Memorandum

From: Sid Nadkarni, BCA CIO
To: BCA Clients
Date: March 16, 2020
Subject: Recent Market Events

SUMMARY OF RECENT MARKET EVENTS

Risk assets (equities, credit, and emerging market bonds) have declined significantly since February 19, including further significant declines since client meetings the first week of March. Several negative datapoints have occurred which has led to a complete risk-off sentiment in the market. Valuations in risk assets have become more compelling for those with a long-term viewpoint, although calling a precise bottom is unrealistic as the ultimate duration and economic impact of the Coronavirus is unknowable at this point in time. Similarly, safe-haven assets (government bonds) performed well during this sell-off but yields and valuations have reached uncompelling levels (especially for fixed income assets with higher duration).

Specific negative datapoints that have emerged include:

- Coronavirus new cases have expanded rapidly in Europe and now in the US. Italy has shut down the entire country which will have a massive negative short-term effect on its economy. Spain, France, and the Netherlands have followed suit. The US has been behind the curve but is now imposing stringent social distancing guidelines. Business events, sporting events and large gatherings were the first to be cancelled and now there are widespread school closures and closures of restaurants / bars across many cities in the US. The level of economic disruption is un-precedented.
- The virus is having a negative impact on real economic activity. At this point, the ultimate magnitude of disruption and the duration of disruption cannot be accurately predicted. In developed economies, large portions of the economy are grinding to a halt. Credit pressures for small businesses and service industry workers are mounting rapidly.
- Russia and Saudi Arabia have engaged in an oil price war. Since this announcement, energy prices have tumbled a further 20% and have been cut in half since the beginning of the year, with spillover effects in the credit markets. In the US – the high-yield market has a much higher weighting to the energy sector than the S&P 500.
- Fiscal policy has been limited in the US and Europe thus far with monetary policy a less effective tool at this stage. The messaging from US leadership has been confusing with President Trump downplaying the seriousness of the virus repeatedly until March 16th acknowledging the need for stringent social distancing and stating that economic disruption is likely till potentially August.

Framing Potential Economic Downside

Attempting to estimate the duration and magnitude of the economic disruption is practically impossible at this stage. However, we have seen some initial data from China (with some skepticism around these statistics).

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For Jan-Feb 2020, China's economy suffered a massive hit as Wuhan was locked down and much of China disrupted.

- China retail sales were down 20% YOY and industrial production was down 13%, far worse than even pessimistic estimates. While activity is improving sequentially in March, YOY figures are likely negative.
- Based on a high-level bottoms-up analysis of US GDP by economic activity categories, it is quite feasible that US GDP may decline by 5%-7% YOY in Q2 before recovering in Q3 and Q4. European GDP may decline by similar-to-higher levels making a European recession almost a certainty.

Equity Markets Update

Global equity markets have generally declined 25%-30% in USD terms since the February 19th peak and have declined 20%-23% since March 4, 2020 when we visited clients.

- The S&P 500 has declined 26% since the beginning of the year and over 29% since the February 19th peak.
- US small caps have been hit harder, down 38% since the beginning of the year and 39% since the peak on 2/19 given greater exposure to financials and higher leverage levels
- International markets have fallen in similar terms on a local-currency basis but have been helped slightly on a USD basis by the weakening of the Dollar.
- Overall, the selling across the market has been relatively indiscriminate across sectors, value vs. growth, etc. However, sectors in travel / tourism related industries (hotels, casinos, airlines, cruise lines) and energy-related activities have been crushed during this time period. Additionally, stocks with weak balance sheets have also materially underperformed as credit spreads have widened materially and financial conditions have tightened.

Equity Indices - Characteristics and Performance (As of 03/16/2020)

	NTM P/E Ratios			Total Returns (%) - USD Cumulative				
	30-Sep 2019	19-Feb 2020	16-Mar 2020*	12/30/18 3/16/20	9/30/19 3/16/20	12/31/19 3/16/20	12/31/19 2/19/20	2/19/20 3/16/20
US Large Cap (S&P 500)	16.5x	19.1x	13.6x	-3.2%	-19.3%	-25.9%	5.1%	-29.4%
US Small Cap (Russell 2000)	22.2x	25.5x	16.2x	-21.8%	-31.5%	-37.6%	1.6%	-38.6%
Europe Stoxx 600	13.9x	15.5x	10.6x	-14.5%	-25.4%	-31.7%	0.5%	-32.1%
Japan Topix	12.7x	13.5x	10.1x	-11.9%	-20.4%	-26.2%	-4.9%	-22.3%
MSCI EAFE	13.8x	14.9x	10.6x	-14.3%	-24.0%	-29.8%	-0.8%	-29.2%
MSCI Emerging Markets	11.8x	12.9x	10.1x	-11.3%	-16.2%	-25.1%	-0.9%	-24.4%
MSCI ACWI	15.1x	16.8x	12.1x	-7.9%	-20.7%	-27.2%	2.7%	-29.2%
Russell 1000 Value	14.3x	15.6x	10.8x	-13.0%	-26.2%	-31.3%	1.2%	-32.1%
Russell 1000 Growth	20.6x	24.6x	17.6x	6.5%	-13.7%	-21.9%	9.3%	-28.6%

** Based on consensus estimates (earnings likely to be revised downward meaning true multiples are higher)*

Fixed Income Update

Safe havens (Treasuries) have outperformed and continued to rally, up 5% since Feb 19th and 1.2% since we saw clients on March 4th. Riskier fixed income assets (high-yield and emerging markets bonds) have sold off by 12%-13% since Feb 19th with spreads exceeding those reached in Dec 2018. High-yield and leverage loan markets have sold off rapidly over March 9th-16th with liquidity drying up significantly.

Fixed Income - Characteristics and Performance (As of 03/16/2020)

	Yield			Spread (bps)			Total Returns (%) - USD Cumulative				
	30-Dec 2018	31-Dec 2019	16-Mar 2020	30-Dec 2018	31-Dec 2019	16-Mar 2020	12/30/18 3/16/20	9/30/19 3/16/20	12/31/19 3/16/20	12/31/19 2/19/20	2/19/20 3/16/20
US Treasury	2.6%	1.8%	0.7%				15.2%	7.0%	7.8%	2.3%	5.4%
US Muni Bonds*	2.7%	1.8%	2.2%				6.1%	-0.6%	-1.3%	2.0%	-3.2%
US Corp IG.	4.2%	2.8%	3.2%	154	93	242	12.4%	-0.8%	-1.9%	2.7%	-4.4%
US Corp. HY	8.0%	5.2%	9.0%	526	336	827	1.1%	-9.3%	-11.6%	1.2%	-12.7%
EM - HC	6.8%	4.7%	6.6%	445	291	586	2.0%	-9.8%	-11.3%	2.3%	-13.3%
EM - LC	9.3%	5.9%	5.1%				-3.5%	-8.5%	-12.4%	-0.9%	-11.6%
US Aggregate	3.3%	2.3%	1.8%				12.3%	3.4%	3.3%	2.0%	1.2%

** Muni bond yields are after-tax; pre-tax equivalents are 4.5%, 3% and 3.6% respectively*

HAS OUR ASSET ALLOCATION OUTLOOK CHANGED?

The expected 7-yr return outlook for risk assets (equities and credit) has improved significantly since we first established Capital Market Assumptions at the beginning of the year

- Projected nominal annual equity returns have improved to 8%-9% vs. 5%-6% (although I think they will decline slightly from these 8%-9% levels once earnings forecasts are moved down for 2020)
- Projected nominal annual fixed income returns on riskier credit and emerging market bonds have improved to 5.5%-6.5% from 4%-5% previously
- Returns expectations on Treasury bonds have declined however from 1.7% to 0.5%
- Returns for alternatives at the mid-SD range for the asset class and mid-high SD for top-tier managers remain unchanged

We expect high near-term volatility to continue in the market as the virus' spread continues to accelerate, the preventive measures such as social distancing continue to become more stringent, and employment / credit pressures exacerbate. **A global comprehensive shock-and-awe fiscal stimulus policy response is required.**

HOW SHOULD WE IMPLEMENT ANY CHANGES?

Our base case which remains highly fluid is that we expect that sharp containment measures will be undertaken in the US which will lead to massive further short-term economic disruption. Additionally, we

expect a comprehensive fiscal policy response which will address unemployment payments, healthcare coverage and access, paid sick leave, and loan deferral / incentives for small businesses. If the rate of new case growth starts slowing within the next month to two, the economic recovery should be U-shaped beginning in late Q2 / early Q3 2020. Equity markets will likely look through the painful short-term sharp earnings deterioration and will focus on structural return to earnings growth in 2021. However, if the preventive measures accelerate and the virus spread continues unabated, the economic disruption will be more severe and could spiral into a longer-lasting global recession.

Equity Market Scenario 1 (Next 9-18 months): Sharp, shorter-term economic disruption followed by recovery in H2 2020 / 2021

- Under this scenario – we believe S&P 500 earnings could decline sharply from $165 in 2019 to $150 in 2020 followed by a strong rebound in 2021 to $170 with easy compares and fiscal stimulus. The fundamentals of the US economy were strong and modestly improving before the Coronavirus pandemic.
- Applying a 20x multiple to 2021 earnings would result in a rebound in the S&P to 3,400 (close to its peak in Feb 2019), or 43% above March 16, 2020 levels. The equity market multiple will likely be higher than historical averages given record-low interest rates, which we believe will persist well into 2021.

Equity Market Scenario 2 (Next 9-18 months): Pandemic leads to global recession

- Under this scenario – we believe that S&P 500 earnings could decline by 20%-25% before rebounding
    - The average peak to trough earnings decline in the last eleven recession has been 13% (per Goldman) although recent recessions have resulted in low 20% EPS declines (1990/2001) with a 45% decline during the GFC (although that was somewhat heightened by book value impairments)
- We do not expect the recession to be as deep as the financial crisis as banks' capitalization levels are far stronger and consumer balance sheets are significantly better
- We apply a 15x trough multiple to these earnings resulting in a decline to 1,850 to 2,000 which would represent a 41% to 45% decline from the Feb 19, 2020 peak near 3,400, and a 17%-23% decline from March 16, 2020 levels. For reference, the S&P declined 55% from peak to trough during the global financial crisis.

Utilizing Dry Powder

Given the sharp improvement in equity return expectations and the sharply lower return expectations for high-quality fixed income, we would suggest the following for utilizing dry-powder **for investors with a long-term horizon**

- Increasing allocations to high-quality US Stocks with strong balance sheet and exposure to secular growth (Amazon, Microsoft, Facebook, industrial services companies);
    - While the share price appreciation in a rally may lag riskier stocks, the absolute risk / return paradigm is very attractive for these high-quality stocks
    - Avoid highly levered equities as potential for credit related distress has become much higher
- Overweight the US and to a lesser-extent large-cap EM as absolute and relative valuations have become far more compelling given the high-quality growth companies on offer

- Continue to increase allocations to alternatives, especially those with more active trading around ST dislocations.

- Timing – adopt a phased approach for the incremental equity allocations: In general, we suggest 1/3 of the planned increase at March 16 market prices with the remaining 2/3 over the next six months (perhaps weekly), capped if the indexes increases by 10% from current levels, but as with all of these thoughts, will tailor these recommendations to our clients' particular circumstances and needs.

APPENDIX A: CAPITAL MARKETS ASSUMPTIONS 7-YR Forecast – As of Jan 1, 2020

Asset Class Annual Returns Forecast - Next Seven Years * (Dec 31, 2019)	Annual Nominal Returns			Annual Real Returns ***	Forecasted Annual Volatility
	Previous Seven Years		Next Seven Years	Next Seven Years	
	USD	Local Currency	Constant Currency	Constant Currency	
Equities					
US Large Cap	14.7%		5.9%	3.9%	16.0%
US Small Cap	11.3%		3.1%	1.1%	20.0%
Stoxx 600 Europe	6.9%	9.4%	5.7%	3.7%	17.5%
Japan Topix	9.0%	12.8%	4.6%	2.6%	20.5%
Emerging Markets	3.5%		7.3%	5.3%	22.5%
Fixed Income					
US Govt	2.0%		1.7%	(0.3%)	4.5%
US Corp IG	4.1%		2.2%	0.2%	5.5%
US High Yield	5.8%		3.9%	1.9%	10.0%
EM Sovereign - USD	4.0%		3.9%	1.9%	9.0%
EM Sovereign - Local Currency	(0.5%)		5.6%	3.6%	12.0%
Alternatives, Real Estate and Private Equity					
			Levered		
Core US Real Estate (Private) - Net of Fees **			6.0%	4.0%	8.0%
US Private Equity (Net of Fees)	14.7%		10.2%	8.2%	20.0%
US Hedge Funds (Net of Fees)	4.1%		5.7%	3.7%	8.0%

** Forecasted returns are projected on a constant currency basis*
*** On an unlevered pre-fee basis, we forecast 5.9% returns. Leverage adds 1.9% with fees offsetting 1.8%*
**** Real returns are net of assumed annual inflation rate of 2%*

APPENDIX B: CAPITAL MARKETS ASSUMPTIONS 7-YR Forecast – Updated as of March 16, 2020

Asset Class Annual Returns Forecast - Next Seven Years * (Mar 16 , 2020)	Annual Nominal Returns (USD)			Annual Real Returns ***	Forecasted Annual Volatility
	12/31/2012 to 12/31/2019		Next Seven Years	Next Seven Years	
	USD	Local Currency	Constant Currency	Constant Currency	
Equities					
US Large Cap	14.7%		10.1%	8.1%	16.0%
US Small Cap	11.3%		8.3%	6.3%	20.0%
Stoxx 600 Europe	6.9%	9.4%	10.1%	8.1%	17.5%
Japan Topix	9.0%	12.8%	9.0%	7.0%	20.5%
Emerging Markets	3.5%		10.9%	8.9%	22.5%
Fixed Income					
US Govt	2.0%		0.5%	(1.5%)	4.5%
US Corp IG	4.1%		3.3%	1.3%	5.5%
US High Yield	5.8%		8.3%	6.3%	10.0%
EM Sovereign - USD	4.0%		8.2%	6.2%	9.0%
EM Sovereign - Local Currency	(0.5%)		5.4%	3.4%	12.0%
Alternatives, Real Estate and Private Equity					
			Levered		
Core US Real Estate (Private) - Net of Fees **			6.0%	4.0%	8.0%
US Private Equity (Net of Fees)	14.7%		10.2%	8.2%	20.0%
US Hedge Funds (Net of Fees)	4.1%		5.7%	3.7%	8.0%

** Forecasted returns are projected on a constant currency basis*
*** On an unlevered pre-fee basis, we forecast 5.9% returns. Leverage adds 1.9% with fees offsetting 1.8%*
**** Real returns are net of assumed annual inflation rate of 2%*