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Mast Investment Letter *Making the Important Decisions*
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Internal Churning
April continued the Trump rally on the back of good earnings results. The **S&P 500 was up 1.03%, up 7.16% year to date.** Macro-economic optimism moderated after government policies favorable for the economy and markets went off to committee. Good earnings boosted some stocks. Low first quarter real GDP took the wind out of healthcare and financials. Higher growth tech shares got a nod. International stocks are getting some attention due to cheaper valuations and improving growth prospects. EAFE Index was up 2.56% April, now 9.99% year to date. **Emerging markets were up 2.19% April, now 13.88% year to date**. Commodities continue to settle down 1.65% in April, down 3.62% year to date. Fixed income world of decelerating returns was up (Aggregate Bond Index) +0.79% April, up 1.66% year to date. Certainly that decelerating fixed income return is further encouragement for investors to move funds to equity investments. Low interest rates continue to influence many transactions.

Trillion Here, Trillion There
Illinois Senator Dirksen said, related to federal government spending in the 1960s, that a billion here and a billion there and pretty soon you have real money. A half century of good economic growth now increases the large size of money to trillions. Gross domestic product is now running at about $19 trillion, federal debt about the same. **As a piece of this aggregate economy, credit cards, auto loans and student loans now exceed $1 trillion each**. "Credit card debt breached the $1 trillion threshold in the U.S., joining auto loans and student debt in crossing that level, and hitting its highest mark since the nation's last recession. New Federal Reserve data released Friday shows that U.S. consumers now owe $1.0004 trillion on credit cards, up 6.2% from a year ago. Economists are looking closely at the **impact of rising rates on consumers' ability to afford the debt they racked up during years of rock-bottom rates**. Looser underwriting standards in several categories, including credit cards and auto, also have led many lenders to warn of higher losses to come." (WSJ 4/3/17) "Worrisome for analysts is that credit-card issuers are finding that their recent estimates for credit-card performance were too rosy. Rising losses aren't so much a sign that the economic cycle is turning, as unemployment remains near record lows. Rather, it is a **result of loosening credit standards among some issuers in recent years and overspending by consumers**. Subprime lending in the credit-card sector has been on the rise in recent years as competition has intensified and lenders have agreed to take on customers with lower credit scores in search of more revenue and greater returns." (WSJ 4/29/17) Low interest rates boosted real estate borrowing and assisted with price recovery depressed from the excessive lending preceding the financial crisis in 2008. Increased real estate prices boosted the amount of equity which homeowners own in their homes relative to their mortgage obligations. **As credit card interest rates are substantially higher than home equity loan interest rates, and also generally not deductible from taxes, mortgage lenders, including wealth managers, promote new home equity lines of credit in order to pay off the higher-cost credit card debts** and to increase their residential loan balances. Here we go again.

There are demographic conditions among both millennial and baby boomers which also retard prospective consumption. The $1.4 trillion of student debt, incurred by both young and middle-aged graduates, is a balance sheet burden that impinges housing consumption. Family formation is delayed. First home purchase is delayed as more young workers rent while working down debt. Delayed starter homes transaction also delays upgrade to pricier homes. Baby boomers' higher-end home sales are repressed just as they want to down-size or relocate for retirement. Rents are high, up to 50-70% of disposable incomes in high-demand employment locations. **Even as worker wages improve, personal consumption expenditures are allocated more to debt support and housing, which leaves less for other consumption**. Middle aged consumers spend more on family healthcare expenses as a proportion of family budgets. These demographic trends decelerate economic growth and serve as headwinds for the faster economic growth sought by government policy-makers. Higher growth is a primary factor in debt support, government revenue, spending, saving and investment. To the extent that economic growth is bi-partisan, **overcoming institutionalized drag on that growth is a good goal**. Financial assets respond positively to accomplishment of organic growth in current conditions.

Unfortunately, both boomers and millennial participate in the student debt implosion underway. "Millions of U.S. parents have taken out loans from the government to help their children pay for college. Now a **crushing bill is coming due**. Hundreds of thousands have tumbled into delinquency and default. In the process, many have delayed retirement, put off health expenses and lost portions of Social Security checks and tax refunds to their lender, the federal government. As of September 2015, **more than 330,000 people, or 11% of borrowers, had gone at least a year without making a payment on a Parent Plus loan**. It is one thread in a web of college loan programs that have **come to resemble the subprime mortgage industry a decade ago, given the shaky quality of many of the loans**. There is no limit to how much parents can borrow. The **number of families** enrolled in Parent Plus jumped more than 60% since 2005, to **3.5 million** as of Jan.1. Many borrowers are poor and older. Federal law bars borrowers from discharging student loans in bankruptcy, except in rare circumstances. Instead, the government reduces tax refunds and social security checks of borrowers, leaving some with below-poverty incomes. The number of Americans who had wages, tax refunds or social security checks reduced because of unpaid student debt increased 71% between September 2010 and September 2015." (WSJ 4/25/17) Similar to health care, education finance experienced price and debt distortion as a result of well-intended but poorly structured government policy.

Low Interest Rates Increase Debt Balance Sheets

Reducing prices increase demand. Zero debt prices increased the supply of debt. "Companies have been loading up on debt based on two assumptions, shared by investors: that economic growth will be slow and it will be steady. This is the **perfect environment for leverage, as low growth keeps interest rates low relative to inflation, while expectations of steady growth means few worry** about a bad year interrupting repayments. The danger is that either assumption proves wrong, and the focus shifts back from profit to balance sheet. Such a shift could be ugly, because there is so much more debt than usually being piled up by companies outside the finance sector. The ratio of debt to operating cash flow of the highest-quality U.S. companies is just slightly down from a record reached last year. **Rather than expanding overall profit, companies have been boosting the return to shareholders by replacing equity with debt** – a zero-sum transfer that can't be repeated indefinitely. Today's market is different from both 2000 and 2007. **Equities are expensive, but still look relatively cheaper compared with debt** on widely used models that compare bond yields to the earnings yield. Finance chiefs like to issue whatever investors will pay the most for, and at the moment that is debt." (WSJ 4/7/17)

While many companies issue low rate debt to decrease costs, **other companies buy debt to increase returns on reserves**. Japan and Germany among developed economies experience zero, even negative, bond yields and this has negative impact on reserves for the obligations of financial companies such as banks, insurance companies and for retirement funds. "The yield on the 10-year Japanese government bond, which had risen as high as 0.15% in intraday trading in February, fell back briefly to 0.005%, a five-month low and close to the negative territory where it stood before the election. Japan's biggest listed life insurer, Dai-ichi Life Holdings Inc., has **lost more than one-fifth of its market value over the past month**, the worst performance among Japanese companies with a market capitalization of at least $10 billion. That has reversed a 53% ascent since the U.S. election. Japanese life insurers typically make money by investing over the long-term the premiums they take in from policy-holders. Many customers buy savings-style products in which they pay premiums during their working years, or sometimes in a lump sum up front, in anticipation of getting it back with interest after they retire. The fall in rates has brought back bad memories of early 2016, when the Bank of Japan's introduction of a negative-interest-rate policy battered financial stocks." (WSJ 4/14/17)

Public Equity Markets and Private Equity Required Returns
Financial asset valuation and required return is relative. Fixed income assets are less risk, adjusted for credit and duration risks, than equity assets. Consequently, lower yield returns on all fixed-income investments **reduce the required returns on equity assets**. This lower required return is evident in **current equity nominal expected rate of return of 6.18% compared to the long-term mean of 9.78%**, a 37% reduction of nominal expected return caused by the pull of low competitive fixed-income yield. These lower expected returns from public equity markets incent investment into higher expected return private equity investments. **Private equity funding benefits from this fund flow, out of fixed-income, into public equity and out of public equity, into private equity**. Private equity investments are less diversified and less liquid while they are identified and negotiated by highly skilled analysts. After a period of time, private equity investors expect to realize returns on their investments. Usually that return is realized through sale of the investment into public equity and debt markets. Into the ninth year of this economic and market expansion, **Blackstone Group LP continues to sell real estate investments, buoyed by that sector recovery from the financial crisis**, and to buy new investments related to other opportunities. "Blackstone Group LP executives said they are preparing to launch new ventures in infrastructure investing and other areas after the private-equity firm notched a record quarter for sales of older investments. Blackstone reported that its first-quarter profit more than doubled as the firm took **advantage of buoyant markets to sell a record $16.6 billion of private-equity, real estate and other assets**." (WSJ 4/21/17) Part of the analysis, and the fund flow, relates to the high valuation of equity markets and the lower expected returns. Leverage and falling prices made real estate attractive in 2009 and energy attractive in 2015. Blackstone has been selling real estate into recent real estate market strength.

Substantial technological improvements of all aspects of the economy continue to attract investors in both the public and private equity markets. This includes information, bio, mechanical and medical technology. Innovation research, development and launch were profitable for investors. Public equity market technology valuations are high for well-justified expectations of growth. There is risk of paying too much for this growth and the supply of tech equity is very high. At the same time, the private equity owners of tech companies are anxious to realize their investment gains in this highly valued/priced public equity market. "An estimated 152 privately held companies have valuations at or above $1 billion. Their ranks have swelled by about 60% in two years. **Public investors are wary of cashing out private companies whose valuations have soared through the abundance of private capital**. All the tech IPOs so far this year have generated a satisfying first-day pop relative to their offering price, but many disappointed thereafter. A **seemingly endless supply of private capital has allowed tech startups to stay out of the public limelight for a longer period while pursuing a growth-at-all-cost strategy**. Now that public investors are seeing those continuing costs, though, many are understandably hesitant to pick up the tab." (WSJ 4/19/17)

The aggregate bond index is a good proxy for fixed income assets. Its yield is 2.59% with a 5.74 year duration and good AA credit. Equity nominal expected returns are better for the additional risk at 6.18%. **Private equity, real estate and partnerships returns are attractive at 8% to 20% for some more additional risk. Investors should be careful about leverage, liquidity and concentration risks of private investments related to those additional returns**. Both the economic and market cycles are mature. Continued moderate economic and earnings growth are probable. Price reversals of private investments can change much more quickly than publicly traded investments, and for longer periods of time.

Whether wealth or private equity managers, infinite data is available to justify probable outcomes. "Campbell Harvey looks at Wall Street and sees a **lot of ideas that are easy to sell but hard to trust**. The **Duke University finance professor is making a career out of challenging research backing the products firms pitch to investors**. Much of it, he says, just isn't sound. His studies have shown that more than half of all research pumped out both by academics and analysts is, in his words, likely false. Mine enough data, and you can find a result that backs up your idea. While his contrary ideas have put him at odds with many on Wall Street, Mr. Harvey's work has shown up in research and strategies employed by

Goldman Sachs Group, GVO LLE's Jeremy Grantham and the Federal Reserve Bank of New York, among others." (WSJ 4/17/17)

The Answer is 2

The **best answer for many economic and financial return questions is 2%**. Since 2000 real GDP growth annualizes at about 2%. Other recent data include the long term expected rate of inflation 2.04%, annualized S&P 500 Index real expected capital appreciation 2.10%, S&P 500 Index dividend yield 2.05%, yield curve 2.09% and 52 week low long Treasury yield 2.11%. In this moderate-growth economic expansion and with interest rate repression entering the ninth year, forecasters would have been considered genius if they responded about future economic growth and yield with the number 2. For various reasons, starting in 2009, forecasters including the Federal Reserve Bank perceived future growth accelerating to 3% or beyond. Most years started out slowly, accelerated into year end and finally realized 2%. Other than some quarterly 3% observations, 2% ruled year-over-year. Last year, growth fear and greed influenced equity markets into two pull-backs, the second of which coincided with an incomprehensible group-identity conflicted U.S. presidential election. Simply the conclusion of painfully uninteresting electoral marketing lifted the emotions and supposedly economic animal spirits of investors.

"A growing number of forecasters are beginning to reconsider their bullish outlooks for the U.S. economy as doubts grow over the extent to which President Donald Trump will be able to implement his agenda. Following the election, respondents to the The Wall Street Journal's monthly survey of forecasters significantly raised their estimates for growth, inflation and interest rates. **Growth forecasts for the first quarter have come down. In December the average forecast called for 2.3% growth in the first quarter**. **That fell to 1.9% in March and dipped again to 1.4% in this month's survey**. For the first time since the election, less than 50% of economists saw upside risks to their economic forecasts." (WSJ 4/14/17) Forecasters should take a rest and observe what current, trending economic and financial market data tells us. The correct answer is still 2%.

Hoisington Investment Management is a fixed income research and management company in Texas. Appropriate for fixed-income analysis, that firm considers economic and market conditions. Contrary to most other analysts, their expectation is for lower economic growth and lower interest rates due to conditions, many of them unique, at this stage of the economic and monetary policy cycle. Unique conditions this cycle include: **weak population growth and aging, low expansionary growth rate, high total domestic nonfinancial debt including leases and unfunded pension liabilities, experimental stimulus, reduction of bank liquidity and negative money/credit creation,** cyclical trough of Treasury bond yields several years after the end of economic contraction (the next one). "Our economic view for 2017 remains unchanged. We continue to **anticipate no more than 2% growth** in nominal GDP growth for the full calendar year. This is in line with the recent trends in M2 growth coupled with an anticipated decline the M2 velocity of 3.6%. The **risks, however, are to the downside**. M2 was probably boosted by what will eventually be a transitory drop in Treasury balances at the Fed. Although not the main determinant, a rise in short-term rates would negatively influence velocity. The downturn in nominal GDP growth suggests that a **rise in inflation to above 2% will be rejected and that by year end the inflation rate will be considerably slower**. In such an economic environment long-term Treasury yields should continue to work irregularly lower over the balance of the year. Our view on bond yields does not change if the Fed further boosts the federal funds rate this year. Any additional increases will place further downward pressure on the reserve, monetary and credit aggregates as well as tighten bank lending standards. Such actions will now allow the economy to regain the economic momentum that was lost in 2016 and in the early part of this year. Thus, the secular low in bond yields remains in the future, not the past." (Hoisington Quarterly Review and Outlook, First Quarter 2017)

Economic Conditions and Interest Rates

We monitor and analyze weekly economic and business reports. Weekly and special reports are posted in the Investment Strategy section of the website. Referring to the 3/10/17 Mast Week Report, we reported on the **estimated levels of interest rate based on our observations of the relationships between rate levels and selected economic conditions (GDP, inflation and Fed Funds rates) from 1953-2007**. We use that period of time for analysis because of the historically low, zero Fed funds rate and interest rate quantitative easing beginning in 2008. Assuming that the Hoisington forecasts of economic trends into year-end are low, **input 2.5% GDP, 2.0% inflation and a 1.25% - 1.50% Fed funds target rate, the estimated levels of Treasury bonds are: long-TIPS 1.20%, 10-year 2.90% and 30-year 3.40%**. That compares to current levels of 0.85%, 2.33% and 2.96%. These higher interest rates would be moderately negative for stocks. **All else remaining the same, the equity risk premium would be reduced by 0.50%, bringing it from currently about average 3.20% to 2.70%**. This would also cause modest declines in the prices of fixed-income assets, more so for longer duration. Of course, all things are not always equal, so we monitor these variables as their inputs and prices change over time and in different relationships to each other.

Hard News versus Soft News

Referring to the Mast Report Week 4/21/17 we discuss the differences between hard news (actual economic and business data) compared to soft news (forecasts or expectations of changing conditions yet to occur). For many different reasons at different times, market prices move in response to forecasted change. We discern that market price changes demonstrate **changing investor expectations measured by already realized and known data and relationships**. Lately, for all the discussion about the new executive and congressional government branches the markets changed their expectations for economic and earnings growth. To the extent that lower taxes, financial and structural healthcare modifications and regulatory regime adjustment improves, or not, growth and earnings, markets respond. Perceived risk changes. Through these letters and reports we keep readers informed what our models communicate about prices, values, interest rates, spreads, risk premiums and what that information says about changing investor expectations. **The inputs are hard news (realized data) and not forecasts (yet to occur)**.

Spinning Tops

Like any organized system, there are many moving parts within the total system. This is true in human bodies and their governments. The soft news of human feeling and **group identity is the primary focus of contemporary government**. Hard news such as operational service delivery, financial sustainability and service prioritization and maximization is a subordinated interest for government participants. Spend a few minutes on Facebook. It is refreshing that recent discussion of government policy even considers the **opportunity and public policy implications of improving economic growth from its doldrums since 2000**. Within the public policy system, this ignites the infinite spinning tops of group identity and micro-policy competition. Ultimately all those moving parts must survive, or not, within the entire system. **Resources are scarce, even in the personality-disordered public sector, $6.65 trillion of our real U.S. economy.** That is enough capital to accomplish great good or to self-destruct. To the extent that entire GDP can reaccelerate above 3%, all the spinning tops will benefit, whether they really care or not.

Investment as part of the economy is an integral part of economic growth. The component spinning tops are dedicated to hard data related to the freedom of choice and action. The goals are different from group identities and biased to risk adjusted return on investment. Within the solar system of investment activity, real GDP is the sun and many planets are held by its gravity, out to the edge of the system. Value investors define and acquire intrinsic value, core gravity which defines a position relative to alternatives. Historical prices are less indicative of current value. "Risk management in the MPT world (which most professional investors live in) is largely represented by the management of the movement and co-movement of asset returns over short intervals using historical return data. **Past relationships are extrapolated into the future**, **directly or indirectly. Many strategies that seek to manage risk by using monthly, weekly, or daily price movements for investors often lead to expensive smooth return lines but not necessarily to lower risk of the permanent loss of capital**. These strategies are designed to sell when markets fall and buy when prices rise. Through attempting to limit downside risk or match a volatility target, the strategies exhibit strong pro-cyclicality: The more markets fall (or volatility rises), the more they sell, and vice versa. Central to sound investing is buying low and selling high, as **determined by price relative to intrinsic value**. Not only do these trading strategies generally ignore valuation, they buy when prices are higher, not lower." (Morningstar April/May 2017)

Valuation is important to returns, so is time and dividends. The sluggish economic recovery resulted in a low volatility bull market this cycle. Also, dividends are slightly more important to returns than valuation. Current investor sentiment is buoyed by recent earnings acceleration, but historically that is less contribution to returns than dividends and valuation: "The current bull market is slow by historical standards. It ranks 17th in velocity out of the 23 market cycles that we studied. This same phenomenon occurred in the bull market that followed the Great Depression, the only other bear market that was more severe than the financial crisis of 2007-2008. On average, over all rolling 10-year periods, each source **contributed the following percentage to total return (ordered from biggest to smallest contributor): 1) Dividends: 31%, 2) Valuation changes: 28%, 3) Inflation: 25% and 4) Earnings growth: 16%."** (Morningstar April/May 2017)

Our calculation of equity expected returns results from dividends, earnings, valuation and momentum. **Recently equities are over-valued 13.91%.** That condition can continue for an extended period of time. **The year-ahead return is 5.35%.** The long term expected nominal return is 6.18%. These lower than historical average expected returns and over-valuation causes an increasingly more detailed search for investment opportunity among unlimited, unrelated and occasionally correlated data. "Data scientists at Coatue Management LLC spent the past few years digging into new data sets to gain an edge in investing. Now, the firm is **betting on data science itself as hedge funds across Wall Street push into big data analysis** to find trading opportunities. As more hedge funds dig into growing amounts of data available that can give indications on revenues at companies ahead of quarterly announcements and hints at economic growth before government numbers are published, they are hiring more data scientists to do more intensive analysis than hedge funds are used to doing. Domino's software allows data scientists to run experiments and analyze data in a collaborative program, which cover new trends and hand them to portfolio managers to act on, finding hidden patterns in markets. **More investment firms delve into alternative data."** (WSJ 4/27/17)

The volume of research and quickly-changing criteria are cancelling out slight advantages of insights. "The godfather of smart beta is having fresh doubts about how some on Wall Street are using the increasingly popular passive-investing strategies he pioneered. Smart-beta funds, which try to beat standard index funds' returns by allocating money based on factors like companies' dividends payments, sales or volatility, **attracted record inflows last year**. According to BlackRock Inc., which operates several of the biggest smart-beta exchange-traded funds, they are **headed toward $1 trillion** under management globally by 2020. Investors poured money into low-volatility funds for much of last year, then dumped them as stocks surged to new records last autumn." (WSJ 4/29/17)

Investment firms are not the only consumers of big data. The day-traders of 1999, baby boomers, are the big data traders with their retirement dollars. They are smart, competitive, insightful and attentive to recent price moves (momentum). A danger signal to market condition is the enthusiasm and subscription that brought us IPO mania in 2000 and real estate moguls-gone-wild in 2007. "When stocks rose after last year's U.S. presidential election, DryShips Inc. left the market far behind. The little known Greek dry-bulk carrier's epic one-week rally **pushed its shares up by 1500% for no apparent reason**. The rally between Nov. 9 and Nov. 16 led the company's market value to surge from about $5 million to about $80 million. Individual investors remain obsessed with DryShips. Since the mysterious surge in its share price, there have been an average of more than 17,000 mostly bullish mentions a week of DryShips on **social investing site StockTwits, a favorite of fast-trading small investors**." (WSJ 4/28/17)

Coming soon to these pages and the Mast website is both index, asset class and stock analysis based not just on big data, but also good data (that is accurate and useful for investment decisions). Big data is available everywhere, and free, especially at the brokerage firms, tweets and twits, multi-colored graphics, precise and appealing. Remembering that the free big data is paid for, somehow and somewhere, with product transaction sales revenue, does the product or the transaction result in good investment return? It does not matter after the transaction so the quality of information is irrelevant. There is a market for actual investment decision criteria, independent of product sales, financial plans, life-coaching and dog-walking. **Investments need a contextual framework**. Stay tuned here for more. Keep a close eye on that DryShips StockTwits research. See the website for strategy and weekly reports to follow during May.

Respectfully,

Jim Henderson
Mast Investment Advisors LLC

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Firm Description:

- Mast Investment Advisors LLC is Registered Investment Advisor (RIA) in the state of Illinois.
- Mast Investment provides active index money management services for its clients.
- To minimize trading expenses and to preclude conflicts of interest, Mast Investment manages its clients' assets on a discretionary basis at independent discount brokerage firms.
- Mast Investment receives fees only from its investment clients for this service, and receives no compensation or consideration from any other provider of financial services or products.

Investment Thesis:

- Active money managers (portfolio and mutual fund managers), generally underperform passive equity and fixed income indexes, and create much higher costs and expenses.
- The overwhelming portion of investment return is determined by strategic allocation to asset classes, and not by picking individual securities or funds.
- Over extended periods of time, different asset classes, and different components of those asset classes, perform better than others.
- Investors will, generally, be better served by utilizing index investments, and specifically, those index investments which may perform better than others. Index exchange traded funds provide broad diversification and direct replication of specific index performance.

Investment Methodology:

- Using models previously used over a ten year period for individual stock selection, Mast Investment created models to identify and to monitor superior index performance.
- Mast Investment changes asset allocations among asset classes, and within asset classes, based upon risk adjusted fundamental and technical analysis.
- Each client has a specific, neutral asset allocation provided, preferably, by an investment policy statement from a plan provided by a Mast Investment approved independent financial planner.

Investment Team:

- James D. Henderson, with 25 years of investment management experience, Kellogg MBA, Duke BA, is manager of Mast Investment in its Northfield, IL office.
- Research and decision criteria are in consultation with John R. Tilton, CFA and his investment research models.

Management Fees:

- Fees (generally 1% per year) and other important disclosure information are contained in the firm ADV, filed with the state securities department, and provided to all clients and prospects by Mast Investment.

Investor Communications:

- Clients receive monthly statements from their broker, quarterly statements, performance reports and billing statements from Mast Investment, and monthly investment letters.
- Current, and all previous, investment letters are posted at the firm website under the communications section.
- With client approval, Mast Investment will work with the client's other professional advisors and planners, striving to integrate investment management with other financial needs and goals.