of Buffett's investments have come to him because companies sought him out, asking him to make an investment and also to serve on their board, valuing his discretion, his savvy, and his reputation for rectitude – that is, his complementary skills, not merely his money. And when he is called on for such reasons, he often gets a discounted price. Those like Miller and Buffet, who can leverage complementary skills in stock market investment, will be in a privileged position of limited competition. But that will accomplish little if they do not show courage and make big purchases where they expect high payoffs. But the lesson for regular mortals is not to imitate Warren Buffett

or Bill Miller; that makes no more sense than trying to play tennis like Roger Federer. Each of them has an inimitable skill. If you lack Buffett-Miller capabilities, you will get chewed up as a bold stock picker.

Note, by the way, the generosity with which great investors with complementary skills explain their successes – Buffett in his annual reports, Miller at Harvard, and any number of venture capitalists who come to lecture to MBAs. These master investors need not worry about the competition, since few others possess the complementary skills for their types of investments. Few UU investment successes come from catching a secret, such as the whispered hint of "plastics" in the movie The Graduate. Mayer Amschel Rothschild had five sons who were bright, disciplined, loyal and willing to disperse. These were the complementary skills. The terrific investments in a UU world – and the Rothschild fortune – followed.

Before presenting a maxim about complementary skills, I present you with a decision problem. You have been asked to join the Business Advisory Board of a company named Tengion. Tengion was founded in 2003 to develop and commercialize a medical breakthrough: "developing new human tissues and organs (neo-tissues and neo-organs) that are derived from a patient's own cells…[this technology] harnesses the body's ability to regenerate, and it has the potential to allow adults and children with organ failure to have functioning organs built from their own (autologous) tissues." http://www.tengion.com/

This is assuredly a UU situation, doubly so for you, since until now you had never heard the term neo-organ. A principal advantage of joining is that you would be able to invest a reasonable sum on the same basis as the firm's insiders and venture capitalists. Would you choose to do so?

I faced this decision problem because I had worked successfully with Tengion's president on another company many years earlier. I was delighted with the UU flavor of the situation, and chose to join and invest because I would be doing so on the same terms as sophisticated venture capital (VC) firms with track records and expertise in relevant biotech areas. This was an investment from which virtually everyone else would be excluded. In addition, it would benefit from the complementary skills of the VCs.

Sidecar investments. Such undertakings are "sidecar investments"; the investor rides along in a sidecar pulled by a powerful motorcycle. The more the investor is distinctively positioned to have confidence in the driver's integrity and his motorcycle's capabilities, the more attractive the investment, since its price will be lower due to limited competition. Perhaps the premier sidecar investment ever available to the ordinary investor was Berkshire Hathaway, many decades back. One could have invested alongside Warren Buffett, and had him take a ridiculously low compensation for his services. (In recent years, he has been paid $100,000, with no bonus or options.) But in 1960 who had heard of Warren Buffett, or knew that he would be such a spectacular and poorly compensated investor? Someone who knew Buffett and recognized his remarkable capabilities back then was in a privileged UU situation.

Maxim A: Individuals with complementary skills enjoy great positive excess returns from UU investments. Make a sidecar investment alongside them when given the opportunity.

Do you have the courage to apply this maxim? It is January 2006 and you, a Western investor, are deciding whether to invest in Gazprom, the predominantly government-owned Russian natural gas giant in January 2006. Russia is attempting to attract institutional investment from the West; the stock is sold as an ADR, and is soon to be listed on the OTC exchange; the company is

fiercely profitable, and it is selling gas at a small fraction of the world price. On the upside, it is generally known that large numbers of the Russian elite are investors, and here and there it is raising its price dramatically. On the downside, Gazprom is being employed as an instrument of Russian government policy, e.g., gas is sold at a highly subsidized price to Belarus, because of its sympathetic government, yet the Ukraine is being threatened with more than a four-fold increase in price, in part because its government is hostile to Moscow. And the company is bloated and terribly managed. Finally, experiences, such as those with Yukos Oil, make it clear that the government is powerful, erratic, and ruthless.

This is clearly a situation of ignorance, or UU. The future states of the world are simply not known. Will the current government stay in power? Will it make Gazprom its flagship for garnering Western investment? If so, will it streamline its operations? Is it using foreign policy concerns as a device mainly to raise prices, a strong positive, and is it on a path to raise prices across the board? Will it complete its proposed pipelines to Europe? What questions haven't you thought of, whose answers could dramatically affect your payout? Of course, you should also determine whether Western investors have distinct disadvantages as Gazprom shareholders, such as unique taxes, secondary voting status, etc. Finally, if you determine the investment is favorable given present circumstances, you should ask how quickly Russia could change conditions against outsiders, and whether you will be alert and get out if change begins.

You could never learn about the unknowables sufficiently well to do traditional due diligence on a Gazprom investment. The principal arguments for going ahead would be that Speculation 1 and Maxim A apply. If you could comfortably determine that the Russian elite was investing on its own volition, and that foreigners

would not be discriminated against, or at least not quickly, this would make a sensible sidecar investment.

II. Behavioral Economics And Decision Traps

Behavioral decision has shaken the fields of economics and finance in recent decades. Basically, this work shows in area after area that individuals systematically deviate from making decisions in a manner that would be admired by Jimmie Savage (1954) and Howard Raiffa (1968), pioneers of the rational decision paradigm. As one illustration, such deviators could be turned into money pumps: They would pay to pick gamble B over gamble A. Then with A reframed as A', but not changed in its fundamentals, they would pay to pick A over B.

That is hardly the path to prudent investment, but alas behavioral decision has strong descriptive validity. Behavioral decision has important implications for investing in UU situations. When considering our own behavior, we must be extremely careful not to fall prey to the biases and decision traps it chronicles. Almost by definition, UU situations are those where our experience is likely to be limited, where we will not encounter situations similar to other situations that have helped us hone our intuition.

Virtually all of us fall into important decision traps when dealing with the unknowable. This section discusses two, overconfidence and recollection bias, and then gives major attention to a third, misweighting differences in probabilities and payoffs. But there are dozens of decision traps, and some will appear later in this essay. The Nobel Prize winning work of Daniel Kahneman and Amos Tversky (the latter was warmly cited, but died too soon to win), and the delightful and insightful Poor Charlie's Almanack, written by Charles Munger (Warren Buffett's partner) respectively provide academic and finance-oriented discussions of such traps.

There are at least three major objections to behavioral economics: First, in competitive markets, the anomalies it describes will be arbitraged away. Second, the anomalies only appear in carefully crafted situations; they are much like optical illusions, intriguing but rarely affecting everyday vision. Third, they describe the way people do behave, but not the way they should behave. The first objection is tangential to this discussion; competitive markets and arbitrage are not present in many UU situations, and in particular not the ones that interest us. The second objection is relatively unimportant because, in essence, UU situations are those where optical illusions rule the world. A UU world is not unlike a Fun House. Objection three I take up seriously below; this essay is designed to help people behave more rationally when they invest.

Let us first look at the biases.

Overconfidence. When individuals are assessing quantities about which they know very little, they are much too confident of their knowledge (Alpert and Raiffa, 1982). Appendix A offers you a chance to test your capabilities in this regard. For each of eight unknown quantities, such as the area of Finland, you are asked to provide your median estimate, then your 25th and 75th percentile estimates (i.e., it is one quarter likely the true value will be more extreme than either of the two), and then your 1st and 99th percentiles, what are referred to as surprise points. In theory, an individual should have estimates outside her surprise points about 2% of the time. In fact, even if warned about overconfidence, individuals are surprised about 35% of the time. Quite simply, individuals think they know much more about unknowable quantities than they do.

Speculation 2: Individuals who are overconfident of their knowledge will fall prey to poor investments in the UU world. Indeed, they are the green plants in the elaborate ecosystem of finance where there are few lions, like Bill Miller and Warren

Buffett; many gazelles, like you and me; and vast acres of grass ultimately nourishing us all.

Recollection bias. A first lesson in dealing with UU situations is to know thyself. One good way to do this is to review successes and failures in past decisions. However, since people do not have a long track record, they naturally turn to hypotheticals from the past: Would I have judged the event that actually occurred to be likely? Would I have made that good investment and steered clear of the other bad one? Would I have sold out of NASDAQ stocks near New Year 2001? Alas, human beings do not do well with such questions. They are subject to substantial recollection bias.

Judging by articles in the New York Times leading up to 9/11/2001, there was virtually no anticipation of a major terrorist attack on the United States; it was a clear UUU event. But that is not what respondents told us one to three years later. They were asked to compare their present assessments of the likelihood of a massive terrorist attack with what they estimated that likelihood to be on September 1, 2001. Of more than 300 Harvard Law and Kennedy School students surveyed, 31% rated the risk as now lower, and 26% rated the risk as the same as they had perceived the 9/11 risk before the event. We can hardly be confident that investors will be capable of judging how they would have assessed UU risks that occurred in the past.

Misweighting probabilities and preferences. The two critical components of decision problems are payoffs and probabilities. Effective decision requires that both be carefully calibrated. Not surprisingly, Prospect Theory, the most important single contribution to behavioral decision theory to date, finds that individuals' responses to payoffs and probabilities are far from rational. To my knowledge, there is no tally of which contributes more to the loss of expected utility from the rational norm. (Some strong supporters of behavioral decision theory, however, think it

is our norms that are misguided, and that the way the brain naturally perceives outcomes, not the prescriptions of decision theorists and economists, should be the guideline.)

Whether drawing from Prospect Theory or observation, it seems clear that individuals draw insufficient distinctions among small probabilities. Consider the following experiment, in which an individual is asked to pick A or B.

Lottery Choice: Payoffs Versus Probabilities

	Payoff	Probability
A	$2000	0.01
B	$1000	0.025

A rational, risk averse individual should opt for B, since it offers a higher expected value – $25 versus $20 – and less risk. Yet past experiments have shown that many individuals choose A, since in accordance with Prospect Theory they do not distinguish sufficiently between two low probability events. We speculate further that if we used named contingencies – for example, the Astros or the Blue Jays win the World Series – alongside their probabilities, the frequency of preference for A would increase. The contingencies would be selected, of course, so that their likelihood of occurrence, as indicated by odds in Las Vegas, would match those in the example above.

This hypothetical experiment establishes a baseline for another one that involves UU events. This time the prizes are based on events that are as close to the spectrum of UU events as possible, subject to the limitation that they must be named. Thus, a contingency might be that a 10,000-ton asteroid passed within 50,000 miles of Earth within the past decade, or that more than a million mammals crossed the border from Tanzania to Kenya last year. To begin our experiment, we ask a random sample of people to guess the likelihood of these contingencies. We then alter the asteroid distance or the number of animals in the question until

the median answer is 0.03. Thus, if 50,000 miles got a median answer of 0.05, we would adjust to 40,000 miles, etc.

We now ask a new group of individuals to choose between C and D, assuming that we have calibrated the asteroid and mammal question to get to 0.03.

Lottery Choice: Payoffs Versus Probability or UU Event

	Payoff	Required contingency
C	$2000	Draw a 17 from an urn with balls numbered 1 to 100
D	$1000	10,000-ton asteroid passed within 40,000 miles of Earth

Lotteries C and D should yield their prizes with estimated probabilities of 1% and 3% respectively. Still, we suspect that many more people would pick C over D than picked A over B, and that this would be true for the animal movement contingency as well.

A more elaborated version of this problem would offer prizes based on alternative UU contingencies coming to pass. For example, we might recalibrate the mammal-crossing problem to get a median response of 0.01. We would then have:

Lottery Choice: Payoffs Versus UU Events

	Payoff	Required contingency
E	$2000	Calibrated large number of animals crossed the Tanzania-Kenya border
F	$1000	10,000 ton-asteroid passed within 40,000 miles of Earth

Here the values have been scaled so the median response is three times higher for the asteroid event than the animal crossing. We would conjecture again that E would be chosen frequently. People do not like to rely on the occurrence of UU events, and choices based on distinguishing among their probabilities would be an unnatural act.

Daniel Ellsberg (1961) alerted us to ambiguity aversion long before he created a UU event by publishing the Pentagon papers. In an

actual experiment, he showed, in effect, that individuals preferred to win a prize if a standard coin flip came up heads, rather than to win that prize by choosing either heads or tails on the flip of a mangled coin whose outcome was difficult to predict. Such ambiguity aversion may be a plausible heuristic response to general decisions under uncertainty, since so often there is a better-informed person on the other side – such as someone selling a difficult-to-assess asset. Whatever the explanation, ambiguity aversion has the potential to exert a powerful effect. Extending Ellsberg one step further, it would seem that the more ambiguous the contingencies, the greater the aversion. If so, UU investments will drive away all but the most self-directed and rational thinking investors. Thus, Speculation 1 is reinforced.

III. Math Whizzes In Finance And Cash Management

The major fortunes in finance, I would speculate, have been made by people who are effective in dealing with the unknown and unknowable. This will probably be truer still in the future. Given the influx of educated professionals into finance, those who make their living speculating and trading in traditional markets are increasingly up against others who are tremendously bright and tremendously well-informed.

By contrast, those who undertake prudent speculations in the unknown will be amply rewarded. Such speculations may include ventures into uncharted areas, where the finance professionals have yet to run their regressions, or may take completely new paths into already well-traveled regions. It used to be said that if your shoeshine boy gave you stock tips it was time to get out of the market. With shoeshine boys virtually gone and finance Ph.D.'s plentiful, the new wisdom might be:

> When your math whiz finance Ph.D. tells you that he and his peers have been hired to work in the XYZ field, the

spectacular returns in XYZ field have probably vanished forever.

Similarly, the more difficult a field is to investigate, the greater will be the unknown and unknowables associated with it, and the greater the expected profits to those who deal sensibly with them. Unknownables can't be transmuted into sensible guesses -- but one can take one's positions and array one's claims so that unknowns and unknowables are mostly allies, not nemeses. And one can train to avoid one's own behavioral decision tendencies, and to capitalize on those of others.

Assume that an investor is willing to invest where he has an edge in UU situations. How much capital should then be placed into each opportunity? This problem is far from the usual portfolio problem. It is afflicted with ignorance, and decisions must be made in sequential fashion. Math whizzes have discussed this problem in a literature little known to economists, but frequently discussed among gamblers and mathematicians. The most famous contribution is an article published 50 years ago by J.L. Kelly, an AT&T scientist. His basic formula, which is closely related to Claude Shannon's information theory, tells you how much to bet on each gamble as a function of your bankroll, with the probability of winning and the odds as the two parameters. Perhaps surprisingly, the array of future investment opportunities does not matter

Kelly's Criterion, as it is called, is to invest an amount equal to W – (1- W)/R, where W is your probability of winning, and R is the ratio of the amount you win when you win to the amount you lose when you lose. Thus, if you were 60% likely to win an even money bet, you would invest .6 – (1-.6)/1 = .2 or 20% of your capital.

It can be shown that given sufficient time, the value given by any other investment strategy will eventually be overtaken in value by following the Kelly Criterion, which maximizes the geometric

growth rate of the portfolio. That might seem to be definitive. But even in the mathematical realm of optimal dynamic investment strategies, assuming that all odds and probabilities are known, we encounter a UU situation.

Paul Samuelson, writing in a playful mood, produced an article attacking the Kelly Criterion as a guide for practice. His article uses solely one-syllable words. His abstract observes: “He who acts in N plays to make his mean log of wealth as big as it can be made will, with odds that go to one as N soars, beat me who acts to meet my own tastes for risk.” Samuelson correctly prescribes that in favorable-odds situations, whether repeated or not, the optimal amount for an individual who maximizes his expected utility to invest will depend on his utility function. To promote your intuition, consider a polar case. A risk-neutral investor should invest his total wealth whenever he confronts a favorable-odds situation, as opposed to the “magic fraction” proposed by Kelly. Going all in, to use poker terminology, will maximize his expected total wealth, hence his expected utility, for any finite number of periods. In short, Samuelson shows that the Kelly Criterion, though mathematically correct, should not guide an investor’s actions, since it ignores the structure of preferences, whether risk neutral or risk averse.

Accounting for preferences, it turns out that the Kelly Criterion leads to precisely the right investment proportions if one’s utility function is logarithmic, but it is too conservative for less risk-averse utility functions, and vice versa. With logarithmic utility, one will just take an even money bet that either multiplies one’s wealth by 1+x or by 1/(1+x), for any x. Thus, one would take an even money bet to double or halve one’s wealth.

I lack both the space and capability to straighten out the sequential investment problem. But I should make a few observations to point out that even if the Kelly Criterion were

correct, the formulation it employs does not capture most real world investment opportunities: (1) Most UU investments are illiquid for a significant period, often of unknown length. Monies invested today will not be available for reinvestment until they become liquid. (2) Markets charge enormous premiums to cash out illiquid assets. (3) Models of optimal sequential investment strategies tend to assume away the most important realworld challenges to such strategies, such as uncertain lock-in periods. (4) There are substantial disagreements in the literature even about "toy problems," such as those with immediate resolution of known-probability investments. The overall conclusion is that: (5) Money management is a challenging task in UU problems. It afflicts even those with a substantial edge when making such investments. And when the unknowable happens, as it did with the air- pocket plunge in the 1987 stock market or the 1997 Asian crisis, unforeseen short-term money-management problems – e.g., transferring monies across markets in time to beat margin calls – tend to emerge. These five points imply that even if it were clear how one should invest in a string of favorable gambles each of which is resolved instantaneously, that would help us little in the real world of UU investing, which presents a much more difficult task.

Though I have quibbled about the Kelly Criterion, it makes a simple, central point that is missed in virtually all investment advice. Most such advice focuses on efficient or near efficient markets, implying that one will not have a great edge in any investment. In contrast, the real world presents some ordinary investments, some attractive investments, and some very attractive investments. Clearly it makes sense to invest more in the more attractive investments. This leads to a maxim on investment *advantage*:

Maxim B: The greater is your expected return on an investment, that is the larger is your *advantage*, the greater the percentage of your capital you should put at risk.

Most investors understand this criterion intuitively, at least once it is pointed out. But they follow it insufficiently if at all. The investment on which they expect a 30% return gets little more funding than the one where they expect to earn 10%. Investment advantage should be as important as diversification concerns in determining how one distributes one's portfolio.

IV. Investing With Someone On The Other Side

One of the more puzzling aspects of the financial world is the volume of transactions in international currency markets. Average daily volume is $1.9 trillion, which is slightly more than all U.S. imports in a year. There are hedgers in these markets, to be sure, but their volume is many times dwarfed by transactions that cross with sophisticated or at least highly paid traders on both sides. Something no less magical than levitation is enabling all players to make money, or think that they are making money.

But let us turn to the micro situation, where you are trading against a single individual in what may or may not be a UU situation. If we find that people make severe mistakes in this arena even when there is merely risk or uncertainty, we should be much more concerned, at least for them, when UU may abound.

Bazerman-Samuelson example and lessons. Let us posit that you are 100% sure that an asset is worth more to you than to the person who holds it, indeed 50% more. But assume that she knows the true value to her, and that it is uniformly distributed on [0,100], that is, her value is equally likely to be 0, 1, 2, … 100. In a famous game due to Bazerman and Samuelson (1983), hereafter BS, you are to make a single bid. She will accept if she gets more than her own value. What should you bid?

When asked in the classroom, typical bids will be 50 or 60, and few will bid as low as 20. Students reason that the item will be worth 50 on average to her, hence 75 to them. They bid to get a tidy profit. The flaw in the reasoning is that the seller will only accept if she will make a profit. Let's make you the bidder. If you offer 60, she will not sell if her value exceeds 60. This implies that her average value conditional on selling will be 30, which is the value of the average number from 0 to 60. Your expected value will be 1.5 times this amount, or 45. You will lose 15 on average, namely 60-45, when your bid is accepted. It is easy to show that any positive bid loses money in expectation. The moral of this story is that people, even people in decision analysis and finance classrooms, where these experiments have been run many times, are very poor at taking account of the decisions of people on the other side of the table.

There is also a strong tendency to draw the wrong inference from this example, once its details are explained. Many people conclude that you should never deal with someone else who knows the true value, when you know only the distribution. In fact, BS offer an extreme example, almost the equivalent of an optical illusion. You might conclude that when your information is very diffuse and the other side knows for sure, you should not trade even if you have a strong absolute advantage.

That conclusion is wrong. For example, if the seller's true value is uniform on [1,2] and you offer 2, you will buy the object for sure, and its expected value will be 1.5 times 1.5 = 2.25. The difference between this example and the one with the prior on [0,1] is that here the effective information discrepancy is much smaller. To see this, think of a uniform distribution from [100,101]; there is virtually no discrepancy. (In fact, bidding 2 is the optimal bid for the [1,2] example, but that the extreme bid is optimal also should not be generalized.)

Drawing inferences from others. The general lesson is that people are naturally very poor at drawing inferences from the fact that there is a willing seller on the other side of the market. Our instincts and early training lead us not to trust the other guy, because his interests so frequently diverge from ours. If someone is trying to convince you that his second hand car is wondrous, skepticism and valuing your own information highly helps. However, in their study of the heuristics that individuals employ to help them make decisions, Tversky and Kahneman (1974) discovered that individuals tend to extrapolate heuristics from situations where they make sense to those where they do not.

For example, we tend to distrust the other guy's information even when he is on our side. This tendency has serious drawbacks if you consider sidecar investing – free riding on the superior capability of others – as we do below. Consider two symmetrically-situated partners with identical interests who start with an identical prior distribution about some value which is described by a two-parameter distribution. They each get some information on the value. They also have identical prior distributions on the information that each will receive. Thus, after his draw, each has a posterior mean and variance. Their goal is to take a decision whose payoff will depend on the true value. The individuals begin by submitting their best estimate, namely their means. After observing each other's means, they then simultaneously submit their new best estimate. Obviously, if one had a tight (loose) posterior his estimate would shift more (less) toward that of his partner. In theory, two things should happen: (a) The two partners should jump over each other between the first and second submission half of the time. (b) The two partners should give precisely the same estimate for the third submission.

In practice, unless the players are students of Robert Aumann – his article "Agreeing to Disagree" (1976) inspired this example – rarely

will they jump over each other. Moreover, on the third submission, they will not come close to convergence.

The moral of this story is that we are deeply inclined to trust our own information more than that of a counterpart, and are not well trained to know when this makes good sense, and when it inclines us to be a sucker. One should also be on the lookout for information disparities. Rarely are they revealed through carnival-barker behavior. For example, when a seller merely offers you an object at a price, or gets to accept or reject when you make a bid (as with BS), he will utilize information that you do not possess. You had better be alert and give full weight to its likely value, e.g., how much the object is worth on average were he to accept your bid.

In the financial world one is always playing in situations where the other fellow may have more information and you must be on your guard. But unless you have a strictly dominant action – i.e., it is superior no matter what the other guy's information -- a maximin strategy will almost always push you never to invest. After all, his information could be just such to lead you to lose large amounts of money.

Two rays of light creep into this gloomy situation: First, only rarely will his information put you at severe disadvantage. Second, it is extremely unlikely that your counterpart is playing anything close to an optimal strategy. After all, if it is so hard for you to analyze, it can hardly be easy for him.

Absolute advantage and information asymmetry. It is helpful to break down these situations into two components. A potential buyer's absolute advantage benefits both players. It represents the usual gains from trade. In many financial situations, as we

observed above, a buyer's absolute advantage stems from her complementary skills. An empty lot in A's hands may be worth much less than it would be in B's. Both gain if A trades to B, due to absolute advantage. But such an argument would not apply if A was speculating that the British pound would fall against the dollar when B was speculating that it would rise. There is no absolute advantage in such a situation, only information asymmetries.

If both parties recognize a pure asymmetric information situation, only the better informed player should participate. The appropriate drawing of inferences of "what- you-know-since-you-are-willing-to-trade" should lead to the well known no-trade equilibrium. Understanding this often leads even ordinary citizens to a shrewd strategem:

Maxim C: When information asymmetries may lead your counterpart to be concerned about trading with you, identify for her important areas where you have an absolute advantage from trading. You can also identify her absolute advantages, but she is more likely to know those already.

When you are the buyer, beware; seller-identified absolute advantages can be chimerical. For example, the seller in the bazaar is good at explaining why your special characteristics deserve a money-losing price – say it is the end of the day and he needs money to take home to his wife. The house seller who does not like the traffic noise in the morning may palter that he is moving closer to his job, suggesting absolute advantage since that is not important to you. Stores in tourist locales are always having "Going Out of Business Sales." Most swindles operate because the swindled one thinks he is in the process of getting a steal deal from someone else.

If a game theorist had written a musical comedy, it would have been Guys and Dolls, filled as it is with the ploys and plots of small-

time gamblers. The overseer of the roving craps game is Nathan Detroit. He is seeking action, and asks Sky Masterson – whose good looks and gambling success befit his name – to bet on yesterday's cake sales at Lindy's, a famed local deli. Sky declines and recounts a story to Nathan:

> On the day when I left home to make my way in the world, my daddy took me to one side. "Son," my daddy says to me, "I am sorry I am not able to bankroll you to a large start, but not having the necessary lettuce to get you rolling, instead I'm going to stake you to some very valuable advice. One of these days in your travels, a guy is going to show you a brand-new deck of cards on which the seal is not yet broken. Then this guy is going to offer to bet you that he can make the jack of spades jump out of this brand-new deck of cards and squirt cider in your ear. But, son, do not accept this bet, because as sure as you stand there, you're going to wind up with an ear full of cider."

In the financial world at least, a key consideration in dealing with UU situations is assessing what others are likely to know or not know. You are unlikely to have mystical powers to foresee the unforeseeable, but you may be able to estimate your understanding relative to that of others. Sky's dad drew an inference from someone else's willingness to bet. Presumably Ricardo was not a military expert, but just understood that bidders would be few and that the market would overdiscount the UU risk.

Competitive knowledge, uncertainty, and ignorance. Let us assume that you are neither the unusually skilled Buffett nor the unusually clear-thinking Ricardo. You are just an ordinary investor who gets opportunities and information from time to time. Your first task is to decide into which box an investment decision would fall. We start with unknown probabilities.

Investing with Uncertainty and Potential Asymmetric Information

	Easy for Others to Estimate	**Hard for Others to Estimate**
Easy for You to Estimate	**A.** Tough markets	**B.** They're the Sucker
Hard for You to Estimate	**C.** Sky Masterson's Dad, You're the Sucker	**D.** Buffett's Reinsurance Sale Calif. Earthquake Auth.

The first row is welcome and relatively easy, for two reasons: (1) You probably have reasonable judgment of your knowledge relative to others, as would a major real estate developer considering deals in his home market. Thus you would have a good assessment of how likely you are to be in Box B or Box A. (2) If you are in Box B, you have the edge. Box A is the home of the typical thick financial market, where we tend to think prices are fair on average.

The second row is more interesting, and brings us to the subject matter of this paper. In Part V below, we will see Buffett sell a big hunk of reinsurance because he knew he was in box D. His premium was extremely favorable, and he knew that the likelihood of extreme odds-shifting information being possessed by the other side was thin. Box C consists of situations where you know little, and others may know a fair amount. The key to successfully dealing with situations where you find probabilities hard to estimate is to be able to assess whether others might be finding it easy.

Be sensitive to telling signs that the other side knows more, such as a smart person offering too favorable odds. Indeed, if another sophisticated party is willing to bet, and he can't know that you find probabilities hard to estimate, you should be suspicious. For he should have reasonable private knowledge so as to protect himself. The regress in such reasoning is infinite.

Maxim D: In a situation where probabilities may be hard for either side to assess, it may be sufficient to assess your knowledge relative to the party on the other side (perhaps the market).

Let us now turn to the more extreme case, situations where even the states of the world are unknown, as they would be for an angel investment in a completely new technology, or for insuring infrastructure against terrorism over a long period.

Investing with Ignorance and Potential Asymmetric Information

	Known to Others	**Unknown to Others**
Unknown to You	**E.** Dangerous Waters Monday Morning Quarterback Risk	**F.** Low Competition Monday Morning Quarterback Risk

In some ignorance situations, you may be confident that others know no better. That would place you in Box F, a box where most investors get deterred, and where the Buffetts of this world, and the Rothschilds of yesteryear have made lots of money. Investors are deterred because they employ a heuristic to stay away from UU situations, because they might be in E, even though a careful assessment would tell them that outcome was highly unlikely. In addition, both boxes carry the Monday Morning Quarterback (MMQ) risk; one might be blamed for a poor outcome if one invests in ignorance, when it was a good decision that got a bad outcome; might not have allowed for the fact that others might have had better knowledge when in fact they didn't; or might not have allowed for the fact that others might have had better knowledge, when in fact they did, but that negative was outweighed by the positive of your absolute advantage. The criticisms are unmerited. But since significant losses were incurred, and knowledge was scant, the investment looks foolish in retrospect to all but the most sophisticated. An investor who could suffer significantly from any of these critiques might well be deterred from investing.

Let us revisit the Gazprom lesson within this thought in mind. Suppose you are a Russia expert. It is still almost inevitable that real Russians know much more than you. What then should you do? The prudent course, it would seem, would be first to determine your MMQ risk. It may actually be reduced due to your largely irrelevant expertise. But if MMQ is considerable, steer clear. If not, and Russian insiders are really investing, capitalize on Box E, and make that sidecar investment. You have the additional advantage that few Westerners will be doing the same, and they are your prime competition for ADRs.

Speculation 3. UU situations offer great investment potential given the combination of information asymmetries and lack of competition.

Boxes E and F are also the situations where other players will be attempting to take advantage of us and, if it is our inclination, we might take advantage of them. This is the area where big money changes hands.

A key problem is to determine when you might be played for a sucker. Sometimes this is easy. Anyone who has small oil interests will have received many letters offering to buy, no doubt coming from people offering far less than fair value. They are monopsonists after all, and appropriately make offers well below the market. They may not even have any inside knowledge. But they are surely taking advantage of the impulsive or impatient among us, or those who do not understand the concepts in this paper.

Being a possible sucker may be an advantage if you can gauge the probability. People are strongly averse to being betrayed. They demand much stronger odds when a betraying human rather than an indifferent nature would be the cause of a loss (Bohnet and Zeckhauser, 2004). Given that, where betrayal is a risk, potential

payoffs will be too high relative to what rational decision analysis would prescribe.

Investing in UU with potentially informed players on the other side. Though you may confront a UU situation, the party or parties on the other side may be well informed. Usually you will not know whether they are. Gamblers opine that if you do not know who the sucker is in a game that you are the sucker. That does not automatically apply with UU investments. First, the other side may also be uninformed. For example, if you buy a partially completed shopping center, it may be that the developer really did run out of money (the proffered explanation for its status) as opposed to his discovery of deep tenant reluctance. Second, you may have a complementary skill, e.g., strong relations with WalMart, that may give you a significant absolute advantage multiple.

The advantage multiple versus selection formula. Let us simplify and leave risk aversion and money management matters aside. Further posit, following BS, that you are able to make a credible take-it-or-leave-it offer of 1. The value of the asset to him is v, an unknown quantity. The value to you is av, where a is your absolute advantage. Your subjective prior probability distribution on v is f(v). The mean value of your prior is m < 1.30 In a stripped-down model, three parameters describe this situation: your advantage multiple, a; the probability that the other side is informed, p; and the selection factor against you, s, if the other side is informed. Thus s is the fraction of expected value that will apply, on average, if the other side is informed, and therefore only sells when the asset has low value to her. Of course, given the UU situation, you do not know s, but you should rely on your mean value of your subjective distribution for that parameter.

If you knew p = 0, that the other side knew no more than you, you would simply make the offer if am > 1. If you knew there were selection, i.e., p = 1, you would invest if your multiple more than

compensated for selection, namely if ams > 1. The general formula is that your return will be:

$$am[ps + (1-p)1] . \quad (1)$$

Maxim E: A significant absolute advantage offers some protection against potential selection. You should invest in a UU world if your advantage multiple is great, unless the probability is high the other side is informed and if, in addition, the expected selection factor is severe.

Following Maxim E, you should make your offer when the expression in (1) exceeds 1.

In practice, you will have a choice of offer, t. Thus, s will vary with t, i.e., s(t). The payoff for any t will be

$$am[ps(t) + (1-p)1] – t$$

If at the optimal offer t*, this quantity is positive, you should offer t*.

Playing the advantage multiple versus selection game. Our formulation posited a take-it-or-leave-it offer with no communication. In fact, most important financial exchanges have rounds of subtle back-and-forth discussion. This is not simply cheap talk. Sometimes real information is provided, e.g., accounting statements, geological reports, antique authentications. And offers by each side reveal information as well. Players on both sides know that information asymmetry is an enemy to both, as in any agency problem.

It is well known that if revealed information can be verified, and if the buyer knows on what dimensions information will be helpful, then by an unraveling argument all information gets revealed. Consider a one-dimension case where a value can be between 1 and 100. A seller with a 100 would surely reveal, implying the best

unrevealed information would be 99. But then the 99 would reveal, and so on down through 2.

When the buyer is in a UU situation, unraveling does not occur, since he does not know the relevant dimensions. The seller will keep private unfavorable information on dimensions unknown to the buyer. She will engage in signposting: announcing favorable information, suppressing unfavorable.

The advantage multiple versus selection game will usually proceed with the seller explaining why she does not have private information, or revealing private information indicating that m and a are large. Still, many favorable deals will not get done, because the less informed party can not assess what it does not know. Both sides lose ex ante when there will be asymmetry on common value information, or when, as in virtually all UU situations, asymmetry is suspected.

Auctions as UU games. Auctions have exploded as mechanisms to sell everything from the communications spectrum to corporate securities. Economic analyses of auctions – how to conduct them and how to bid – have exploded alongside. The usual format is that an informed seller faces a group of less knowing buyers. The usual prescription is that the seller should reveal his information about elements that will affect all buyers' valuations, e.g., geologic information on an oil lease or evidence of an antique's pedigree, to remove buyers' concerns about the Winner's Curse. The Winner's Curse applies when an object, such as an oil lease, is worth roughly the same to all. The high bidder should be aware that every other bidder thought it was worth less than he did. Hence, his estimate is too high, and he is cursed for winning.

Real world auctions are often much more complex. Even the rules of the game may not be known. Consider the common contemporary auction phenomenon, witnessed often with house

sales in hot markets, and at times with the sale of corporations. The winner, who expected the final outcome to have been determined after one round of bidding, may be told there will be a best and final offer round, or that now she can negotiate a deal for the item.

Usually the owner of the object establishes the rules of the game. In theory, potential buyers would insist that they know the rules. In practice, they often have not. When Recovery Engineering, makers of PUR water purifiers, was sold in 1999, a “no one knows the rules” process ensued, with Morgan Stanley representing the seller. A preliminary auction was held on an August Monday. Procter and Gamble (P&G) and Gillette bid, and a third company expressed interest but said it had difficulties putting its bid together. Gillette’s bid was $27 per share; P&G’s was $22. P&G was told by the investment banker that it would have to improve its bid substantially. Presumably, Gillette was told little, but drew appropriate inferences, namely that it was by far high. The final auction was scheduled for that Friday at noon. Merrill Lynch, Gillette’s investment banker, called early on Friday requesting a number of additional pieces of due diligence information, and requesting a delay till Monday. Part of the information was released – Gillette had had months to request it – and the auction was delayed till 5 p.m. Friday. P&G bid $34. At 5 p.m., Merrill Lynch called, desperate, saying it could not get in touch with Gillette. Brief extensions were granted, but contact could not be established. P&G was told that it was the high bidder. Over the weekend a final deal was negotiated at a slightly higher price; the $300 million deal concluded. But would there have been a third round of auction if Gillette had bid $33.50 that Friday? No one knows.

The Recovery board puzzled over the unknowable question: What happened to Gillette? One possibility was that Gillette inferred

from the fact that it was not told its Monday bid was low that it was in fact way above other bidders. It was simply waiting for a deal to be announced, and then would propose a Price perhaps $2 higher, rather than bid and end up $5 higher. Gillette never came back. A while later, Recovery learned that Gillette was having – to that time unreported – financial difficulties. Presumably, at the moment of truth Gillette concluded that it was not the time to purchase a new business. In short, this was a game of unknowable rules, and unknowable strategies. Not unusual.

At the close of 2005, Citigroup made the winning bid of about $3 billion for 85% of the Guangdong Development Bank, a financially troubled state-owned Chinese bank. As the New York Times reported the deal, it "won the right to negotiate with the bank to buy the stake." If successful there, its "control might allow Citigroup to install some new management and have some control over the bank's future…one of the most destitute of China's big banks…overrun by bad loans." Citigroup is investing in a UU situation, and knows that both the rules of the game and what it will win are somewhat undefined. But it is probably confident that other bidders were no better informed, and that both the bank and the Chinese government (which must approve the deal) may also not know the value of the bank, and were eager to secure foreign control. Great value may come from buying a pig in a poke, if others also can not open the bag.

Ideal investments with high and low payoffs. In many UU situations, even the events associated with future payoff levels – for example, whether a technology supplier produces a breakthrough or a new product emerges – are hard to foresee. The common solution in investment deals is to provide for distributions of the pie that depend not on what actually happens, but solely on money received. This would seem to simplify

matters, but even in such situations sophisticated investors frequently get confused.

With venture capital in high tech, for example, it is not uncommon for those providing the capital to have a contractual claim to all the assets should the venture go belly up. Similarly, “cram down” financings, which frequently follow when startups underperform, often gives VCs a big boost in ownership share. In theory, such practices could provide strong incentives to the firm’s managers. In reality, the managers’ incentives are already enormous. Typical VC arrangements given bad outcomes cause serious ill will, and distort incentives – for example, they reward gambling behavior by managers after a bleak streak. Worse still for the VCs, they are increasing their share of the company substantially when the company is not worth much. They might do far better if arrangements specified that they sacrifice ownership share if matters turn out poorly, but gain share if the firm does particularly well.

Maxim F: In UU situations, even sophisticated investors tend to underweight how strongly the value of assets varies. The goal should be to get good payoffs when the value of assets is high.

No doubt Ricardo also took Maxim F into account when he purchased the “Waterloo bonds.” He knew that English money would be far more valuable if Wellington was victorious and his bonds soared in value, than if he lost and the bonds plummeted.

A UU investment problem. Now for a harder decision. Look at the letter in Exhibit A, which offers you the chance to make a modest investment in an oil well. You have never heard of Davis Oil and the letter came out of the blue, but you inquire and find out that it is the company previously owned by the famous, recently deceased oilman Marvin Davis. Your interest is offered because the Davis Company bought the managing partner’s interest in the

prospect from a good friend and oil man who invited you into his prospect. Davis is legally required to make this offer to you. Decide whether to invest or merely wait for your costless override before you read on.

September 19, 2005

WORKING INTEREST OWNER: Richard Zeckhauser

Re: Well Proposal
Davis Petroleum Corp.
Devlin #1-12
Section 12-T8N-R19W
Washita County, Oklahoma

Gentlemen:

Davis Petroleum Corp. ("Davis") proposes the drilling of a 17,000' Sub-Thrusted Springer test at a surface location of 660' FNL and 1980' FWL and a bottom hole location of 1,650' FNL and 990' FWL of Section 12-T8N-R19W, Washita County, Oklahoma. Enclosed for your review is our AFE reflecting estimated dry hole costs of $6,869,100.00 and estimated completion costs of $2,745,400.00. As a working interest owner within the referenced unit and per the terms and conditions of that certain Order 450325, Cause CD 200100725-T, dated March 29, 2001, Davis respectfully requests that you elect one of the afforded options as follows:

1. Participate in the drilling and completing of said well by paying your proportionate share of well costs as stipulated by Order 450325;

2. Elect not to participate in the proposed test well, electing to farmout your unit interest delivering to Davis your interest at a proportionate 75% net revenue interest.

Per the terms of Order 450325 you have **15 days** upon receipt of this proposal to make your election as outlined above. Failure to respond within the 15 day period will evidence your election not to participate thus relinquishing your interest under paragraph 2. above.

Please indicate the option of your choice by signing below and returning one copy of this letter to my attention. This proposal may be terminated without further notice. Should you have any questions, please contact me at (713) 439-6750 or Bill Jaqua at (405) 329-0779.

Sincerely,
Davis Petroleum Corp.

Alan Martinkewiz
Landman

THE UNDERSIGNED HEREBY ACCEPTS OPTION NO. _____, THIS _____ DAY OF

_____, 2005

By: _____

Title: _____

Company: _____

Here is what your author did. He started by assessing the situation. Davis could not exclude him, and clearly did not need his modest investment. The letter provided virtually no information, and was not even put on letterhead, presumably the favored Davis approach if it were trying to discourage investment. Davis had obviously spent a fair amount of effort determining whether to drill the well, and decided to go ahead. It must think its prospects were good, and you would be investing as a near partner.

Bearing this in mind, he called Bill Jaqua – a contact Davis identified in the letter – and asked about the well. He was informed it was a pure wildcat, and that it was impossible to guess the probability of success. Some geologic technical discussion followed, which he tried to pretend he understood. He then asked what percent of Davis wildcat wells had been successful in recent years, and got a number of 20-25%. He then asked what the payoff was on average if the wells were successful. The answer was 10 to 1. Beyond that, if this well was successful, there would be a number of other wells drilled in the field. Only participation now would give one the right to be a future partner, when presumably the odds would be much more favorable. This appeared to be a reasonably favorable investment, with a healthy upside option of future wells attached. The clinching argument was that Jaqua courteously explained that Davis would be happy to take his interest and give him the free override, thus reinforcing the message of the uninformative letter not placed on letterhead. (It turned out that the override would have only been 1% of revenue -- an amount not mentioned in the letter – as opposed to 76% if he invested.) In short, the structure of the situation, and the nature of Davis's play made a sidecar investment imperative. The well has not yet been started.

Davis was in a tough situation. It had to invite in undesired partners on favorable terms when it had done all the work. It reversed the usual ploy where someone with a significant informational advantage tries to play innocent or worse, invoke some absolute advantage story. Davis tried to play up the UU aspect of the situation to discourage participation.

Review of the bidding. You have been asked to address some decision problems. Go back now and grade yourself first on the overconfidence questionnaire. The answers are in the footnote.

You were asked about three investments: Tengion, Gazprom and Davis Oil. Gazprom has done nicely over a six-month period. Neither of the other outcomes has been determined. Go back and reconsider your choices, and decide whether you employed the appropriate principles when making them, and then assess the more general implications for investment in UU situations. Though this essay pointed out pitfalls with UU investing, it was generally upbeat about the potential profits that reside in UU arenas. Hopefully you have been influenced, at least a bit.

V. A Buffett Tale

The following story encapsulates the fear of UU situations, even by sophisticated investors, and the potential for shrewd investors to take great advantage of such situations. In 1996, I was attending an NBER conference on insurance. One participant was the prime consultant to the California Earthquake Authority. He had been trying to buy a $1 billion slice of reinsurance – to take effect after $5 billion in aggregate insured losses -- from the New York financial community. The Authority was offering five times estimated actuarial value, but had no takers. It seemed exceedingly unlikely that the parties requesting coverage had inside information that a disastrous earthquake was likely. Hence, there was a big advantage, in effect a = 5, and p was close to 0. Maxim E – weigh absolute advantage against informational disadvantage – surely applied.

My dinner table syndicate swung into action, but ended up $999.9 million short. A couple days later, we learned that Buffett had flown to California to take the entire slice. Here is his explanation.

> …we wrote a policy for the California Earthquake Authority that goes into effect on April 1, 1997, and that exposes us to a loss more than twice that possible under the Florida contract. Again we retained all the risk for our own account.

> Large as these coverages are, Berkshire's aftertax "worst-case" loss from a true mega-catastrophe is probably no more than $600 million, which is less than 3% of our book value and 1.5% of our market value. To gain some perspective on this exposure, look at the table on page 2 and note the much greater volatility that security markets have delivered us. [Chairman's letter to the Shareholders of Berkshire Hathaway, 1996, http://www.ifa.com/Library/Buffet.html]

Reinsurance for earthquakes is certainly a venture into the unknown, but had many attractive features beyond its dramatic overpricing. Unlike most insurance, it was exceedingly unlikely that the parties taking insurance had inside knowledge on their risk. Thus, Buffett – despite attention to money management -- was willing to take 100% of a risk of which Wall Street firms houses rejected taking even part. Those fancy financial entities were not well equipped to take a risk on something that was hard for them to estimate. Perhaps they did not recognize that others had no inside information, that everyone was operating with the same probability. And perhaps they were just concerned about Monday Morning Quarterbacking.

It is also instructive to consider Buffett's approach to assessing the probabilities in this UU situation, as revealed in the same annual report:

> So what are the true odds of our having to make a payout during the policy's term? We don't know - nor do we think computer models will help us, since we believe the precision they project is a chimera. In fact, such models can lull decision-makers into a false sense of security and thereby increase their chances of making a really huge mistake. We've already seen such debacles in both insurance and investments. Witness "portfolio insurance," whose destructive effects in the 1987 market crash led one wag to

> observe that it was the computers that should have been jumping out of windows.

Buffett was basically saying to Wall Street firms: “Even if you hire 100 brilliant Ph.D.s to run your models, no sensible estimate will emerge.” These are precisely the types of UU situations where the competition will be thin, the odds likely favorable, and the Buffetts of this world can thrive.

As Buffett has shown on repeated occasions, a multi-billionaire will rush in where mathematical wizards fear to tread. Indeed, that explains much of his success. In 2006 hurricane insurance met two Buffett desiderata, high prices and reluctant competitors. So he plunged into the market:

> Buffett’s prices are as much as 20 times higher than the rates prevalent a year ago, said Kevin Madden, an insurance broker at Aon Corp. in New York. On some policies, premiums equal half of its maximum potential payout, he said. [In a May 7, 2006, interview Buffett said:] “We will do more than anybody else if the price is right… We are certainly willing to lose $6 billion on a single event. I hope we don’t.''

At least two important lessons emerge from thinking about the “advantage-versus selection” problem, and observing Warren Buffett:

Maxim G: Discounting for ambiguity is a natural tendency that should be overcome, just as should be overeating.

Maxim H: Do not engage in the heuristic reasoning that just because you do not know the risk, others do. Think carefully, and assess whether they are likely to know more than you. When the odds are extremely favorable, sometimes it pays to gamble on the unknown, even though there is some chance that people on the other side may know more than you.

Buffett took another bold financial move in 2006, in a quite different field, namely philanthropy. He announced that he would give away 85% of his fortune or $37.4 billion, with $31 billion going to the Bill and Melinda Gates Foundation. Putting money with the Gates Foundation represents sidecar philanthropy. The Foundation is an extremely effective organization that focuses on health care and learning. It is soon to be led by Bill Gates, a fellow with creativity, vision and hardheadedness as strong complementary skills, skills which are as valuable in philanthropy as they are in business.

VI. Conclusion

This essay offers more speculations than conclusions, and provides anecdotal accounts rather than definitive data. Its theory is often tentative and implicit. But the question it seeks to answer is clear: How can one invest rationally in UU situations? The question sounds almost like an oxymoron. Yet clear thinking about UU situations, which includes prior diagnosis of their elements, and relevant practice with simulated situations, may vastly improve investment decisions where UU events are involved. If they do improve, such clear thinking will yield substantial benefits. For financial decisions at least, the benefits may be far greater than are available in run-of-the-mill contexts, since competition may be limited and prices well out of line.

How important are UU events in the great scheme of financial affairs? That itself is a UU question. But if we include only those that primarily affect individuals, the magnitude is far greater than what our news accounts would suggest. Learning to invest more wisely in a UU world may be the most promising way to significantly bolster your prosperity.

The Most Neglected Component of Valuation

Giuliano Mana, September 2023

In early 2023, I published an article laying out my thoughts and concerns about DCF models. My sense was that their true applicability is close to nulity. The reasoning behind it was the sensitivity of these models, the necessity of knowing 100% of companies, which is an asset DCF-makers rarely have and some other things. Nonetheless, to each their own and, if one's strategy works, fantastic.

Anyhow, this type of ignorance can only be addressed by learning. Last Sunday, I finished The Innovator's Dilemma and, on Monday, started reading all of Michael Mauboussin's research articles. Michael is, in my opinion, one of the best researchers and communicators in the capital markets. He dissects specific items like ROIC, WACC, employee stock options, valuation, market behavior, biases, in a way that's very much unique.

Competitive Advantage Period, the neglected value driver

During the 80s, the US stock market vastly outperformed its historical returns. In the early 90s, a study was published, which attempted to explain where did this excess returns came from. Interestingly, after carefully considering M&A's, EPS, margins, etc, an extremely high 38% of returns remained unexplained (statistically I assume). The problem is that the researchers omitted the CAP, which, in Michael's words:

> "It remains the most neglected component of valuation"

There are two reasons why he believes the CAP is often disregarded:

1. Most market participants aim to value companies on an accounting basis, generally utilizing the PE multiple and the

expected earnings growth. A competitive advantage period is rarely considered, even when the market has systematically proved it values mid to long-term cash flows.
2. Businesses themselves generally do financial planning for the subsequent 3-5 years, which is what they communicate to investors. However, 3-5 years substantially differs from the company's CAP in most cases.

"The competitive advantage period is the time which a company is expected to generate returns on incremental investment that exceed its cost of capital". In simple terms, it's the life expectancy of the company's MOAT, the durability it may have. The term was first articulated by M&M in 1961.

A company's competitive advantage period is a fundamental input to valuation as it allows us to better infer what are the market's expectations for that business. Furthermore, it is determined by multiple factors, both company-specific and external, but Michael's team believes there are three of them that are core:

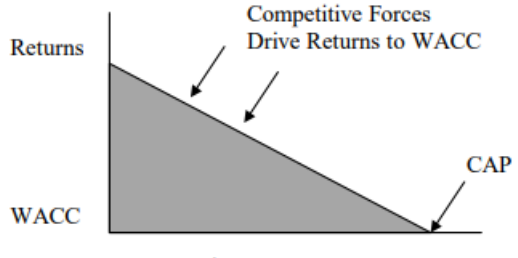
- Return on invested capital. Within its industry, the companies that enjoy the highest returns on capital are the best positioned from a competition standpoint.
- The rate of industry change. How fast an industry is disrupted, on average, highly determines how are these extra returns valued by the market.
- Barriers to entry. The difficulties newcomers face when trying to compete or disrupt an established player allow for better predictability of the business' cashflows.

Theory versus reality

The economic theory for capitalism lays on the foundation that profits attract competitors. When a company enjoys returns on capital that are above its cost of capital, generates benefits, other people will see this and enter the industry. As time goes by and as

long as companies enjoy above-average returns on capital, competition will keep coming. These companies with generic products have to compete on prices, which, eventually, drives returns to their cost of capital. Theoretically, it would look something like this:

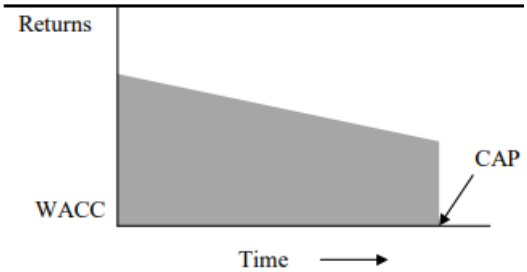
Figure 1
Theoretical Decay in Excess Returns



*shaded area = value creation

However, that is not what happens in reality, as per usual. Data suggests that returns on capital do not diminish linearly as competition arrives. I believe this is due to Clayton's theory about disruption. Established players are the most-likely ones to perform sustaining innovations. New players cannot displace them by offering the same as them but a little better. Nevertheless, firms that create disruptive products can displace them as they improve it. This occurs in different market segments, innovators generally coming from the low-end of the market. Eventually, and paradoxically suddenly, the disruptive product gets better than the established one in all dimensions. The big firm gets displaced and its high returns are cut off.

Figure 2
How the Market Works



*shaded area = value creation

Practical implications

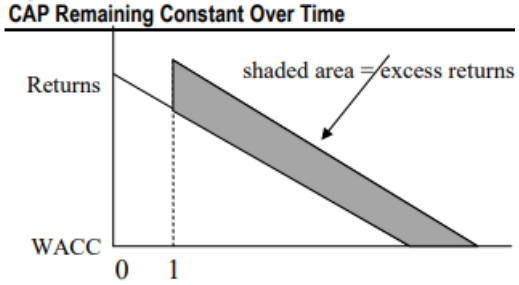
Acknowledging that there is a theoretical end to a company's superior performance drastically modifies the way we value it and, similarly, the way we perceive the market to value it. Therefore, it looks as if by utilizing a CAP, we could get somewhere closer to an intrinsic value. Otherwise, DCF models generally utilize terminal values that account for 75% (!!) of a business' intrinsic value.

> "We find that the discounted cash flow analysis done by most analysts and strategic planners has a forecast period, or CAP, that is too short and a terminal value that incorporates too much of the overall value. As a result, the calculation of value becomes highly sensitive to the implicit growth assumptions beyond the forecast horizon that are imbedded in the terminal value"

Potential utility

This new equation defines a period "X" where the company's excess returns are theoretically cut off, being equal to its cost of capital. This of course is one's assumption and it could well be the case that it's wrong. Nevertheless, the business' future "fair returns" will be in accordance with the stipulated CAP. If the company's competitive advantage period remains constant over time, or even extends, an investor should be able to get these excess returns, which were not initially priced.

Figure 3
CAP Remaining Constant Over Time



Warren Buffett's Actual Strategy Early On

Giuliano Mana; January 2023

I began reading Buffet's Letters, which start in 1957 and were destined to 'Limited Partners'. In them, Warren basically states how markets have performed in each year, how the fund did, and gives room to some meditations. The latter range from observations on how powerful compounding is, to the importance of thinking for oneself.

While I was going through his letters, I noticed how clearly and thoughtfully Warren explains the strategy he followed. Even though some parts may be inapplicable to individual investing, on a pragmatic basis, I believe we can nurture ourselves from the knowledge he shares. It would not be rare for his letters to trigger new ideas and make us re-think our approach. The following piece is intended to compress Warren's early approach to portfolio management, by sharing his view on pertinent topics.

Buying

One of the things Buffett is known for is getting the concept of MOAT to a mature state, but this word is not even mentioned from 1957/66. The actual first time the word is utilized is in 1986, and the first time the concept of a 'sustainable competitive advantage' is discussed is in 1984. His strategy early on does include a qualitative aspect and could, unconsciously include the concept, but it is not mentioned.

In this 10-year timeframe, I read several times, perhaps in every single year's letter, the importance of the price he pays for companies. He highlights how crucial it is to pay as cheaply as one can. However, discrepancies between value and prices are a subjective matter. It is up to each investor to estimate intrinsic values and compare them with what the market offers.

> “Never count on making a good sale. Have the purchase price to be so attractive that even a mediocre sale gives good results.” Jan 1963

> “This is of particular satisfaction to me since I consider the buying end to be about 90% of this business.” July 1964

Diversification

Warren consistently mentioned what’s the biggest position the portfolio has in percentage terms. Generally, the top position oscillated between 10-35%, which could be considered as heavy concentration under standard practices.

> “We are obviously only going to go to 40% in very rare situations - this rarity, of course, is what makes it necessary that we concentrate so heavily, when we see such an opportunity.” Jan 1966

> “In selecting the limit to which I will go in anyone investment, I attempt to reduce to a tiny figure the probability that the single investment (or group, if there is intercorrelation) can produce a result 92 for our total portfolio that would be more than ten percentage points poorer than the Dow” (…) “We presently have two situations in the over 25% category” Jan 1966

> “The addition of 100 stocks simply can’t reduce the potential variance in a portfolio performance sufficiently to compensate the negative effects” Jan 1966

The importance of thinking for oneself

Warren Buffet is a voracious reader and a widely known intellectual. Among his writings, he often mentions the weight that thinking has in his decisions. He seems to believe that the only way to get rid of index-like performance is to analyze upon

thoughts, measures, hypotheses and facts. But it is key to be continuously thinking because, if not, the tendency towards index-like performance is inevitable.

> "You will not be right simply because a large number of people momentarily agree with you. You will not be right simply because important people agree with you" Jan 1962
>
> "A public opinion poll is no substitute for thinking" Jan 1965
>
> "We diversify substantially less than most investment companies." Jan 1966

Measurement of Performance

Planning investments is not enough. Measuring performance is of extreme relevance since it allows one to compound upon errors made. Else, we fall prey to the "never-learning" virus. As mentioned, he evaluated his performance based on hypotheses and facts considered when making a decision, and evaluating, then in hindsight, whether the initial analysis was sound or not. Under a more pragmatic standpoint, he used the Dow Jones as the benchmark. To evaluate the conservativeness of his portfolio, which he believed he maximized, Warren thought the ultimate measure was a portfolio's decline in tough market conditions.

> "We feel it is essential that investors and investment managements establish standards of performance (apriori) and, regularly and objectively, study their own results just as carefully as they study their investments." July 1964

I think this way of establishing upfront how will the measurement be made doesn't give room to potential biases that could occur in hindsight.

> "Our target is an approximately ½% decline for each 1% decline in the Dow and if achieved, means we have a

considerably more conservative vehicle for investment in stocks than practically any alternative" July 1962

Patience

A large percentage of the strategy revolved around finding and buying undervalued businesses. Nonetheless, once an undervalued asset is owned, reaching fair value is not immediate nor guaranteed. It is usually the case where such scenarios could take a very long time to flip. Therefore, patience is required for investments to work out (or not). At the same time, waiting for a particular company to be in undervalued territory is essential, and can also take time for the opportunity to materialize. In Buffett-1960's words, the price you pay is around 90% of the job. Finally, patience is needed for performance evaluation.

"I feel 3-5 years is an absolute minimum to judge performance" Jan of 1963, but the concept is repeated over and over.

"Our business is one requiring patience. It has little in common with a portfolio of high-flying stocks." Nov 1963

"The actual percentage division among categories is to some degree planned, but to a great extent, accidental, based upon availability factors." Jan 1962

No Predictions

Even though he 'makes' and reiterates a particular prediction of at which rate could the Dow compound from the 60s levels, Warren consistently states he is not in the business of making predictions. In the same line, he continues with one of Graham's thoughts.

"The success of past methods and ideas does not transfer forward to future ones" Jan 1966

> “We will not sell our interests in businesses (stocks) when they are attractively priced just because some astrologer thinks the quotations may go lower even though such forecasts are obviously going to be right some of the time. Similarly, we will not buy fully priced securities because “experts” think prices are going higher” July 1966

The way he addresses uncertainty is by thinking statistically. He thinks about the probabilities of success and failure of each company and the odds of different future scenarios playing out. Logically, he then establishes theoretical position sizes accordingly.

> “Just why any particular one should do is hard to say at the time of purchase, but the group expectancy is favorable” Nov 1963

Avenues for Investments

All following extracts are from January 1965.

- Generals – Private Owner Basis: “a category of generally undervalued stocks, determined by quantitative standards, but with considerable attention also paid to the qualitative factor. There is often little or nothing to indicate immediate market improvement. The issues lack glamour or market sponsorship. Their main qualification is a bargain Price”
- Generals – Relatively Undervalued: “this category consists of securities selling at prices relatively cheap compared to securities of the same general quality” (…) “It is important in this category, of course, that apples be compared to apples – and not to oranges, and we work hard at achieving that end.”
- Workouts: “They arise from corporate activity – sell-outs, mergers, reorganizations, spin-offs, etc. In this category we are not talking about rumors or “inside information”

pertaining to such developments, but to publicly announced activities of this sort."

- Controls: "These are rarities" (…) "They result from situations where a cheap security does nothing pricewise for such an extended period of time that we are able to buy a significant percentage of the company's stock."

  "The division of our portfolio among categories is largely determined by the 74 accident of availability. Therefore, in any given year the mix between generals, workouts, or controls is largely a matter of chance"

Objective

When making buying decisions, Warren kept two things in mind:

1. "We are hopeful that they will each, over a ten or fifteen year period, produce something like the ten percentage point margin over the Dow that is our goal." Jan 1964.
2. Minimize risk as much as it could possibly be. He pursued and measured this goal with the following course of action (besides the margin of safety taken when buying):

   "Truly conservative actions arise from intelligent hypotheses, correct facts and sound reasoning" Jan, 1965

Selling

Warren made sure the buying price was as low as possible so that the selling price could be as 'inaccurate' as possible. Thereafter, he comfortably sold when part of the wide gap between current price and intrinsic value was closed.

> "That would suit us fine, but it also suits us if they advance in the market to a price more in line with intrinsic value enabling us to sell them, thereby completing a successful general – private owner operation."

Investing in the Unknown and Unknowable

Giuliano Mana; February 2024

I read “Investing in the Unknown and Unknowable” during the first week of November. Honestly, I have been consciously avoiding writing an article about it. Only rarely, and perhaps not even then, does the mind want to engage in critical thinking over complex topics.

Richard Zeckhauser’s essay is, by far, the most profound single piece I have ever read in this field. I somewhat don’t blame myself for not being willing to try digest it. Nevertheless, I’m forcing the writing as I believe you will find infinite value here, if I execute.

Zeckhauser was born in 1940. His work revolves around behavioral economics, decision making, risk management and strategy. Two interesting sidenotes:

- Richard started playing Bridge when he was a kid and went to eventually compete and win tournaments. Zeckhauser is a globally recognized player nowadays. This allows me to bring to topic a fascinating quote from Mauboussin:

“Individuals who achieve the most satisfactory long-term results across various probabilistic fields have more in common with one another than they do with participants in their own field”

- In the 1960s, the United States Department of Defense wanted to turn around the management of the entity. A modern method was thought to be required against the nuclear age. To such end, the “Whiz Kids” were recruited. This was a group of experts in economic analysis, game theory, computing, and strategy. Among them, Richard was included.

Currently, Zeckhauser is a Professor of Political Economy at Harvard Kennedy School, a profession he has exercised for something like 50 years now. Richard has been invited to speak at numerous conferences over the decades and has written several hundred articles, and a couple of books. I have only read the essay I'm discussing here, but, based on this piece, Richard's work is of an unfathomable intellectual depth.

Investing in the Unknown and Unknowable

This essay introduces the concept of *ignorance* to the realm of investing. Richard defines it as those future scenarios where not even its states are known. In general, when getting from t0 to t1, we tend to think that we can imagine how t1 can look like. Given the natural uncertainty that's embedded in our world, different potential states of nature are assigned to t1, with the sum of their probabilities reaching 100%. *Ignorance*, however, implies that not even the possible states of nature can be foreseen. Zeckhauser labels these situations as *Unknown and Unknowable (UU)*, where traditional financial theory does not apply.

> "This essay takes no derivatives, and runs no regressions"

UU events occur with a certain degree of frequency in real world investing. It came rather curious to me the fact that they are not discussed in financial literature. Richard posits a framework, around which there's great depth of analysis, for investors to profit from investing in the unknown and unknowable

> "David Ricardo made a fortune buying bonds from the British government four days in advance of the Battle of Waterloo. He was not a military analyst, and even if he were, he had no basis to compute the odds of Napoleon's defeat or victory, or hard-to-identify ambiguous outcomes."

Navigating these waters is no joke. It requires specific knowledge and skills. “Most big investment payouts come when money is combined with complementary skills”. However, not everyone is highly skilled in specific verticals, such as real estate or technology. Under these eventualities, Zeckhauser offers us the solution: “Sidecar Investing”.

Risk, Uncertainty and Ignorance

Effective investing is achieved when one operates in accordance with future states of nature and their respective probabilities. The first concept that emerged to help investors deal with this phenomenon was *risk*. Risk recognizes the existence of multiple potential future scenarios playing out, as does with their chances of occurring. Both are known. Handling risk most effectively requires solving an optimization problem.

> “The essence of effective investment is to select assets that will fare well when future states of the world become known.”

Past risk, modern portfolio theory identified the existence of *uncertainty (U)* and, when it did, its inferences fell apart. Uncertainty is said to be present when the future states of nature can be conjectured, but we ignore the probabilities of them occurring. This territory acts as fertile soil for people who can best assess probabilities, whereupon the understanding of Bayesian decision theory is fundamental. A combination of the latter and portfolio optimization are the required skills for achieving profitable investing.

Richard acknowledged that there’s yet another dimension that escapes uncertainty. One in which there’s no possibility of recognizing the nature of future states of the world and, naturally, neither their probabilities. He defines this as the world of *ignorance*, wherein modern decision theory falls apart. Futile

become its application. Events occurring in the region of ignorance are *unknown and unknowable (UU).*

	Knowledge of States of the World	**Investment Environment**	**Skills Needed**
Risk	Probabilities known	Distributions of returns known	Portfolio optimization
Uncertainty U	Probabilities unknown	Distributions of returns conjectured	Portfolio optimization, Decision theory
Ignorance UU	States of the world unknown	Distributions of returns conjectured, often from deductions about other's behavior. Complementary skills often rewarded along side investment	Portfolio optimization. Decision theory. Complementary skills (ideal) Strategic inference.

Zeckhauser encourages investors to become consciously aware of the existence of UU and learn how to act accordingly. "Unknowable situations are widespread and inevitable". This being the case entails the opportunity for developing an analytical mental model that can extract juice from them. Moreover, it'd become a stainless toolkit, creating room for producing excess returns on a sustainable basis.

In fact, extraordinary investment returns are expected if one masters systematic approaches to UU events. Although idiosyncratic, I suspect there is an element of analogical thinking we might benefit from. A valid idea is to convert the mind into a pattern-recognition machine. If tools for dealing with UU events are built and perfected, it's plausible to think of systematic exploitation.

The pricing mechanism philosophically forces investors to compete with one another. A common best-practice and advice that successful professionals give is to look for an arena where

there is no competition. Likewise, it is not in one's best interest to transact with wise people. If one were to do so, "experience leaves with money and money leaves with experience".

The existence of UU events opens up a new arena for investors. One which competitors are not familiar with, and are not trained to fight in. Standard financial literature and theories equip people with spoons for a nuclear war. Inevitably, most fall prey to our unpreparedness for transiting this path. The burden of ignorance of the ones provides the edge for the others.

The Nature of Unknowable Events

By definition, most unknowable events manifest themselves in an unexpected and rapid fashion, leaving no room for anticipation and, in consequence, for preparation. They come and go in a thunderclap, such as terrorist attacks. In contrast, other UU events are prolonged in time, like the fall of the Soviet Union. An interesting phenomenon Zeckhauser observed is the role that hindsight bias plays in this. After occurring, our mind tricks us to believe the UU event was expected and that the outcome was logical. In foresight, however, we ignore their possibility of materialization.

In the real world, UU events are mostly categorized as undesirable. Buffett once stated that "it is essential to remember that virtually all surprises are unpleasant". Even if this matter is more of perception than reality, human brains' proclivity to be more triggered by negative events turns them into targets for media companies. News sites seem like a waterfall of this sort of information, flooding the mind with such. Thereafter, the recency and availability biases combine to make the brain overestimate the relevance, in statistical terms, of these events.

Zeckhauser speculates that the financial world appears to be one in which a good ratio of favorable/unfavorable UU events is

present. It is of course not noticeable due to their inherent un-appeal to the general public, leading to them not being widely covered. Media companies focus on the rare event of lottery winning that catches people's attention. But there are millions of millionaires in the United States, most of whom caught some positive UU event. Real estate is an industry that has incessantly created millionaires. These individuals are usually perceived as lucky and often go unchronicled.

Some UU events can also count with the element of uniqueness (UUU events). Because people tend to prefer to do educated bets when they are familiar with the situation at hand, Richard posits that "UUU investments drive off speculators, which creates the potential for an attractive low price". Noticeably, UUU returns are extreme, generally resulting in a fat tails distribution.

Complementary Skills and UU Investments

Richard posits that a large percentage of UU events, and an even larger one of UUUs, reward those who undertake the situation with complementary skills. More often than not, specific knowledge needs to be cultivated for correctly identifying these opportunities. And deeper expertise is required to profit from them.

> "For example, many of America's great fortunes in recent years have come from real estate. These returns came to people who knew where to build, and what and how.
>
> But how about becoming a star of ordinary stock investment? For such efforts an ideal complementary skill is unusual judgment."

Only a few percent of the population possess these traits. Warren Buffett's success is largely due to his unusual judgment, coupled with complementary skills. Serving on companies' boards was a

very common practice for him and, given Warren's extensive knowledge of the business field and unique taste for capital allocation, his returns have been extraordinary. However, the lesson here is not to imitate Buffett, as it is highly unlikely that one possesses his skill. "That makes no more sense than trying to play tennis like Roger Federer". It is in fact so inimitable that these remarkable individuals tend be very generous and explain what they do as best as they can:

> "Buffett in his annual reports, Miller at Harvard, and any number of venture capitalists who come to lecture to MBAs. These master investors need not worry about the competition, since few others possess the complementary skills for their types of investments"

Sidecar Investments

In the early 2000s, Richard was reached out by someone whom he had worked with in the past. The person offered him the possibility to invest in Tengion, a biotech company. A sophisticated VC with relevant experience in the sector was also involved. Zeckhauser decided to proceed with the investment as he was participating in an endeavor alongside highly skilled people. And, importantly, the market was excluded from this operation.

> "Such undertakings are "sidecar investments"; the investor rides along in a sidecar pulled by a powerful motorcycle."

What is generally missed is that many of us have these types of possibilities available. And the better the position of the investor with respect to the driver, the more attractive an investment becomes. Having confidence in their skill and integrity provides the necessary elements for making an outsized bet. As many great investors point out, weighing appropriately is a requirement for excess returns.

Epilogue

The pricing mechanism operates in a fashion that unchains a complex adaptive system. Furthermore, in the philosophical sense, the pricing mechanism makes competition be present in such system. It is up to oneself whether or not to join the game. If affirmative, almost the only path forward is to delve into its complexities. My hypothesis and motivation for these issues is that the pieces of knowledge that help advance the largest cognitive territory are to be found in unusual places, scattered. These are the ones that portray secrets.

I hope that Mauboussin-Johnson's research article, Buffett's letter and Zeckhauser's essay offered a sense of this sentiment. The value I assign to each of these pieces is comparatively higher than that of most finance literature.

Including a conceptual-hard-to-read piece, a shareholder letter and a purely abstract essay is not a coincidence. Together, they shall provide you with tools for analysis, portfolio management and mental models for thinking in general. They compose the ethereal triad I suspect will yield the highest results.

The following and last piece is for those who would like to escape the boundaries imposed by pure finance and investing. The Way to Wealth, written by Benjamin Franklin in 1758, possesses unfathomable wisdom. Franklin shares dozens of acute observations on *industry* and *frugality*. I hope you found this first edition useful and enjoy Benjamin's writing.

The Way to Wealth

Benjamin Franklin; 1758

Courteous Reader,

I have heard that nothing gives an author so great pleasure, as to find his works respectfully quoted by other learned authors. This pleasure I have seldom enjoyed; for tho' I have been, if I may say it without vanity, an eminent author of almanacs annually now a full quarter of a century, my brother authors in the same way, for what reason I know not, have ever been very sparing in their applauses; and no other author has taken the least notice of me, so that did not my writings produce me some solid pudding, the great deficiency of praise would have quite discouraged me.

I concluded at length, that the people were the best judges of my merit; for they buy my works; and besides, in my rambles, where I am not personally known, I have frequently heard one or other of my adages repeated, with, as Poor Richard says, at the end on't; this gave me some satisfaction, as it showed not only that my instructions were regarded, but discovered likewise some respect for my authority; and I own, that to encourage the practice of remembering and repeating those wise sentences, I have sometimes quoted myself with great gravity.

Judge then how much I must have been gratified by an incident I am going to relate to you. I stopped my horse lately where a great number of people were collected at a vendue of merchant goods. The hour of sale not being come, they were conversing on the badness of the times, and one of the company called to a plain clean old man, with white locks, "Pray, Father Abraham, what think you of the times? Won't these heavy taxes quite ruin the country? How shall we be ever able to pay them? What would you advise us to?" Father Abraham stood up, and replied, "If you'd have my advice, I'll give it you in short, for a *word to the wise is enough*, and

many words won't fill a bushel, as *Poor Richard* says." They joined in desiring him to speak his mind, and gathering round him, he proceeded as follows:

"Friends, says he, and neighbors, the taxes are indeed very heavy, and if those laid on by the government were the only ones we had to pay, we might more easily discharge them; but we have many others, and much more grievous to some of us. We are taxed twice as much by our idleness, three times as much by our pride, and four times as much by our folly, and from these taxes the commissioners cannot ease or deliver us by allowing an abatement. However let us hearken to good advice, and something may be done for us; *God helps them that help themselves*, as Poor Richard says, in his almanac of 1733.

"It would be thought a hard government that should tax its people one tenth part of their time, to be employed in its service. But idleness taxes many of us much more, if we reckon all that is spent in absolute sloth, or doing of nothing, with that which is spent in idle employments or amusements, that amount to nothing. Sloth,by bringing on diseases, absolutely shortens life. *Sloth, like rust, consumes faster than labor wears, while the used key is always bright*, as Poor Richard says. But *dost thou love life, then do not squander time, for that's the stuff life is made of*, as Poor Richard says. How much more than is necessary do we spend in sleep! forgetting that *the sleeping fox catches no poultry*, and that *there will be sleeping enough in the grave*, as Poor Richard says. If time be of all things the most precious, *wasting time* must be, as Poor Richard says, *the greatest prodigality*, since, as he elsewhere tells us, *lost time is never found again*, and what we call *time-enough, always proves little enough*: let us then be up and be doing, and doing to the purpose; so by diligence shall we do more with less perplexity. *Sloth makes all things difficult, but industry all easy*, as Poor Richard says; and *he that riseth late, must trot all*

day, and shall scarce overtake his business at night. While laziness travels so slowly, that poverty soon overtakes him, as we read in Poor Richard, who adds, *drive thy business, let not that drive thee*; and *early to bed, and early to rise, makes a man healthy, wealthy and wise.*

"So what signifies wishing and hoping for better times. We may make these times better if we bestir ourselves. *Industry need not wish*, as Poor Richard says, and *he that lives upon hope will die fasting*. *There are no gains, without pains, then help hands, for I have no lands*, or if I have, they are smartly taxed. And, as Poor Richard likewise observes, *he that hath a trade hath an estate*, and *he that hath a calling hath an office of profit and honor*; but then the trade must be worked at, and the calling well followed, or neither the estate, nor the office, will enable us to pay our taxes. If we are industrious we shall never starve; for, as Poor Richard says, *at the working man's house hunger looks in, but dares not enter*. *Nor will the bailiff nor the constable enter, for industry pays debts, while despair encreaseth them*, says Poor Richard. What though you have found no treasure, nor has any rich relation left you a legacy, *diligence is the mother of good luck*, as Poor Richard says, and *God gives all things to industry. Then plough deep, while sluggards sleep, and you shall have corn to sell and to keep*, says Poor Dick. Work while it is called today, for you know not how much you may be hindered tomorrow, which makes Poor Richard say, *one today is worth two tomorrows*; and farther, *have you somewhat to do tomorrow, do it today*. If you were a servant, would you not be ashamed that a good master should catch you idle? Are you then your own master, *be ashamed to catch yourself idle*, as Poor Dick says. When there is so much to be done for yourself, your family, your country, and your gracious king, be up by peep of day; let not the sun look down and say, inglorious here he lies. Handle your tools without mittens; remember that *the cat*

in gloves catches no mice, as Poor Richard says. 'Tis true there is much to be done, and perhaps you are weak handed, but stick to it steadily, and you will see great effects, for *constant dropping wears away stones*, and *by diligence and patience the mouse ate in two the cable; and little strokes fell great oaks*, as Poor Richard says in his almanac, the year I cannot just now remember.

"Methinks I hear some of you say, must a man afford himself no leisure? I will tell thee, my friend, what Poor Richard says, *employ thy time well if thou meanest to gain leisure*; and, since *thou art not sure of a minute, throw not away an hour*. Leisure is time for doing something useful; this leisure the diligent man will obtain, but the lazy man never; so that, as Poor Richard says, *a life of leisure and a life of laziness are two things*. Do you imagine that sloth will afford you more comfort than labor? No, for as Poor Richard says, *trouble springs from idleness, and grievous toil from needless ease*. *Many without labor would live by their wits only, but they break for want of stock*. Whereas industry gives comfort, and plenty, and respect: *fly pleasures, and they'll follow you. The diligent spinner has a large shift, and now I have a sheep and a cow, everybody bids me good morrow*, all which is well said by Poor Richard.

"But with our industry, we must likewise be steady, settled and careful, and oversee our own affairs with our own eyes, and not trust too much to others; for, as Poor Richard says,

I never saw an oft removed tree,

Nor yet an oft removed family,

That throve so well as those that settled be.

"And again, three removes is as bad as a fire, and again, keep the shop, and thy shop will keep thee; and again, if you would have your business done, go; if not, send. And again,

He that by the plough would thrive,

Himself must either hold or drive.

"And again, the eye of a master will do more work than both his hands; and again, *want of care does us more damage than want of knowledge*; and again, *not to oversee workmen is to leave them your purse open*. Trusting too much to others' care is the ruin of many; for, as the almanac says, *in the affairs of this world men are saved not by faith, but by the want of it*; but a man's own care is profitable; for, saith Poor Dick, *learning is to the studious, and riches to the careful, as well as power to the bold, and Heaven to the virtuous*. And farther, *if you would have a faithful servant, and one that you like, serve yourself*. And again, he adviseth to circumspection and care, even in the smallest matters, because sometimes *a little neglect may breed great mischief; adding, for want of a nail the shoe was lost; for want of a shoe the horse was lost, and for want of a horse the rider was lost, being overtaken and slain by the enemy*, all for want of care about a horse-shoe nail.

"So much for industry, my friends, and attention to one's own business; but to these we must add frugality, if we would make our industry more certainly successful. A man may, if he knows not how to save as he gets, *keep his nose all his life to the grindstone, and die not worth a groat at last. A fat kitchen makes a lean will*, as Poor Richard says; and,

Many estates are spent in the getting,

Since women for tea forsook spinning and knitting

And men for punch forsook hewing and splitting.

If you would be wealthy, says he, in another almanac, *think of saving as well as of getting*: *the Indies have not made Spain rich, because her outgoes are greater than her incomes*. Away then with

your expensive follies, and you will not have so much cause to complain of hard times, heavy taxes, and chargeable families; for, as Poor Dick says,

Women and wine, game and deceit,

Make the wealth small, and the wants great

And farther, *what maintains one vice, would bring up two children*. You may think perhaps that a little tea, or a little punch now and then, diet a little more costly, clothes a little finer, and a little entertainment now and then, can be no great Matter; but remember what Poor Richard says, *many a little makes a mickle*, and farther, *beware of little expenses; a small leak will sink a great ship*, and again, *who dainties love, shall beggars prove*, and moreover, *fools make Feasts, and wise men eat them*.

"Here you are all got together at this vendue of fineries and knicknacks. You call them goods, but if you do not take care, they will prove evils to some of you. You expect they will be sold cheap, and perhaps they may for less than they cost; but if you have no occasion for them, they must be dear to you. Remember what Poor Richard says, *buy what thou hast no need of, and ere long thou shalt sell thy necessaries*. And again, *at a great pennyworth pause a while*: he means, that perhaps the cheapness is apparent only, and not real; or the bargain, by straitning thee in thy business, may do thee more harm than good. For in another place he says, *many have been ruined by buying good pennyworths*. Again, Poor Richard says, *'tis foolish to lay our money in a purchase of repentance;* and yet this folly is practised every day at vendues, for want of minding the almanac. *Wise men, as Poor Dick says, learn by others' harms, fools scarcely by their own, but, felix quem faciunt aliena pericula cautum*. Many a one, for the sake of finery on the back, have gone with a hungry belly, and half starved their families; *silks and satins, scarlet* and *velvets*, as Poor Richard says,

put out the kitchen fire. These are not the necessaries of life; they can scarcely be called the conveniencies, and yet only because they look pretty, how many want to have them. The artificial wants of mankind thus become more numerous than the natural; and, as Poor Dick says, *for one poor person*, there are an *hundred* indigent. By these, and other extravagancies, the genteel are reduced to poverty, and forced to borrow of those whom they formerly despised, but who through industry and frugality have maintained their standing; in which case it appears plainly, that *a ploughman on his legs is higher than a gentleman on his knees*, as Poor Richard says. Perhaps they have had a small estate left them, which they knew not the getting of; they think *'tis day, and will never be night*; that a little to be spent out of so much, is not worth minding; (a child and a fool, as Poor Richard says, *imagine twenty shillings and twenty years can never be spent*) but, *always taking out of the meal-tub, and never putting in, soon comes to the bottom*; then, as Poor Dick says, *when the well's dry, they know the worth of water*. But this they might have known before, if they had taken his advice*; if you would know the value of money, go and try to borrow some,* for*, he that goes a borrowing goes a sorrowing*, and indeed so does he that lends to such people, when he goes to get it in again. Poor Dick farther advises, and says,

Fond pride of dress, is sure a very curse;

E'er fancy you consult, consult your purse.

And again, pride is as loud a beggar as want, *and a great deal more saucy*. When you have bought one fine thing you must buy ten more, that your appearance maybe all of a piece; but Poor Dick says, *'tis easier to suppress the first desire than to satisfy all that follow it.* And 'tis as truly folly for the poor to ape the rich, as for the frog to swell, in order to equal the ox.

Great estates may venture more,

But little boats should keep near shore.

'Tis however a folly soon punished; for *pride that dines on vanity sups on contempt*, as Poor Richard says. And in another place, *pride breakfasted with plenty, dined with poverty, and supped with infamy*. And after all, of what use is this *pride of appearance*, for which so much is risked, so much is suffered? It cannot promote health; or ease pain; it makes no increase of merit in the person, it creates envy, it hastens misfortune.

What is a butterfly? At best

He's but a caterpillar dressed.

The gaudy fop's his picture just,

as Poor Richard says.

"But what madness must it be to run in debt for these superfluities! We are offered, by the terms of this vendue, six months' credit; and that perhaps has induced some of us to attend it, because we cannot spare the ready money, and hope now to be fine without it. But, ah, think what you do when you run in debt; *you give to another power over your liberty*. If you cannot pay at the time, you will be ashamed to see your creditor; you will be in fear when you speak to him, you will make poor pitiful sneaking excuses, and by degrees come to lose you veracity, and sink into base downright lying; for, as Poor Richard says, *the second vice is lying, the first is running in debt*. And again to the same purpose, *lying rides upon debt's back*. Whereas a freeborn Englishman ought not to be ashamed or afraid to see or speak to any man living. But poverty often deprives a man of all spirit and virtue: *'tis hard for an empty bag to stand upright*, as Poor Richard truly says. What would you think of that Prince, or that government, who should issue an edict forbidding you to dress like a gentleman or a gentlewoman, on pain of imprisonment or servitude? Would you not say, that you are free, have a right to dress as you please, and

that such an edict would be a breach of your privileges, and such a government tyrannical? And yet you are about to put yourself under that tyranny when you run in debt for such dress! Your creditor has authority at his pleasure to deprive you of your liberty, by confining you in gaol for life, or to sell you for a servant, if you should not be able to pay him! When you have got your bargain, you may, perhaps, think little of payment; but *creditors*, Poor Richard tells us, *have better memories than debtors*, and in another place says, *creditors are a superstitious sect, great observers of set days and times*. The day comes round before you are aware, and the demand is made before you are prepared to satisfy it. Or if you bear your debt in mind, the term which at first seemed so long, will, as it lessens, appear extreamly short. Time will seem to have added wings to his heels as well as shoulders. *Those have a short Lent, saith Poor Richard, who owe money to be paid at Easter.* Then since, as he says*, the borrower is a slave to the lender, and the debtor to the creditor*, disdain the chain, preserve your freedom; and maintain your independency: be industrious and free; be frugal and free. At present, perhaps, you may think yourself in thriving circumstances, and that you can bear a little extravagance without injury; but,

For age and want, save while you may;

No morning sun lasts a whole day,

as Poor Richard says. Gain may be temporary and uncertain, but ever while you live, expense is constant and certain; and *'tis easier to build two chimneys than to keep one in fuel*, as Poor Richard says. So *rather go to bed supperless than rise in debt*.

Get what you can, and what you get hold;

'Tis the stone that will turn all your lead into gold,

as Poor Richard says. And when you have got the philosopher's stone, sure you will no longer complain of bad times, or the difficulty of paying taxes.

"This doctrine, my friends, is reason and wisdom; but after all, do not depend too much upon your own industry, and frugality, and prudence, though excellent things, for they may all be blasted without the blessing of heaven; and therefore ask that blessing humbly, and be not uncharitable to those that at present seem to want it, but comfort and help them. Remember Job suffered, and was afterwards prosperous.

"And now to conclude, *experience keeps a dear school, but fools will learn in no other, and scarce in that*, for it is true*, we may give advice, but we cannot give conduct*, as Poor Richard says: however, remember this, *they that won't be counseled, can't be helped*, as Poor Richard says: and farther, *that if you will not hear reason, she'll surely rap your knuckles*."

Thus the old gentleman ended his harangue. The people heard it, and approved the doctrine, and immediately practiced the contrary, just as if it had been a common sermon; for the vendue opened, and they began to buy extravagantly, notwithstanding all his cautions, and their own fear of taxes. I found the good man had thoroughly studied my almanacs, and digested all I had dropped on those topics during the course of five-and-twenty years. The frequent mention he made of me must have tired any one else, but my vanity was wonderfully delighted with it, though I was conscious that not a tenth part of the wisdom was my own which he ascribed to me, but rather the gleanings I had made of the sense of all ages and nations. However, I resolved to be the better for the echo of it; and though I had at first determined to buy stuff for a new coat, I went away resolved to wear my old one a little longer. Reader, if thou wilt do the same, thy profit will be as great as mine. I am, as ever, thine to serve thee,

Source: The Works of Benjamin Franklin. Edited by Jared Sparks. Vol. 2. (Boston, 1836), 2:92-103. Online: American Literature Research and Analysis Website, Florida Gulf Coast University http://itech.fgcu.edu/faculty/wohlpart/alra/franklin.htm