TD Wealth

Fables, Foibles and Bubbles

Monthly Perspectives // Portfolio Advice & Investment Research February 2018

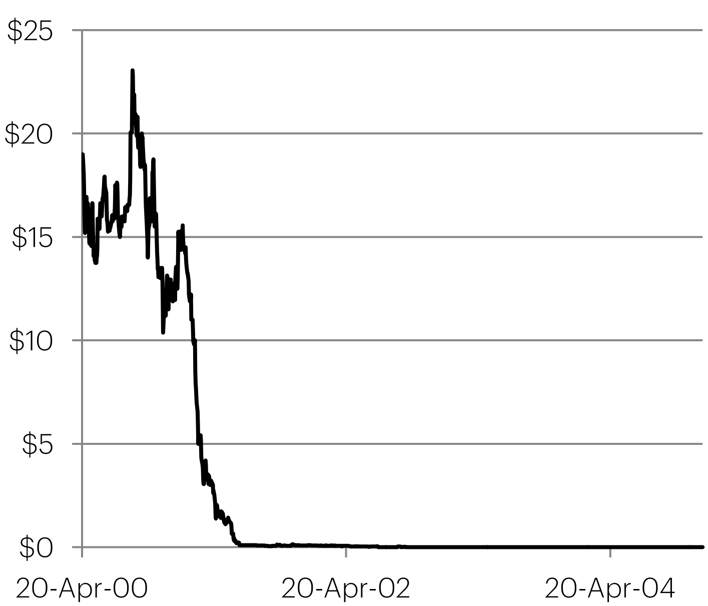
> "In speculation, interestingly enough, contrary mindedness is often a virtue. A layman might suppose that profits lie with the majority. Because the mass of people have the weight of the money, he might imagine that the crowd would tend to be on the winning side of things. Not for long, in my experience. If the majority confidently knows something, that one thing is probably already reflected in the structure of prices, and the market is vulnerable to a surprise. Markets are moved by the unexpected, and the unexpected is what the crowd isn't anticipating. The financial future may be imagined, but it can never be positively known. What people know is the past and present, and they often project the familiar out into the unknown, with unsatisfying results."
>
> James Grant

Unbelievable!

Brad Simpson, Chief Wealth Strategist (Contribution from Chris Blake, CFA, Senior Portfolio Manager)

"This is unbelievable" was the opening salvo to our conversation about marijuana stocks and crypto-currencies that started at our humble office at Bay and Front Street on a cold night in Toronto. The conversation began harmlessly enough, two colleagues, sharing tales from their day inundated with questions about Bitcoin and fables of new found riches from marijuana stocks. We quickly came to the conclusion that neither of us had experienced anything like this in our careers since the Dotcom era of the late 1990s and early 2000s. As though both of us were transported back in time, our thoughts merged by some sort of Vulcan mind meld, in which our two brains became a single entity and in unison we uttered the words that have not filled the hallways of an investment firm on Bay Street in almost 18 years: 360Networks Inc.

Figure 1: The fall of 360Networks Inc.



Source: Bloomberg Finance L.P. April 20, 2000 to December 31, 2004.

Chris set the stage with this compelling story:

"It was the early spring of 2000, not long after the Nasdaq hit its peak of 5046.86, when most of the key players of Toronto's equity investment community were waiting in the upper lobby of the King Edward hotel for the ballroom doors to open for a company presentation. This was unusual. I had been an analyst on the street for a little over four years at that point, and had attended hundreds of company roadshows and initial public offering (IPO) shows. Never had the doors been kept closed. We could always walk in when we arrived to find a seat with a good view and hopefully some other managers we respected around the table. But this day, the "Rock Star CEO", Greg Maffei, was to be there. Greg was 39 and had packed it in after seven years at Microsoft, rising from VP, Corporate Development, and Treasurer to the position of Chief Financial Officer. These were heady times, and this was the highly anticipated offering of 360Networks Inc."

I also remember this even well. It was as if the Holy Grail itself had been found and laid bare at a hotel conference room in Canada's largest city. The only thing missing was The Raiders March (Indiana Jones theme) playing over the hotel sound system.

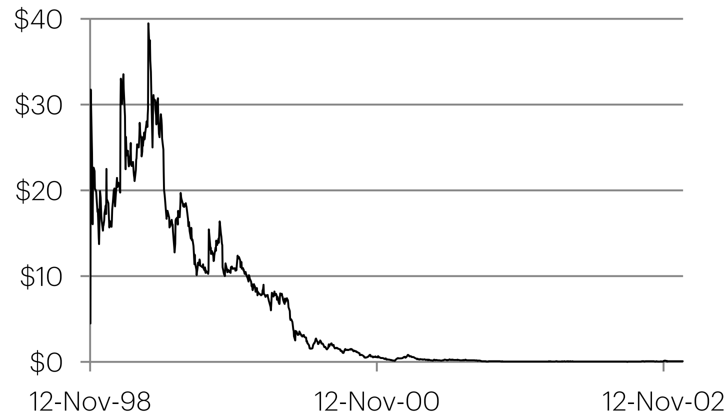
As one who enjoys a good yarn, I shared my story of watching two otherwise well-adjusted financial professionals turn into pugilists, so overcome by money lust (an affliction of the time) that they broke out into an old fashioned donnybrook in the offices of a well-known investment firm, not far from where Chris and I shared our stories. The catalyst, if memory serves me right, was that each felt short changed with the allotted number of shares they had respectively been bestowed to participate in the IPO of 360Networks Inc., which was slated to begin trading on April 20, 2000. This was no small thing. During that era, having the ability to participate in IPOs like this was akin to being given a winning lottery ticket. For context, while there are countless similar examples from that time, let's go with the granddaddy of them all: TheGlobe.com.

TheGlobe.com was a social networking site that broke the world record for posting the largest first day gain of any IPO in history (a record that still stands) when it rose from $9 to $97. It is interesting to note that it came to market in 1998, and within months it crashed, falling to $0.13 and closing shop two years later. During that time, the internet bubble was in the early stages of imploding, but it was still far from being obvious that the end was near. Sure, there had been a setback and the Nasdaq dropped below 4600 by the end of March 2000, but that was still ahead by more than 10% from the level reached at the end of 1999. It was only natural that the market pulled back after the great run it had when all things computerized hadn't failed as we turned the century.

It was within this backdrop that 360Networks Inc. filed its final prospectus on April 18, 2000, a total offering of US$647.85 million (MM) in addition to another US$510MM raised previously. On June 28, 2001, some 14 months later, 360Networks filed for protection from creditors – a Companies' Creditors Arrangement Act in Canada, and a Chapter 11 Bankruptcy in the United States. One could almost hear the Miracle of the Ark play as investors lamented the sad end of another speculative bubble as their shares in Dotcom companies melted. But a bubble it had been and that new issue of 360Networks Inc., very close to its peak, embodied all that there was to be seen in a market bubble.

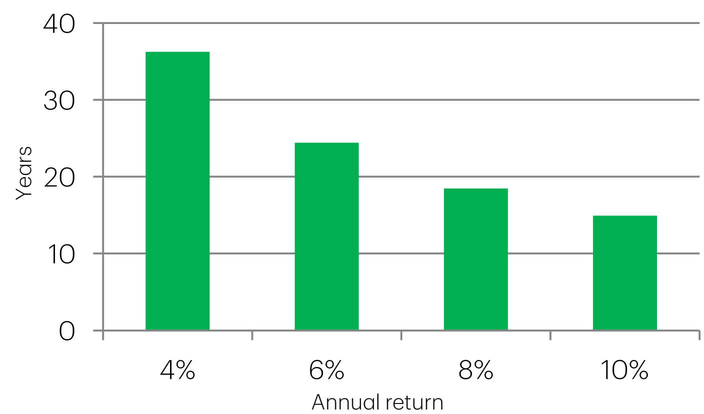
It is important to note that recovering from a market bubble crash is a long-term process. From peak to through, the Nasdaq lost 76% of its value during the Dotcom crash. Figure 3 illustrates the number of years required to break even after a major pullback. For example, with an 8% annual return, it would take 18.5 years for Nasdaq to just break even.

Figure 2: The fall of TheGlobe.com



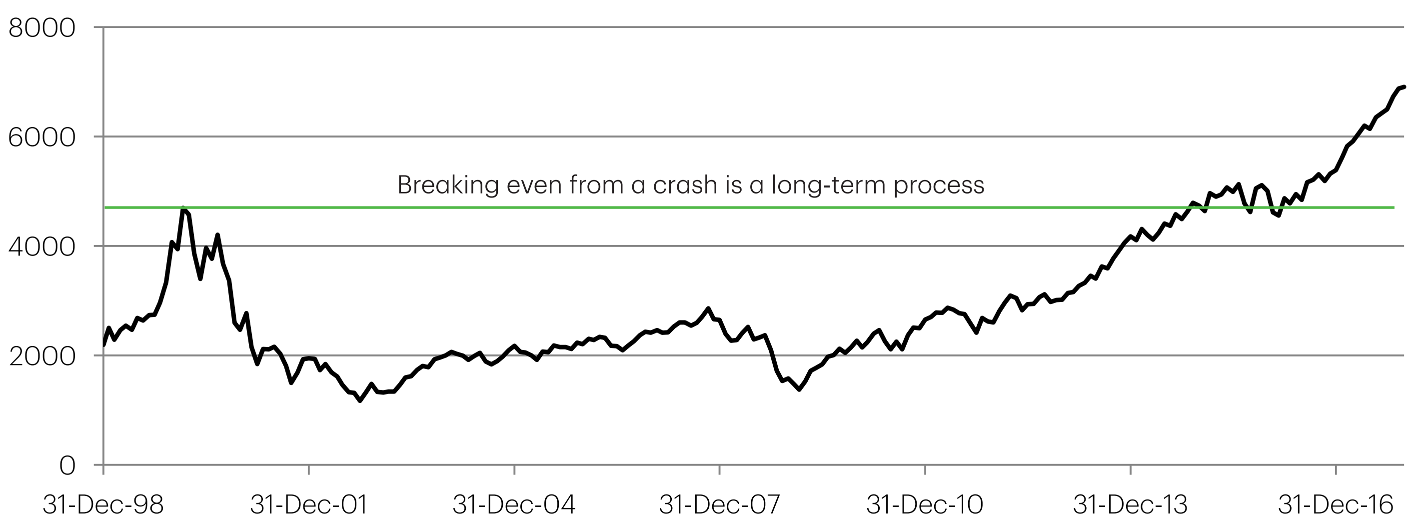
Source: Bloomberg Finance L.P. Nov. 12, 1998 to Dec. 31, 2002.

Figure 3: Nasdaq: years to break even



Source: Bloomberg Finance L.P. As at January 8, 2018.

Figure 4: Nasdaq tumbles during Dotcom crash



Source: Bloomberg Finance L.P. As at December 29, 2017.

What's in a bubble?

According to Dr. Jean Paul Rodrigue, there are four main phases in a bubble[1]: stealth, awareness, mania and blow-off.

1

Stealth phase

The period when "smart money" gets in without much noise. In this phase, only very well prepared and skilled people invest. It is usually the market phase where stocks (investments) are considered to be a "dirty word". People usually keep out of the markets and some even confound trading with gambling.

2

Awareness phase

It is the phase, when very few of the initial investors tend to mark their profits, while smart money buy dips.

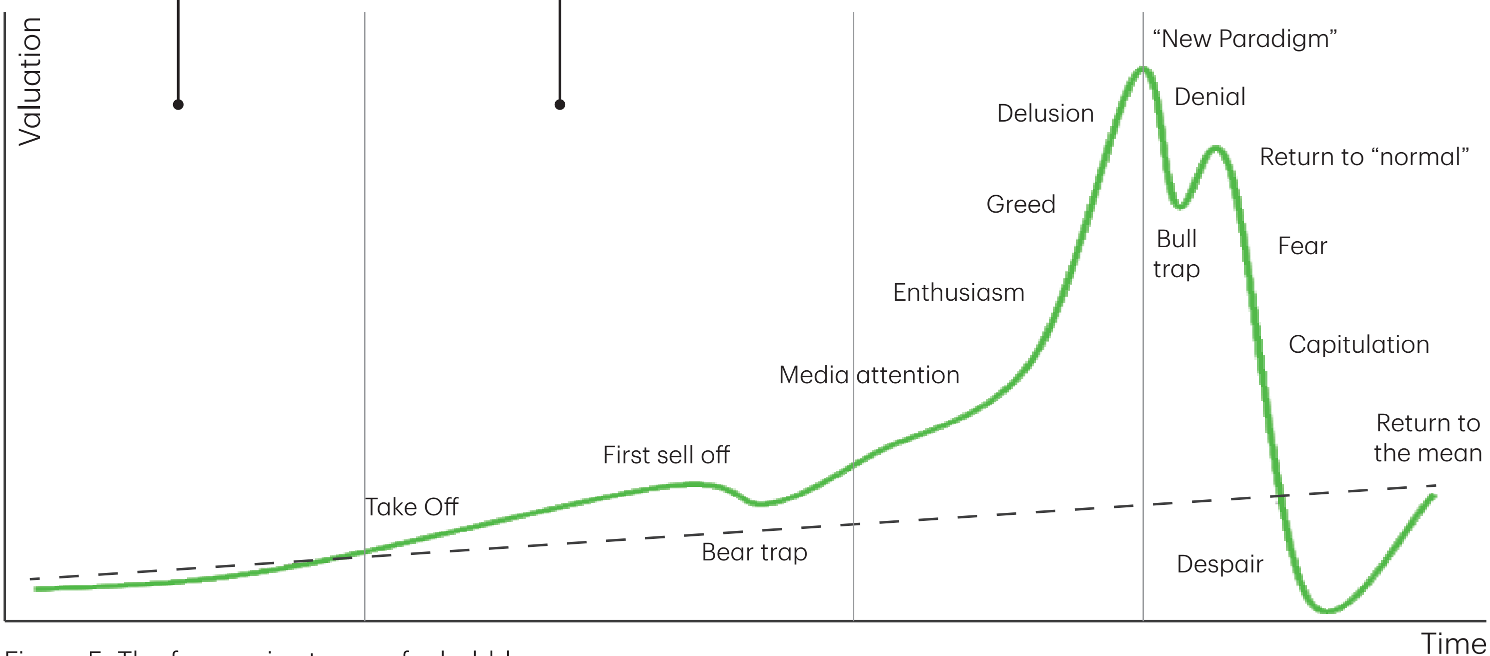


Figure 5: The four main stages of a bubble
Source: Dr. Jean Paul Rodrigue

Mania phase

3

Everyone is noticing that prices are going up and the public jumps in for this "investment opportunity of a lifetime". There is lots of propaganda in magazines and tv shows, and a real fashion develops in buying securities. It is the period when everyone, from your taxi-driver to your dentist, asks for investment tips. Regardless of their profession, everyone becomes interested in the stock market. High short-term returns and the "easy money" ways attract many new, inexperienced investors, forming euphoric expectations about the length of the bubble. Floods of money come in, creating even greater expectations and pushing prices to stratospheric levels. The higher the price, the more investments pour in.

Blow-off phase

4

It is the moment when suddenly everything has changed. The house of cards collapses under its own weight and late comers (commonly the general public) are left to hold the bag while the smart money has pulled out a long time ago. This is the phase when people cannot find explanations to why the stock markets crashed and continue to dip further.

[1]Vasile Dedu, Turcan Ciprian Sebastian and Turcan Radu (2012). As summarized: Speculative Bubbles – A Behavioural Appproch Annals of Faculty of Economics, , vol. 1, issue 1, 798-802.

How did we get here?

Looking at the stages of a bubble, it would seem that we are at currently, when considering marijuana stocks and crypto-currencies, oscillating in the mania phase. Now the big question is: Are we headed to the blow-off phase and how did we get here?

Perhaps the best way to answer this is with four considerations: Heuristics: the mental short cuts to how we make decisions, Personality: the DNA of who we are, Valuations: good old fashioned financial analysis, and Regulatory Risk: there's some hair on it.

Heuristics

It has been said that humans are not rational but we rationalize – generations of market bubbles suggest that there is an element of truth to this. To better understand why, it is imperative to consider the psychological behaviour that contributes to this.

First let us consider the cognitive attributes to how we think, our so called "heuristics" or mental short cuts that serve us well most of the time but occasionally lead us astray when making financial decisions. We believe that there are five key attributes of bubble psychology that play into market manias:

Anchoring

Humans hear a number, and when asked a value-based question, even unrelated to the number, they gravitate to the value that was suggested. We hear marijuana stock "A" is at $10, and immediately in the aggregate we start thinking that $10 is cheap and $20 might be expensive.

Hindsight bias

We overestimate our ability to predict the future based on the recent past. We tend to over-emphasize recent performance in our thinking. We see a short-term trend in Bitcoin, and we extend that forward into the future with higher confidence than the data would mathematically support.

Confirmation bias

We selectively seek information that supports existing theories, and we ignore/dispute information that disproves those theories. On a visit to Victoria, BC we see more pot shops than Starbucks in the downtown and read that our beloved Tragically Hip are the latest Canadians to strike it rich with marijuana stocks, thanks to a 5.4% stake in Newstrike Resources Ltd.

Familiarity bias

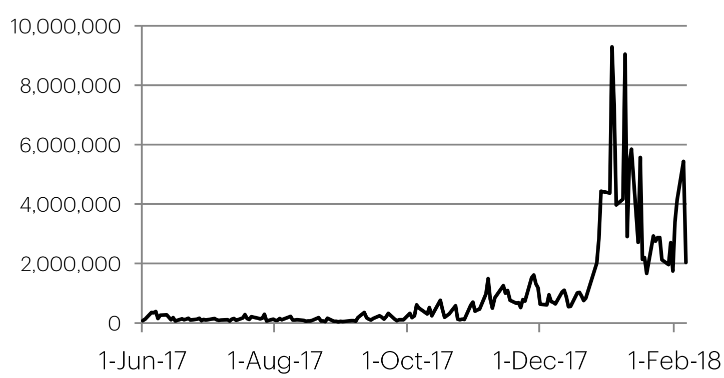
People tend to think that assets they know more about are less risky than the ones they know less about. According to Deloitte's 2016 report called "Recreational Marijuana Insights and Opportunities", 22% of adult Canadians use marijuana at least some of them time. That's a lot of familiarity.

Herd behaviour

We are biologically wired to mimic the actions of the larger group. While this behaviour allows us to quickly absorb and react based on the intelligence of others around us, it also can lead to self-reinforcing cycles of aggregate behaviour. It is hard to ignore that trade volumes on the Canadian Securities Exchange soared to a record high in 2017, with a more than 400% year-over-year spike in the overall value traded, thanks in no small part to a surge of marijuana-related listings and the buzz around blockchain technology.

As reported on BNN in January 4, 2018: Richard Carleton, the CEO of the CSE, said Thursday that the total value traded surpassed $7.81 billion in 2017, an increase of more than 403% from $1.55 billion a year earlier. Meanwhile, the volume of shares that traded hands on the alternative exchange in 2017 hit 17.4 billion, up 171% from more than 6.4 billion in 2016.

Figure 6: Trading volumes rise: Horizon Marijuana Life Sciences Index ETF



Source: Bloomberg Finance L.P. As at February 6, 2018.

"It was largely driven, but not exclusively, by the cannabis space," Carleton said in an interview. "But later in the year, we did have a number of companies with blockchain applications."

The CSE finished 2017 "with a bang," he added, as December 28 marked the biggest trading day of the year. On that day, some $388.9 million and nearly 456 million shares changed hands—with 82.6% of the volume related to marijuana. "Another 8% of the volume traded on December 28 involved companies with interests related to the technology underlying the crypto-currency bitcoin," Carleton said.

Overconfidence

We tend to over-estimate our intelligence and capabilities relative to others. Many first time investors get lucky in a momentum driven market when a rising tide lifts all boats. The first few stocks they pick do extremely well and they attribute it to investment acumen rather than luck. Not to be seen as singling out the lay investor, we note that professional fund managers have also been found to suffer from this malaise. For example, according to a study published in January 2015, "Fund Manager Active Share, Overconfidence and Investment Performance[2]", like retail investors, fund managers seem to falsely attribute good past performance to their own skills. This paper studies overconfidence among equity mutual fund managers using a sample of 2740 unique funds during the 1980-2009 period.

Personality

While it is clear that how we think contributes greatly to foibles and bubbles, what about personality traits? These are the non-cognitive activities or the DNA of how we make investment decisions. A 2004 study in The Journal of Wealth Management showed that personality traits were directly related to an investor's susceptibility to cognitive biases[3]. In other words, these mental short cuts are seemingly hardwired into who we are based on our traits. At TD Wealth, we like to call this investor "Blind Spots" and they go together like chocolate and peanut butter.

Who we are, our personality, has been defined as the relatively enduring patterns of thoughts, feelings, and behaviours that differentiate individuals from one another and reflect the tendency to respond in certain ways under certain circumstances[4]. One of the most common and respected ways for psychologists to frame human traits is commonly referred to as The Big Five Model. Based on decades of academic study and professional practice, this framework includes five broad aggregated characteristics: agreeableness, conscientiousness, extroversion, open-mindedness and neuroticism. The Big Five Model has a number of characteristics which make it very appealing. First of all, it has been shown that these personality traits tend to be consistent over time[5]. The Big Five Model has also shown the connection between personality traits to various economic outcomes and behaviours, including long-term vs. short-term investments[6], overconfidence[7], money management[8], and real estate investments[9].

Let's consider how this can play out. An investor who has a high extroversion score has shown a tendency to have increased exposure to stocks[10]. Furthermore, a high extroversion score increases the likelihood that this investor will be interested in innovation, a useful thing to know in the current environment where swaths of speculators are trying to cash in on a potential, long term, big innovation known as crypto-currencies. Railroads in the nineteenth century, automobiles and internet companies in the twentieth century were all game changing innovations. That doesn’t alter the fact that individual investors lost all kinds of money as thousands of companies from these respective innovations experienced their blow–off phase. Imagine how much better off many investors during these times would potentially have been if they understood, in defined terms, that they had a predisposition to being caught in bubbles. As an investor, it is an incredibly powerful thing to understand one's traits.

Understanding your Wealth Personality

We use the Five Factor Model of Personality to chart your Wealth Personality. This model identifies major personality traits, which can help to predict behaviours and identify underlying motivations – as well as allow your TD Wealth advisor to see how you and your partner's personalities interact to influence financial and investing decisions.

Intrigued? Meet with an advisor to uncover your wealth personality

Valuations

Where does the line fall between investing and speculating?

On the surface, investing and speculating may seem like similar activities. Investors buy an asset with the belief that they will get a return on the investment, either through a periodic payment with the return of principal (bonds), price appreciation by selling the asset for a price greater than they paid (equity), or a combination of both, such as a dividend paying equity of a mature company.

It seems pretty clear that when we purchase a government of Canada bond or shares in a mature company like IBM Corporation or Loblaws Co. Ltd., we are investing. There is generally a periodic payment of interest or dividends, and the value of the bond or stock, while fluctuating daily, is relatively steady for the bond and hopefully upward sloping for the equity.

Also apparent (at least in retrospect) is that buying the Nasdaq Composite Index in March 2000 at over 5000 points was pure speculation. But where and how do we draw the line that distinguishes one activity from another? Can we know in advance that we are speculating?

The easiest way to know the difference is to ask ourselves how well educated we are on the underlying asset, and to what extent our expectations for the underlying performance of the asset will fit into the classic models of finance. Mathematically, the fair value of an asset is equal to the net present value of the stream of expected future cash flows. Easy to say, more difficult to put into practice – particularly when there is higher uncertainty around the cash flow as there is in equity investing, more so when it is an early stage industry with expected growth ahead.

Let's start with a simple example from modern times: crypto-currency. So what is Bitcoin worth? By definition, a currency is a medium of exchange that is in general use and acceptance or that has prevalence. Currently, crypto-currencies are not generally used as a medium of exchange, nor are they generally accepted as such. At this time, there are few companies that will accept crypto-currencies as payment and a number of countries where it is still illegal to do so. We submit that the only reason people are buying Bitcoin is that they expect it to increase in value. They anticipate finding some greater fool who will buy it from them. After, of course, they have made enough profit. So it is primarily an expectation of gain based on increasing demand that drives the price of Bitcoin. And with recent moves by many governments to regulate this "currency" to eliminate its use in money laundering and tax evasion, its greatest function is on the so-called dark web. Maybe that takes a little shine off the use of Bitcoin as a currency but surely with a relatively stable valuation it might make sense.

A key functional problem with Bitcoin as a currency is its transaction handling capability. There are two inter-related problems: the first is capacity, and the second is the length of time to confirm a transaction. Currently, the Bitcoin network's theoretical maximum capacity is between 3.3 and 7 transactions per second. Visa claims that its network, VisaNet, is capable of processing 56,000 transactions per second and Mastercard claims a 39,000 transaction per second capacity. As it stands, Bitcoin's capacity doesn't allow for a lot of activity in a world with more than 7 billion people.

Blockchain.com, a website specializing in all things Bitcoin, reports that as of December 19, 2017, it takes an average of 78 minutes to confirm a Bitcoin transaction. How long do you have to stand at the cash waiting to pay for something? Few people today have that kind of time. This major stumbling block would have to be remedied before wide spread adoption is even contemplated.

So, in essence, we have a great mania over a relative non-functioning quasi–currency? That sure sounds like speculation to us.

How about those Canadian marijuana companies? These are legitimate businesses currently selling a limited quantity of product for medical use. However, in the summer of 2018, the Canadian market for recreational marijuana will open and these companies will have a considerably larger market to fulfill, and will likely see a burst of growth. So they are growth companies (no pun intended). The question for a current potential investor (not a speculator) is how much should be paid for the opportunity to participate in this growth today?

That is actually a very interesting question because there are a fair number of unknowns about the market. A Statistics Canada report in late 2017 estimated that the black market for cannabis in Canada in the year 2015 was worth about $6.2 billion (B) dollars based on a total market size of 697.5 tonnes and a retail price of around $8.00 per gram. Those estimates are similar to a Deloitte report that suggested the market was somewhere between $4.9B and $8.7B. With a rough idea of market size, we can assume that since one of the government's objectives is to eliminate the black market, pricing will be in-line with or lower than the black market ($8.00 per gram). And, I am pretty sure that the government is going to profit on this vice to a similar level as it does with wine. Looking at the Liquor Control Board of Ontario, we can find out how much of the retail price of a bottle of wine goes to the producer and how much elsewhere. The producer gets 38%, so if we assume something similar for cannabis, the cannabis market in total is worth about $2.4B at the producer or grower level.

The top ten Canadian marijuana companies have an aggregate market capitalization of about $22.8B, as of January 24, 2018. That is almost 10 times the revenue of the entire market forecast. If we assume that net after tax margin could be at par with major liquor companies such as Diageo or Constellation Brands, at about 23%, the marijuana industry earnings would be $550 million (M). In aggregate, this industry looks to be trading at 40x its potential earnings while, according to Thomson Eikon, wineries and distilleries trade on average at about 23.1x forward earnings. To be sure, there will be exciting news and potentially growth for these companies in the first year after legalization. However, that growth will likely evaporate as the story is really about the shift from the black market to a legitimate market. It is likely that the growth rate will follow demography and GDP.

It is interesting to note that in Colorado, which opened its marijuana market a few years ago, wholesale prices declined dramatically as many growers entered the business to take advantage of the bonanza. In fact, according to very recently released data from Statistics Canada, prices are already dropping in advance of legalization. Statistics Canada data show prices dropping 7.7% in 2017 from 2016, to $7.43 per gram, less than the price we used to estimate the market size. While there was potentially good news for marijuana growers in that same report – namely that spending on marijuana had grown by 6% on average since 1961 - there is no way to separate the effect that the black market had on prices, which had to be high to compensate those in the industry for the risks they were taking. Let's not kid ourselves, the bottom line is that this is an agricultural product. It requires seeds and the right conditions. I would also issue caution that investors need to keep in mind that the enabling legislation allows individuals to grow their own marijuana, with each household allowed to grow up to four plants. It may be that a 20-25% slice of this market goes to home cultivation, which will not help the growing companies, although some may develop a business in selling seeds.

All considered, investing in marijuana is also more of a speculation than an investment. Currently, investors know little of what the end market looks like (its size and growth rate being educated guesses at this time), the number of competitors, the basis of competition, and the profitability. Remember that investing involves having some knowledge about the cash flows in order to assess value. With all these unknowns, we can guess, but that is all, and guessing does not equal investing, it equals speculation. It is incredibly important to understand the difference and make financial decisions accordingly.

Regulatory risk

The final consideration is some legal stuff. Marijuana companies, with direct or indirect business in the United States face regulatory risk south of the border and potentially in Canada. Although legalized in some form in various U.S. states, marijuana remains illegal under the U.S. federal Controlled Substances Act, which prohibits cultivation, distribution, and possession. On January 4, 2018 U.S. Attorney General Sessions rescinded the 2013 "Cole Memo". The Cole Memo made clear that marijuana remained an illegal drug under federal law, but identified eight enforcement areas relating to marijuana for prioritization by federal prosecutors, thereby blunting the effect of federal enforcement in states where marijuana is legal. It is now unclear whether the U.S. Department of Justice will prosecute U.S. marijuana operations in legalized U.S. states and whether they will prosecute Canadian marijuana businesses and/or investments with activities in legalized U.S. states.

From a Canadian perspective, on January 12, 2018, the Canadian Securities Administrators (CSA) issued a notice indicating that they are reviewing whether disclosure practices alone are appropriate for public companies engaging in U.S. marijuana-related activities due to evolving U.S. regulatory developments. This is in contrast to the CSA's previous guidance issued in October 2017 regarding a disclosure based approach for such issuers. On October 16, 2017, the TSX issued a notice advising that public companies with ongoing business activities that violate U.S. federal law regarding marijuana do not comply with the TSX listing requirements. "There is a lot of hair on it" is an old term utilized by investment analysts. Simple definition: there are more complications and negative aspects than initially meets the eye. All we are saying with marijuana stocks is that it is critical to remain mindful of the fact, in terms of regulatory risk, there may be "some hair on it".

[2]Jin, Liang, Arman Eshraghi, Richard Taffler, and Amit Goyal, (2015) Fund manager active share, overconfidence and investment performance, Working paper, Warwick University,University of Edinburgh, and University of Lausanne.
[3]Pompian, Michael M. and Longo, John, M. A New Paradigm for Practical Application of Behavioral Finance: Creating Investment Programs Based on Personality Type and Gender to Produce Better Investment Outcomes, The Journal of Wealth Management Fall 2004, 7 (2) 9-15.
[4]Roberts, B.W. (2009) Back to the Future: Personality and Assessment and Personality Development. Journal of Research in Personality, 43, 137-145.
[5]Cobb-Clark, Deborah and Schurer, Stefanie, (2012). The stability of big-five personality traits. Economics Letters, vol. 115, issue 1, 11-15.
[6]Mayfield C., Perdue G., Wooten K (2008) Investment management and personality type. Financial Services Review 17, 219-236.
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[8]Donnelly G., Iyer R., Howell R. (2012) The Big Five personality traits, material values, and financial well-being of self-described money managers. Journal of Economic Psychology 33, 1129–1142.
[9]Ben-Shahar D., Golan R., (2014) Real estate and personality. Working paper. Available at http://ssrn.com/abstract=2502494.
[10]Durand, Robert B. Newby, Rick and Sanghani, Jay. (2008) An Intimate Portrait of the Individual Investor, The Journal of Behavioural Finance, 9:4, 193-208.

Final word

What is abundantly clear is that investing is much more than it seems. The environment, our thinking and DNA, plus good old fashioned financial analytics all seem to come into play. When investors suspend disbelief to get into a deal they think is hot, and think they can make money simply because it is going up, it's likely a bubble. It is the greater fool theory in action – pure speculation that if you buy an asset, you will find someone else to buy it from you at a higher price, leaving you with a gain. You are essentially speculating to find a greater fool.

At TD Wealth we think the best way to traverse these sorts of environments is to double down on our investment philosophy, Risk Priority Management.

Innovate and look forward

Grand distortions caused by recent years of unorthodox monetary policy may mean that the era of being able to take past data and simply optimize it to calibrate future allocations is over. We believe investors are better served by directing their efforts to what they can control: Building a robust portfolio that can withstand the inevitable volatility and unknown elements of financial markets.

Invest like an owner

The era of big data, low trading costs and massive product proliferation has created an environment where far too often client investment portfolios have more in common with casino-like statistical strategies than they do a well-constructed foundation for one's wealth. A banker's methodology on credit, a prudent stance to fiscal policy and a visionary approach to products and services are the foundation of why, how, and with whom, we deploy capital.

Embrace human behaviour

Traditional finance assumes that all investors are rational and well-informed, and that the economic environment in which they operate has a very mechanical business cycle, that consequently is very predictable. In practice, human beings learn and adapt as they go along, and, as a result, the financial environment in which they function changes accordingly. We believe it is wiser to consider the investment world as a complex adaptive system and to pursue returns and manage risk based on this idea.

Mitigate outside and inside risks

We recognize that while traditional asset class diversification may reduce volatility in normal market conditions, this strategy struggles during extreme events when asset class correlations increase. We believe the best way to preserve gains is to align investment goals and risk tolerance with a well-constructed portfolio that has balanced asset allocation on the outside combined with a diversified approach to risk factor management at its core. These risk factors can be thought of as the DNA of a portfolio, and are what make a portfolio function in terms of risk and returns on a more molecular level.

Pursue real returns

Instead of using traditional benchmarks to measure performance, we focus on attaining positive returns over time, regardless of financial market conditions. We measure investment success in absolute terms centered on client based behaviours around risk and desired outcomes. Grounded with the knowledge of the emotional ups and downs that accompany investing, we think in terms of pain management. As a result, we consider the potential of the depth of a portfolio's declines, the frequency of its possible losses and the amount of time that an investor's capital could conceivably be less than their original invested capital.

Pay for what you get

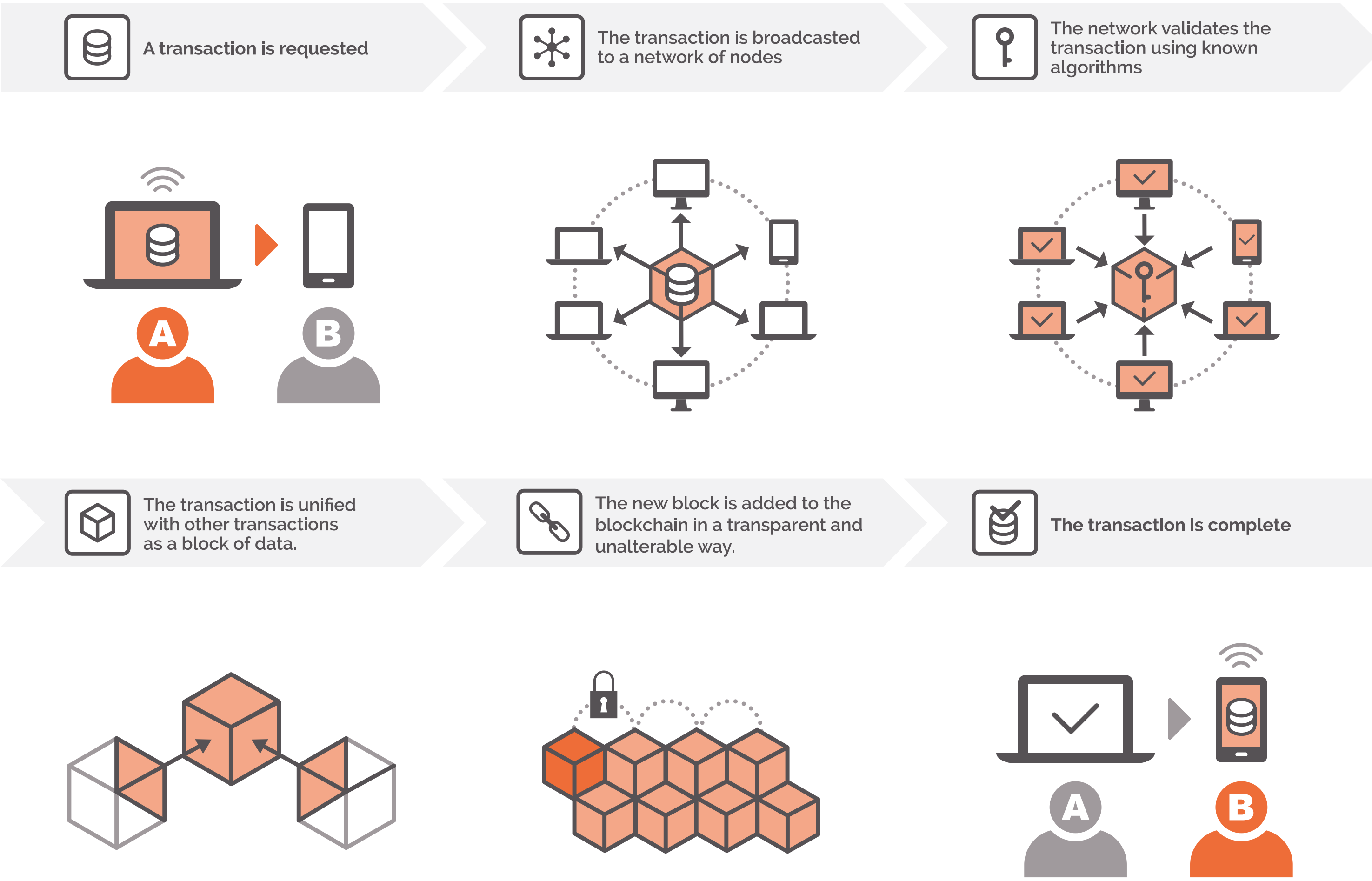
The question of active or passive investment is not a matter of better or worse; it is about how to best use both to construct and manage portfolios. Fees impact returns, and, consequently, receiving value in terms of risk and returns for higher cost is critical. Active managers are used for assets that tend to have limited liquidity (ability to get money in and out), smaller size or larger complexity. In areas where the opposite is true, we use passive management mandates.

Provide for lifetimes over market cycles

Rarely are goals only about maximizing the value of investments over a single period of time. For example, a goal might be to maintain the same standard of living, planning for retirement, or in the case of entrepreneurs, anticipating the sale of their business. Another goal may be the purchase of personal use real estate or paying for children's education. Passing on a proportion of wealth, setting up a philanthropic foundation, covering unplanned financial needs may all be goals and each will likely make up a specific portfolio and a strategy based on the utilization of an asset balanced and risk factor diversified portfolio approach.

Our advisors have a myriad ways of implementing and crafting this methodology into client's portfolios. The key is for you to sit down with your advisor and get clarity around your economic behaviour, goals and different investment periods. We believe this is the better way to each investment goals while avoiding fables, foibles and bubbles.

Show me the bitcoin: what is Blockchain technology?



Key components of Blockchain technology

Distributed open ledgers

Every person or company on a particular blockchain (e.g. Bitcoin) has access to the entire database and its complete history. No single entity controls the data or the information. Every party can verify the records of its transaction partners directly, without an intermediary.

Decentralized transactions

Communication occurs instantaneously between peers instead of through a central figure such as a lawyer, broker or bank. Each "block" stores and forwards information to all other "blocks".

Transparency

Transactions are visible to anyone with access to the particular blockchain. Each user on the system has a unique address that identifies it and one can remain anonymous or provide proof of their identity to others.

Irreversible records

Once a transaction is entered, the records cannot be altered, because they're "chained" to every transaction record that came before them and algorithms are used to ensure that the recording on the database is permanent, chronologically ordered, and available to all others on the network.

Computational logic

The digital nature of these transactions means they can be tied to computational programs so users can set up algorithms and rules that automatically trigger transactions between blocks.

Market review

		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Canadian Indices ($CA) Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
S&P/TSX Composite (TR)	53,249	-1.39	0.25	-1.39	6.67	5.90	7.85	8.01	5.01	6.95
S&P/TSX Composite (PR)	15,952	-1.59	-0.46	-1.59	3.68	2.82	4.69	4.85	1.95	4.43
S&P/TSX 60 (TR)	2,550	-1.39	0.43	-1.39	6.94	6.41	8.56	8.73	5.04	7.16
S&P/TSX SmallCap (TR)	1,013	-2.16	0.74	-2.16	0.00	6.30	4.33	3.59	2.89	-
U.S. Indices ($US) Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
S&P 500 (TR)	5,511	5.73	10.18	5.73	26.41	14.66	15.91	16.63	9.78	7.44
S&P 500 (PR)	2,824	5.62	9.65	5.62	23.91	12.28	13.52	14.20	7.43	5.43
Dow Jones Industrial (PR)	26,149	5.79	11.86	5.79	31.64	15.06	13.54	13.31	7.53	6.16
NASDAQ Composite (PR)	7,411	7.36	10.16	7.36	32.00	16.93	18.72	18.73	11.98	7.90
Russell 2000 (TR)	7,752	2.61	5.14	2.61	17.18	12.12	13.33	14.75	9.76	8.12
U.S. Indices ($CA) Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
S&P 500 (TR)	6,775	3.59	5.05	3.59	19.26	13.37	20.81	20.33	12.04	6.53
S&P 500 (PR)	3,471	3.49	4.54	3.49	16.91	11.01	18.32	17.82	9.65	4.54
Dow Jones Industrial (PR)	32,144	3.65	6.65	3.65	24.20	13.77	18.34	16.90	9.75	5.27
NASDAQ Composite (PR)	9,111	5.20	5.03	5.20	24.54	15.62	23.75	22.49	14.29	6.99
Russell 2000 (TR)	9,529	0.54	0.25	0.54	10.56	10.86	18.12	18.38	12.03	7.21
MSCI Indices ($US) Total Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
World	8,915	5.30	9.13	5.30	26.52	12.47	12.30	13.72	7.03	6.67
EAFE (Europe, Australasia, Far East)	8,543	5.02	7.86	5.02	28.20	9.90	8.33	10.65	3.93	5.70
EM (Emerging Markets)	2,732	8.34	12.52	8.34	41.49	12.24	6.13	8.23	4.22	8.97
MSCI Indices ($CA) Total Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
World	10,959	3.18	4.04	3.18	19.36	11.20	17.05	17.32	9.23	5.77
EAFE (Europe, Australasia, Far East)	10,502	2.90	2.84	2.90	20.95	8.66	12.91	14.15	6.07	4.81
EM (Emerging Markets)	3,358	6.16	7.28	6.16	33.49	10.97	10.62	11.66	6.37	8.05
Currency	Level	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
Canadian Dollar ($US/$CA)	81.35	2.06	4.89	2.06	5.99	1.14	-4.06	-	-2.02	0.85
Regional Indices (Native Currency) Price Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs	20 Yrs
London FTSE 100 (UK)	7,588	-1.30	1.27	-1.30	6.89	3.98	3.87	4.73	2.58	0.02
Hang Seng (Hong Kong)	32,887	9.92	16.43	9.92	40.78	10.30	6.75	8.06	3.44	6.55
Nikkei 225 (Japan)	23,098	1.46	4.94	1.46	21.31	9.33	15.70	18.17	5.45	1.66
Benchmark Bond Yields		3 Month		5 Yr		10 Yr		30 Yr		
Government of Canada Yields		1.20		2.14		2.38		2.48		
U.S. Treasury Yields		1.48		2.58		2.86		3.12		

Canadian Bond Indices ($CA) Total Return	Index	1 Month	3 Months	YTD	1 Yr	3 Yrs	5 Yrs	Since 1/1/2012	10 Yrs
FTSE TMX Canada Universe Bond Index	1,029	-0.80	-0.31	-0.80	2.05	1.02	3.00	2.92	4.52
FTSE TMX Canadian Short Term Bond Index (1-5 Yrs)	695	-0.22	-0.51	-0.22	-0.26	0.58	1.65	1.68	2.98
FTSE TMX Canadian Mid Term Bond Index (5-10 Yrs)	1,107	-1.13	-1.32	-1.13	-0.15	0.76	3.03	3.14	5.08
FTSE TMX Long Term Bond Index (10+ Yrs)	1,680	-1.37	0.70	-1.37	6.92	1.76	4.79	4.43	6.61

Sources: TD Securities Inc., Bloomberg Finance L.P. TR: total return, PR: price return. As at Janaury 31, 2018.

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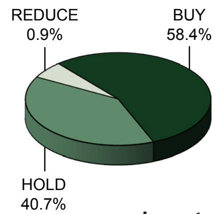

Percentage of subject companies under each rating category—BUY (covering Action List BUY, BUY and Spec. BUY ratings), HOLD and REDUCE (covering TENDER and REDUCE ratings).
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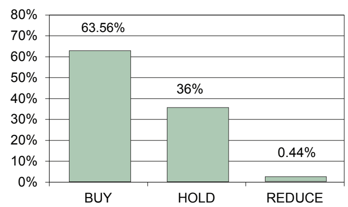

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