

The Market in Review

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This week's articles and insights

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“It's tough to make predictions, especially about the future.”

- Yogi Berra

Your Index Report

	Current	Last Week	Year-to-Date
Dow Jones Ind. Avg.	22,093	+1.20%	+11.79%
S&P 500	2,477	+0.19%	+10.63% (+4.04% in \$CDN)
TSX	15,258	+0.85%	- 0.19%

Predicting Predictions

Since cavemen (and women) first clustered together around a fire for safety, we have sought those who could protect us by predicting the future. Our first shamans read animal entrails, while others interpreted the weather.

Over time, every empire - Egyptian, Greek, Chinese, Persian, Roman, and Byzantine – came to regard the study of the heavens as the most important way to see what was to come. Astrology became a legitimate arm of the civil service and astrologers were routinely consulted as to what the stars foretold when matters of war, marriage, and food security were concerned.

It is a rather vague science by nature. *Is Aquarius on the ascendant and does Mars look a little redder than usual to you?* Vaguer is generally better when making predictions, but less so when receiving them. Julius Caesar was reportedly told to “Beware the Ides of March,” which typically fell on the 13th of each month. He stayed home, thinking he was safe, only to be murdered at the Senate when he ventured out on the 15th.

A bit more precision would have been nice.

Similarly, Mayan astrologers exercised their own Meso-American vagueness when, at the peak of their empire in the year 250, they implied the world would end somewhere around 2012. We’re still here, which goes to show if you’re selling disaster, make sure it happens well after you leave town.

Astrology fell out of favour once Christianity labeled it as devil worship. The study of heavenly bodies muttered around at the edges of society for the next two thousand years, never really going away but never rising to its exalted status again. We gradually discarded omens and star-gazing in favour of the logic of our own minds as the years went on. By the 19th century, we had industrialized and applied mathematics to many things. Science and numbers were our new belief.

And yet... we still seek some form of divine guidance. In the place of astrologers, we use economists today. These numerical seers use mathematics and the study of crowds to make grand predictions and shape government policy. Not unlike astrologers – just more scientific.

Many of these prognostications, unfortunately, have turned out about as well as the one given to Caesar:

“Stock prices have reached what looks like a permanently high plateau.”

- Irving Fisher (American economist, 1929)

So much of modern news is rooted in our need to know what is going to happen tomorrow. Weather forecasts, stock market analysis, traffic...we ask our advisors to prepare complex financial plans so we are prepared for whatever happens.

What is in our nature that impels this need to know our fate? We seem to be unable to be content with the present, preferring the golden memories of the past or a future that will inevitably be better than today.

“It seems to be the fate of man to seek all his consolations in futurity. The time present is seldom able to fill desire or imagination with immediate enjoyment, and we are forced to supply its deficiencies by recollection or anticipation.”

- Dr Johnson, 1752

We even invented a job called ‘futurist’ that didn’t even exist before Alvin Toffler wrote **Future Shock** in 1970, igniting a wave of books that predicted the future. He got a few things right – like most soothsayers, if you predict enough things, you are bound to get some right – but missed many others. For example, he predicted family spaceships would replace the V-8 powered automobile. What actually replaced the family car? The minivan.

Now, there is a new breed of future predictor: Artificial intelligence. Computers are now learning from other computers and faster than we ever could. Netflix (**NASDAQ NFLX**) uses our own selection of movies and TV shows to predict what we will watch next, in order to keep us from quitting the service. Google (**NASDAQ GOOG**), Uber, Microsoft (**NASDAQ MSFT**), Amazon (**NASDAQ AMZN**) and Apple (**NASDAQ AAPL**) are spending billions to predict what we will want to buy, so they can then provide these things.

Forget shamans, astrologers, and economists. Artificial intelligence will predict everything we need to know.

Or will it?

Just as astrologers predicted the end of the world repeatedly over the millennia, and economists have predicted far more recessions and depressions than have ever occurred, scientists have been promising flying cars and miracle cures for generations. Artificial intelligence may be the one of the most powerful discoveries in history, but its ‘intelligence’ is only as good as what we put into it.

Garbage in, garbage out, as the saying goes.

Like the weather, things are far more complex than we think and far harder to understand. And often our own actions alter the future. Think of climate change, for example. It is hard to predict tomorrow's weather when you are altering it by the minute today.

Alvin Toffler was most accurate when he focussed more on present trends and extrapolated them, such as the pace of change leading to culture shock and the computerization of society, than he was when making wild guesses about the far future.

Perhaps this is the key to successful prediction – focus on what is happening today and let tomorrow figure itself out.

Today's Markets

Circling back to the markets - what do we know today?

- The Dow Jones Industrial Average is setting new highs, but valuations are the third highest in history.
- Interest rates, which have helped lift stocks to these heights, are near the lowest in history. Their ability to push us higher is near an end.

Neither of these factors predict (there's that word again) a future decline, but both argue for lower returns over the next decade than those of the last decade.

Meanwhile, earnings have been pretty good for the majority of companies. Most of the largest US companies have reported their 2nd quarter earnings now, and 73% have exceeded expectations versus a historic average of 68%. Higher earnings are a good thing.

But stocks may be tired. Many of the companies which exceeded earnings forecasts failed to rise in price. We are overdue for a mild correction, and this may be a sign. The August-October period is one of the weakest of the year, so if we are going to take a dip, it is likely to be in these months.

Some other observations:

- Apple reported an excellent quarter. Its recurring revenue from its services division (Apple Music, for example), is now almost as large as Facebook's entire corporate revenue. Apple has a far cheaper valuation.

- Tim Horton's (**TSX QSR**) is struggling in Canada, partly due to infighting between franchisees and the new global parent.
- A&W (**TSX AW.UN**), which is held in many accounts, had a good quarter as compared to Tim's, the coffee giant.
- The Canadian dollar may have peaked when it hit US \$0.805 (it is a penny below this now). A high loonie bites into our exports.
- Markets have been surprisingly resilient to the political mayhem in Washington. Many have wondered if it can last or if, perhaps, the economy does better when politicians are distracted.

We want to say thanks to our clients for introducing their friends and family members to us throughout the year. It's a tremendous compliment and a huge responsibility, and something we never take lightly.

Artificial Intelligence

- By Ian Nakamoto, CFA, Raymond James Strategist

The development and use of artificial intelligence (AI) is becoming increasingly prevalent in the way businesses and consumers interact. The influence of this technology has the potential to materially change the global economy through a variety of ways. In today's Weekly Trends, we will give a brief primer of what AI is; how it is impacting business now and in the future, as well as the benefits and cost derived from its implementation.

Overview & History

Wikipedia defines artificial intelligence as, the study of "intelligence agents" which includes any device that perceives its environment and takes actions that maximize its chance of success at some goal. Colloquially the term is applied when a machine mimics cognitive functions that humans associate with learning and/or problem solving.

What differentiates AI from machines is the former learns from the tasks it performs, while the latter needs to be instructed what to do. Thanks to significant technological developments in our ability to gather and quickly process data, AI is already around us. Examples include face recognition (airport security,

Facebook, Google), voice activated commands and queries in smartphones and personal devices (Siri, Amazon Echo) and media services like Netflix (“pop-ups” that recommend shows based on one’s viewing habits). Driverless cars are also currently under development by many large technology companies (Google, Apple, Tesla, Uber) and expected by many to be one of the major industry disruptors of the next decade.

Artificial intelligence has been around as a scientific concept since the 1950s, though the idea of machine thinking/learning has been around even earlier. Research prior to 1950 introduced the idea that the brain consisted of an electrical network of pulses that somehow orchestrated thoughts and consciousness. The British scientist Alan Turing’s theory of computation suggested that a machine could simulate any conceivable act of mathematical deduction. This insight, that computers can simulate any process of formal reasoning, became known as the Church-Turing thesis. Along with research on neurology and information theory, this led researchers to consider the possibility of building an electronic brain.

Canadian researchers have been an important contributor to AI. Geoffrey Hinton, from the University of Toronto (recently hired by Google) and Yoshua Bengio, from the University of Montreal, helped create the field of “deep learning”. Deep learning is a type of machine learning that uses artificial neural networks that loosely mimics how the brain works.

Implementation and Benefits

AI technologies have advanced significantly in the past several years, but adoption remains in its infancy by the majority of businesses. Many non-adopters say they have trouble making the business case for AI investments. However, a study by McKinsey and Company (McKinsey Global Institute-June 2017) says that firms that have adopted AI typically see outsized financial gains, but firms must adopt an “all-in” strategy to be successful. Those firms that take AI casually do not report many gains in their businesses.

As McKinsey states, “not only do serious AI adopters with proactive strategies report current profit margins that are three to 15 percentage points higher than the industry average in most sectors, but they also expect this advantage to grow in the future.”

One firm that has gone “all-in” is Netflix. Netflix has achieved impressive results from the algorithms it uses to personalize recommendations to its 100 million subscribers worldwide. Netflix reports AI has helped their subscribers quickly find their desirable content, as customers tend to give up if it takes longer than 90

seconds to find a movie or TV show they want to watch. Netflix estimates that it is avoiding canceled subscriptions that would reduce its revenue by \$1 billion thanks to AI.

However, AI is not a panacea for success, but a valuable tool to gain a competitive advantage. AI will have different degrees of relevance depending on sectors and industries. The reader should not assume it is only technology companies that can use AI for their business. Below we list other industries that can benefit.

Retailing: One of the challenges retailers face is forecasting demand trends. AI allows businesses to provide better forecasts for their supply chain and to design better product offerings. AI can discern trends and patterns that can be acted on. Retailers can stock only those specific quantities of specific products they will sell and avoid excess inventories and lessen mark-downs. AI-based approaches to demand forecasting are expected to reduce forecasting errors by 30 to 50 percent from conventional methods. The German online retailer Otto uses an AI application that is 90 percent accurate in forecasting what the company will sell over the next 30 days (The Economist, April 12, 2017). Some retailers are experimenting with virtual assistants that can identify repeat customers using facial recognition and analyze their shopping history to make suggestions.

Healthcare: Healthcare represents one of the largest industries in North America and one of government's largest expenses. According to research from Google's AI subsidiary, Deepmind, each medical scan and test result contains crucial information about whether a patient is at risk of a serious condition and what needs to be done. AI systems can be very beneficial in helping with this process as they can be trained to learn how to interpret test results for themselves. Google believes AI has the potential to find new ways to diagnose conditions by uncovering and interpreting subtle relationships between different symptoms and test results. Because AI tools get better over time, they will also help doctors/hospitals to continually learn about the approaches that help patients the most.

Banking/Finance: Some financial institutions are experimenting with AI to enhance their client experience. The banking industry is trying to obtain more information and data from companies and individuals to better recommend products and services to them. In addition fraud monitoring and detection is where AI can use cognitive learning to detect fraud schemes. AI is even entering the hedge fund industry to manage portfolios and recognize situations from the past to transact buys/sells.

Costs

Like any disruptive technology, the benefits of AI will come at some costs. The obvious areas are increased competition for incumbent businesses and dislocations in labour markets. More esoteric concerns surround privacy and how personal data is mined, stored, protected and used. However, ultimately if consumers/businesses find it helps them in their daily lives the usage of AI will continue to rise.

Artificial intelligence is already part of our day-to-day lives and is destined to become more prevalent and entrenched as the technology develops. There will be benefits and costs to society but the success of AI across different uses and industries sectors of the economy will come down to how much it can improve people's lives. Investors will need to closely monitor their holdings for businesses that will benefit or be challenged by the development of AI.

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Alphabet, Inc. Raymond James & Associates makes a market in shares of GOOG.

Netflix Inc. Raymond James & Associates makes a market in shares of NFLX.

Prices shown are as of close August 4th, 2017.

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