Sankala Group

Waimea Bay, O'ahu – *Private Client*

Money Supply & Discount Rates

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During the heavy market gyrations of COVID we sent out a compilation of excerpts from *Reminiscences of a Stock Operator* by Edwin Lefevre. Published in 1923, it contains many jewels, but this one stands out:

> *"The desire for constant action irrespective of underlying conditions is responsible for many losses in Wall Street even among the professionals, who feel that they must take home some money every day, as though they were working for regular wages."*

Outside the excellent reminder that patience collecting dividends and interest is half the investing battle, the other crux here is this concept of "underlying conditions." What are underlying conditions? Which ones are important to investors and which are not? Of

course, right now, with high unemployment, closed businesses, limited travel, and general malaise, it would be easy to conclude that underlying conditions have turned negative.

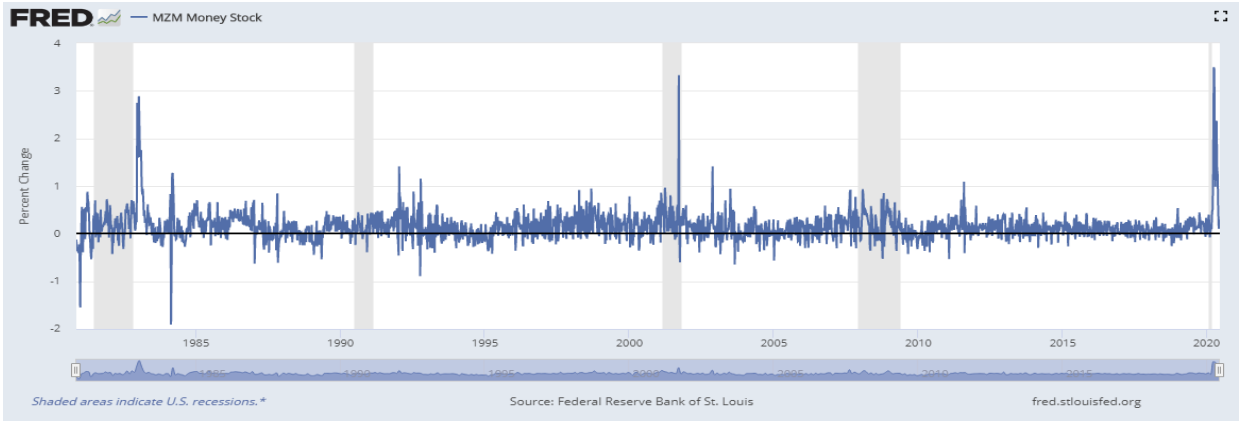
While this may be true for the economy, it is decidedly less true for financiers and investors. This letter will examine how that is possible, and why Wall Street and Main Street are seeing the world so differently—which they do far more often than people suspect.

Two underlying conditions need serious review by investors right now because they have changed so fast and involve so much money. They are **MZM Money Stock**, and what analysts call **discount rates**.

MZM or "money zero maturity" is a broad measure of money supply published by the St. Louis Federal Reserve. It includes all cash currency, checking, savings, and money market funds in the USD (US Dollar) ecosystem. To be included, an asset must be redeemable at par at any time, so it is a pretty good measure of the most liquid USD in the system. MZM stood at 1 trillion USD in 1982 when interest rates were their highest in living memory. It now stands at 21 trillion as we approach the lowest interest rates in living memory:

MZM:

% Change in MZM:



You can see MZM spiked dramatically—by a stunning 4 trillion USD—since February. This is because the vast majority of COVID stimulus came in the form of direct IRS checks to individuals, PPP loans, and other funds which created brand new checkable cash for people and organizations.

During that same period, interest rates on the 10y Treasury also plummeted 65% from 2% to 0.7%. Since bonds increase in value when interest rates fall, that means Treasury bond investor's accounts grew materially over the period, adding approximately 5 trillion to the USD ecosystem.

These conditions are directly beneficial for existing investors in a number of ways:

- Some people will save the new cash and invest it
- Some people will spend the new cash at companies owned by investors
- Some people will take the new cash in combination with low interest rates and make down payments on larger financed purchases (homes, cars, etc.)
- The likelihood of each of these events above is much higher than normal because spending this new cash on entertainment, like sports, movies, restaurants and bars is nearly impossible right now.

These are all pretty easy to understand positive "underlying conditions." There is, however, one lesser understood, but extremely powerful condition, which I personally think is the most important condition in our financial environment today. That is the commensurate drop in discount rates that came alongside the huge drop in interest rates.

The so-called "smart money" investment world is driven by models we call *discounted cash flow* models (**DCF)**. These models analyze the cash flows likely to take place during an investment's lifetime, including the initial investment (- cash), dividends, rents, or interest payments over the course of the investment (+ cash), and then the final sale of the asset (+ cash). One of the driving variables in these models is the *discount rate*. This rate (%) is chosen by the investor and is often either the yield on a Treasury bond with a similar maturity date as the prospective investment, or in the case of a corporate investor, it is the average cost of capital for that company. The discount rate basically represents a hurdle rate the investor has decided must be met by any investment to justify taking action. The model calculates a figure called *net present value **(NPV)*** which, if positive, means the subject investment is likely to beat the hurdle and the investor should take the opportunity.

What COVID and the recent crash in interest rates did is dramatically lower individual and corporate hurdle rates. If a 1-year certificate of deposit (CD) now only pays 0.2%, an investment that produces a mere 1.0% can rightly be seen as 5 times more attractive. Anyone using Treasury bond yields as their hurdle (which implicitly is most retirement investors with a fully paid mortgage) must now lower their discount rate to match the new environment. Corporate investors can also now borrow for less, so their discount rates are being written lower as well.

Of course many people know, or have heard, that lower interest rates mean higher asset prices—but the vast majority of people assume that relationship is linear. The human mind understands linear cause and effect quite well, but as I will demonstrate below, this relationship is actually not linear. **Understanding the mathematical reality of how these models function is more critical than ever as we move into lower nominal interest rates.**

DCF models exist in the world as templates, don't get modified often, and are most frequently used by people who did not build them. If we have an edge in knowing which variables are gaining output strength (i.e. becoming more controlling) and which are losing influence, we then have information most other people don't have, which is our favorite criteria for making investment decisions.

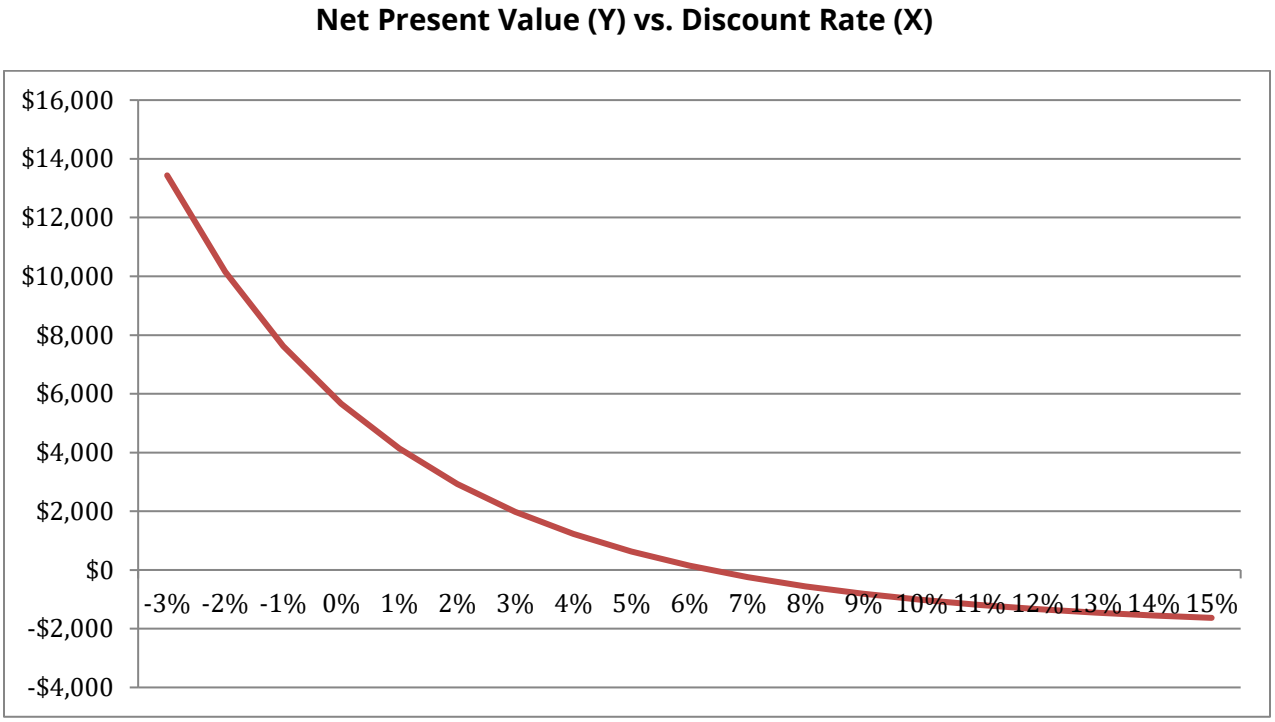
To illustrate for readers, I've plugged a single share of the S&P 500 into our house built DCF model with our estimate of earnings for 2020 (~$120 per share) and then ran it across an array of possible discount rates all the way from 15% down to negative 3% (why not be ready for negative interest rates ahead of the wolf-pack?).

The table and plot below shows the reality of this relationship:

SPX Index DCF (One Share)	
Current EPS	120.00
Growth Rate (First 5 Years)	6.0%
Growth Rate (Next 10 Years)	5.0%
Discount Rate	1.0%
Current Price	$3,100.00
Current P/E	25.8
Current Earnings Yield	3.87%

Discount Rate	**Net Present Value**
-3%	$13,437
-2%	$10,156
-1%	$7,627
0%	$5,665
1%	**$4,134**

2%	$2,933
3%	$1,985
4%	$1,232
5%	$631
6%	$149
7%	-$239
8%	-$554
9%	-$811
10%	-$1,021
11%	-$1,193
12%	-$1,335
13%	-$1,452
14%	-$1,550
15%	-$1,630



Clearly this relationship is non-linear. The lower discount rates fall, the more they control the model's output. To summarize, for each tick lower investor's discount rates go, an asset seller can reasonably ask for *more than one tick* higher in price…and the size of that *more than one tick higher* keeps growing each time rates fall further.

If we follow our model to its natural conclusion, we arrive at a place that actually makes some intuitive sense. Imagine I own a U.S. government bond that pays zero percent. You own a share of Apple priced so high it only yields 1% in earnings (100 P/E). I then ask you if

you're willing to trade with me; my bond for your stock? You think about that for 10 seconds then reply:

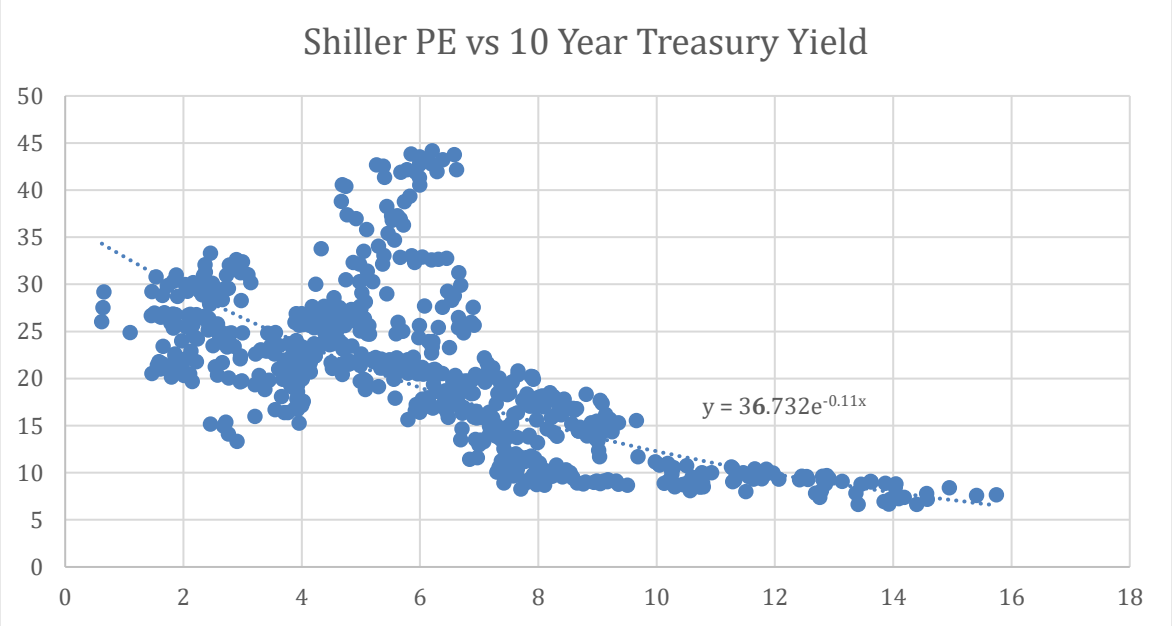
> *"My Apple stock pays me a little something, and it might even grow what it pays me over time. Your bond is a piece of paper that pays nothing, with no hope of growth in that payment. Besides, that eyeball floating on top of the pyramid on the back of your paper has always freaked me out. I think I will just keep my Apple stock. I actually use the iPhone. It's a pretty amazing tool, and its calculator clearly confirmed for me that anything multiplied by zero is, indeed, zero."*

And so we have no trade. The price of your Apple stock goes higher and my bond's price goes lower.

While such theoretical models are helpful in attempting to understand the world, we are wise to check our work to see how they have held up in historical practice. The two pieces of historical data we needed to confirm that are:

1) Discount Rate - we used the 10-year Treasury yield as the discount rate.
2) Net Present Values - we used the Shiller PE of the S&P 500 as a smoothed value relative to a single dollar of earnings.

Using monthly data from January, 1962 through June, 2020, we created the scatter plot below:



While the data has considerable noise, you can clearly see the historical relationship between the yield on the 10-year Treasury and the Shiller PE of the market is similarly non-linear. Like our DCF model, we see that the net present value (Shiller PE) moves increasingly higher as the discount rate (10-year Treasury yield) goes lower.

As of this writing, the 10-year Treasury yield is 0.64%. Plugging that into the best fit equation, we find that the "fair" Shiller PE of the market is currently ~34, while the actual Shiller PE is 29, suggesting that the market is 16-17% undervalued.

Looking more closely at our scatter plot, we note that points above the best fit line represent times when the market was overvalued, while points below the line are when the market was undervalued. In the last twenty years, it is instructive to look at the two largest extremes to give an idea of how much the market can oscillate around this hypothetical fair value. In January of 2000, the 10-year Treasury yield was 6.58% which predicts a fair value Shiller PE of 18; the actual Shiller PE at that time was 44 which is ~140% overvalued. This occurred near the peak of the tech bubble, so it serves as an example of how overvalued the market can become. Conversely, in March of 2009, near the bottom of the financial crisis, the 10-year Treasury yield was 2.91% which predicts a fair value Shiller PE of 27; the actual Shiller PE at that time was 13 which is ~50% undervalued.

Said differently, our research here demonstrates how a dramatic drop in discount rates can cause DCF models to suggest higher prices even for companies that have *shrinking* earnings—which is the exact circumstance we have today. The S&P's earnings are declining, yet the price keeps pushing towards all-time highs. This is a problem for human emotions, but is not at all problematic for financial models.

Of course, where this analysis leads is an unsettling place that rationalizes paying historically high valuations for stocks, which we *know* won't work well over the long-term. But simultaneously, we also *know* buying bonds with zero yields won't work for people's retirements, which realistically require 3% yields. Where does this leave us?

Frankly, it leaves us playing a pretty risky game climbing up high on the slide depicted by the red line in our first plot. The rewards are potentially quite large as asset prices climb higher, so we don't want to sit out during the rise, yet we must also watch more closely than ever for signs of rising interest rates or discount rates—which would essentially pour oil on that slide. If that were to happen, we would expect declining stock and bonds prices in tandem, which is a real investor crisis. It is for this reason we started migrating

remaining bond exposures for clients slowly towards gold, an asset that historically has had a good probability of performing well in such a scenario.

I'm not a big fan of gold. In fact, until recent quarters, I have never owned it for my own account. But I have learned to look past my mental biases when the underlying math and facts are sending a clear message. Throughout my life it has always made more sense to own bonds, which pay interest, rather than precious metals which don't pay interest. However, when bonds no longer pay any meaningful interest, and the currency they are denominated in is being increased in supply making each dollar less valuable, the prospect of owning gold, something people have placed thousands of years of trust in with a nearly fixed supply, looks more and more attractive. The opportunity cost of forgoing interest in exchange for the security of gold has never been lower in living memory. So, we reluctantly are becoming buyers of gold here.

You can think of it this way: we need to remain long stocks because the upside potential is *increasingly* large if discount rates remain low or head even lower. The last time around, we decided to use long-dated U.S. Treasuries for clients as an emergency parachute. They opened up nicely and caught air during the fall. Now, with interest rates so low, we are pretty sure that parachute won't work as well. Bonds without interest may not hold air the same way bonds that pay decent interest do. So we need a new parachute, and that parachute is actually a heavy metal–gold. For certain clients, crypto currency also makes sense, although concerns about the "airiness" of crypto remain for many people.

The stock market plane is flying pretty high again. While we are enjoying the view, we do need to start repacking the chute. The cost of doing so is pretty low—so it is only prudent.

Happy Independence Day.

Keep thinking independently and build your own models and dreams!

Best,

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