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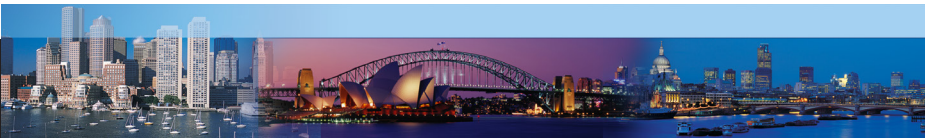
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Free Lunches and the Food Truck Revolution

Ben Inker



Over the past year or so, there has been a welcome change to the culinary landscape of the Boston financial district. After two decades of wandering to largely the same old haunts for lunch, I am now faced with a whole new set of inexpensive and tasty choices literally outside our door, changing daily as the food trucks perform their mysterious nightly dance. And while part of me may worry about the general advisability of having a burning wood-fired oven built into a small truck and another part may worry about the long-term impact to my weight and arteries from eating the pizza that comes out of said oven, my taste buds are thrilled, and my wallet has no complaints either. We at GMO have been accused at times of believing that either the world never changes or that when it does change, those changes are generally bad. Well, it may just be the dumplings talking (available on Fridays on the Greenway by Rowes Wharf, \$8 for four dumplings along with fried rice and homemade Asian slaw, \$1 more if you want to add a spring roll with ginger soy sauce), but the world has indeed changed, and it is good! Food trucks seem to be a genuinely disruptive innovation, lowering the cost of entry for the restaurant business, fighting the tyranny of location, taking advantage of other innovations – every food truck I’ve been to accepts credit cards via Square – and encouraging experimentation, new ideas, and most importantly, better lunches for me and others who work in culinarily challenged areas.

While I’m sure you are happy for me and my newfound culinary contentment, you may well be wondering whether this has any relevance for investing. I believe it does, and the relevance is this: investors spend far too much of their time looking for a free lunch, when they should be looking for the investing equivalent of an inexpensive and tasty food truck meal instead. Tasty food truck meals are far easier to find, and you are much less likely to discover that they come with strings attached that you didn’t think of until it was too late. So what are investing free lunches? Arbitrage opportunities, sources of high returns uncorrelated with the important risks to investors, portfolio construction techniques that reduce those risks without reducing returns, exploitable market inefficiencies that other investors are strangely willing to share the existence of with you. In common parlance, Alpha. I have used the capital A there as a signifier that there is something special about this particular Greek letter that gives it a fascination for investors well beyond what is ascribed to beta, gamma, delta, or the other symbols that finance has appropriated. My colleague Edmund Bellord suggested in a recent team meeting that we replace the term "Alpha" with "Magic Beans" in our conversations to add the proper element of skepticism when the term comes up. This is not to say that Alpha doesn’t exist. There are indeed occasional arbitrage opportunities, the markets do sometimes offer up sources of return uncorrelated to risks we should all care about, and we would be among the last to claim that markets are efficient. But finding Alpha is hard, everybody is on the lookout for it, and as all diligent analysts can tell you, most of the time that an opportunity starts out looking like Alpha, it winds up seeming more mundane as you do more research.

Put Selling and Merger Arbitrage – No Free Lunches Here

Just because an opportunity isn't a free lunch, however, doesn't mean it isn't a tasty food truck meal, and such a meal can easily be an important part of your balanced diet ... er, portfolio. So what do I mean by this? To some degree, the difference between a free lunch and a tasty food truck meal is a matter of mind-set. I'll take the example of put selling, even though some of you may be bored of reading my musing on that particular topic by now. Some investors and strategists have suggested that put selling is a free lunch, and on the face of it, they seem to have a point, as you can see in Table 1, which compares holding the S&P 500 with selling one-month at-the-money (ATM) puts on the S&P 500 since 1983:

Table 1

	Return Over Cash	Beta	Volatility	Sharpe Ratio	CAPM Alpha
S&P 500	6.4%	1.00	15.1%	0.42	0.0%
Selling 1-Month ATM Puts	6.2%	0.54	10.2%	0.61	2.6%

1983-2014 Source: GMO

One-month puts have provided basically the same return after our estimated transaction costs as a buy and hold of the S&P 500, with a beta of about 0.5, volatility two-thirds that of the index, a Sharpe ratio 50% higher, and a CAPM alpha of 2.6%. To explain these, some strategists have invoked behavioral factors – irrational dislike of the limited upside of the strategy or other investor foibles. To our minds, no such explanations are necessary. Beta and standard deviation are lousy risk measures for a put selling strategy, because almost all of the volatility of the strategy is "bad" volatility. At the end of the day, an investor selling puts on the S&P 500 is taking the same risk as the investor who buys the S&P 500 – both lose money at more or less the same rate when the S&P 500 goes down. If the reason why the stock market has a long-term return above cash is the nature and timing of the losses that periodically befall investors who own it, put selling has all of the same downside, and therefore should offer the same basic upside. It happens to do that in a different manner – through the collection of option premiums instead of participating in the gains of the stock market – but as my colleague Sam Wilderman points out, it is dangerous to confuse the *manner* investors get paid with the *reason* why they get paid. Purveyors of option strategies are apt to talk about the "variance risk premium" and "capturing short-term mean reversion" when analyzing put selling returns. But while these two factors do explain *how* put selling delivers its returns to investors, they arguably do little to help anyone understand *why* the returns exist. Variance risk premium (VRP) is a term used to explain the observation that implied volatilities on the S&P 500 and other equity indices are generally higher than the realized volatility of those markets. You can put together strategies that are designed to specifically try to capture the VRP and structure them in a way so that, most of the time, they have little stock market beta. But if you stop and think a bit about *why* the VRP exists, it starts to become clear that those strategies might not be a good idea. If implied volatilities were an unbiased estimate of future realized volatility for the market, puts and calls would have similar expected returns. We know from put-call parity that being short a put option and long a call option should give the same return above cash as a long investment in the market. If implied volatilities were "fair," the call and put would each be expected to give half the return of the market. Because the put embodies the ugly risk of stocks and the call embodies the pleasant upside, this would be a strange outcome. Why would you expect to get paid half as much as the stock market, in buying a call, while taking none of the downside? The way to shift the returns to the put, where they belong, requires implied volatility to be higher than an unbiased expectation of future volatility, and that gap creates the variance risk premium. Selling volatility therefore should make money over time, but stock markets tend to show much more downside volatility than upside. If you are short volatility, you will find that most of the time you make a

little money and periodically you lose a bunch as volatility spikes, and those spikes will almost invariably come when the market is falling. Your VRP trade therefore looks a lot like being short a put, although in this case an out-of-the-money put instead of an at-the-money.¹ Selling out-of-the-money (OTM) puts often seems like a wonderful strategy, chugging away making money consistently with little volatility until, suddenly, it doesn't. Table 2 shows the characteristics of a 5% OTM put selling strategy.

Table 2

	Return Over Cash	Beta	Volatility	Sharpe Ratio	CAPM Alpha
1-Month 5% OTM Puts	4.2%	0.27	5.8%	0.72	2.4%

1983-2014 Source: GMO

It looks wonderful! Beta and volatility are basically half that of ATM puts, and the strategy has an even higher Sharpe ratio than ATM puts, one that most hedge fund managers would be very happy to achieve. It looks, on the face of it, like exactly the sort of strategy that one should be levering up instead of owning dumb old equities. The trouble is, while the strategy seldom loses money, when it does lose is exactly when you'd prefer it didn't. Table 3 shows you a month and day that most people peddling option selling strategies won't talk to you about. In part, this is because the main options database that most people use for their analyses only goes back to 1996. But it is quite possible to get options data on S&P 500 futures going back to 1983, so ignoring October 19, 1987 is also about hiding an unpleasant truth.

Table 3

	October 1987 Return	October 19, 1987 Return
S&P 500	-21.5%	-19.6%
Selling 1-Month ATM Puts	-14.8%	-28.6%
Selling 1-Month 5% OTM Puts	-10.1%	-27.8%

Source: GMO

The 27.8% loss for the day of October 19, 1987 is a 76 standard deviation event for the OTM put selling strategy.² While everyone "knows" that put selling does not have normally distributed returns, you can also bet that no one looking at the statistics of a strategy would say to themselves, "You know, I'd really better stress test my portfolio against a 76 standard deviation event just to be on the safe side." But the simple truth is that plenty of strategies that look low-risk much of the time have the potential for profoundly larger losses if something odd, but possible, happens in the financial markets. You would *never* want to lever such a strategy based on its historical return characteristics, because you cannot be confident you understand the risks based on that limited sample. There are plenty of downturns in which a 5% OTM put selling strategy winds up losing far less than a long equity strategy, but there are some where it is worse, so treating it as one-third the "risk" of a long equity strategy is potentially deadly to your financial well-being.

This is all a long-winded way of saying that put selling is not a free lunch, and something to be levered only by the exceptionally brave, foolhardy, or those who take very seriously the incentives created by a 1 and 20% fee

¹ Forgive me for making the VRP versus out-of-the-money put an assertion rather than a demonstration. Anyone interested in a (much) more detailed treatment of put selling, volatility surfaces, and the relationship between *how* you are paid in options versus *why* you are paid, should read Neil Constable's white paper "The Equilibrium Volatility Surface," available on GMO's web site to registered clients and consultants at the Academic Research link. The math may be a little daunting, but if the equations and three dimensional charts don't scare you off, it does a wonderful job of explaining why the equity option market behaves the way it does.

² Actually, that's *only* true if you are basing your standard deviation on monthly returns, which is pretty common. If you look at the entire sample of daily returns, it is only a 45 standard deviation event.

structure. But we still think put selling, in an unlevered form, can at times be a tasty food truck meal. Once you recognize that the *reason* you are getting paid for selling puts is because you are taking equity downside risk, but the *manner* in which you get paid is different from owning the market, there may well be some times when the payment for equity downside is better from put selling than owning the stock market. While it would be odd if put selling always gave a better return per unit of "risk" than owning the market, the different return pattern means that some of the time it almost certainly will, and we would contend that a situation in which valuations are higher than normal but not at nosebleed levels may well be such a time.

In a similar vein, merger arbitrage turns out not to be a true arbitrage and therefore not a free lunch, either. Like OTM puts, merger arbitrage looks to have a low correlation with the stock market in normal times, but the correlation rises uncomfortably in times of market stress, which is when you really wish it wouldn't. Merger arbitrage professionals will talk about getting paid for taking the risk of deals falling through, and that their skill is in better handicapping the likelihood of the deal completing or completing at a higher price than the original offer. The gap between the current price and deal price is indeed the *manner* in which investors are paid in merger arbitrage, and the skill that a manager has does come from his/her ability to better analyze the probabilities and prices than the other guy. But we would argue that the *reason* why there is a decent return to the activity of merger arbitrage is that the circumstances in which lots of deals are likely to fail at the same time is one of significant market stress – when credit markets freeze up, equity markets are falling, and acquirers either find themselves unable to raise the money they need to complete a deal or have simply changed their priorities from empire building to survival. But this still leaves merger arbitrage a potentially tasty food truck meal, because of the timing of when it is attractively priced. There are a fair number of hedge funds out there pursuing merger arbitrage strategies, but their capital is finite, and the size and number of deals changes over time. Merger arbitrage is likely to be priced to give interesting returns when the size of the deal pool is large relative to the capital devoted to the activity, which is likely to be when stocks have been rising for a while and executives and investors are feeling confident about the future. This is probably a time when the expected return to owning stocks has fallen, and may well also be a time when investor confidence is reducing the expected return to selling puts directly.

Moving your strategy between owning stocks, selling puts, and merger arbitrage, as GMO does in its Total Equities Strategy and we are looking to do in our Benchmark-Free Allocation Strategy, doesn't allow an investor to avoid taking losses in the bad events for equities, but it can expand the percentage of the time that you are getting paid enough for taking equity risk that it makes sense to do so.

Food Trucks in the Fixed Income Markets

The fixed income markets are likewise short of free lunches but offer up some attractive food truck meals. If equities and equity-like strategies largely embody a single risk – let's call it depression risk for simplicity's sake – there are a few different risks that exist in the fixed income world – some securities load on depression risk, some inflation risk, and some liquidity risk. Further complicating things is the fact that fixed income instruments can package these risks in a multitude of different ways. Our fixed income team tends to think in terms of four risk premia: default risk, term premium, liquidity premium, and volatility premium. The point of thinking this way is not that all of these risks are entirely different, or different from equity risk, but rather to be constantly on the lookout for how much you are getting paid for those various risks at different times. We can therefore build a fixed income portfolio, not with the idea that we can avoid all risk, but with the idea that we want to preferentially take the risks we are being well compensated for.

Default risk, as perhaps the simplest example, is in many ways similar to OTM put selling. It embodies depression risk where the risk of loss is more remote than with equities due to the seniority of debt securities in the capital structure. Volatility risk can actually embody a couple of different risks, as some kinds of fixed income volatility are analogous to equity volatility and other kinds are more related to term premium (which embodies unexpected inflation risk) and yet others are linked to liquidity risk. While these nuances make building a really good fixed income portfolio a more complicated process in some ways than it is for equities, it is still far easier to turn it all into a tasty food truck meal where your concern is being adequately compensated for the risks you are taking, rather than trying to build a free lunch where your returns come somehow without any of those risks hitching a ride.

Today's Lunchtime Selection

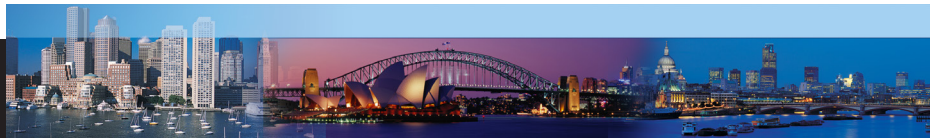
So what does the world look like today through the lens of the food truck? We don't believe equities look all that tasty, although there is significant dispersion. U.S. small caps seem to offer the stock equivalent of a case of salmonella – plenty of depression risk and valuations that seem to promise little or no medium-term return even if the economy does fine. We think high quality stocks in the U.S. at least offer a healthy filling meal, if a dull one, while European value stocks and emerging market equities seem the tastiest available entrees, although neither appears to be a true lunchtime bargain. Put selling appears closer to being a decently tasty meal, although we'd recommend going with foreign cuisine, as put selling on U.S. stocks seems probably the least appealing truck in the bunch. We believe merger arbitrage, while slow to return after the nasty food truck fire of 2008, is back and offering a pretty tasty lunch for a reasonable price, and probably deserves to move back into your lunchtime rotation.

On the fixed income side, default risk seems generally unappetizing, with CCC bonds, at a spread of about 6.5% over treasuries, offering the most potential of a post-lunch trip to the emergency room this side of U.S. small cap stocks. We believe BB bonds look like the meal of choice for those who feel the need to dine on default risk, as their spreads at least cover expected losses over the cycle with some room to spare. Liquidity risk looks generally unappetizing, and even for the few items that do look tasty, we can easily imagine the meal not sitting well in a few hours, given how Dodd-Frank has pushed "broker-dealers" into being far more interested in the broker part of the job than the dealer part. Given how much less inventory the dealers are willing to hold, the likelihood of a nasty shock occurring from even a temporary imbalance between the number of buyers and sellers has surely gone up from pre-crisis days. We think term premium actually looks pretty good in the belly of the U.S. yield curve, with current forward rates pricing in enough rate hikes to give a bit of room for inflation to surprise a little to the upside. Interestingly, while those who dine on equities may be well served going foreign for their investment lunch, on the fixed income side, the U.S. looks just about the most appetizing of the bunch, far preferable to your European or Japanese cuisine options. Implied volatilities are very low across much of fixed income, and while historically you have been well served by selling options in the marketplace, our temptation today would be to buy options rather than sell.

Honestly, the portfolio you can put together out of these dishes today will not win any culinary awards. Getting rich off of your investments looks to be an extremely daunting task in the environment we find ourselves in today. But opportunities to make some money do exist, and if we are not fixated on finding that free lunch, we can make a decent meal if we are reasonably careful about which trucks we stop at and which we pass by.

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Summer Essays

Jeremy Grantham



1 Bubbles Again: Setting Up for a Deal Frenzy

Despite a shocking 2.9% setback in first quarter GDP (quarterly decline at annualized rate), the extent of which was forecast by no one, and despite a substantial decline in NIPA corporate earnings, the market has climbed slowly but steadily in recent months. Market volatility has declined to very low levels despite these setbacks and despite Middle Eastern problems. (The negative January Rule this year has, for that matter, also been ineffective so far.) So, all is apparently well, as we have arrived within three months of the dreaded (by bears) Presidential third year. Accordingly, my recent forecast of a fully-fledged bubble, our definition of which requires at least 2250 on the S&P, remains in effect.

What is worse for us value-driven bears, a further bullish argument has struck me recently concerning the probabilities of a large increase in financial deals. Don't tell me there are already a lot of deals. I am talking about a veritable explosion, to levels never seen before. These are my reasons. First, when compared to other deal frenzies, the real cost of debt this cycle is lower. Second, profit margins are, despite the first quarter, still at very high levels and are widely expected to stay there. Not a bad combination for a deal maker, but it is the third reason that influences my thinking most: the economy, despite its being in year six of an economic recovery, still looks in many ways like quite a young economy. There are massive reserves of labor in the official unemployment plus room for perhaps a 2% increase in labor participation rates as discouraged workers potentially get drawn into the workforce by steady growth in the economy. There is also lots of room for a pick-up in capital spending that has been uniquely low in this recovery, and I use the word "uniquely" in its old-fashioned sense, for such a slow recovery in capital spending has never, ever occurred before. The very disappointment in the rate of recovery thus becomes a virtue for deal making. Previous upswings in deals tended to occur at market peaks, like 2000 and 2007, which in complete contrast to today were old economic cycles already showing their wrinkles. Worse than being in full swing, they were usually way over capacity. Thus, 2000 was helped along by the bubble in growth stocks to over 60 times earnings, allowing companies like Cisco, possibly correctly, to believe they were dealing with a near-zero cost of capital in making deal after deal for their massively overpriced stock.

In 2007 the housing bubble led to an extra one and a half to two million houses being built, with all the usual accoutrements of furniture sales and more jobs for realtors, bank officers, and Goldman Sachs designers of ingenious new ways to be of service to real estate speculators. Now that the smoke has cleared, the 2007 economy at its peak looks to have been 2% or so above trend capacity (allowing, incidentally, for the overstating of the U.S. long-term growth capability, a misjudgment that is still hanging around).

If I were a potential deal maker I would be licking my lips at an economy that seems to have enough slack to keep going for a few years. Also, individuals and institutions did feel chastened by the crash of 2009 and many are just now picking up their courage. And as they look around they see dismayingly little in the way of attractive investments or yields. So, the returns promised from deal making are likely to appear, relatively at least, exceptional. I think it is likely (better than 50/50) that all previous deal records will be broken in the next year or two. This of course will help push the market up to true bubble levels, where it will once again become very dangerous indeed.

My final thought on this issue is the following point, which I failed to make in my bubble discussion last quarter: perhaps the single best reason to suspect that a severe market decline is not imminent is the early-cycle look that the economy has. And even Edward Chancellor last quarter conceded that there was as yet no sign of a bubble in the quantity of credit that was being created.

Post Script

In early July, Janet Yellen made an admirably clear statement that she is sticking faithfully to the Greenspan-Bernanke policy of extreme moral hazard. She will not use interest rates to head off or curtail any asset bubbles encouraged by the extremely low rates that might appear. And history is clear: very low rates absolutely will encourage extreme speculation. But Yellen will, as Greenspan and Bernanke before her, attempt to limit only the damage any breaking bubbles might cause. Well, it is a clear policy and in my opinion clearly wrong. I had thought that central bankers by now, after so much unnecessary pain, might have begun to compromise on this matter, but no such luck, at least in the case of the Fed. The evidence against this policy after two of the handful of the most painful burst bubbles in history is impressive. But not nearly as impressive as the unwillingness of academics to back off from closely held theories in the face of mere evidence. This affirmation of moral hazard – we will not move to stop bubbles, dear investors, but will help you out when things go badly wrong – should be of great encouragement to speculators and improve the odds of having a fully-fledged equity bubble before this current episode ends.

2 Another Look at Malthus: Where Said To Be Wrong, He Was Right. And, Vice Versa.

The essence of Malthus' work (1798 and later) was that humans, like all other creatures, would tend to grow in numbers up to the limit of their ability to find food. Perhaps he should have left it there because that seems like a reasonable proposition and clearly defines the first 200,000 years of our existence. But he tried to define this equation more mathematically by saying that our potential breeding rate was exponential, or compound, compared to our food production rate, which was arithmetic. Arithmetic growth, he argued, would allow for, say, 500 pounds more grain per acre, per year, which would become a smaller and smaller percentage gain. His simplification was that food production would proceed in the series 1, 2, 3, 4, 5, etc., where population would grow in the series 1, 2, 4, 8, 16. You can see the problem. And it is precise enough to describe the rat population problem in the Back Bay in Boston. You can't control them by rat traps – they can out-breed your traps – but you can limit them by restricting their food supply.

Through the 20th Century and until recently Malthus' critics said, yes, okay, the world's population has indeed been growing fast, and if anything at an accelerating or hyperbolic rate, but, no, the food supply has not been arithmetic but has compounded and kept up with the people. Q.E.D. Malthus was wrong.

Well, it turns out that the criticism is short-term in its focus and also wrong. Agricultural progress is by nature arithmetic and Malthus, living in a farming community, knew that. If compound growth were possible in

grain productivity, then eventually a single corn plant would have to produce a ton of food, or, in human terms, 6-foot tall Dutch women one day be 40 feet tall. Each species has a limit that tends to be approached at a decelerating rate. More convincingly, a recent report in *Nature Communications*¹ proves the point. The authors looked in great detail at all of the important grain-producing areas by individual grain – wheat and corn in the Midwest, wheat in Ukraine and Australia, rice in Japan and Thailand, corn in Brazil, and so on. They studied the progress in productivity year by year and attempted to describe each grain area as best they could mathematically. To get to the bottom line, not a single one could be described in exponential (or compound) terms. At best they had a steadily declining percentage gain or an arithmetic (or linear) increase. Even less encouragingly, many grain areas were best described as asymptotic to zero: that is, clearly heading eventually toward zero. Therefore, Malthus in this key component was perfectly right. So, how come we aren't all starving? Well, we had not one, but two, non-repeatable windfalls. First, there was new land. Malthus had no idea that west of the Mississippi, in Australia, and in parts of South America there were vast new agricultural lands to exploit. Second, there was a realization that adding more nitrogen, potassium, and phosphorus could remarkably increase output, especially in the depleted soils of Europe, coupled with the discoveries of how to make nitrogen fertilizer and where to mine potassium and phosphorus. The use of fertilizer since 1950 more than quintupled per acre but today often reaches limits beyond which production actually falls. The increased use of fertilizer is also unsustainable in that environmental damage is often severe and the mined resources are, of course, depleting. In recent decades, despite the increased use of genetically modified crops and related technologies and continued progress in more traditional plant breeding, the growth rate in the productivity of grains is steadily declining (as described in the *Nature Communications* article mentioned above). So, surprisingly perhaps, and despite two stays of execution from new land and fertilizer, Malthus was right in one of his two basic propositions despite continued comment to the contrary. The implication of this from an investment point of view is that we should count on a steady, if erratic, rise in the price of food. This in turn will work to suppress economic growth – a small amount in the case of rich countries and a dangerously large amount in the case of poorer countries.

We live, though, in a strange and complicated world and Malthus' second proposition of the compound growth of population, which traditionally was accepted because the data so obviously confirmed it for 160 years, turned out to be totally wrong. Since 1961 that accelerating compound growth has stopped and has so sharply decelerated that it appears nearly certain to go negative within the next several decades: the number of new babies globally has in fact already started to decline. ("Peak Babies!") This dramatic shift in population prospects, discussed in several previous quarterlies, which will dramatically shift the distribution of age-related consumption, was never imagined for a second by Malthus, the dignified clergyman, whose belief in our species' carnal drive was profound. So, Malthus was wrong after all, but for a reason completely unanticipated by his fans and critics alike, and whether we entirely escape his gloomy end game of periodic starvation is still not certain for we have other problems, separate from population, that we have to overcome, with which readers of my letters will, I hope, be familiar.

3 Two Afterthoughts on the Risks and Return of the Keystone Pipeline

The XL Pipeline has become an intense issue in which facts tend to be swamped by political leanings and financial interests. Everyone can recognize that in a perfect environmental world there would be no pipelines; it is hard to argue that they improve nature. But they are a necessary environmental evil to facilitate a modern economy. As always, it is a question of degree: how bad is this particular pipeline and how useful is its construction to the health of the U.S. economy?

¹ P. Grassini, K.M. Eskridge, and K.G. Cassman, "Distinguishing Between Yield Advances and Yield Plateaus in Historical Crop Production Trends," *Nature Communications* 4, Article #2918, December 17, 2013, <http://www.nature.com/ncomms/2013/131217/ncomms3918/full/ncomms3918.html>.

The bad news about the diluted bitumen (or dilbit) that would come from the Canadian Tar Sands to fill the pipeline is that it is not crude oil. It is more toxic than crude oil, far heavier, and more expensive to clean up. We have good data on this because of a major leak in 2010 into the Kalamazoo River from a pipeline carrying dilbit. The first problem came from the benzene, a light petrochemical that is added to the dilbit, without which the dilbit is too thick to actually move along a pipeline. After the leak of over a million gallons, which ran for 17 hours before pumping finally stopped, the benzene evaporated into a brown poisonous gas, necessitating the immediate evacuation of all neighboring houses. The second problem was that after the loss of its benzene the diluted bitumen became just plain bitumen – close to the tarry stuff that goes on roads – and sank to the river bottom, where it bounced slowly along, creating lasting damage for scores of miles. The cost so far, for work that still continues two and a half years later, has reached an estimated \$1,000 a gallon, over 20 times the already heavy cost of dealing with regular oil in a river leak. These details can be checked in a detailed report that won last year's Pulitzer Prize for American Journalism from InsideClimate News.²

So much for the risks. Now what about the rewards? The main potential reward, especially in an economy that is having the slowest recovery ever recorded, is in job creation. Job creation turns out to be an incredibly complicated economic issue, depending on the unique circumstances of each project and how it interacts with competing projects. If there were armies of unemployed welders and other construction workers sitting around, one could easily imagine that almost every job needed would draw from the unemployment pool and would be true job creation. But what if there were intense competition for every welder, every oil worker, and most heavy construction workers? Then we would not be in the job creation business but in the job competition business, deciding which potential employer will bid up wages and which will go without workers. A recent Bloomberg article opened with the question, "How high is the demand for welders to work in the shale boom on the U.S. Gulf Coast?" It then answered, "So high that you can take every citizen in the region of Lake Charles between the ages of 5 and 85 and teach them all how to weld and you're not going to have enough welders," citing a source from Huntsman Corp. "So high that San Jacinto College in Pasadena, Texas, offers a four-hour welding class in the middle of the night" because the equipment is finally available then.

The article points out that in the Gulf area shortages of welders, fabricators, pipe fitters, and oil and gas workers are pushing up wages so fast that expansion projects are running well over budget already and some, like a \$20 billion gas-to-liquids plant slated by Royal Dutch Shell Plc for Louisiana, have already been canceled. Labor conditions in the Gulf Coast will be especially tight in 2016 and 2017 and projects along the Houston Ship Channel alone are expected to employ more than 250,000 workers, according to the Port of Houston Authority.

Attempts to calculate investment opportunities opened up by cheap local supplies of natural gas or to estimate the time it will take to absorb the current surplus will have to take into account this chronic shortage of workers with the required skills. In this area – oil and chemicals in the Gulf – as in many others, the shortfalls in the quantity and quality of U.S. training programs are playing a painful role.

Considering the above, it is clear that the XL Pipeline will not "create" jobs. Every one of its potential workers, almost all of whom already travel widely for jobs, could get a job several times over if given an hour on the telephone. What is happening here is an allocation of limited manpower resources: will we use them to extend chemical plants to capitalize on the incredible U.S. advantage in cheap natural gas; will we extend our fracking of U.S. sweet crude; or will we transport Canadian diluted bitumen, the most dangerous and toxic of all fuels, in order to increase the price for a handful of Canadian Tar Sand producers who currently suffer from constrained delivery capabilities and hence lower local prices? Even ignoring the severe environmental risks, it should be an easy decision on economic grounds alone.

²Elizabeth McGowan, Lisa Song, and David Hasemyer, "The Dilbit Disaster: Inside the Biggest Oil Spill You've Never Heard Of," InsideClimate News, June 24, 2012.

4 Investment Lessons Learned: Mistakes Made Over 47 Years

Chapter 2

In business school I was lucky enough to get a great summer job in the oil department of Arthur D. Little, which, in my opinion, was the place where you were likely in those days to get the best technical consulting advice. It was stacked with wise and very experienced oil men. I, and another Englishman from business school who had as sketchy an oil background as I, had the summer to make a forecast for European oil demand (me) and supply (Phillip...How are you, Phillip?). A *real* job for a summer job is more than one could ask and this one paid us at an \$8,000 annual rate, four times what we had been earning in England. (Now, by the way, salaries are very similar.) We were both living very cheaply, so what were we going to do with this sudden excess? Yes! Invest it and turn it into the beginnings of a fortune. Phillip introduced me to the *Wall Street Digest*, which, amazingly to me, had all of this seemingly priceless information – the best research (presumably) that Wall Street had to offer. And it was all free in our business school library, along with a fair fraction of all of the research out there. So we researched away, compared the most mouthwatering tips, shared a stock broker, and invested. And most of our stocks went up. Seduced by a bull market, we thought that either our advice from Wall Street was superior or we were, or, more likely, both. So time passed to the summer of graduation, which found three of us with an even more ridiculously high-paying summer job, in this case working directly for the CEO of a large fertilizer company extending a business school course. The net effect was that at the end of summer, as I started my new job at a dignified consulting firm in Manhattan, a check for \$6,000 arrived, which, put into perspective, was enough then to pay for a full year at business school and, interestingly, exactly what I owed on my parents' mortgage. Paying off the mortgage seemed out of the question because it was by then clear to me that I must have the touch for short-term investing. Living in an L-shaped, one-room apartment located almost in the Midtown Tunnel in Manhattan with a recently-acquired working German wife (met in England two years earlier) and spending nothing, the plan was to suffer and save and invest brilliantly in order to be able to return to Europe rich, or nearly so, and in a hurry. And because this could not be done with \$6,000, it was necessary to borrow some more. Fortunately (or unfortunately, depending on the time horizon), there was a loan loophole that allowed you to pledge mutual fund certificates (the old type that you could actually touch as opposed to electronic impulses) and borrow 80% of their face value for "home improvements." Well, mine were for home improvements alright, but just not quite then. So, I borrowed and, after a little more good fortune, brought the new certificates to the bank and took another 80% against them too.

By now my consulting job with that dignified firm began to feel awfully tame. The classmates who were having the most excitement were clearly those in the investment business. So, I was quite efficient for one of the two or three times in my life and ran a comprehensive job-seeking program aimed at London, New York, and Boston. After several interesting near misses in London and New York, and after a refusal by Fidelity (said to run then an impressive \$1.9 billion) in an interview in which a then-famous fund manager could not stop looking at stock prices on his new Bunko-Ramo desktop device, I was offered a job at Keystone Funds (running an almost identical \$1.8 billion – but what a difference in long-term outcomes, clearly a case of *sic transit gloria*). I joined the loose association of classmates scattered around the industry who had been sharing ideas for the critical 18 months I had wasted in consulting. Late 1966, 1967, and 1968 featured a normal bull market in large stocks, a real bull market in smaller stocks, and an epic silly-season bull market in tiny, under-the-counter pink sheets stocks. Most were newly minted and almost all ceased to exist in a few years. Many ventures had great names like "Palms of Pasadena." With our buying and touting to all who would listen, our favorites tended to rise rapidly at first: rocket stocks that, like other rockets, would end up crashing back to earth quickly enough.

The defining event for me was in the summer of 1968, when my wife and I took a three-week holiday back in England and Germany, shortly after joining Keystone. Lunching with some of the hot shots – being a newbie

I was by no means a fully-fledged member – I was fascinated, indeed, almost overwhelmed, by the story du jour: American Raceways. The company was going to introduce Formula 1 Grand Prix racing to the U.S. It had acquired one existing track and had one race, hugely attended out of novelty as well as genuine interest. With a few more tracks we could calculate how much money – a lot – the company could make. It seemed to me as a foreigner to have little chance of failure. With noise, speed, danger, and even the ultimate risk of death, it seemed, well, just so American. And every Brit's hero, the then current champion Stirling Moss, was on the Board. So I bought 300 shares at \$7. (For defining events in your life you do remember the details. Sometimes even accurately.) By the time we returned from our vacation – in those days we were never in touch with business, it was just too difficult – the stock was at \$21! Here was my opportunity to show that I had internalized early lessons; to demonstrate my resolve. So I did what any aspiring value-oriented stock analyst would do: I sold everything else I owned and tripled up! Nine hundred shares at \$21, mostly on borrowed money. In a Victorian novel aimed at improving morals, ethics, and general behavior, this is where tragedy follows hubris. But real life is more confusing as to how it delivers lessons and it likes to tease, apparently. By Christmas, American Raceways hit \$100 and we were rich by the standards of those days, and certainly compared to my expectations. You could still buy a reasonable four-bedroom house in the London suburbs for £10,000 and in Boston for \$40,000, and we had about \$85,000 after margin borrowings and before taxes due. But, the possibility of continuing the storyline by cashing in our chips and going home to England quickly became more complicated: a year after joining Keystone in April 1968, I left with one of the fund managers, Dean LeBaron, to start a new investment management company. We started a reconnaissance patrol in mid-1969 and by January we had an office in the Batterymarch building on Batterymarch Street in downtown Boston, bearing the unsurprising name of Batterymarch Financial Management. In deciding to leave Keystone, my new nest egg of late 1968 played a key role even though it had begun to decline some in early 1969.

In fact, in April 1969 came another nearly defining event: my wife and I fell in love with a charming three-floor Victorian house in Newton, Mass on a very quiet street next to an apple orchard and backing on to some undeveloped hillside. Asking price: \$40,000 (today's guess, perhaps \$1 million or more). Our family capital account after its then recent decline would still have allowed us to: a) buy the house without a mortgage; b) buy a new BMW 2002 (small, fast, not too showy, and remarkably cheap); and c) have a few thousand left over. But our \$37,000 offer was turned down and we backed off. And, even as we reconsidered, our stock began to crumble and I was lucky, with hindsight, to be able to say goodbye to all might-have-beens and to scramble out in the low \$60s a share. It turned out that American Raceway's original crowd was based almost completely on novelty and curiosity and had nearly no hard-core followers; Americans liked their blood sports to be in cars that looked not like real racing cars, but in cars that looked just like their own. Who knew? Well, I was neither totally broke nor fully chastened, and was eager to make back my losses. Naturally, I bumped immediately into a real winner. The new idea was called Market Monitor Data Systems and this really was a breakthrough technology, even with hindsight. It was going to put a "Monitor," an electronic screen, on every broker's desk, so that they could trade in options, making their own market. This brainchild of a mathematics professor had only one flaw: it was way ahead of its time. Fifteen years later the technology was completely accepted. Oh, well. After a good rise it became clear to stock holders that expenses rose rapidly with monitors installed and no business followed. Almost none at all. And, following the developments far more hawk-like than was typical for me, I managed to leap out two weeks before bankruptcy with enough to pay down margin and bank loans, leaving me with about \$5,000. By then, however, I was in an entrepreneurial start-up that paid no salary and ended its first full year not with the \$1 billion under management that had featured in our spreadsheets, but with one account from a friend of Dean's of \$100,000. Fortunately, my wife had a job at MIT Press, which paid about what one would expect. So, the *Boston Globe* would only be bought after important Celtics games, absolutely no new clothes were allowed, and once a week we would stock up on an all-you-can-eat meal at the English Tea Room in Back Bay. But, oh my, did I have lots of painful lessons to absorb and at least one not so painful.

First, my wife had not been amused by the frugality that characterized our 18 months in New York, a city then and now where some spending money makes a big difference in the quality of life. For her, to go home with a nest egg was maybe worth it. Maybe. Her biggest gripe was cooking in almost every day after work. No working wife today would stand for it, and rightly so. All I can say in my defense is that that was the style in the 60s. Very weak, I know. But, when confronted with the total loss of our savings and therefore our main plan – saving to go home well-off – my wife said nothing. And I mean nothing at all. She put herself to the task of keeping our financially leaky boat afloat. My wife, however, accrued an inexhaustible supply of IOUs. Well, inexhaustible for the next 46 years anyway. So ...

Lessons Learned

1. You can't know how people who are important to you will behave under pressure. And if you have to pick one who will outperform, pick your wife.
2. Local cultural differences can be very enduring even between Britain and the U.S. Formula 1 is trying again in the U.S. as I write, 46 years later. Soccer here has also been just around the corner for 50 years.
3. Sometimes even a great idea will fail, like Market Monitor, because the technology infrastructure is just not there; that it is simply ahead of its time.
4. Much more importantly, investing is serious. It can and often is intellectually compelling. But it should not be driven by excitement, as it is for many individuals, and when treated that way will almost always end badly. My experience with American Raceways and Market Monitor and, more importantly, my experience at painfully wiping out myself and my wife financially did far more than teach or reteach some of the basic rules of investing. It turned me profoundly away from the speculative and gambling possibilities of investing and turned me permanently, and pretty much overnight, into a patient, long-term value investor. Luckily, the new style fitted nicely with my natural conservative and frugal upbringing. The value perspective is pretty much baked into the Yorkshire culture. Happily, it also seems to work most of the time. Rolling the dice, however, was appropriate, it seems, when applied to the question of whether or not to start a new investment firm, for the period 1970 to about 1990 was particularly favorable to the start-up of new, small firms. For a while then, institutional investors actually seemed to prefer start-ups to the giant banks, which dominated the business but that had done so badly in the 1974 decline. And my willingness to take the risk of a start-up had been strongly influenced by the very brief existence of my substantial nest egg. So, once again ...
5. It is better to be lucky than good, but of course appropriate to aspire to both.

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