N|B

Option Group

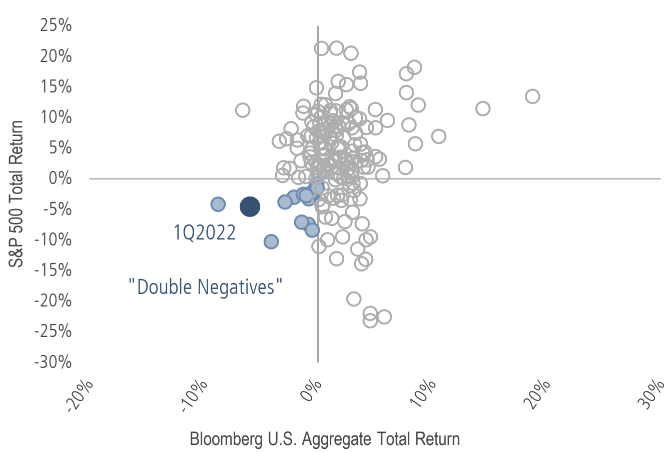
A Rare Double Negative

Economies and financial markets always seem to present situations that possess enough ambiguity and lack historical analogs to keep investors uncertain about the future. Hence our long-term conviction in incorporating volatility-based strategies in portfolios to capitalize on market uncertainty.

The current dilemma for investors is no exception. The Federal Reserve has set a course for an aggressive rate policy to fight inflation levels that haven't been seen for a generation. Layer on low unemployment, large government deficits, a changing geopolitical landscape, shifting environmental and social priorities, and relatively high equity valuations and the odds of a 'soft landing' for equity markets seem incredibly low.

Thus, with a rare 'double negative' quarter for the S&P 500 Index ("S&P 500") and the Bloomberg U.S. Aggregate Index ("US AGG"), a 60/40 equity/bond portfolio suffered its worst quarter since September 2008. The scatter plot below provides the quarterly returns for the S&P 500 vs. the US AGG since 1976. Notably, there have only been 15 out of 184 quarters with both indexes in negative territory.

QUARTERLY INDEX RETURNS
March 1976 – March 2022



Source: Bloomberg LP

The 'double-negative' quarter resulted in the 4th worst quarter for the 60/40 blend portfolio since the US AGG incepted in 1976. The following table provides the 15 occurrences of 60/40 'double negative' quarters since 1976.

Rank	Quarter End Date	S&P 500 Index	Bloomberg U.S Agg.	60/40 Blended Portfolio
1	9/30/1981	-10.23	-4.06	-7.76
2	3/31/1980	-4.12	-8.71	-5.95
3	9/30/2008	-8.37	-0.49	-5.22
4	**3/31/2022**	**-4.60**	**-5.93**	**-5.13**
5	12/29/1978	-7.06	-1.40	-4.80
6	3/31/1977	-7.45	-0.81	-4.79
7	3/31/1994	-3.79	-2.87	-3.42
8	6/29/1984	-2.99	-2.07	-2.62
9	3/30/1990	-3.25	-0.80	-2.27
10	6/30/2008	-2.73	-1.02	-2.04
11	3/31/1992	-2.53	-1.28	-2.03
12	6/30/1981	-2.30	-0.33	-1.51
13	3/31/2005	-2.15	-0.48	-1.48
14	6/30/2006	-1.44	-0.08	-0.90
15	12/30/1977	-0.86	-0.08	-0.55

Source Bloomberg LP.

Things We Believe to be True but Cannot Prove

At the end of last year, we suggested the real interest rates would be the most important stat of 2022 and inflation data and the U.S. Fed's comments have not disappointed.

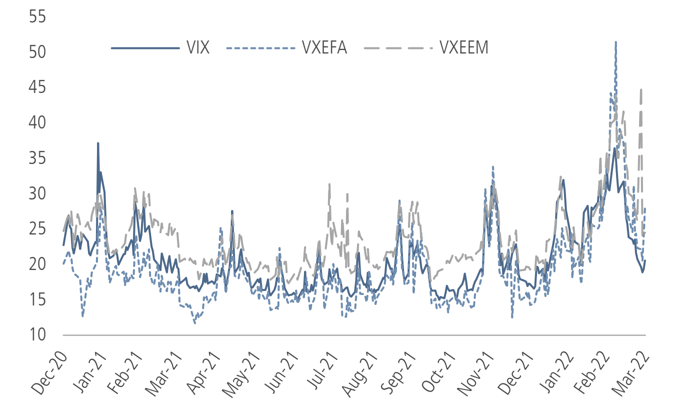
Which brings us to our belief that inflation or the fight against inflation will continue to promote elevated levels of equity market volatility. The challenge is that just about every analysis we could think of shows volatility dropping during periods of rising interest rates. The obvious reason for this relationship is that, generally speaking, during prior rate cycles the economy and financial markets were recovering from weakness and high volatility levels while the U.S. Federal Reserve sought to normalize rates at a modest pace always seeking a 'soft landing'.

We believe it is a mistake to assume the same relationship will hold in the current inflationary environment. The S&P 500 is near all-time highs with solid corporate profitability, the yield curve has inverted, and the Fed will need to be more aggressive in its policy than in previous rate cycles. We just can't see how this leads to a low equity volatility environment over the next few years. Please see the following charts of the Cboe S&P 500 Volatility Index (VIX), the Cboe iShares MSCI EFA Volatility Index (VXEFA) and the Cboe iShares MSCI EM Volatility Index (VXEEM). Russia's invasion of

Ukraine is proving to be another short-term market concern, but we believe it has obscured what we believe is the beginning of a longer-term grind for equity markets. As we have stated in the past, we do not believe equity markets will offer negative returns in the coming years, rather they just won't offer double digit annualized rates as they have over the prior decade.

IMPLIED VOLATILITY LEVELS

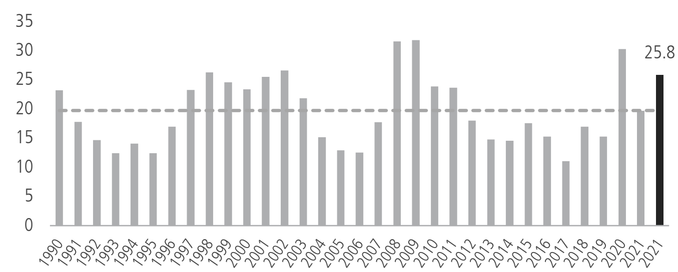
December 2020 – March 2022 (Daily)



Source: Bloomberg LP

AVERAGE ANNUAL CBOE S&P 500 VOLATILITY INDEX ("VIX")

1990 – 2022 (YTD)

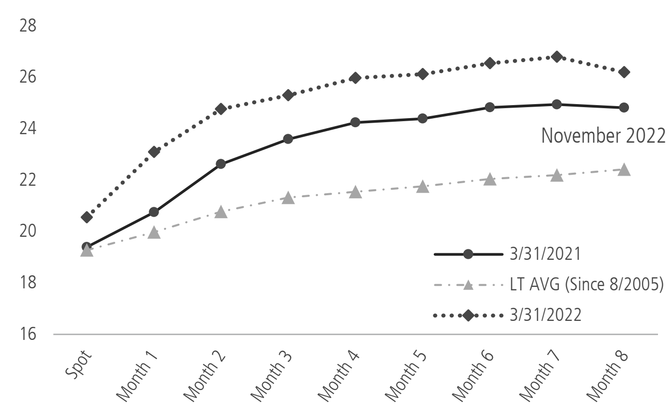


Source: Bloomberg LP

In support of our views, the VIX futures markets seem to have a reasonable amount of skepticism about the future state of market volatility. While not quite as high as a year ago, longer dated VIX futures (chart below) remain at levels well above their long-term averages.

HIGHER VOLATILITY STILL ON THE HORIZON

VIX Futures Curves



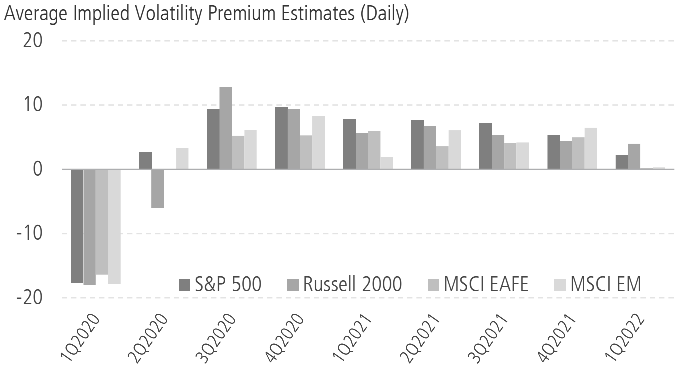
Source: Bloomberg LP

Down but Not Out

The events of the first quarter certainly caught markets off guard and drove realized volatility levels higher. Yet, implied volatility levels were enough to weather the storm and remained flat to slightly positive.

OPTION IMPLIED PREMIUMS

Average Implied Volatility Premium Estimates (Daily)



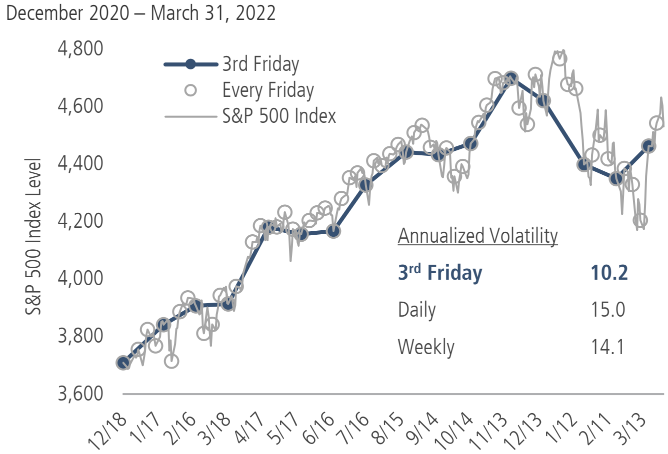
Source: Bloomberg LP

Lady Luck is Real but Always Fleeting

Despite recent events, the S&P 500's spirit continues to be unbreakable with any signs of weakness quickly eroded by renewed investor optimism. Looking at the price path of the S&P 500 (next chart), the reversals between 3rd Fridays have led to remarkable differentials in index volatility levels between daily, monthly and 3rd Friday observations.

REALIZED VOLATILITY DISPERSION

December 2020 – March 31, 2022



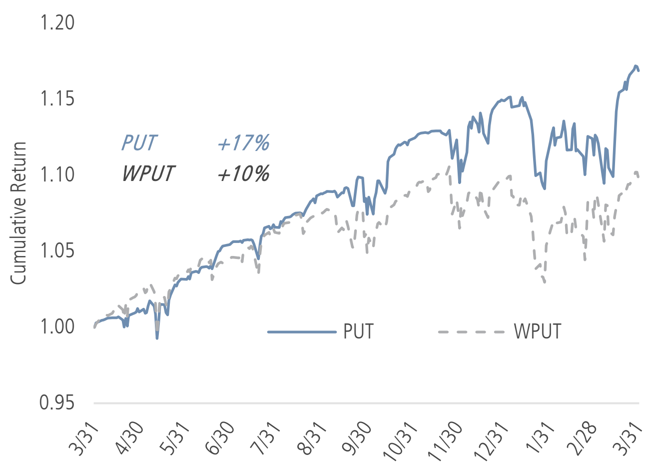
Source: Bloomberg LP

In stark contrast to the recent path of the S&P 500 (above), in 2020, the S&P 500's 3rd Friday volatility clocked in at a notable 42% versus 34%, 32% and 26% for Daily, Weekly and Monthly measures, respectively. Over all of our years of experience in managing option strategies, equity index option markets have always 'averaged out' over multi-year time periods.

As one would expect, strategy indexes following different option exposure methodologies, such as every Friday or multiple Fridays, can produce markedly different results over short-term periods. Specifically, the reduced levels of 3rd Friday S&P 500 price volatility, presented above, has heavily favored options strategy indexes that reset exposures exclusively on 3rd Fridays. The series of charts below illustrate the performance differentials of the Cboe's monthly putwrite strategy indexes (Cboe S&P 500 PutWrite Index (PUT), Cboe MSCI EAFE PutWrite Index (PXEA), Cboe MSCI EM Putwrite Index (PXEF)) versus Cboe's one-week putwrite strategy indexes (Cboe S&P 500 One-Week PutWrite Index (WPUT), Cboe MSCI EAFE One-Week PutWrite Index (WPEF), Cboe MSCI EM One-Week PutWrite Index (WPEM)).

S&P 500 PUTWRITE INDEXES

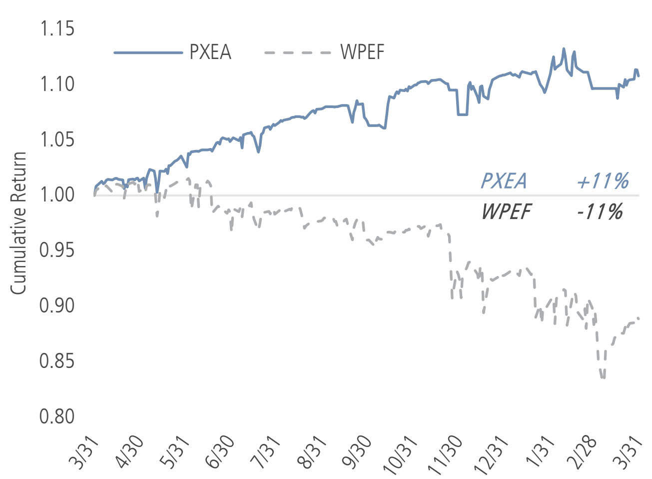
March 2021 – March 2022



Source: Bloomberg LP

MSCI EAFE PUTWRITE INDEXES

March 2021 – March 2022

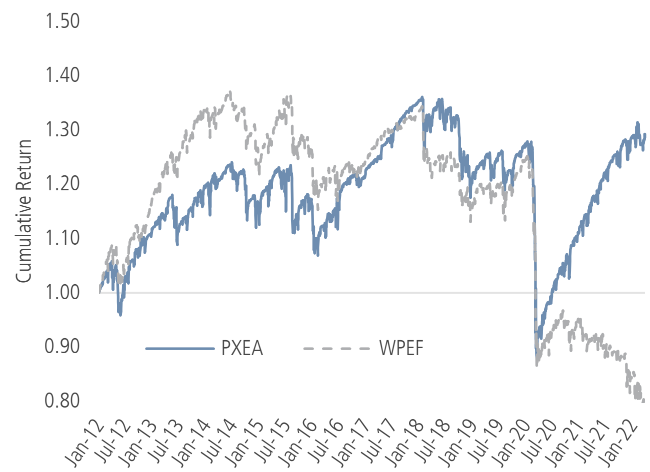


Source: Bloomberg LP

The spread between the weekly and monthly MSCI EAFE putwrite indexes (chart above) is notable. However, the next chart shows the longer-term relationship between the indexes from the first date available for WPEF. The dispersion since 2020 between the two MSCI EAFE putwrite indexes is truly amazing. Looking at the longer history of the two indexes, PXEA and WPEF have both had periods of outperformance over the other, but the current period is an anomaly related to the timing of the 3rd Friday rolling of the option exposure in PXEA. The lucky path of the underlying index has heavily favored 3rd Friday strike price resetting relative to any other frequency or days of the month. We believe there are not fundamental reasons for this divergence other than 'lucky' timing.

MSCI EAFE PUTWRITE INDEXES

January 2012 – March 2022

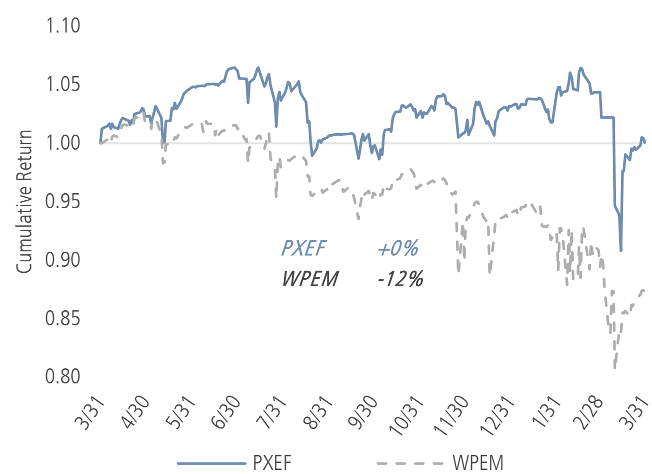


Source: Bloomberg LP

Meanwhile, the spread between the MSCI EM putwrite indexes has widened in similar fashion (below). However, the recent outperformance of PXEF has served to narrow the longer-term performance gap between the PXEF and WPEM. The second chart below provides the history of both indexes for the initial date of WPEM in July 2010.

MSCI EM PUTWRITE INDEXES

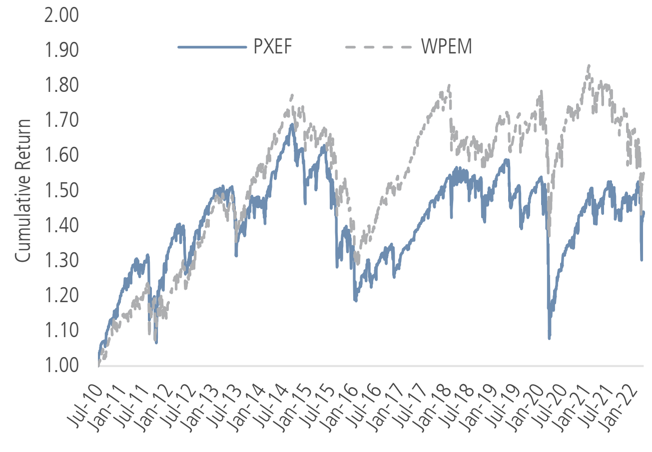
March 2021 – March 2022



Source: Bloomberg LP

MSCI EM PUTWRITE INDEXES

July 2010 – March 2022



Source: Bloomberg LP

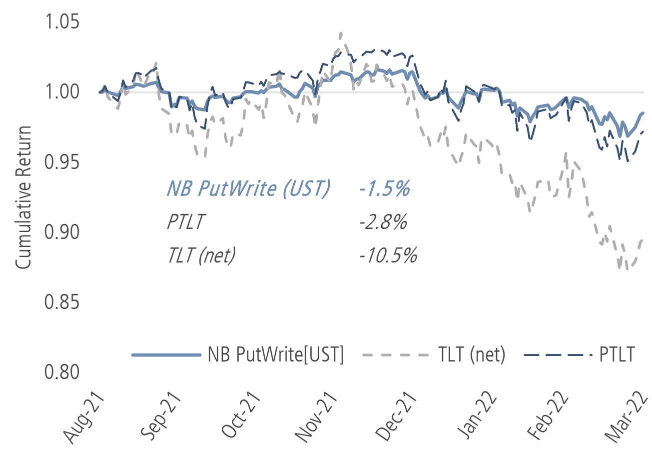
Given the relatively random variation in performance across monthly and one-week putwrite indexes for different underlying exposures, we remain confident in our beliefs that thoughtfully diversified option writing strategies provide investors with higher long-term, risk-efficient return streams than strategies that pick a specific tenor and letting things roll with 'Lady Luck'.

An Antidote for Rising Rates

In August 2021, we started a putwrite strategy based on long-term U.S. Treasury exposure in the hopes of providing another solution for investor portfolios that would one day face rising interest rates. The chart below summarizes the account's performance since inception versus the iShares 20+ Year U.S. Treasury Bond ETF (TLT) and the Cboe 20+ Year Treasury Bond PutWrite Index (PTLT).

U.S. TREASURY PUTWRITE STRATEGY

August 2021 – March 2022



Source: Bloomberg LP

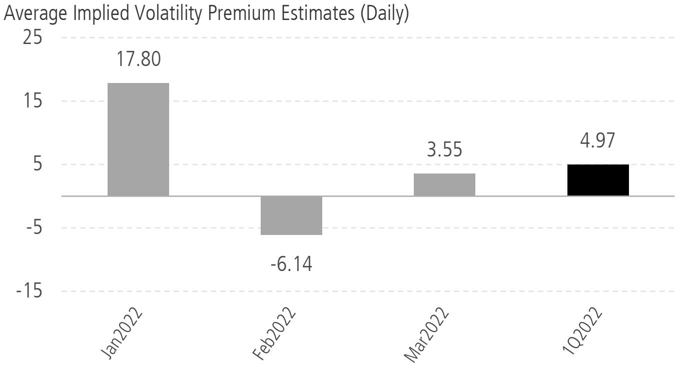
Steady premium collection can result in a powerful altered return stream for more than just different equity indexes, but for different asset classes as well. The inherently defensive payout structure and behavioral benefits are evident, irrespective of the asset class and even in more nuanced spaces such as cryptocurrency.

Bitcoin: Bent but Not Broken

Following the spectacular rise of bitcoin in Q4 2021 (+67% from September to November 2021) to the drawdown through January 2022 (-47% from Nov 9, 2021 to January 27, 2022), average daily implied volatility premiums (profit margin) were significantly positive in January as implied volatility remained elevated while realized volatility fell. This reversed the following month, when the profit margin (implied premium) turned negative as implied volatility came down and realized volatility increased as BTC rallied. Similar to traditional volatility markets, when the profit margin is mispriced, implied volatility is reflexive and in March the implied premium became positive again.

OPTION IMPLIED PREMIUM

Average Implied Volatility Premium Estimates (Daily)

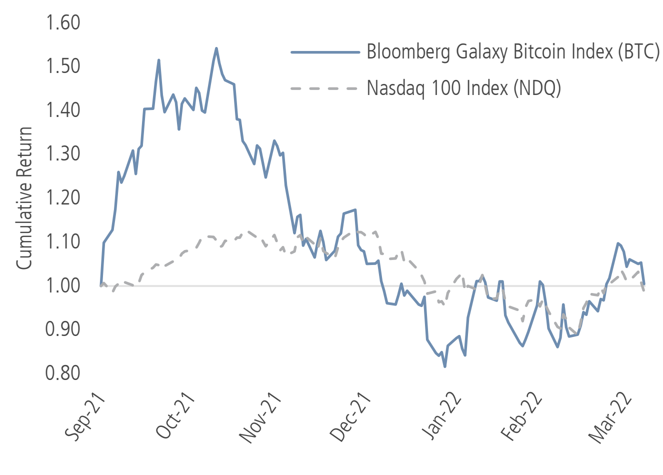


Source: Bloomberg LP

When it comes to bitcoin, with great appreciation comes great destruction. Since Q4 2021, bitcoin and the NASDAQ 100 have taken wildly different paths, but have ended up in the same place six months later. Also to note, correlation amongst tech stocks and bitcoin has increased in recent months, as the two have trended in lockstep since July 2021. This correlation may be the strongest signal of crypto adoption as its blockchain technology becomes the foundational backbone of Web3 (i.e. 'the future of internet').

BITCOIN VS. NASDAQ 100

September 2021 – March 2022



Source: Bloomberg LP

One thing remains constant, the sharp reversals in bitcoin has kept volatility elevated and strengthens our belief that harvesting crypto volatility is perhaps one of the most unique investment opportunities we've seen since the growth of the high yield bond market in the 1970-80s. Importantly, investors need to avoid judging performance of diversifying cryptocurrency exposures over short periods of time. Expecting a strategy to match bitcoin's swings (up or down) would defeat the point of the strategy's diversification.

Shifting from Grimdark to Hopepunk

According to Wikipedia, the term Grimdark refers to a subgenre of speculative fiction with a tone, style, or setting that is particularly dystopian, amoral, or violent. The term is inspired by the tagline of the tabletop strategy game Warhammer 40,000: "In the grim darkness of the far future there is only war." With its focus on humanity's potential for cruelty and deceit, George R. R. Martin's novel series A Song of Ice and Fire (the inspiration for the hit series Game of Thrones) is considered prime example of the Grimdark genre.

In contrast, Wikipedia defines the Hopepunk subgenre as one in which characters are fighting for positive change among radical kindness and communal responses to challenges. J. R. R. Tolkien's *Lord of the Rings* series is considered a quintessential Hopepunk work.

David Robson summarized Hopepunk in the BBC Art of Living on January 13, 2022.

> The essence of the Hopepunk philosophy can be found in an exchange between Frodo and Samwise Gamgee in The Two Towers from Peter Jackson's Lord of the Rings films, as they struggle against the forces of evil around them.
>
> "It's like in the great stories, Mr. Frodo," Sam says. "Full of darkness and danger they were. And sometimes you didn't want to know the end. Because how could the end be happy? How could the world go back to the way it was when so much bad had happened? But in the end, it's only a passing thing, this shadow. Even darkness must pass. A new day will come. And when the Sun shines it will shine out the clearer."
>
> "What are we holding on to, Sam?" Frodo then asks.
>
> "That there's some good in this world, Mr. Frodo and it's worth fighting for," his friend replies.

What does this have to do with investing? Consistent with our view on increased volatility in the years to come is our belief that culture works (human spirit) tend to run contrary to the current investment environment. When things are 'too good' the Grimdark genre seems more intriguing and when 'nothing seems to be going right' Hopepunk shines through. Hence, we are looking forward to a return of more Hopepunk in our daily lives even if it means our portfolios suffer.

Many Thanks,

Derek Devens, CFA Senior Portfolio Manager	Rory Ewing Portfolio Manager	Eric Zhou Portfolio Manager
Beryl Lou Research Analyst	Rachel White, CFA Portfolio Specialist	

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