Wealth Management
PH&N Investment Counsel

Stu's View

July 17, 2020

Stuart Morrow
Vice President
& Head of Investments
RBC Phillips, Hager & North
Investment Counsel Inc.

What's in an index anyway? An introduction to goals-based investing

Often times you'll hear the financial and news media refer to a particular market index being up or down an "X" number of points on the day. What is an index? What are the uses for indexes and some of their potential negatives? In this article, we will:

- **Examine the more popular stock and bond market indexes, including how they are calculated, and identify some of their positive attributes and some of their shortcomings.**
- **Consider why, at times, the market does not always reflect what we might see or hear about the real economy.**
- **Introduce the concept of goals-based investing as a benchmarking process, rather than benchmarking portfolios to a specific index or indexes.**

But before we begin...

What is an index? A stock market index is a statistical composite that measures the changes in value of the market it is designed to follow. There are many indexes that follow numerous global stock and bond markets, including broad stock markets as well as sectors within the broader market, such as specific industries or types of stocks (such as those of large, medium or small firms). Indexes are often used as barometers of the performance of the stock market, and in the financial media, they are at times used as barometers of the economy – despite the fact that the market and the economy can, at times, seem very disconnected.

Indexes serve other purposes as well. Most investors use indexes to monitor their own portfolios, and also as benchmarks for performance comparisons. But how relevant are these indexes, or benchmarks, to high net worth investors? Should you be judging the performance of your investment portfolio(s) relative to a statistical composite, or should you look to goals-based investing instead? What are some behavioural investing pitfalls to watch out for when benchmarking to an index rather than using a goals-based approach?

Continued on page 2

What's in an index anyway?...
Continued from page 1

Connecting the disconnect: Why market and economic performance are often out of sync

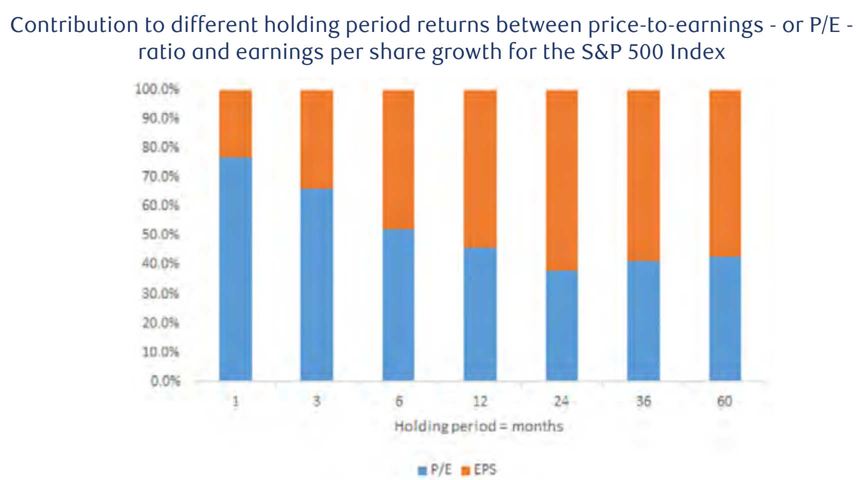
The link between financial markets and the underlying economy is constantly debated in social media and news outlets, and perhaps even within your own social network. When debating the relationship between the economy and the market, it's important to understand the underlying market index itself (we'll help here in a few pages), exactly which economic variable(s) are being compared (lagging, coincident, or leading), and over what time period the comparison is being made.

Recent history provides us with an excellent example of a perceived disconnect between markets and the economy. In April 2020, while both the global COVID-19 case and death count were climbing, the technology-heavy NASDAQ Composite Index climbed back into positive territory for the year. It seemed then that the market was disconnected from what was going on in the real world, as economic indicators were collapsing and COVID-19 cases and deaths continued to mount. Returning to what I said previously about making a fair apples-to-apples comparison, you are likely already thinking "Is the technology-heavy NASDAQ representative of the underlying U.S. economy?", as well as thinking about what economic indicators am I referring to as it relates to the disconnect. Indeed, the NASDAQ Composite isn't a full representation of the U.S. economy, as the economy is composed of many different industries, in addition to technology. Instead, the index was driven higher because global lockdowns meant a surge in demand for the services and products of technology companies. And so within that context, its rise begins to make more sense.

Generally speaking, financial markets tend to be forward-looking, complex, and adaptive systems that are not always efficient at rationally pricing in news. As a result, in the short-term, emotion, which can be irrational at times, tends to dominate investor returns (i.e., we may over or under react to news). But over the long term, fundamentals of businesses that make up the economy dominate shareholder returns, as illustrated in Chart 1. Here we show that over shorter periods of time, valuation as depicted by the price-to-earnings - or P/E - ratio for the S&P 500 Index dominates the majority of the returns for investors. Valuation can be influenced by a number of factors, including sentiment and emotion. As we look out over holding periods beyond 6-12 months in the chart, the contribution factor from earnings per share (EPS) dominates returns. So, in the long term, company fundamentals do, in fact, tend to dominate returns.

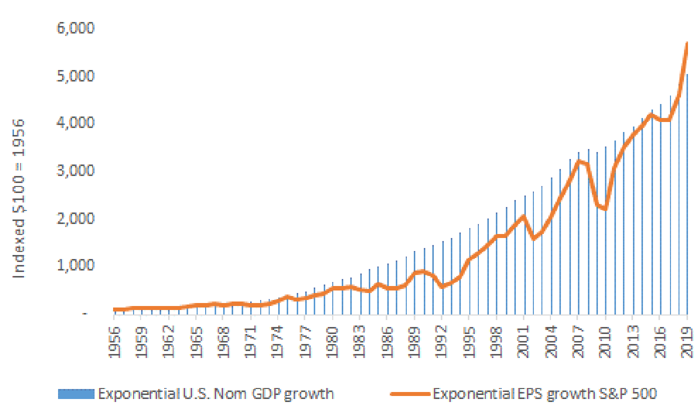
If we take a look at the relationship between nominal U.S. GDP growth and company earnings in the S&P 500 Index over the last sixty years (Chart 2),

Chart 1: Short-term holding periods impacted by market sentiment when compared to long-term time horizons.



Source: RBC Capital Markets Global Research, Bloomberg LLC. Data from Jan 31/90 through May 29/20, using monthly time weighted returns from the S&P 500 Index in U.S. dollars, including dividends and gross of any fees such as investment management, trading costs or commissions. Return contribution from price-to-earnings (P/E) calculated by the monthly percentage change in the P/E ratio for the S&P 500 Index. Return contribution from earnings per share calculated by the difference between the monthly index return for the S&P 500 Index in U.S. dollars, and the return contribution from P/E ratios. Past performance of the S&P500 Index is no guarantee of future results, and investments cannot be made directly in an index.

Chart 2: Exponential Growth of Annual U.S. Nominal Gross Domestic Product (GDP), and Annual Trailing S&P500 Index Earnings (1956-2019)



Source: Federal Reserve Bank of St. Louis, FactSet, data from January 1956 to January 2019. All in U.S. dollars.

Continued on page 3

What's in an index anyway?...
Continued from page 2

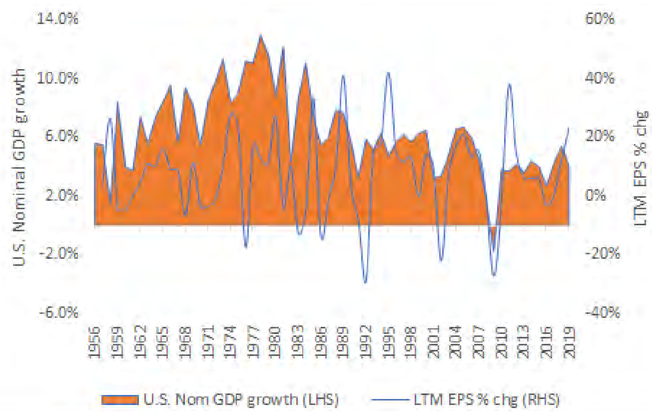
there has been a fairly similar growth rate over this time; and this despite the volatility in each data set when you look at them on an annual basis (Chart 3). Using a broad-based index such as the S&P 500 Index compared to the underlying growth rate of the U.S. economy, we can see that, despite the ups and downs in the economic cycle creating short-term disconnects between the economy and the market, over the long-term the fundamentals of the market align more closely with the economy.

We'll now focus on some of the issues when making comparisons between portfolio returns and market indexes, commonly known as benchmarking.

The popular crowd

Sometimes I find myself rolling my eyes while I am in the car listening to the news. For instance, when I hear "The Dow Jones was down eight hundred points this morning", I'm often disappointed with the lack of context associated with this statement. I have nothing against the Dow Jones Industrial Average (DJIA for short, and commonly referred to as the "Dow"), which is a price-weighted average of 30 blue-chip U.S. companies. In order to calculate the value of the Dow you take current prices of the 30 stocks that make up the Index and add them together, and then divide by the Dow divisor. As a result of this calculation methodology, stocks that carry a price that is high relative to other stocks' prices can dominate daily price swings in the Dow. Sudden price increments or reductions in high-priced stocks can lead to big jumps or drops in the Dow. Also, certain corporate actions, like going ex-dividend (i.e., wherein the dividend goes to the seller rather than to the buyer), can result in a sudden drop in the Dow on what's known as the ex-date. The high correlation among multiple constituents within the Index can also lead to higher price swings in the Index.

Chart 3: Annual Nominal U.S. GDP Growth (%), and Annual Trailing S&P 500 Index Earnings Growth (1956-2019)



Source: Federal Reserve Bank of St. Louis, FactSet, data from January 1956 to January 2019. All in U.S. dollars. "LHS" = left-hand side of y-axis, "RHS" = right=hand side of y-axis, "LTM" = last twelve months, referred to as Annual trailing "EPS" or Earnings Per Share Growth for the S&P500 index.

Table 1: Popular market indices grouped by asset class

Asset Class	Region	Indices	# Holdings	Methodology/Calculation	Rebalancing/Review
Cash	Canada	FTSE Canada Treasury Bill 30 Day	1	Market Capitalization	As needed (auction schedules)
		S&P Canada Treasury Bill Index	24	Market Capitalization	Monthly
	United States	S&P U.S. Treasury Bill 0-3 Month Index	16	Market Capitalization	Monthly
		S&P U.S. Treasury Bill Index	41	Market Capitalization	Monthly
Fixed Income	Canada	FTSE Canada All Corp Bond	1,000	Market Capitalization	Daily
		FTSE Canada Universe	1,506	Market Capitalization	Daily
	United States	Bloomberg Barclays US Corporate High Yield	2,077	Market Capitalization	Monthly
		Bloomberg Barclays US Aggregate Bond	11,673	Market Capitalization	Monthly
	International	FTSE World Global Bond Index (WGBI)	1,050	Market Capitalization	Monthly
		Bloomberg Barclays Global Aggregate	25,835	Market Capitalization	Monthly
	Emerging Markets	JPM EMBI Global Diversified	795	Market Capitalization	Monthly
		Bloomberg Barclays EM Aggregate	2,072	Market Capitalization	Monthly
Equities	Canada	S&P/TSX 60	60	Market Capitalization Free-Float Adjusted	Quarterly
		FTSE Canada All Cap	188	Market Capitalization Free-Float Adjusted	Semi-annually
		S&P/TSX Composite	229	Market Capitalization Free-Float Adjusted	Quarterly
	United States	Dow Jones Industrial Average	30	Price Weight	As needed
		S&P 500	505	Market Capitalization Free-Float Adjusted	Semi-annually
		Russell 1000	996	Market Capitalization Free-Float Adjusted	Annually
	International	FSE DAX (Germany)	30	Market Capitalization Free-Float Adjusted	Quarterly
		Hong Seng HSI (Hong Kong)	50	Market Capitalization Free-Float Adjusted	Quarterly
		FTSE 100 (United Kingdom)	101	Market Capitalization Free-Float Adjusted	Quarterly
		KOSPI (South Korea)	200	Market Capitalization	Annually
		JPX Nikkei Index 400 (Japan)	400	Market Capitalization Free-Float Adjusted	Annually
		MSCI Europe, Australasia and the Far East (EAFE)	915	Market Capitalization Free-Float Adjusted	Quarterly
		MSCI World ex Canada	1,549	Market Capitalization Free-Float Adjusted	Quarterly
		MSCI World	1,637	Market Capitalization Free-Float Adjusted	Quarterly
		FTSE AW ex US	3,349	Market Capitalization	Annually
		FTSE All World (AW)	3,956	Market Capitalization	Annually
		MSCI All Country World Index (ACWI All Cap)	14,624	Market Capitalization Free-Float Adjusted	Semi-annually
	Emerging Markets	MSCI EM	1,403	Market Capitalization Free-Float Adjusted	Semi-annually
		FTSE Emerging	1,787	Market Capitalization Free-Float Adjusted	Semi-annually
		S&P Emerging Broad Market Index (BMI)	4,105	Market Capitalization Free-Float Adjusted	Annually

Source: Morningstar Direct, Bloomberg, FTSE Russel, Morgan Stanley Capital International, and Standard & Poor's. Number of holdings in each index is as of June 29, 2020.

So again, what does "The Dow Jones was down eight hundred points this morning" really mean? Does that tell me much about my portfolio, the economy, or the outlook for the market and the economy? No, of course not. And context is everything when it comes to index "levels" quoted in the media. The percentage change in the index's level is far more insightful than merely the absolute number. Hearing the statement above in 2008 when the DJIA Index was below 10,000 meant more than when you hear that today when the Index's level is above 26,000. Framing is everything, but of course sometimes sensationalizing the news helps to sell adverting and grow subscriptions.

There are a host of different market indexes out there which investors could and do use to benchmark portfolio performance. In Table 1, we list some of the most popular indexes today from across the globe, how many securities are embedded within the index, and briefly how they are calculated (i.e., price-weighted, as in the case of DJIA, and market capitalization weighted in the case of the S&P 500 Index). We cannot list all indices in this note, as

Continued on page 4

What's in an index anyway?...

Continued from page 3

there are more than 5,000 indexes in the U.S. alone today. There are sector-specific indexes, factor-based indexes that track securities based on characteristics such as growth, value, momentum, and, many, many others. If you are going to use market indexes as a comparison tool to your investment portfolio, it's important to ensure you understand some, if not all, of the following:

- **The composition of the index** - For example, whether it is broad-based, covers only a market segment, or excludes certain industries.
- **The composition of the underlying companies** – Where are revenue and profits generated from? Domestically, overseas, or a combination thereof?
- **How the index has been calculated** - If they are market-cap-weighted indexes, they will be dominated by larger firms, even if they are "total market" indexes covering firms of all sizes. Equal-weighted indexes will tell you how each of the sample stocks has performed, regardless of the size of the firm. Price-weighted indexes emphasize the performance of expensive stocks, while cap-weighted indexes emphasize the performance of large-cap stocks.
- **Are the comparisons appropriate and meaningful** - Are the indexes used to compare performance closely matched to your own portfolio goals, objectives, risk tolerance and risk capacity? Comparing performance of a portfolio to an inappropriate index may lead to less than optimal investment decisions, and to investors asking questions like "How come I'm behind?" (a.k.a. "FOMO", or "fear of missing out" syndrome).
- **Overall portfolio returns will be impacted by fees such as investment management fees, trading costs, commissions, etc.** regardless of the particular index used for comparison.

As shown in the pie charts (Charts 4 and 5), there is a considerable difference between which industries contribute to reported U.S. GDP, and which industries make up a more popular index such as the S&P 500. For instance, Information Technology/Communication Services made up just about 5% of the value-add to U.S. GDP in 2019, yet the industry weight in the S&P 500 Index was closer to 37%. While industry classifications related to GDP or an index are never perfect matches, we have done our best to attempt to map the two sets of data to create a fair apples-to-apples comparison (for illustration purposes only). We also considered the revenue contribution of industry groups in the S&P 500 Index to see if there was any valuation distortion in the Index data, but the underlying revenue contribution by industry group compared to the value-add by industry group as a percentage of GDP was quite similar to the market capitalization weights.

Given my earlier remarks, I also reviewed the differences between industry group contribution to GDP and the Dow components over the same time period (Chart 6). It may surprise some readers that the weight of Industrials in the Dow Jones Industrial Average (DJIA) was less than 15% as of

Chart 4: U.S. Value Added by Industry Group as a Percentage of GDP, as of April 2020

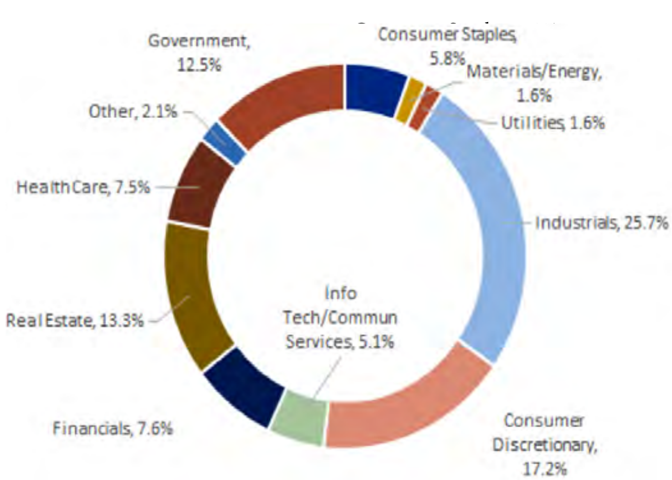
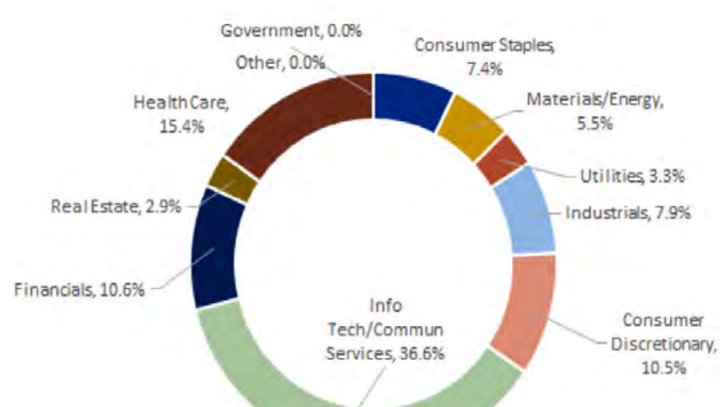


Chart 5: Industry Group weights as % of S&P500 Index, as of April 2020

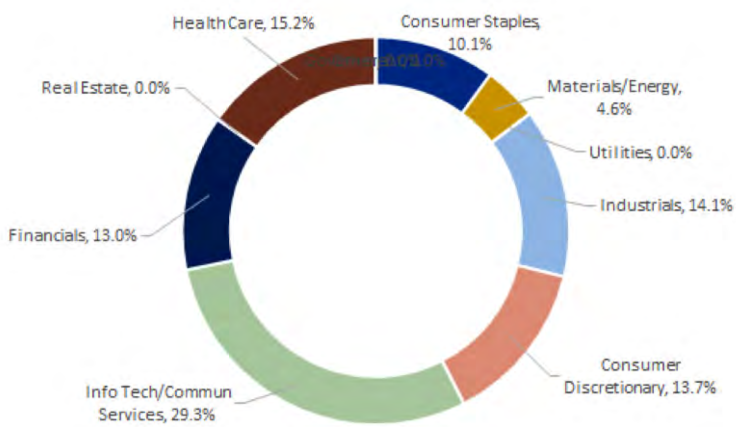


Source: U.S. Bureau of Economic Analysis (BEA), FactSet. All numbers in U.S. dollars, all data as of April 6, 2020. All industry classifications for BEA numbers have been referenced back to the BEA's paper titled "GUIDE TO INDUSTRY CLASSIFICATIONS FOR INTERNATIONAL SURVEYS 2017". BE–799 (REV. 12–2017).

Continued on page 5

What's in an index anyway?...
Continued from page 4

Chart 6: Industry Group weights as % of Dow Jones Industrial Average, as of April 2020



Source: Index data from Bloomberg LLP. Weight in Dow Jones Industrial Average (DJIA) based on price-weighted methodology, industry groups represented as by the GICS (Global Industry Classification Standard) classification scheme. The GICS is an industry taxonomy developed in 1999 by MSCI and Standard & Poor's (S&P) for use by the global financial community. The GICS structure consists of 11 sectors, 24 industry groups, 69 industries and 158 sub-industries into which S&P has categorized all major public companies.

April 6/20. There are similar differences between contributing industries to U.S. GDP and the DJIA. For example, Information Technology carries more weight in the Index than it does as a contributing industry to GDP, while Real Estate carries no weight in the DJIA and its value-add to GDP in 2019 was just over 13%.

It's always important to ask the right questions when comparing portfolio performance relative to any index or indexes. Usually comparing returns after fees, taxes, and on a risk-adjusted basis would make a fair apples-to-apples comparison. But this is not always easy to do on your own.

Trying to avoid "Benchmark-itis"

I think it is natural in almost any setting to want to set a benchmark against which we can gauge performance. We do that in so many other aspects of our lives – losing weight, in school, in sports, etc. So it makes sense that we do the same when it comes to portfolio management. However, we should be mindful of some of the measurement and behavioural downfalls in monitoring performance simply relative to a benchmark. In addition to some of the index issues mentioned early on in this note, investors need to be cognizant of the potential for performance chasing when it comes to benchmarking to an index or indexes. For example, chasing "winners", selling recent "losers", and a general "fear of missing out", or "FOMO" behaviour, can lead to poor investing behaviour, such as market-timing and "short-termism". Beating the markets, especially over the short term, becomes the focus, rather than achieving the investor's long-term objectives.

A different approach, goals-based investing, can help to avoid some of these inherent risks when it comes to index-based benchmarking.

An introduction to goals-based investing: viewing the portfolio as a means to an end

Goals-based investing can be a relatively simple approach for investors who have specific wealth generation/preservation goals and objectives, and who understand and appreciate these things within the context of their complete wealth plan. The focus of the process is on the individual investor, not "generating excess returns".

Specific products and solutions are a consequence of first having stated objectives and goals, with reasonable return expectations. Goals-based investing allocates assets to specific solutions in order to meet these financial objectives, and to address liabilities over multiple time horizons.

At RBC PH&N Investment Counsel, our Investment Counsellors understand that the risk-return balance for each investor is critical, but that it can be achieved while keeping the overall goals of the investor in mind. Understanding an investor's unique circumstances and financial goals is the key to long-term financial success. Yet we practice knowing that circumstances and goals are dynamic and need to be revisited regularly as the market continues to move up and down. Financial plans and investment policy statements are not static tools. They are dynamic and need to be updated over time.

We believe that the goals-based investment framework also creates a sound basis for the adviser/client relationship. Investors are not likely to be disappointed over the long-term when they are not promised superior returns and won't rely on them to achieve their objectives. If they end up beating the market, so much the better, but that's the icing on the cake rather than the primary value proposition.

In his book titled "Personal Benchmark: Integrating Behavioral Finance and Investment Management", co-author and behavioural economist, Daniel Crosby, noted the following outcomes for those clients following a traditional investment portfolio measurement to an index during the 2008 financial crisis:

- "50% chose to fully liquidate their *portfolios or at least their equity portfolios, including many high net worth clients who had no immediate need for cash.*

Continued on page 6

What's in an index anyway?...
Continued from page 5

- *10% made significant changes in their equity allocation, reducing it by 25% or more."*

He then went on to note that those clients in goals-based investment approaches:

- *"75% made no change:*
- *20% decided to increase the size of their immediate needs pool but left their longer-term assets fully invested."*

Source: Widger, C., Crosby, D. (2014) Personal Benchmark: Integrating Behavioral Finance and Investment Management. John Wiley & Sons, Inc.

Goals-based investing may lead to fewer panicked situations for investors over a cycle, which could potentially lead to less ill-informed portfolio changes, and those which tend to be driven by emotions, rather than logic, as described above. Portfolios may be managed separately to reflect different goals and objectives – and, therefore, risk tolerance, time horizon and specific liquidity needs – rather than simply trying to 'beat a benchmark'. When a bear market approaches, within a goals-based approach there could be less of an impact on short-term needs which are likely invested differently (i.e., more conservatively), than the long-term needs would have been. As a result, an investor may have more confidence they will weather the storm, and be less likely to panic and sell during inopportune times in the market.

If you have any questions related to goals-based investing, or would like to better understand how benchmarking your portfolio works, please contact your Investment Counsellor.

Update: What we are watching

Happy belated Canada Day! Not only did we get to celebrate the 153rd birthday of our great country, but we also passed the halfway point for the year. As I sit back and take stock of what we've just lived through, when it comes to the markets the first-half of 2020 has been a whipsaw of sorts - much like my golf game has trended in the last few weeks!

The first half of 2020 journey was not the way anyone could have imagined this year going. The first quarter of 2020 saw the S&P 500 Index fall 19.6%. The second quarter of 2020 saw the S&P 500 rise 20.5%. New all-time highs were followed by a once in a lifetime, idiosyncratic event that shut down global markets and potentially could change the way we live our daily lives. Yet, here we are, more intelligent about the virus, and working closer towards a cure each day. Even as the world battled COVID-19, shutdown businesses, and severely limited economic activity throughout 2Q, investors looked to 2021 - and led the S&P 500 Index to its third highest quarterly gain in over 41 years.

And for all that the virus has changed in our lives, general market trends in equities have not. Large cap and technology companies are still beneficiaries of low-interest rates, work-from-home trends, sustainable growth outlooks, growing free-cash flow, and less levered balance sheets. And, technology adoption rates across a number of silos have accelerated as a result of this new reality we are living in.

Much as I wrote in an article last month, financial markets continued to hold on to their gains from the March lows. The combination of liquidity injections from global central banks, significant fiscal support from various governments, a trend of fewer coronavirus cases in previous hotspots, and as the economy begins to reopen, consumer and business spending data seems to support the slow/gradual healing thesis playing out. The near-term outlook remains mixed as we look out to the second half of the year, considering the U.S.-China trade and currency war continues on, and an increasing concern (yet to be discounted by the market) of a Joe Biden win in November (Joe Biden's policies and fiscal plans have generally been considered less market friendly than the Republican Party thus far).

Please reach out to your Investment Counsellor with any questions related to the information we have presented in this article, at any time.

Be well,
Stu

Wealth Management
PH&N Investment Counsel

Dow Jones Industrial Average: The Dow Jones Industrial Average (the "Dow"), is a price-weighted measure of 30 U.S. blue chip companies. The index covers all industries except for utilities and transportation. The index Launch Date is May 26, 1896. The value of the index is the sum of the price of one share of stock for each component company divided by a factor which changes whenever one of the component stocks has a stock split or stock dividend, so as to generate a consistent value for the index.

S&P 500 Index: The S&P 500 Index includes 500 companies across many sectors of the U.S. economy. The index is weighted by market capitalization so bigger companies make up a larger proportion of the index than smaller companies. The index is designed to measure performance of the broad US economy through changes in the aggregate market value of the largest US companies.