



## TIME IN A BOTTLE

If they<sup>1</sup> could save time in a bottle,  
the first thing that we'd have to do,  
is to save every day,  
till eternity passes away  
just to afford life, it's true.

If they could make debts grow forever,  
their words could make wishes come true,  
we'd print every day,  
some more treasure, and then,  
per Ben<sup>2</sup> we would spend them, it's true.

But there never seems to be enough time,  
to earn the returns, pensioners are due  
once you fund them  
I've been around enough to know  
values are the ones  
I want to go through time with.

If I had a box just for wishes,  
and dreams that had never come true,  
the box would be empty,  
except for the memory  
of how they tried QE, plus two.

Jim Croce, *Time in a Bottle*

<sup>1</sup>The Central Banks

<sup>2</sup>Ben Bernanke

This is a treatise on time. What is the essence of time? How do we account for it? How do we value time in the current era, an era that is increasingly being referred to as the "post-truth" era? One of the 'truths' that has been taken from us is the market derived value of what time is worth. The world's central banks have taken the rate of interest to zero (or below), and in the process deprived us of an invaluable input in the discounting mechanism used to value investments. They have, in essence, stolen the price of time – the value accruing to capital over time is negligible. The advantage to saving money is greatly diminished (the recent rate moves in the U.S., to levels a hair's breadth above zero, do not alter the following discussion).

Keeping in mind the saying made famous by John Templeton, an investor we deeply admire, who opined that the four most dangerous words in investing are "this time it's different," it is with some trepidation that we pen this article about how *this time it really is different*. Now, not to be misconstrued, while things are extremely different at this moment in time, in the long run, things won't turn out differently. For good or bad, we pretty much know how this story ends.

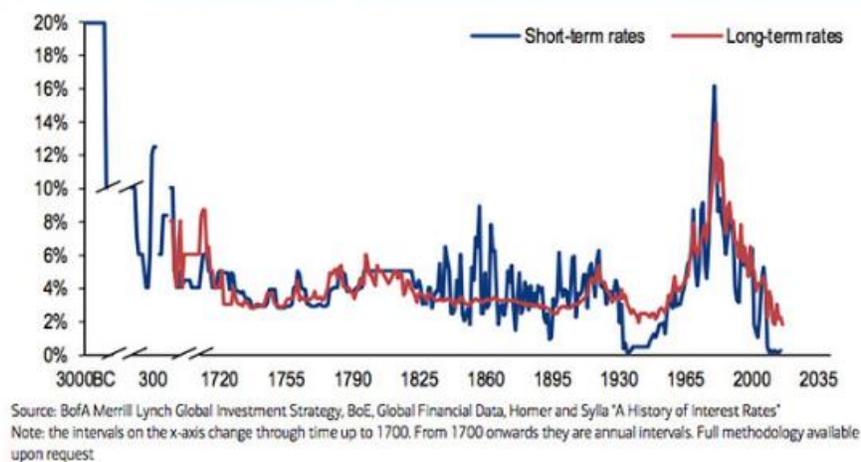


*"But if you close your eyes,  
Does it almost feel like  
Nothing changed at all?  
And if you close your eyes,  
Does it almost feel like  
You've been here before?  
How am I gonna be an optimist about this?"*  
– Bastille – Pompeii



There will undoubtedly be some twists in the plot since central banks are trying some interesting strategies. However, history is rife with examples of similar monetary institutions employing the same fallacious policies that are currently viewed as ‘innovative.’ We find no evidence of these historical antecedents happening on a concerted worldwide effort, nor of interest rates being taken down to such extreme levels.

**Chart 1: The lowest interest rates in 5000 years**



In the short-term this means that things are different and different in ways that can't be ignored. **Business as usual could prove dangerous.**

For example, what discount rate should investors use in their DCF (discounted cash flow) models? Does the financial engineering, that is so prevalent today, justify assuming permanently higher profit margins when building one's financial valuation models? Or do these shenanigans portend much lower margins in the future? Will the debt-enabled growth of the past half-century (supercharged over the past decade) follow a Keynesian model and multiply into even better growth, or will it prove to have borrowed growth from the future?

Truly, the central bankers have made investment analysis a much more arduous task. One must wonder: Are financially engineered book values as meaningful as they once were? Do these metrics still even have meaning? Are extremely low earnings yields (high P/E ratios), based upon highly levered and manipulated earnings, justified merely because rates on competitive investment alternatives are similarly depressed? Or are P/E multiples ultimately headed way lower as the market anticipates that debt-infused mal-investment will likely lead to lower future earnings? As cheap debt increasingly replaces equity on corporate balance sheets, are book values as meaningful as they were in the past? As cash flow metrics become increasingly tortured, how much alternative analysis is now required to compensate for these inaccuracies? In particular, as we'll get to shortly, how much should we depend upon estimates of cash flow in the **future**? Are currencies a way more important factor now than they were before the era of competitive devaluations? Though it hasn't been that long since last spring's Commentary on the importance of the question "when," the current centrally planned economy dictates that the matter of time receive yet more attention, more thought, and more discussion. Much more.

"As if you could kill time without injuring eternity" - Thoreau

We promise not to spend an inordinate amount of time on economic theory, but when central bankers, and kindred central planners, monkey with the market mechanism, it can't be ignored. Ever since the advent of QE (quantitative easing), we've marveled at the hubris of central bankers, and their presumed ability to turn unlimited quantities of paper into money of real value. This is analogous to the Sorcerer's Stone, circa the 21<sup>st</sup> century. Fortunately, this folly has led to very good, if extremely erratic, investment returns over the past eight years. The recent string of ever-increasing prices of stocks, bonds, real estate, and of other investible asset classes, seems to have created a legion of investors in search of instant gratification. Over the past several years we've been bemused by the market's fascination with time/timing, with an increasing focus on the Fed's arrogant attempt to "bottle" time. What should we make of the central bankers' 'altruistic' gesture to make the cost of borrowing de minimus. It doesn't take economic training to understand the concept of TANSTAAFL



(there ain't no such thing as a free lunch), i.e. there are trade-offs. As pertains to everything - somehow, somewhere, somebody is paying for it, and/or an opportunity to have done something else has been foregone. It should be clear that one person's gain is another's loss. For one person to be able to borrow for free means another person is getting no return on a loan they have made. Borrowers gain at the expense of savers and of investors. This sometimes means that one generation is benefitting at the expense of another. Clearly these situations can create disharmony. It is paradoxical that a less certain, possibly disharmonious future coincides with lower rates by which society discounts that future.

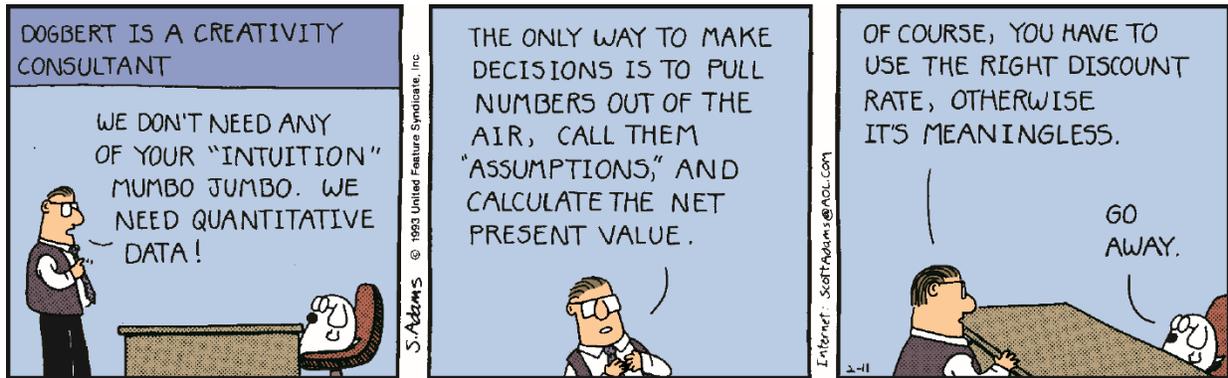
It should be self-evident that low expected rates of return on investments will disincentivize incremental investment. When desired returns are unlikely to be realized from more legitimate investment alternatives it may chase people into speculative investment vehicles. Further disincentivizing investment is the lack of pertinent information about what constitutes a fair return on that investment. If one can put a \$100 in the bank and it will be worth \$110 a year from now (10% rate of interest), they likely won't consider making an investment that portends less than 10% annually. The less certain the prospects of an investment, the more likely a return above 10% will be demanded. When demand for borrowing is high, the marketplace charges more for loans, and conversely, when demand is low, the rate of interest charged falls to a lower level. With this in mind, central planners theorize that if they artificially lower the rate of interest, demand for goods will move higher, creating self-perpetuating economic growth and jobs. Conversely, the so called 'Austrian economists' believe that artificial demand leads to too much capacity, financed by too much debt, which leads to an eventual economic bust due to the resultant redundant capacity. We'll leave it to the reader to decide which theory makes more sense to them.



An early proponent of the Austrian school of thought, Ludwig von Mises, postulated a century ago, just after the collapse of the Austrian Empire, that individual subjective values are translated into the objective information necessary for rational allocation of resources in society. In his 1920 paper on the Economic Calculation Problem, he made clear that economic planning is a poor substitute for free market capitalism. In those days, of course, his criticism was focused on the socialism of capital goods. He probably couldn't have even imagined today's world of socialized financial markets, one sometimes referred to as socialism for the rich. Can centrally planned interest rates really lead to better allocation of capital than would rates set by supply and demand in a free marketplace? With that as a background, let's delve into the topic at hand: How do we solve the problem of valuing companies in a world without time? A world where your bank balance earns nothing? In a world where mal-investment rules the day? How do we solve today's "economic calculation problem"?

$$NPV = \sum_{t=1}^T \frac{\text{Estimated Cash Flow}_t}{(1 + \text{Estimated } i)^t} - \text{Initial Cash Investment}$$

One of the most popular valuation models used in our industry is the DCF or discounted cash flow model (shown above). It adjusts for the fact that cash becomes less valuable to us over time due to the cost of that capital and/or the ability to make returns on that capital elsewhere. The model is so popular that it is commonly understood that "Intrinsic Value *is* the Present Value of Future Cash Flows."



This is a surprisingly dangerous tenet. Highly relevant to the discussion is the fact that DCF models have been referred to as the Hubble telescope of investment models: It gives you incredible clarity, but if anything's a tad off, you are looking at the wrong galaxy. If being off by a fraction, can put you in the wrong galaxy, might the type of errors for which government planners are infamous put us in 'a galaxy far, far away'? The problem is the inconvenient fact that no one knows what cash flow will be in the future. One must guess. People prefer the term "estimate" to guess. Anyone who doesn't understand that human beings are way worse at forecasting than we think we are might try reading *The Little Book of Behavioral Investing* by James Montier or *The Undoing Project* by Michael Lewis. Due to central bank induced mal-investment, estimating the future is likely much harder now than at most any time over the past 3/4 century. Cash flow margins have been inflated to unsustainable levels and growth rates have been goosed at the expense of future growth. A more important problem is that the central banks have suppressed, beyond imagination, the rate of interest that is the primary variable in determining the rate that is used to discount the aforementioned guesstimates of cash flow. In other words, DCF, this once cornerstone of fundamental valuation analysis, has become essentially obsolete.

"Tell me, tell me one more time"  
-Joe Jackson, One More Time

Before venturing into a difficult discussion of valuing securities sans a way to price time, let's restate what we know. Many investors believe that the 'correct' way to ascertain the intrinsic value of a security is to calculate the present value of future cash flow. Not cash flow, but estimates for future cash flow. There are reams of data that suggest people are not very good at estimating future cash flow. Compounding the problem is the tendency to magnify small errors into big mistakes. And the icing on the cake is that the world's central bankers' actions have catapulted our ability to forecast from extremely hard to ridiculous.





With that as a backdrop, we at Kopernik, believe that the conventional wisdom, that “Intrinsic Value *is* the Present Value of Future Cash Flows” has it backwards. We recognize that ***Future Cash Flow is the likely outcome from owning an Asset that is Intrinsically Valuable.*** Fortunately, while central banks can mess with information, they cannot suppress the inherent worth of assets and franchises. Their worth cannot be set at zero in a committee meeting. Assets (and people) are intrinsically valuable. And the more valuable they are, the more economic value they are likely to generate in the future. In a world where one can have a reasonable understanding of what something is worth, but can’t reasonably know *when* that value will be realized, nor what discount should be charged against the time required to wait, use of a forecasting tool seems foolhardy. Or more succinctly, when an investor knows “*what*” and “*why*,” but not “*when*,” models should be based on “*what*,” not “*when*”. A large discount can be used to compensate for the uncertainty around timing. Therefore, rather than guessing the future and then trying to price time to ascertain value, Kopernik flips the model upside down. Starting with what can be reasonably assessed, we appraise the value of a franchise (to be discussed further in the rider below). Comparing our appraised value to the market’s appraisal based upon crowd consensus, we then use scenario analyses to determine the rate of return that will be garnered from an investment in that franchise, using varying periods of time until the marketplace gets around to pricing in the value we have calculated. The analysis also indicates the degree to which our investment hurdle rates can be exceeded or missed. As the nearby table illustrates, an asset bought at half-price will generate more than 10% annually even if one’s patience can endure for seven long years. If it takes a full decade to reach fruition, the return drops to 7%, disappointing but not too bad. Conversely, if the markets recognize the value within two years, the return on the investment exceeds 40% annually.

Year	Potential Upside			Internal Rate of Return
	50.0%	100.0%	150.0%	
1	50.0%	100.0%	150.0%	
2	22.5%	41.2%	58.1%	
3	14.5%	26.0%	35.7%	
4	10.7%	18.9%	25.7%	
5	8.5%	14.9%	20.1%	
6	7.0%	12.3%	16.5%	
7	6.0%	10.4%	14.0%	
8	5.2%	9.1%	12.1%	
9	4.6%	8.0%	10.7%	
10	4.1%	7.2%	9.6%	

“If something must happen, it will happen”

In summary, central bank meddling has made conventional valuation models much less reliable than in the past. We believe that prudent analysis now requires the use of many differing valuation metrics. Metrics should be tailored to specific industries. In the current environment, it is all but impossible to accurately determine any of the input variables used in a DCF model for equity securities, making their use extremely dangerous. Caveat emptor. On the other hand, rather than guessing the future, use of solid fundamental analysis to appraise the value of franchises/assets can provide healthy returns to patient investors who have the conviction to see their investments through to culmination.

(This concludes the main message of this commentary. For those whom have interest, a further discussion can be found as a post script. Addressed first are the perils of assigning undue value to units of currency expected to be received in the future. Secondly, we’ll delve into ways of appraising businesses sans a crystal ball.)

*“The only reason for time is so that everything doesn’t happen at once.”*

- Albert Einstein, Ray Cummings

Thank you very much for your continued interest and support.

Cheers,

**David B. Iben**

Chief Investment Officer  
Kopernik Global Investors, LLC  
April 2017



*"No such thing as tomorrow  
All we want  
Two, three, go!  
Time, got the time tick tick tickin' in my head"  
– Joe Jackson, Got the Time*

Having already discussed the difficulty of using DCF, let's move on to another important factor in the model – what is being discounted? In the investment world, we are discounting future expected cash flow, in other words currency. When discounting the value of currency to be received in 30, 20, even 10 years from now, curious minds will want to know more about the nature of money, in general, and currency in particular.

**mon·ey** (mūn'ē) *n. pl. mon·eys or mon·ies*

1. A medium that can be exchanged for goods and services and is used as a measure of their values on the market, including among its forms a commodity such as gold, an officially issued coin or note, or a deposit in a checking account or other readily liquefiable account.
2. The official currency, coins, and negotiable paper notes issued by a government.
3. Assets and property considered in terms of monetary value; wealth.

Now, like many things, the definition seems to have become watered down with time. In the past, the first half of definition number one would be readily accepted, with the rest likely to be considered derivatives of money. But let's go with it. And currency?

**cur·ren·cy** (kūr'an-sē, kūr'-) *n. pl. cur·ren·cies*

1. Money in any form when in actual use as a medium of exchange, especially circulating paper money.

Clearly money is a medium of exchange. And, to continue to be accepted as a medium of exchange, it must be an effective store of value – be able to be "used as a measure of their values on the market." Three and a half decades ago it was held sacrosanct that governments always had, and always would, devalue their currencies. We did a little research and put together a presentation, which some of you have seen. An abridged version of the presentation, without the narrative, follows. In case of doubt, the answer to the first slide is "A."

**Economics**

Economics is a social science concerned with:

- A. The best use of scarce resources to achieve the maximum satisfaction of economic wants.
- B. Increasing the level of productive resources so there is a minimum level of income.
- C. Increasing the level of productive resources so there is maximum output in society.
- D. The best use of scarce resources paid for at the minimum level of cost to consumers and businesses

Pick the correct answer

61

**Why are Diamonds More Desired Than Cubic Zirconia?**

62



### Why is Water Battled Over in the Desert but Disdained in a Flood Zone?



63

### Scarcity Matters



64

### One Earth – 1.6 Billion People



65

### One Earth – 7.4 Billion People



66

### Which Money Loses Value over Time?



68

### What is Value?



71



## What is Money?

**wāmpəm**  
noun: wampum

A quantity of small cylindrical beads made by North American Indians from quahog shells, strung together and worn as a decorative belt or other decoration or used as money.



72

## What is Money (cont.)?

### Ancient Mesopotamian Money

The Mesopotamians eventually started using clay tokens. At first they used a hollow clay ball, with a number of small token pieces inside that corresponded to the value of a good. Later they embedded or marked the number of token pieces on the outside of the clay ball, and this eventually changed to flatter tokens with dots or dents for markings.



73

## A History of Coinage



74

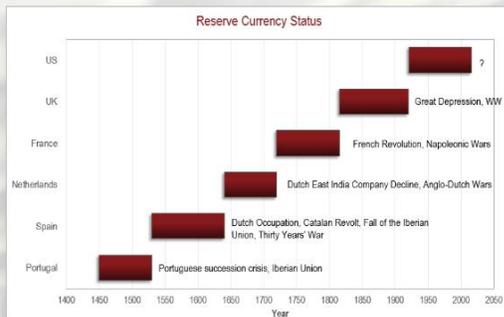
## Paper Currency

Paper bills were first used by the Chinese, who started carrying folding money during the Tang Dynasty (A.D. 618-907) — mostly in the form of privately issued bills of credit or exchange notes — and used it for more than 500 years before the practice began to catch on in Europe in the 17th century.



75

## Reserve Currency Status



77

Clearly money can take different forms and can evolve over time. As the last slide shows, some achieve 'reserve currency status' which has many benefits. This privilege often lasts for quite a while, though never indefinitely.

The contemporary, 'enlightened' central bankers believe that they are printing money without devaluing it. The following slides should augment what your common sense is likely already telling you. They will fail. As you've probably come to expect, we've found a good analogue for the central banker's hubris in the form of a movie. What follows is a heavily bastardized version of that great Bill Murray movie – Groundhog Day.



## Reviewing Money History Again, Through the Eyes of Phil Connors

Groundhog Day is a 1993 American fantasy-comedy film directed by Harold Ramis, starring Bill Murray, Andie MacDowell, and Chris Elliott. It was written by Ramis and Danny Rubin, based on a story by Rubin.

Murray plays John—Law—Rudolf—Havenstein—Ben Bernanke—Mario—Draghi—Haruhiko—Kuroda Phil Connors, an arrogant Pittsburgh TV-weatherman who, during an assignment covering the annual Groundhog Day event in Punxsutawney, Pennsylvania Central Banker, who finds himself in a time loop, repeating the same day era again and again."



78



"This is one time where television really fails to capture the true excitement of a large squirrel predicting the weather."

79

## Groundhog Day, Roman Style

The denarius, Rome's coinage of the time, was essentially pure silver at the beginning of the first century A.D. By A.D. 54, Emperor Nero had entered the scene, and the denarius was approximately 94% silver. By around A.D. 100, the denarius' silver content was down to 85%.

Emperors that succeeded Nero liked the idea of devaluing their currency in order to pay the bills and increase their own wealth. By 218, the denarius was down to 43% silver, and in 244, Emperor Philip the Arab had the silver content dropped to 0.05%. Around the time of Rome's collapse, the denarius contained only 0.02% silver and virtually nobody accepted it as a medium of exchange or a store of value.



-The Daily Reckoning

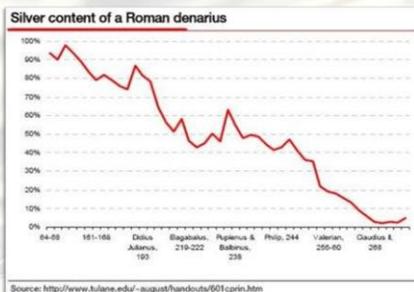
81

## Decline & Fall of the Silver Denarius 244-293AD



82

## Everyone Knows An Empire's Currency Can't Depreciate



84

## To Inflation and Beyond

The adoption of fiat currency by many countries, from the 18th century onwards, made much larger variations in the supply of money possible. Since then, huge increases in the supply of paper money have taken place in a number of countries, producing hyperinflation – episodes of extreme inflation rates much higher than those observed in earlier periods of commodity money.

Economists generally believe that high rates of inflation and hyperinflation are caused by an excessive growth of the money supply.



85



### Inflation of Wampum/Cowry

The Europeans, finding they have the power to flood the market with shells, inevitably debase the currency.

In America the colonists in the 18th century go to the length of inventing a machine which can manufacture white shell beads accepted as wampum by their Indian trading partners.

The African market is even more easily flooded with shell currency. Cowries, previously brought with difficulty to India and then overland through Africa, are now imported in shiploads by Dutch and British ships calling at the Maldives on their way back from the far east. They become a standard part of the price for slaves in west Africa. It has been calculated that during the 18th century more than 10,000 tons of these shells are brought round the Cape. By 1770 the price of a single slave is about 150,000 cowries.



Read More: <http://www.historyworld.net/wfhd/iplanxhistories.asp?historyid=ab14f0zz40adqjT00>

87

### The French Say "Oui" to Paper Money

John Law was the first man to introduce paper money to France. The notion of paper money was greatly helped along by the passing of Louis XIV and the 3 billion livres of debt that he left.

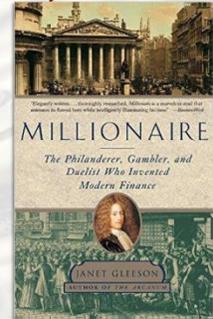
When Louis XV was old enough to make his own mistakes, he required that all taxes be paid in paper money. The currency was backed by coinage...until people actually wanted coins.

The new paper currency rapidly became oversupplied until nobody wished to own the worthless junk anymore and demanded coinage for their currency.

Oops. It looks like Law didn't think that anyone would actually want coins ever again. After making it illegal to export any gold or silver, and the failed attempts by the locals to exchange their paper currency for something of actual value, the currency collapsed.

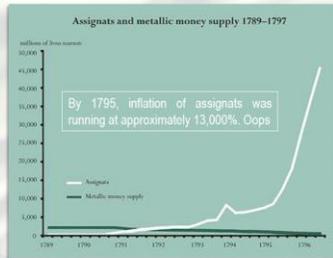
John Law became the most hated man in France and was forced to flee to Italy.

-The Daily Reckoning



88

### France, paper money, take duex, assignats!



89

### The French discover that Central Bankers are Caught In A Suicidal Infinite Loop?



90

### French fiat, take trois, Sacre Bleu!



After Waterloo had come and gone, the French gave it another go in the 1930s, this time with the paper franc. It took only 12 years for them to inflate their currency until it lost 99% of its value.

91

### No Central Bank Exit Strategy Seems To Work "Apres moi le deluge"



92



## Paper Currency Reaches the States

"Ain't worth a Continental" – is a popular idiom. Enough said.



93

## The Groundhog Loop Continues

Greenbacks were paper currency (printed in green on the back) issued by the United States during the American Civil War. They were in two forms: Demand Notes, issued in 1861-1862, and United States Notes issued in 1862-1865. They were legal tender by law, but were not backed by gold or silver, only the credibility of the U.S. government.  
- Wikipedia



95

## Punxsutawney Phil and The Financing of the Civil War

The government could either print its own money or go into deep perpetual debt to foreign creditors. On February 25, 1862, Congress passed the first Legal Tender Act, which authorized the issuance of \$150 million in United States Notes.

The reverse of the notes were printed with green ink, and were thus called "greenbacks" by the public. In 1862, the greenback declined against gold until by December gold was at a 29% premium. By spring of 1863 the greenback declined further, to 152 against 100 dollars in gold. The Greenback's low point came in July of that year. 258 greenbacks equal to 100 gold. When the war ended in April 1865 the greenback made another remarkable recovery to 150.

Interestingly, California and Oregon defied the Legal Tender Act.

The Confederate currencies obviously fared much worse.

96

## Groundhogs Uber Alles

Post-World War I Weimar Germany was one of the greatest periods of hyperinflation that ever existed. The Treaty of Versailles was essentially a financial punishment placed on Germany to make reparations.

The sums of money to be paid by Germany were enormous, and the only way it could make repayment was by running the printing press.  
-Daily Reckoning

Eg: the cost of a loaf of bread in Germany due to hyperinflation -

Nov 1918: 1 mark  
Nov 1922: 163 marks  
Sep 1923: 1,500,000 marks  
Nov 1923: 200,000,000,000 marks



97

## In the Brightness of the US phenomenon, The Groundhog repeatedly sees his Shadow

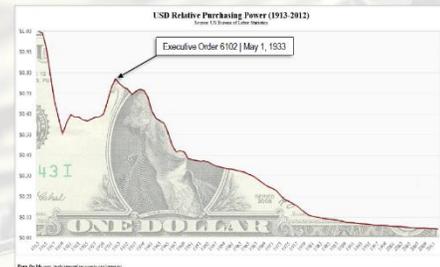
- For centuries, the British Pound was the world's reserve currency. However, World War II devastated the British economy leading the U.S. Dollar to replace the Pound as the world's newest reserve currency.
- From 1879 - 1933, the U.S. Dollar was backed by a physical commodity – Gold.
- On April 5, 1933, President Franklin D Roosevelt began to remove the U.S. off the gold standard, requiring all physical gold greater than \$100 to be turned into the government in exchange for paper money at \$20.67 per ounce.
- In 1934, the government price of gold was increased to \$35 per ounce, effectively increasing the gold on the Federal Reserve's balance sheets by 69%. This increase in assets allowed the Federal Reserve to further inflate the money supply.
- In 1971, President Richard Nixon completely abandoned the gold standard, which meant the U.S. would no longer convert U.S. Dollars to gold, thus beginning the era of the fiat dollars in the U.S.



98

## Another Quiz

- At what point was the Federal Reserve Created?
- At what point did Roosevelt default on the obligation to back the dollar at \$20.67/oz?



99



### Is This a Trillion with a "T"?



100

### Bolivar of Broken Dreams

At a delicatessen counter in eastern Caracas, Humberto Gonzalez removes slices of salty white cheese from his scale and replaces them with a stack of bolivar notes handed over by his customer. The currency is so devalued and each purchase requires so many bills that instead of counting, he weighs them.



Once one of the world's strongest currencies, the bolivar has been reduced to a nuisance. Basic purchases require hundreds of bills. Shoppers shove piles of them into gym bags before venturing into crime-plagued streets and shopkeepers stash thousands in boxes and overflowing drawers. In the absence of official data, economists are left to guess what the inflation rate is. Estimates for this year range from 200 percent to 1,500 percent.

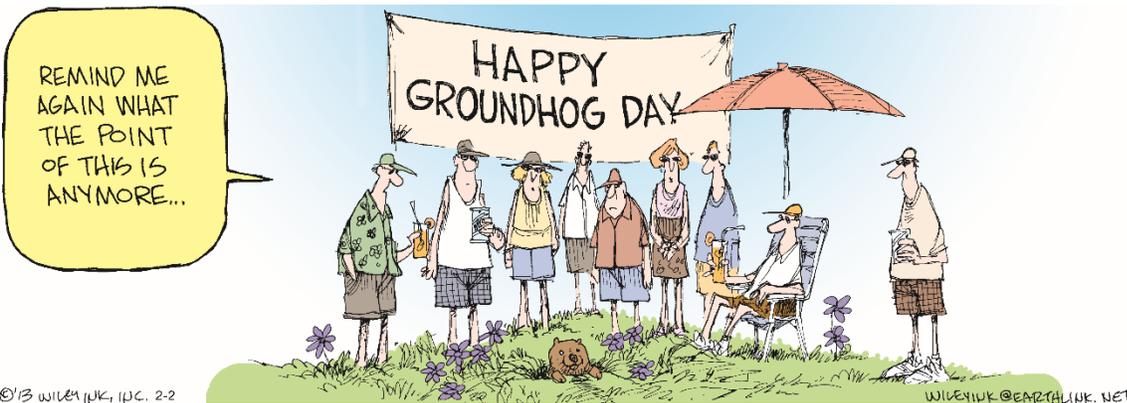
101

### We've Seen This Story Before



"This is one time where television really fails to capture the true excitement of an ~~large squirrel~~ academic bureaucrat predicting the ~~weather~~ economy."

105



So there you have it – a small sample of the vast array of stories about past attempts by authorities to manipulate the money stock. Each presumably thought that they would be the one to do so without ill consequence. As Yogi Berra put it, “it’s déjà vu all over again.” Thanks to central bank arrogance, like Murray’s character Phil Connor, society has been condemned to reliving the same degrading show over and over and over again. Not *Groundhog Day* so much as *Groundhog Era*, and each episodic era has its own unique plot. But, as stated way back at the beginning, we know the (not then) ending. As Mark Twain observed, “History doesn’t repeat itself but it often rhymes”.



In this ever-cyclical world in which we live, as we jump forward to the current episode of “alchemy made easy,” it’s instructive to recall that in the early 1980’s no one believed that the Fed could dampen inflation. Now, the marketplace gives no credence to central bankers’ ability to ‘re-inflate.’ Forgotten is Ben Bernanke’s famous speech from 15 years ago. For those whom have also forgotten, rather than copy the relevant paragraphs, a synopsis from Forbes should suffice:

“Ben Bernanke earned the sobriquet “Helicopter Ben” for his observations in a 2002 speech that “the U.S. government has a technology, called a printing press (or, today, its electronic equivalent), that allows it to produce as many U.S. dollars as it wishes at essentially no cost”, that the existence of this technology means that “sufficient injections of money will ultimately always reverse a deflation”, and that using this technology to finance a tax cut is “essentially equivalent to Milton Friedman’s famous “helicopter drop” of money.”

We are not saying that the cash flow your model is incorporating will lose much more value than your discount rate is factoring in, only that it is a possibility that should be given serious consideration. Is that a helicopter we hear in the distance?

*“Ch-ch-changes  
Where’s your shame?  
You’ve left us up to our necks in it  
Time may change me  
But you can’t trace time”*

-David Bowie



**Ap·praise** (əˈpraɪz/) verb; past tense: appraised

1. to set a value on : to estimate the amount or appraise the damage
2. to evaluate the worth, significance, or status of; especially : to give an expert judgment of the value or merit of

*“Does anybody really know what time it is  
I don’t  
Does anybody really care”  
– Chicago*

Moving on to a discussion on appraising businesses, in a world without useful discount rates, a few points to make. Point one: DCF models are fine if they are taken with a grain of salt, are used over many scenarios, and ARE NOT the only valuation measure being used. Point two: multiple valuation metrics should always be used, in the current environment more than ever. Point three: a metric that works well to appraise a business in one industry may be of little or no value when appraising another. In particular, asset heavy businesses are very different than asset light businesses, and cyclical businesses can be quite different from less cyclical ones. What follows are some commonly employed measures:



## Valuation Metrics

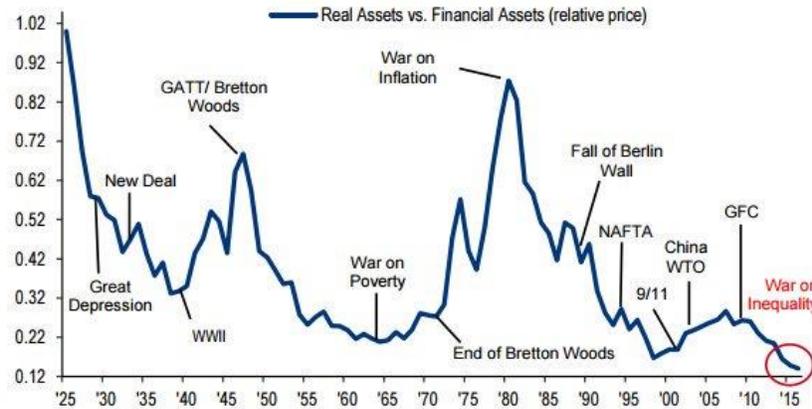
Price to:	Positives	Negatives
Revenue Generator: Megawatt of production capacity; Phone Subscribers; Replacement Cost of Building; Liquidation Value of Resource Reserves; Pharma Pipeline; Hectares of Farmland; Square Feet of Retail Space	Puts things in perspective Helps spot fraudulent accounting	Points in time Doesn't incorporate cost or yield Can be very long term Fails to account for growth
DCF	Right inputs yield correct output Tries to incorporate the future	"Discounted cash flow to us is sort of like the Hubble telescope – you turn it a fraction of an inch and you're in a different galaxy. There are just so many variables in this kind of analysis– that's not for us." -Curtis Jensen What is the value of cash in the future?
Book Value	Best estimate of value per IFRS	Point in time measure Often includes intangibles of dubious value Values change
Tangible Book Value	Best estimate of tangible value per IFRS	Point in time measure Leaves out intangible that may be valuable Values change
Earnings (TTM)	Reflects actual earning (per accountants)	Point in time measure Worthless for cyclical companies Worthless for secular change Easily manipulated
Earnings (Forward Earning)	Reflects earning potential (analysts)	Point in time measure Worthless for cyclical companies Worthless for secular change Human Error

Since every metric has its virtues and its drawbacks, it seems silly to use only one. But in addition to multiple metrics, as mentioned, thought needs to be given to industry suitability. For example, most mature tech businesses don't gain their competitive advantage from the capital employed in the business. As a result, price-to-book value is not a particularly helpful metric with which to appraise Microsoft. Price-to-earnings is a decent metric for that fairly stable, mature business. Conversely, P/E is a particularly poor way to value highly cyclical businesses. They famously should be purchased at the bottom of the economic cycle, when earnings are depressed, resulting in high P/Es. Tangible assets are interesting. If they meet a need, and will do so well into the future, they have value and thus can be expected to generate cash in the future. Buildings can sell below the cost of building more buildings for a while, but not for too long. Otherwise, an increasing population will have no place to stay. Prices will increase to the cost of building a new one. This is known as replacement cost and is a quite useful valuation tool. Ditto for tankers and other ships. The price of extracting oil from an existing well is important information and can help establish net cash to be generated if a well were to be liquidated. Liquidation value is a useful tool to establish downside protection, but should be used in conjunction with other data. Liquidation value is theoretical, since managements seldom choose to liquidate themselves out of a job. Ongoing businesses need to factor in the price of replacing the reserves that are being liquidated. We call this the "incentive" price. As with the building mentioned above, commodities of all types should be expected to fluctuate around their



replacement cost/incentive price. Utilities such as electricity generators and distributors and communications companies also should be viewed with replacement prices in mind, but can be adjusted up due to monopoly status, adjusted down due to regulatory issues, or both. Hard assets in general are under appreciated currently. The chart below illustrates this point.

**Chart 2: Real Assets at all-time lows relative to Financial Assets**



Source: BofA Merrill Lynch Global Investment Strategy, Global Financial Data, Bloomberg, USDA, Savills, Shiller, ONS, Spaenjers, Historic Auto Group. Note: Real Assets (Commodities, Real Estate, Collectibles) vs. Financial Assets (Large Cap Stocks, Long-term Govt Bonds)

This commentary is already lengthy, so we'll stop here. Our next commentary will talk more about values currently available in the public equity markets and the advantages therein.

We are confident that value investing will return to prominence soon enough and that speculating on trends will yet again be exposed for what it is. For better insights on valuing assets versus forecasting earnings, please see literature from some of the great minds of investing: Templeton, Graham & Dodd, Marks, Eveillard, Buffett and Munger.

*"The only thing we learn from history is that we learn nothing from history."  
- Friedrich Hegel*



### Important Information and Disclosures

The information presented herein is confidential and proprietary to Kopernik Global Investors, LLC. This material is not to be reproduced in whole or in part or used for any purpose except as authorized by Kopernik Global Investors, LLC. This material is for informational purposes only and should not be regarded as a recommendation or an offer to buy or sell any product or service to which this information may relate.

This letter may contain forward-looking statements. Use of words such as "believe", "intend", "expect", "anticipate", "project", "estimate", "predict", "is confident", "has confidence" and similar expressions are intended to identify forward-looking statements. Forward-looking statements are not historical facts and are based on current observations, beliefs, assumptions, expectations, estimates, and projections. Forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties and other factors, some of which are beyond our control and are difficult to predict. As a result, actual results could differ materially from those expressed, implied or forecasted in the forward-looking statements.

Please consider all risks carefully before investing. Investments in a Kopernik Fund are subject to certain risks such as market, investment style, interest rate, deflation, and illiquidity risk. Investments in small and mid-capitalization companies also involve greater risk and portfolio price volatility than investments in larger capitalization stocks. Investing in non-U.S. markets, including emerging and frontier markets, involves certain additional risks, including potential currency fluctuations and controls, restrictions on foreign investments, less governmental supervision and regulation, less liquidity, less disclosure, and the potential for market volatility, expropriation, confiscatory taxation, and social, economic and political instability. Investments in energy and natural resources companies are especially affected by developments in the commodities markets, the supply of and demand for specific resources, raw materials, products and services, the price of oil and gas, exploration and production spending, government regulation, economic conditions, international political developments, energy conservation efforts and the success of exploration projects.

Investing involves risk, including possible loss of principal. There can be no assurance that a fund will achieve its stated objectives. Equity funds are subject generally to market, market sector, market liquidity, issuer, and investment style risks, among other factors, to varying degrees, all of which are more fully described in the fund's prospectus. Investments in foreign securities may underperform and may be more volatile than comparable U.S. securities because of the risks involving foreign economies and markets, foreign political systems, foreign regulatory standards, foreign currencies and taxes. Investments in foreign and emerging markets present additional risks, such as increased volatility and lower trading volume.

The holdings discussed in this piece should not be considered recommendations to purchase or sell a particular security. It should not be assumed that securities bought or sold in the future will be profitable or will equal the performance of the securities in this portfolio. Current and future portfolio holdings are subject to risk.

**To determine if a Fund is an appropriate investment for you, carefully consider the Fund's investment objectives, risk factors, charges and expenses before investing. This and other information can be found in the Fund offering materials, which may be obtained by contacting your investment professional or calling Kopernik Fund at 1-855-887-4KGI (4544). Read the offering materials carefully before investing or sending money. Check with your investment professional to determine if a Fund is available for sale within their firm. Not all funds are available for sale at all firms.**