QUBE COMMENTARY

January 2022

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Letter From The Editor

Ian Quigley, MBA, CFA

Harry Currie, the minister for First Presbyterian in Edmonton, shared with me this week that he preaches the story of Lt. Commander Data every Sunday. What a strange thing for a minister to say! He explained that the stories of Star Trek Next Generation were centred around the question "What does it mean to be a human?" In essence, the quest of Commander Data. One thing I love about Qube is that we aim to serve our clients with a similar question: "What does my wealth mean?" A related existential problem, and I love that we have grown a team that engages this charge with pride and commitment.

This commentary includes articles from various team members tied together with a similar theme. Heading into 2022, what issues are we monitoring, and how might these affect our recommendations? Wyatt Lynds writes about COVID cash buildups, Austin Glenn on escalated levels of corporate debt, Daniel Semenjuk on cryptocurrencies and Michael Baker on the ideological shift in China. The commentary starts with an article, by myself, that confronts the overwhelming majority of investment recommendations made using relative price (or ratio analysis) and ends with an invitation. The invitation, to all clients and friends of Qube, is to join our equity valuation seminar series, starting in late January that is used to onboard a new batch of students onto our research team.

2021 was not an easy year. Our thoughts go out to those we serve and their struggles enduring the pandemic. We are thankful for our clients' continued support and an "occupancy permit" to return to our building in Strathearn, Edmonton. As 2022 rolls forward and the pandemic concludes (God willing), we look forward to hosting you in our new space. We have many ambitious projects and plans and are eager to see you, our valued clients, again in person. To a better 2022.

Kaleo Portfolios: Past Performance

	2021	2020	3-Year	5-Year	Inception
Kaleo A	24.3%	19.8%	21.4%	14.9%	14.3%
Kaleo Full	19.3%	20.6%	19.8%	15.0%	14.6%
MCSI World Index	20.7%	14.0%	18.7%	13.7%	13.3%
S&P TSX	25.1%	5.6%	17.5%	9.8%	7.4%
50% TSX/ 50% MSCI World KALEO Benchmark	22.9%	9.8%	18.1%	11.7%	10.3%

Note: All returns reported above for periods in excess of 1-year are reported as annualized returns. Composite returns represent past performance and should not to be treated as an indication of future results. All returns are reported as net of trading costs, but do not account for management expense fees. All rates reported above correspond to the period ending December 31, 2021. Kaleo inception of January 2011.

Kaleo

Kaleo consists of a portfolio of stocks that are selected using an investment approach that applies company-specific fundamental analysis, and strategic macroeconomic positioning. The model invests in a mix of both domestic and international equities, with geographic weighting subject to change intermittently.

Our Kaleo Full model is composed of 35 stocks + 5 index ETFs. For clients with invested funds in the $250K to $1M range, we offer a subset 22 stocks + 5 index ETFs subset of this model (Kaleo A) in order to reduce brokerage fees. Returns since inception for each of our Kaleo models are similar by design.

We currently aim to hold a stock for 3-5 years in our Kaleo models. This means that we have an average portfolio turnover of 25%.

We purposefully chose our benchmark to more accurately represent the broad geographic diversification of our holdings in Kaleo. Our benchmark for Kaleo is defined as 50% of the MSCI Index and 50% of the S&P TSX Total Return Index.

Abracadabra - Buy CIBC and Buy Google!

By Ian Quigley, MBA, CFA

While "Abracadabra" is of unknown origin, its first recorded occurrence is in the second century as a cure for the fever and shakes. In Hebrew, "Abracadabra" means "I will create as I speak" and is also translated into "an incantation for the performance of stage magic."

I think this is a fitting analogy for much of the advice given to investors today. For example, when recommending a stock, the most popular justification is the P/E multiple or the price you pay for a dollar of corporate reported earnings. A good stockbroker, or online trading platform, might deliver the P/E multiples (or similar relative statistics) of various blue-chip companies and "Abracadabra" you buy CIBC and Google!

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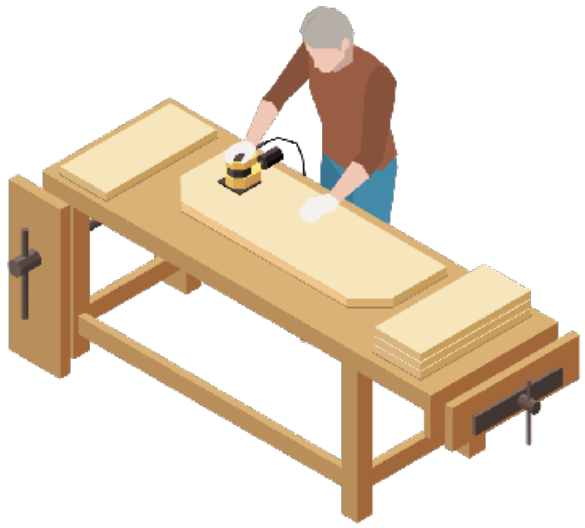
When used for investment selection, relative statistics, including P/E, P/B, Debt/Equity, P/PEG and EV/EBITDA, should be a major warning flag to investors.

Stage magic is defined as a large-scale trick of illusion. As the name implies, stage illusions are distinct from other types of magic. They are performed at a considerable distance from the audience and usually on a stage to facilitate the trickery. Examples include sawing a woman in half and the magical replacement of a lady with a ferocious tiger. In the few short pages to follow, I will make the case that purchasing investments using relative ratios, like the P/E, is nothing more than hocus-pocus. Those who promote investing using such approaches are charlatans, and they should be exposed like the Wizard of Oz and melted like the Wicked Witch. Let us usher in 2022 with reassurance that investing can be done professionally, without illusions or sleights of hand. That you can sleep at night knowing that while your eyes are closed, your investment account will not be cut in half or transformed into a scary animal.

What is Valuation Investing?

Prudent investing requires deeper analysis leading to the valuation of potential stocks, and this approach is called "valuation investing." While many believe that stock valuation is a science, others see it more as an art form, and a few even think of it as voodoo. Nonetheless, a small minority (including us) view stock valuation as a craft.



A professional craft is defined as a job that requires special education alongside years of skill development and experience. While I have been managing investments for over 20 years (10 of those as a registered portfolio manager), my "craft" absolutely continues to develop, and my curiosity remains endless. I always appreciate the opportunity to share my journey in valuation work with investors and in articles such as this one.

Valuation investing analyzes a firm's cash flows, growth rates, and risk characteristics to model a specific valuation opinion. In the end, we "value the business," not "price the stock," which is a perspective famously promoted by Warren Buffet. The method I just referred to as "Abracadabra Investing" uses relative metrics leading to a "pricing" of the stock. Welcome to the battle between the "valuators" and the "pricers."

Terminology can become frustrating as a "pricer" could use relative analysis on what many refer to as "value stocks." In other words, a value investor could easily use relative valuation, or pricing, when making decisions. Further, because valuation is easier to do on a "value stock," many valuation-based professionals, or valuators like Qube, will tend to carry more value stocks than growth stocks. This, of course, perpetuates the confusion!

So, to be clear, we promote valuation investing at Qube, not value investing. Our recommendations are based on what we believe the stock is worth, and we assume that the price will reflect its value over time. An undervalued growth stock can be just as tempting as an undervalued value stock.

Who Does What and Why?

Looking at stock recommendation reports published in America, the ratio is 10:1. For every valuation-based report (intrinsic valuation), there are ten price-based reports (relative pricing). In this battle, the relative pricers are clearly winning. Extending this to the advice given to investors using self-direct investment accounts or taking advice from brokers (who do not deliver their own research), the ratio becomes even more severe. Certainly, valuation-based investing is a rarity.

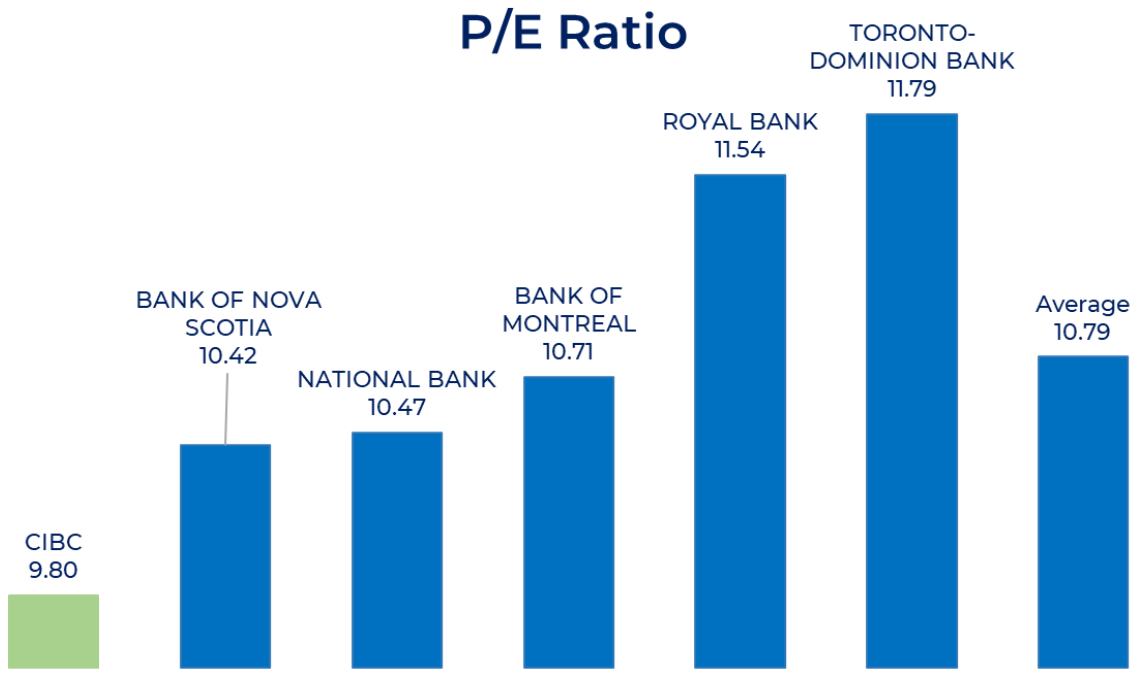
Reasons are plenty and can be summarized as follows; "pricing" is accessible. These de-

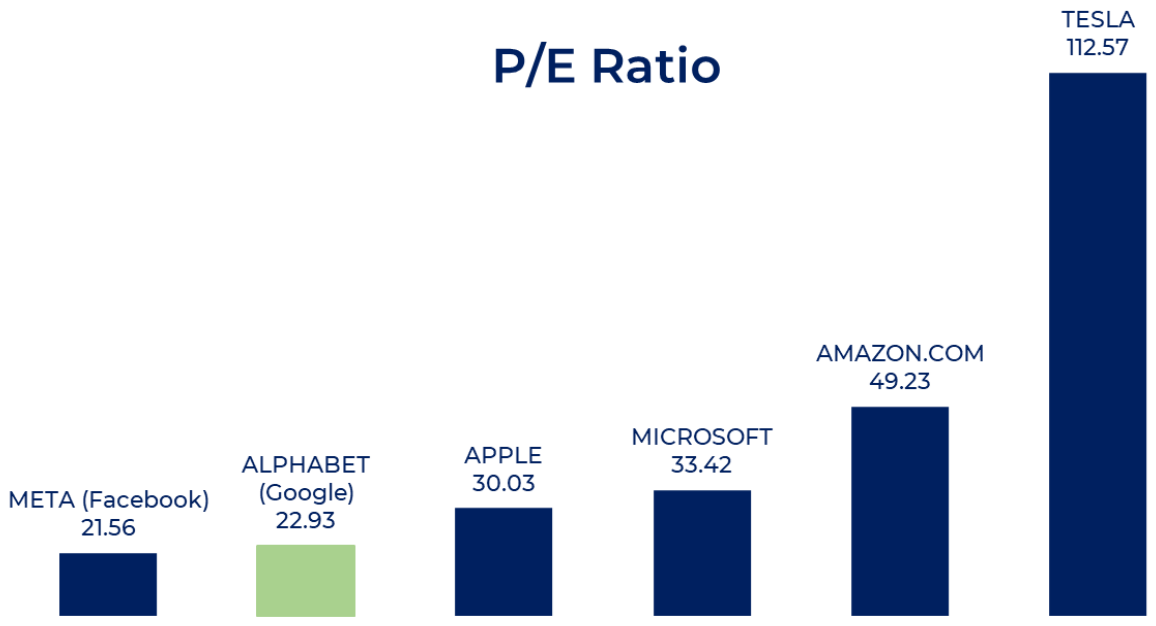
cisions can be made with less data and fewer assumptions, and they are far easier to present and explain to an investor. Further, a buy recommendation based on relative price does a better job tracking the mood and movement of the markets. An advisor will risk less by giving advice that closely tracks the market consensus and will always have the market to blame for the positions that fail to deliver. In other words, it is better to have company when you are wrong than to be standing alone!

Valuation Bias

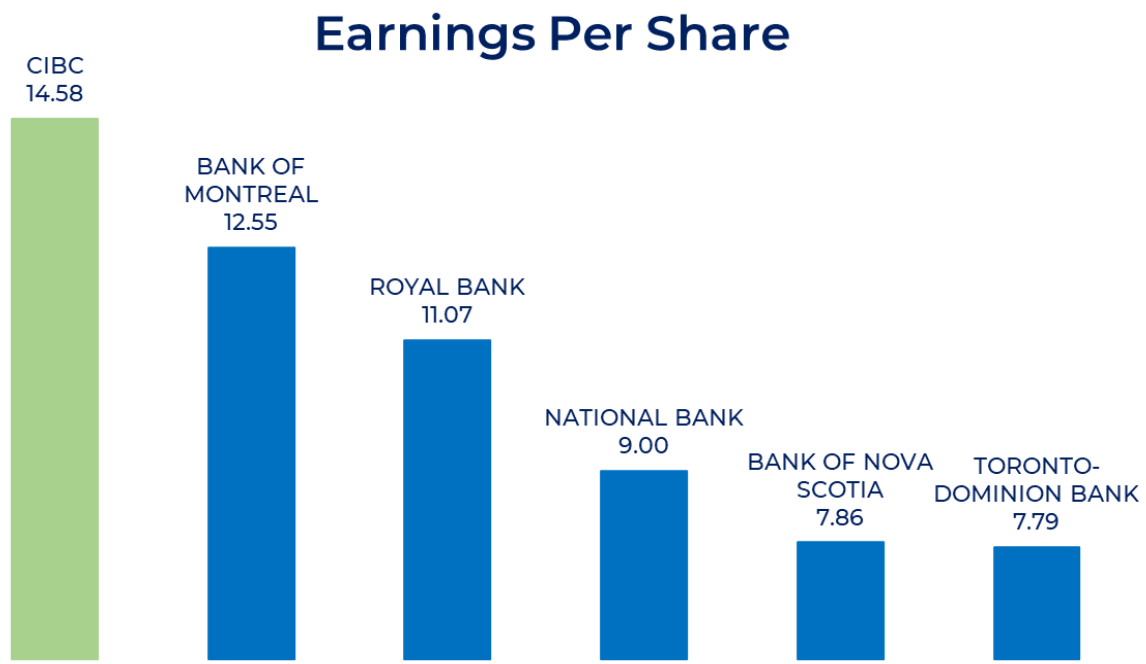
Valuations and stock recommendations are full of bias. Buy recommendations outnumber sell recommendations 9 to 1, indicating a bias on what the perceived audience wants to hear. Valuation-based work also has bias issues. For example, ask what a business owner thinks about their corporate valuation when facing a CRA tax audit or marital breakdown (divorce). The bias is heavily downward, as tax assessments and asset divisions depend on this! Ask the same person about the potential valuation when a competitor is offering a buyout, or the company is being taken public (IPO). The bias flips and the point is that we must proceed carefully on any valuation assignment to identify, where possible, bias influence.

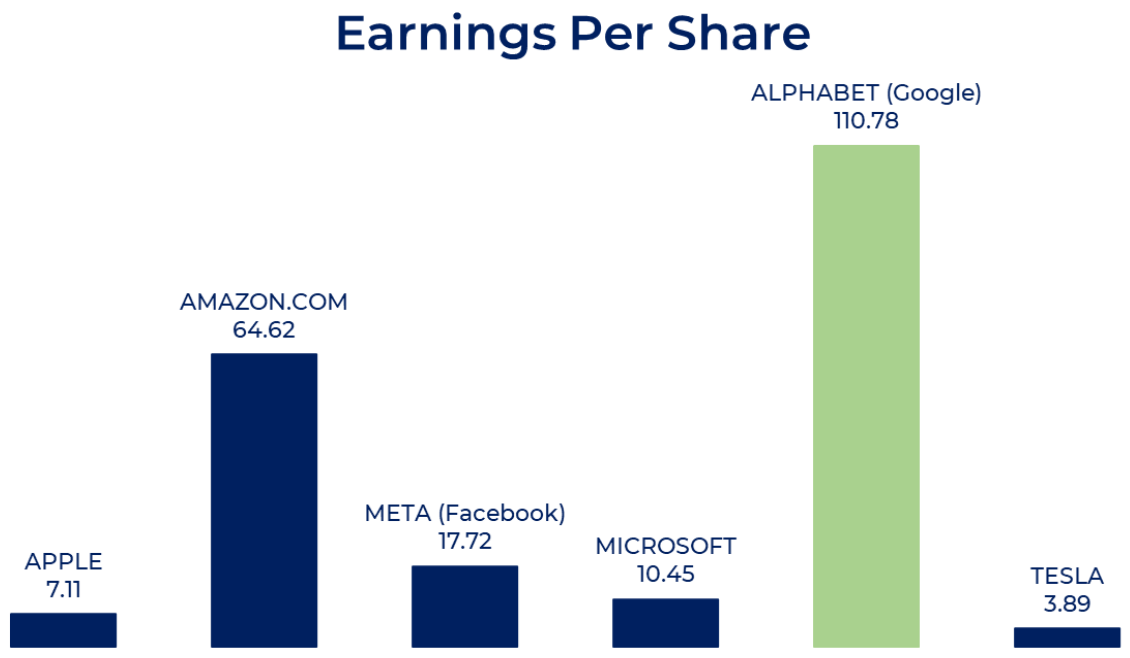
Based on the P/E ratio, both CIBC and Alphabet (Google) present as potential bargains. Compared to the other Canadian banks, CIBC trades relatively low at under $10 per dollar of earnings, as does Google (second-lowest in its category).





Further, both have the highest earnings per share when compared to their peers.





What else do you need to know? You can buy either at a relative bargain, based on the P/E, and you get the most, based on the relative earnings per share (EPS).

Abracadabra – buy CIBC and buy Google! Read on, dear reader.

Price to Sales (P/S)

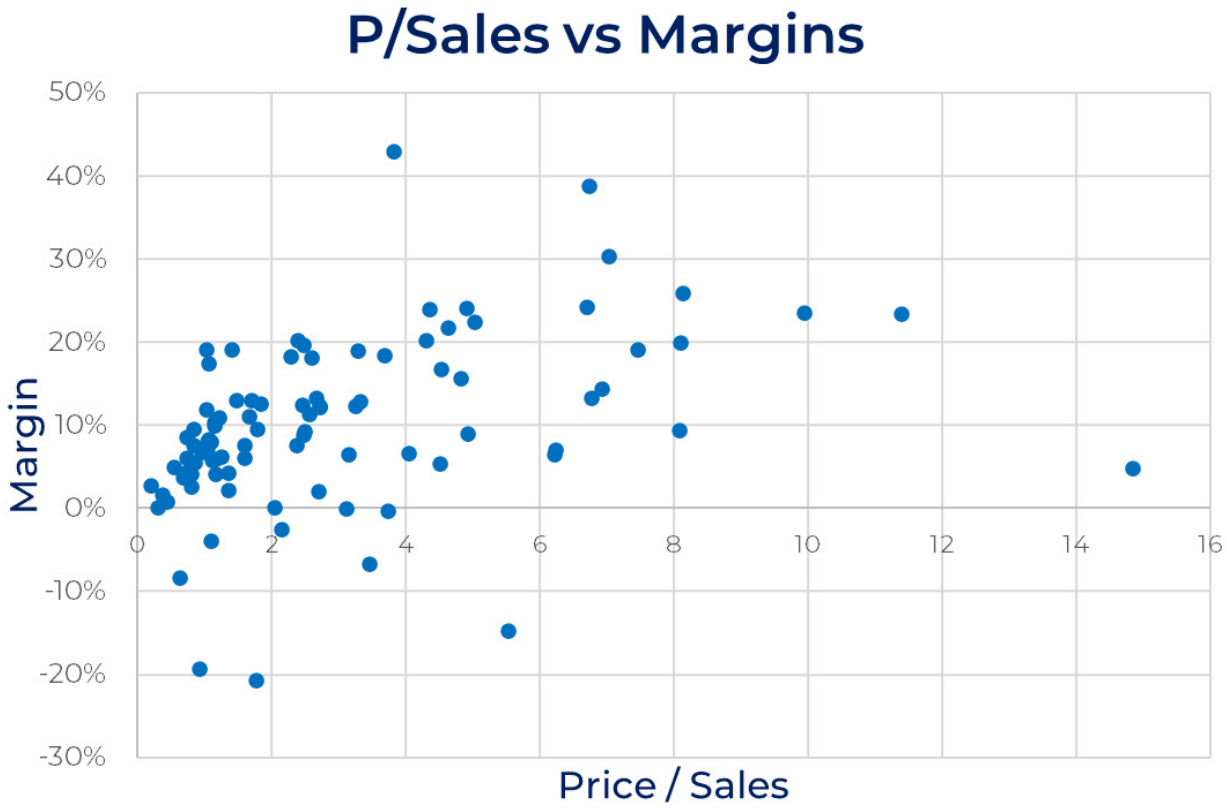
For a moment, let's deviate to another common relative ratio the pricers love: the P/S ratio. The Price to Sales ratio works for more companies than the P/E, as you only need a stock with positive sales (earnings can be negative). In January 2021, one could access P/S data on 7582 stocks amongst 94 submarket sectors. The P/S represents how much an investor will pay for one dollar of sales. For example, the entire market in January 2021 sold for $2.60 for every $1 of sales on average.

P/S ratios offer a unique opportunity to demonstrate the valuation factors and assumptions lurking behind each ratio. Looking first at a company like Empire, the owner of many Canadian grocery chains including Sobeys and Safeway and held in our portfolios. Food is an extremely thin business, requiring massive volumes to compete. For every dollar of sales, Empire makes only 2 to 4 cents profit margin. On the other hand, many of the technology and pharmaceutical sub-sectors operate on 20-25% margins or ten times the margin that food offers. Google runs a profit margin of over 30%! You would be far more excited to purchase one dollar of sales from Empire versus Google!

Table 1: Empire vs. Google Price to Sales and Margins		
	P/S	Margin
Empire	0.35	4.5%
Google	8.1	31%

Table 1: Empire vs. Google Price to Sales and Margins

Of course, this is intuitive, and margins would explain most of the variability in P/S across the many sub-sectors (this data is from Jan 2021 on 94 US sub-sectors). In simple terms, the higher the margin, the higher the P/S a stock will trade at.



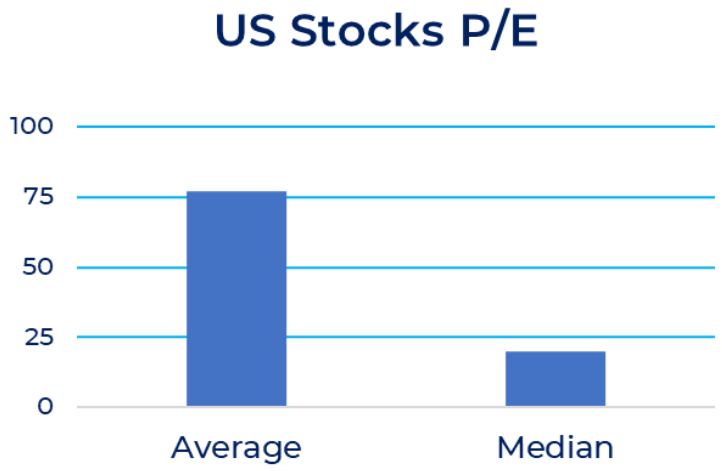
Okay, now with that said, we can quickly look at the truth. In 2021, future sales expectations, and cash balances (relative to sales) have been more predictive of P/S ratios than margins. With the pandemic, expected future sales and the ability to sustain shutdowns became more relevant to investors. This type of analysis sets the stage for deeper analysis on ratios, including the P/E, while also illustrating how tricky it can be when used for stock evaluation. Let's move on to a decomposition analysis of the P/E ratio.

P/E Sample Issues

Unfortunately, focusing on a metric like Price to Earnings can greatly bias the potential options available for consideration.

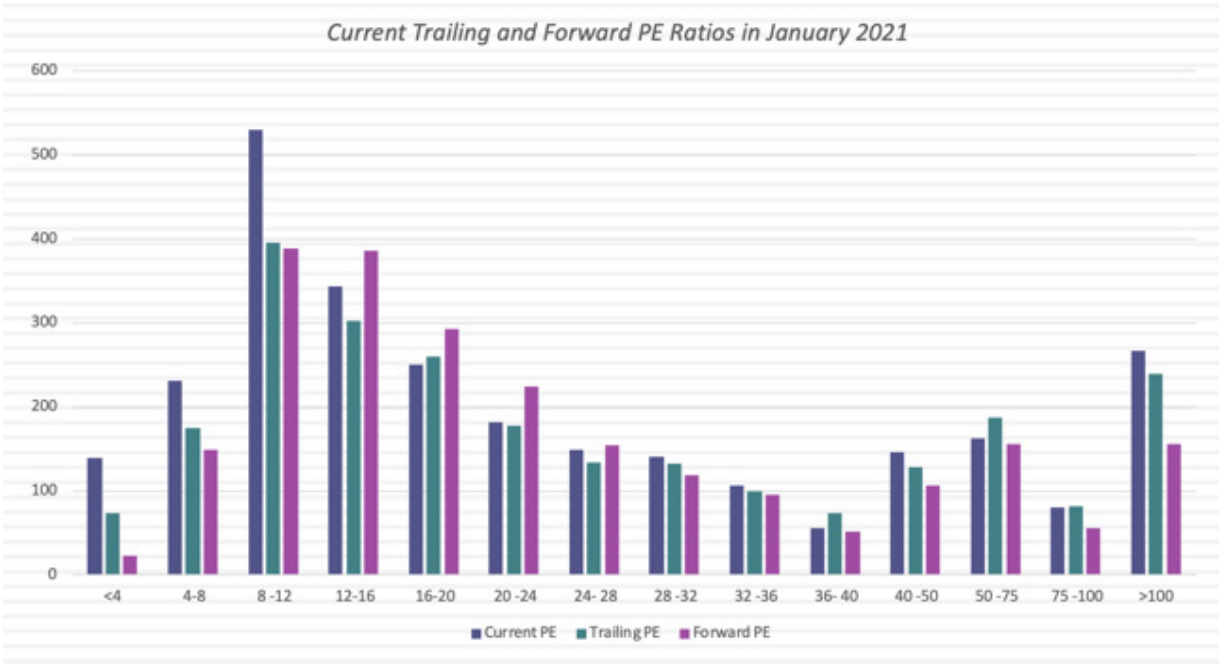
For example, a corporation needs positive earnings to be considered under this ratio (the P/E does not exist for a company with negative earnings).

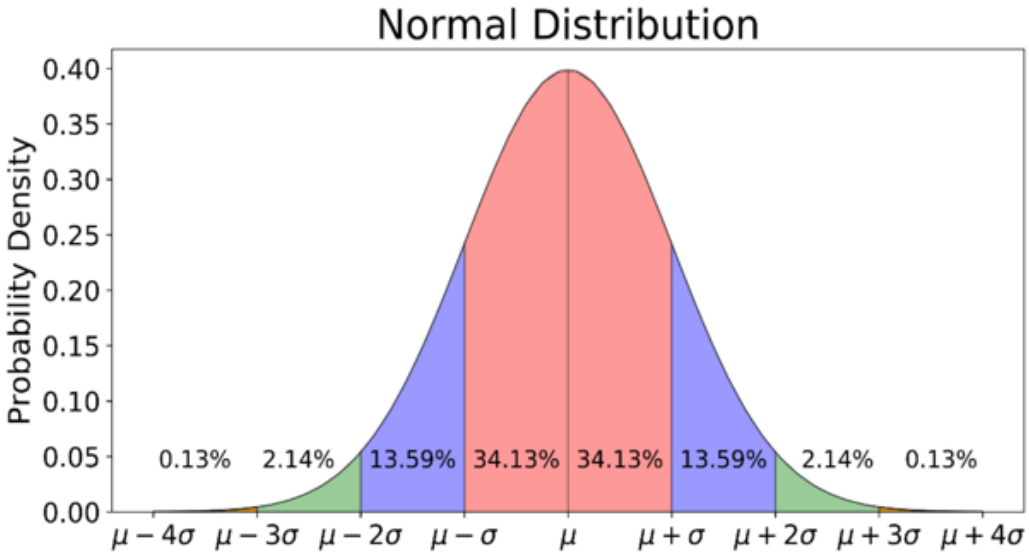
This dramatically reduces the sample, from about 7,300 US firms to 2,500. Therefore, using P/E to target a potential stock limits access to only about one-third of the investing options.



When comparisons are done, there is an assumption that the data is also "normal". With price metrics, such as the P/E ratio, this is far from the case. P/E ratios cannot fall below zero but can extend to infinity, therefore, P/E ratios are not just positively skewed, but can also be multi-modal. Great care should be taken when describing a stock using metrics like P/E ratios. For example, the US stock market, in 2021, had an average P/E at 77 times earnings while the median P/E was only 20. This illustrates the power of a small number of high P/E stocks to drag the summary statistics and opens opportunity for the advisor to present various "illusions" necessary to sell the recommendation.

Thanks to work by Dr. Aswath Damodaran (NYU School of Business), one can compare in the following illustrations the P/E data distribution (skewed) against a normal distribution (bell-shaped). Normality is assumed when citing descriptive statistics on relative measures like the P/E ratio.





Ratio Myopia

Depending on the ratio, key valuation factors can become overlooked when doing relative ratio comparisons. For example, while the P/E ratio includes debt payments (interest expenses are deducted from earnings), it ignores gross debt levels. Debt levels are a key aspect in risk assessment, as escalating or deteriorating debt can often steer prudent investors away from stocks. Further, the P/E ratio is deaf to growth rates. One is certainly willing to pay more for a company with increasing earnings than they are for one that is

stagnant. Simply adding growth to this ratio (making it into the PEG ratio) does not suffice. Growth rates are not linear with company size, nor stable over time. Ratio analysis facilitates the illusion, when required, as it hides key factors needed for a proper assessment.

Deconstructing the P/E Multiple

Keeping with the P/E multiple (or P/EPS, earnings per share), we can deconstruct it using valuation terminology and there are three base factors of valuation inherent in it.

$$\frac{P_0}{EPS_0} = PE = \frac{\text{Payout Ratio}*(1 + g_n)}{k_e - g_n}$$

Using this simple and universal valuation equation, called the Gordon Growth Dividend Discount Model, we can convert the P/E ratio into its basic components: growth (g), cash flow (payout ratio) and risk (r). Cash flow is the payout of earnings into dividends or the "payout ratio." Risk is the cost of equity, derived from the relative risk of this stock to the general market and referred to as Ke, or r, in the equations posted.

As undervalued stocks are rarely in a stable state, a catalyst is often in play and causing the company to transition. For example, they are implementing a new product or service and, over the next 5 years, will see abnormal financial results. Companies in this situation

$$\frac{P_0}{EPS_0} = \frac{\text{Payout Ratio} * (1+g) * \left(1 - \frac{(1+g)^n}{(1+r)^n}\right)}{r - g} + \frac{\text{Payout Ratio}_n * (1+g)^n * (1+g_n)}{(r - g_n)(1+r)^n}$$

More terms here, but not dramatically more complex. What we can see from this is how many triggers can affect the P/E ratio. For example:

- Short- or long-term adjustments to the earnings growth rate
- Changes to the Dividend Payout Ratio
- Changes to the Stock Risk Level (Cost of Equity)
- The Length of the Short-Term Growth Rate

This does not mention the potential decomposition of the growth rates into return on equity (ROE) or further into profitability (P), leverage (T), asset and tax efficiency (A).

therefore review all the potential triggers and narrate the coming 3-5 years, culminating in a predicted share value.

Returning to CIBC and Google

We started this article by showing how CIBC and Google ranked top shelf for P/E ratios and Earnings Per Share (EPS). Decomposing the valuation factors of each company reveals a far more complicated story.

Table 2: Bank Valuation Factors

	Equity Risk (Beta)	Earnings Growth	Cost of Capital (WACC)	Dividend Payout
BANK OF NOVA SCOTIA	0.90	5.54%	6.08%	0.48
ROYAL BANK	0.85	1.8%	7.24%	0.44
TORONTO-DOMINION BANK	0.91	3.4%	6.80%	0.45
CIBC	1.01	0.0%	7.14%	0.45
NATIONAL BANK	1.04	1.3%	7.10%	0.40
BANK OF MONTREAL	1.17	3.7%	7.45%	0.42

Table 2: Bank Valuation Factors

One reason for the low P/E at CIBC is the lack of earnings growth. Compared to its peers, CIBC is projected to have the worst earnings growth of all major Canadian banks. While it has the highest EPS and a comparable payout ratio to its peers, CIBC ranks mid-pack when it comes to risk. Its equity risk, measured by share volatility or beta, is significantly higher than BNS, Royal or TD.

Table 3: Tech Valuation Factors

	Equity Risk (Beta)	Earnings Growth	Cost of Capital (WACC)
APPLE	1.02	7.6%	9.52%
MICROSOFT	0.85	12.2%	8.71%
ALPHABET (Google)	0.88	7.4%	9.12%
AMAZON.COM	0.55	19.7%	6.93%
TESLA	1.95	40.9%	15.00%
META (Facebook)	0.98	2.5%	9.75%

Table 3: Tech Valuation Factors

A similar story for Google. As they don't yet pay a dividend, one must estimate the potential dividend (called Free Cash) to perform a valuation. Nonetheless, one can see great variability on risk, earnings growth and capital costs that would make a comparison between the companies malformed. The only prudent option is to dig in and properly value the shares.

Money Ball The "Pricers"

I broke down and watched the 2011 movie *Moneyball* last summer. (Sports movies have never been my thing.) Based on a true story, the failing Oakland Athletics baseball team was saved thanks to the statistical acumen of Peter Brand, a Yale Economics graduate. The movie has direct parallels to the investing world with baseball scouts representing the "pricers" and Peter representing the "valuators." In the end, a mixture of the two approaches worked best for Oakland, as it does for many predictive crafts including valuation.

We can return to the P/E and use statistics as our guide, as did Peter in *Moneyball*. The accepted proof on P/E is a decomposition into growth, risk (cost of capital or beta) and payout ratios (or reinvestment) which can be used to create a regression equation. Using the work by Dr. Damodaran, the regression on P/E coming into 2021 was:

$$P/E = 4.104 + 0.174\ (\text{Payout}) + 1.714\ (\text{Beta}) + 2.304\ (\text{Expected EPS Growth})$$

This formula captures how the market is pricing stocks, at least at that moment in January 2021. One can extend this work to seek other potential variables (like we did with P/S), during other time periods and on other market subsectors. In the end, one can gain confidence not in what a company is worth (valuation), but what a company should be priced at. For example, we created a Canadian regression as of December 2021 (now) on Canadian banks:

$$P/E = 17.05 - 0.02\ (\text{Dividend Payout}) - 6.21\ (\text{Beta}) + 0.1\ (\text{EPS Growth})$$

The regression equation is saying that the Canadian banks that exhibit higher P/E ratios have lower payout ratios (i.e., more earnings retention), are less risky and have higher forecasted EPS growth. This all makes sense and, applied to CIBC, shares should be priced at a P/E multiple of 10.77. It appears CIBC is currently fairly priced, but more importantly, we have the relevant factors and factor weights to consider when performing a valuation. For Canadian banks, we need to focus more on measures of risk (beta) as investors seem to care more about this than the other potential valuation triggers.

$$P/E = 47.47 - 0.047\ (\text{Dividend Payout}) - 19.55\ (\text{Beta}) + 2.32\ (\text{EPS Growth})$$

Here, the US tech companies which exhibit higher P/E ratios show lower payout ratios (i.e., more earnings retention), less risk, and have higher forecasted EPS growth. Also, reasonable and, when applied to Google, indicates that Google should be priced at a P/E of 47.44. As Google is trading at a P/E of only 23, our *Moneyball* indicates it could be underpriced relative to its peers. More importantly, the earnings growth analysis is of primary importance here when building a valuation narrative.

This leads us to two conclusions: first, how the stock is priced today relative to its peers and, second, what factors are important to the markets today when it comes to pricing the stock. The first conclusion is of little consequence to us, because it is not predictive enough. For example, Google was both underpriced in January 2000, before the infamous tech bubble meltdown, and significantly overvalued based on intrinsic factors like earnings, risk, and growth expectations.

The intriguing potential here is on the pricing factors uncovered in the statistical decomposition.

If the market emphasizes cash balances, our valuation narratives need to include analysis for cash on hand, management's vision for growth and related cash needs. If the market has increased its pricing emphasis based on risk, we might want to narrate a risk analysis using 1-2 years of data instead of our standard 60 months. Just like in the movie *Moneyball*, insights from the scouts in the field (pricing analysis) might aid the analysts sitting at the computer terminals.

Valuation Faith

In fairness, the promotion of valuation-based investing should also include some caveats. For example, one must have special faith to value stocks. One must first have faith that the markets misprice stocks from time to time, which is common to all active investing philosophies. Next, one must have faith that they can properly value the mispriced stock (valuation approach). Finally, one must also have faith that others will eventually notice, and the stock will return to the proper price to value relationship in a period that is economically advantageous.

History supports this perspective with successful portfolio managers including valuation greats like Benjamin Graham, Shelby Cullom Davis, Joel Greenblatt, and Warren Buffet. There are no portfolio managers that prove more successful than this valuation-based club. This also means that any investment strategy that uses time periods of less than 6 months would have to use random price-related methods, or pricing voodoo, as valuation data is only released quarterly, and it takes at least two quarters to determine a trend.

Advantages of Valuation-Based Decisions

Our staff do not live on large estates or fly in private jets, and I can explain why. Investing is not an exact science, and we often struggle when using quantitative methods not to become overly distracted by the number of decimal places in our estimates. We simply aim to be right on our valuations more times than we are wrong. Valuation investing also works best on more mature,

larger companies where we can edge out the consensus (net of our fees). Therefore, while the payoffs are positive, they are also small.

The positive offset is "basis". Valuation investing forces the decision to have a prudent basis that will offer many times more protection for downside risk than investing on relative price alone. More stable and competitive returns with better downside protection is what allowed the "Warren Buffets" long and rewarding careers.

Conclusion & Invitation

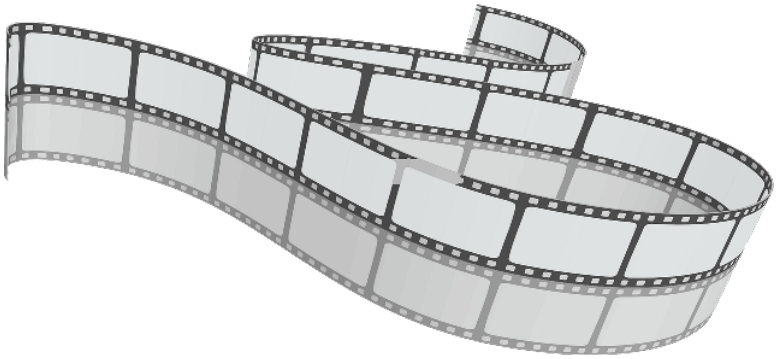
Our few pages are spent, but we have one last item to discuss. If relative pricing is for charlatans, what exactly is valuation-based investing? How do you perform a prudent stock valuation and what exactly is considered? To bring our story to a fair conclusion, we must offer the same transparency as asked of the "pricers".

Starting in late January 2022, Qube onboards a new batch of university students to join our valuation team. This year we have opted to do the training over approximately 12 weeks with both weekly lectures and group discussion. We have decided to make these seminars open to our investors, referral partners and friends, allowing the opportunity to gain access and insight into our research process. Lectures are approximately 60-90 minutes, and attendance at the following discussion (often on an assigned paper) would be optional. The entire program is offered online, and we welcome your participation. Please contact Sarah, on our team, for more information (sarah@qubeinvest.ca) and I hope to see you online in a few weeks.

A Night at The Movies – What's Going On In China?

By Michael Baker, MBA

Popcorn in hand and beverage by my side, the lights dim, and curtains rise. The projector starts, and I'm swept into different places and times. Being swept away is the magic of cinema and why I love watching movies. The stories that drew me in the most growing up are Westerns. Something about them captivated me. Perhaps it is the strong archetypes, the simpleness of western life, or my love of adventure. Like many kids, after watching a Western, I would play cowboys with my friends. I understood that I wasn't a cowboy and was just playing a role. Eventually, my mom would call me inside, and then I was back in my place and time.

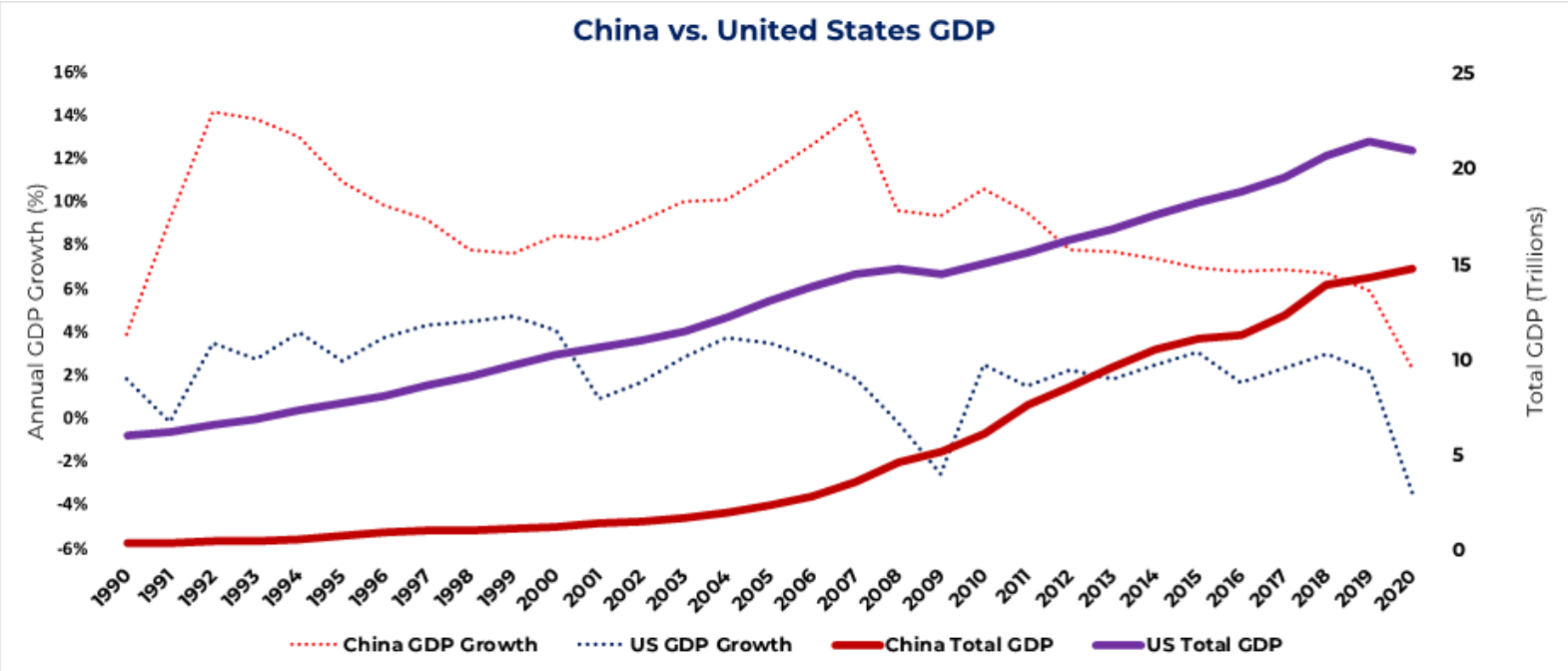


For the past 20-years, a Western movie has been in production by China, with Xi Jinping taking the role of director. Director Xi has allowed the Chinese economy to play the lead role in his Western. He permitted businesses to operate under free-market capitalism, allowing China to grow into today's superpower. However, this year, Xi decided to begin wrapping up production. The film is ending, and I don't believe he wants to direct another Western anytime soon.

Why China Shot a Western

China needed a way to grow its economy after Chairman Mao's cultural revolution. The solution was trickle-down economics, which China first embraced in the 90's. Through China's embrace of western style-capitalism, some individuals became immensely wealthy, and the middle class expanded. Capitalism in China worked so well that China now boasts more billionaires than any other country--1,058 according to the 2021 Hurun report (almost double the US figure).

Since 1990, China's GDP growth has averaged 9.1%, growing almost 40X, while the US has averaged 2.3%, growing only 3.5X. The gap between the world's largest economy, the United States, and the now second-largest, China, continues to narrow. There is no doubt that China has successfully used capitalism to build itself into a wealthy global power.



Data Source: The World Bank

In 1990, there were over 750 million people in China living in poverty, but as of the latest World Bank data from 2016, the number had dropped to 7.2 million people. Then in 2021, Xi announced that his goal to eradicate poverty is now an official "success"! Whether the claim is propaganda or not, the positives of China lifting millions out of poverty are overshadowed by the issues prosperity creates. China now, just like Hollywood, is a country of haves and have-nots.

The Crew Needs a Cut Too

In Hollywood, the focus is usually on movie stars. The companies and their founders, who bring all the investment to China, have been their stars, and they have sat centre stage. The middle and upper classes became wealthier as their star power grew, creating serious class division. This is an inherent issue since China is a communist country, and there should not be a widespread class or economic divide between citizens. As a good twenty-first-century director, Xi is shifting some of the spotlights to the film crew. He wants to uplift the Chinese people who are not the stars in his film.

His grand vision for China focuses on "Common Prosperity."

He wants to fix the inequality that free-wheeling capitalism has created, much like a director who needs to allocate the right amount in their budget to the crew. All the money cannot be spent on movie stars, so Xi isn't allowing capitalism to reign supreme anymore. He wants to support the crew, the Chinese people.

Recent years saw China clamping down on capitalism and activities Xi views as a counter to Common Prosperity. In 2020, Xi stopped billionaire Jack Ma from com-

pleting an estimated $35 billion IPO for his payment platform Ant Group. In 2021, Xi banned private tutoring requiring all tutoring centers to register as non-profits. He aims to make life easier for families who feel the financial pressure of educating their children. He also set limits on the number of hours kids can play video games. The fewer games they play, the more kids can focus on productive activities. Further, one cannot be on Chinese TV if convicted of a drug or prostitution offence.

All of Xi's recent actions seem to counter what allowed China to grow into the country it is today. However, like a director with notes on a script, the Communist Party's new five-year plan addresses why changing course is the right action.

The Blockbusters Fund the Passion Projects

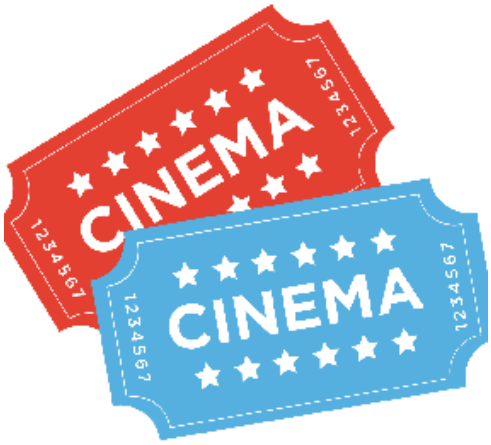
The best directors are remembered for the movies that resonate with viewers emotionally, not just the films that brought in the most box office sales. Much how Orson Wells is remembered for *Citizen Kane*, rather than the much higher grossing *Man for All Seasons*.

Xi is looking to leave a legacy.

He doesn't want to be remembered only as the ruler who made China rich. His legacy is mapped out in the new 2021-2025 five-year plan, which focuses on Common Prosperity and building a stronger China.

The new plan emphasizes quality of growth over quantity at a high level. Qube is supportive of quality growth. As investors, we appreciate an excellent business plan. Quality for Xi includes becoming carbon neutral by 2060, becoming self-reliant for technological manufacturing, and driving rural revitalization. The plan is a roadmap for enshrining Xi as one of the great Communist Party leaders. He believes he will be the leader to make China strong now that they are rich. The plan is part one in building China into a modern socialist nation.

If he succeeds, Common Prosperity will be his *Citizen Kane*.



Should We Buy a Ticket to Xi's Latest Movie?

Many great movies launch without much fanfare. Then, over time, they become well-received and appreciated. As investors, do we want to put our dollars in China today or wait to see if Common Prosperity is valued over time? Today's China has issues surrounding human rights, censorship, and unfair trade practices, just to name a few. It becomes a difficult decision whether to keep allocating capital to a country with so many negative headlines. Despite our heavy position entering 2021, Qube has seen the shift in direction and reduced our China allocation to 7.50% of our Kaleo Full portfolio. Our investment is now neutral.

As a portfolio steering committee and the critics of Xi's new movie, we determined that it was prudent to have neutral capital positions in China. The news headlines we see from China, both good and bad, are a direct result of them being integrated with the international markets. The headlines result in international pressures pushing China to improve its operations and treatment of its citizens. The global eye has contributed to China becoming one of the top global reformers in improving their business environment, as ranked by the World Bank. Their ESG ratings are continually improving.

As investors, we need to be prudent with how we vote with our investments. Keeping some money in China provides direct exposure to the world's second-largest economy. Qube will continue to evaluate our position from an expected return and ESG perspective. We continue to watch for improvements in how China addresses environmental concerns and the treatment of its people. Xi's last film on growth was a hit, but we were critical of how it was achieved. As the curtain rises on his new film, the trailers have received mixed reviews. Qube is carefully watching and more critically evaluating exposure in 2022 and beyond.

The COVID Cash Conundrum

By Wyatt Lynds

In late March of 2020, with the pandemic looming large over the world economy and interest rates at historic lows, CFOs drew on their credit facilities to increase liquidity (cash) and create anticipated safety reserves. However, the emergence of vaccines, social distancing measures, and the possibility of herd immunity have allowed companies to return to operations at near full capacity. While the spotlight has been on corporate sales and earnings, few seem to be discussing the significant cash positions left behind. Executives must now decide what to do with this cash, impacting our valuations. The cash decision can be broken into five possibilities:

1. Repurchase of common stock

A CFO will often issue shares (equity) to attain cash to fund growth initiatives, for example, GM developing an automobile or Merck researching a new vaccine. However, it is essential to note that each new share reduces the ownership percentage for current shareholders (therefore, one must trust management on such initiatives). On the other hand, if a firm has excess cash, it could do the opposite and repurchase shares (equity), as

could be the case with COVID cash. This move strengthens the relative ownership of each remaining shareholder, and we applaud this decision when growth prospects are fleeting.

Facebook (Meta Platforms) is an example of a company repurchasing shares; however, the reason has less to do with fleeting growth prospects and more to do with having too much cash. We estimate that Facebook will generate more than $34 billion in excess cash after paying for all expenses and ongoing investments into their augmented and virtual reality products and services. As a sign of Facebook's strong cash flow generation, they announced an additional $50 billion in share buybacks during their most recent quarterly report. This brings their total buybacks to approximately $58 billion.

2. Repurchase of outstanding debt

CFOs could also use cash to repay (repurchase) debt and do so for a multitude of reasons: to replace the old debt with new debt at a lower interest rate, to reduce interest payments (push up earnings), or to minimize obligations/risk.

During Febuary 2020, Telus used $1.3 billion to repurchase a portion of their outstanding debt to bolster their balance sheet. Their debt levels were running high due to their 2019 acquisitions of ADT Security Services Canada, and Germany-based call centre operator "Competence Call Center." We believe this was a prudent move as it allows Telus the flexibility to continue building out their 5th generation wireless network and to give them the flexibility to pursue additional acquisitions when the opportunity arises.

3. Reinvestment into the company

An option more common for mature firms is to establish new business segments to grow revenues. As a company matures, it becomes increasingly difficult to grow. While a new business segment often offers fertile ground, much caution is required as the earnings risk levels are much higher than with traditional lines of business.

Perhaps one of the biggest reinvestment stories in the markets today is Walmart, which turned from a brick-and-mortar only company to an e-commerce juggernaut. In 2021, Walmart is expected to hit $75 billion in e-commerce sales, representing approximately 13% of total revenues. This was compared to only $8 billion in e-commerce revenues just five years ago. Soon we can look forward to Walmart expanding their Walmart Plus subscription service to match the value proposition of peers such as Amazon.

4. Dividends

COVID cash may also be allocated for a massive one-time dividend, a reinstatement of the dividend, or an increase relative to past levels. A dividend can be considered a lazy form of shareholder returns, potentially exposing a lack of vision by management. On the other hand, some executives understand that their firm's core business segments are maturing

and rightfully decide the excess cash should be returned to shareholders. Therefore, it is vital to differentiate the reasons for a dividend.

On August 2, Micron Technology initiated a dividend program to pay out $0.10 per share every quarter. This was a massive boost of confidence, from the management team, in the company's underlying business, as Micron's last dividend payment was back in 1996. In our opinion, it signifies that Micron's business is less cyclical than it used to be, and there is less of a need to hold a large cash position in case of any downturns. As a result, the excess cash being generated by the business is being paid out as a dividend to shareholders.

5. Acquisitions

Companies purchase competitors for various reasons: to gain greater market share, operational synergy, financial synergy, diversification, or entering new markets.

Operational synergy refers to pricing power and an advantageous combination of strengths (marketing, brand name recognition).

These synergies will often push up revenue or reduce expenses. An example of this would be Coke acquiring Pepsi and selling any overlapping assets. Financial synergies include being able to borrow at a lower interest rate, improved credit rating, lower taxes, and the ability to increase its debt position, allowing the company to acquire more cash. The scale of these benefits is dependent on the size and merit of the acquisition. Acquisitions can materially change

Disney (NYSE: DIS) increased their cash and cash equivalents from $5.4Bn in 2019 to $17.9Bn in 2020 in fear of reduced future cash flows given how operationally dependent the company is towards in-person experiences. This tactic was needed as a precaution given the stay-at-home measures and the high level of uncertainty in early 2020. However, parks have begun to reopen, and the vaccine has created confidence in future revenue streams returning to pre-covid levels. Disney executives are now faced with a crucial decision in the coming quarters on the use of these funds.

Firstly, high growth streaming services under Disney's umbrella, such as Hulu, Disney+, and ESPN+, have shined bright during the pandemic and fall short only to Netflix in terms of overall subscribers. Reinvesting billions of dollars into this segment may prove beneficial given their historical return on projects.

Secondly, the executive team gutted its semi-annual dividend during 2021 as executives felt that the company had yet to get out of the woods.

As herd immunity rises, along with an increased vaccination rate, pressure will be enacted on management to reinstate the dividend as distribution-hungry investors grow uneasy.

Thirdly, management may be inclined to repurchase common stock given the low share price relative to historical levels. Fourthly, management may pay off existing debt to reduce interest payments.

Lastly, Disney may want to increase profitability and debt capacity by acquiring a firm that would slot into their Linear Networks segment (domestic and international cable). Moreover, this segment has the highest operating profit margin and may benefit from additional reinvestment and expansion. An example of a possible acquiree would be Discovery Inc, which currently owns and operates HGTV, Food Network, Animal Planet, TLC, and the Discovery Channel. Over the trailing twelve months, Discovery Inc. posted significantly higher operating profitability than Disney.

All five of these strategies offer vastly different results when forecasting the company's future. For example, share buybacks provide a one-time benefit to shareholders while reinvesting into streaming services creates the possibility of extending the firm's life and subsequently longer growth. Ultimately, the current C-Suite (executives) for Disney has been given an unprecedented opportunity to alter the company's framework in a highly material fashion. It is a good thing we maintain high confidence in these people.

In conclusion, prominent publicly-traded executives have the rare opportunity to positively change their companies with these "covid cash" positions. A smart move could trigger an increase in long-term cash flows, while a mistake could hinder anticipated growth. Qube's research team reviews our current holdings multiple times throughout the year, and COVID cash remains material to our analysis and the valuation we associate with the respective stock.

The Corporate Farmer: A Focus on Debt

By Austin Glenn

Debt is a tool. It is like a ladder that allows us to climb places we cannot. It will enable some to purchase a home, start a business, or buy things when cash is lacking. Popular books, like *The Wealthy Barber*, taught us to steer clear of debt in our personal lives and to "deleverage" as quickly as possible in life. Our culture tells us that zero debt is one of the greatest indicators of success, so we celebrate paying off the mortgage, student loans and credit cards. While our community views debt as unfavourable, it is a powerful wealth creator, when appropriately used, and this concept applies especially to corporations.

When a company posts earnings, it has two choices: distribute it to the investors or reinvest it into operations. As reinvestment is required for earnings growth, it has become a central area of focus discussed by our research team when valuing a company.

The idea behind this is best illustrated through the "Tractor Analogy" derived from the Solow-Swan model of economic growth.

Here, we believe that a tractor is analogous to a corporation. Consider a tractor cultivating dirt for an entire day; there will be maintenance costs, repairs, and part replacements, not to mention fuel. We call these items "sustaining capital expenditures," or base expenditures that hold things steady. Now, if we want to grow the farm, we are going to have to make investments as "there is no such thing as a free lunch." The tractor could use an upgraded engine to go faster, or we could double the size of the tiller, allowing it to cover more area in less time. These are "capital improvements," enhancing the tractor's productivity. Taking some of our farm earnings and reinvesting it is a logical strategy to grow, but it reduces the cash available to our farm investors.

The key to the growth game is productive reinvestment. If our farmer used some of the earnings to paint flames on the side of our tractor or to install a disco ball into its cab, that would be offside. The productivity of the reinvestment directly impacts the valuation, which cannot be complete without a sober review thereof. Unfortunately, reinvestment activity is poorly reported and difficult to assess, at least quantitatively.

The growth function is quite slick mathematically as it can be decomposed into the proportion of earnings reinvested and the return on equity on these reinvestments ($g=b*ROE$).

For example, the farm could grow by 10% **IF** the farmer reinvested 50% of earnings and gained a 20% return on these improvements. As you can see, growth is not cheap! Further, return on equity can be decomposed into five sub-factors allowing the farmer other options beyond reinvestment to tweak the return, including leverage (debt). So, in summary, the farmer can fuel growth with cash generated from reinvested earnings and financing.

Who's In Charge Around Here?

Management teams make the reinvestment and capital allocation decisions for a firm. The decision on how much debt to use results in a metric called the weighted average cost of capital or the "WACC." Debt can be cheap, as its interest payments are tax-deductible. However, the increasing use of debt can also push bankruptcy risk and ever-escalating interest costs. This trade-off leads to an optimal balance of corporate debt and is referred to as the "Static Trade-off Theory" proposed by Modigliani and Miller in the 1950s (earning them a Nobel prize).

To illustrate the advantage of debt, we can look at the current BBB+ corporate bond index yield running in December 2021 at 2.56%. An average company in 2021 could therefore raise funding using debt at this cost (investment-grade). Alternatively, they could also raise cash by issuing stocks (equity financing) with a historical cost between 7-10% (S&P 500).

US interest rates have fallen from 7.3% in 1985 (Gov't T-Bonds) to the current rate of 1.5%. Therefore, it is no surprise that corporate debt issuance has exploded in recent years, over $2 trillion in 2020 and $1.5T year to date 2021.

Capital Structure Theories Debunked

While the static trade-off theory predicts a balance between bankruptcy risk and tax-deductible debt financing, firms rarely operate at this so-called optimal capital structure. Optimal ratios of debt and equity (or WACC) should lead to the highest corporate value, representing the lowest cost of capital. So, for example, if a firm under-levers (too little debt), they are reducing shareholder value by being too conservative and accepting higher than necessary costs to operate the business. In this example, they would have used too much costly equity financing when cheap debt was available, causing the hurdle rate on reinvestments to poke higher.

Under a subsequent theory to the static Trade-Off Theory, called the Pecking Order Theory and proposed by Stewart Myers in 1984, there might be no "optimal capital structure." Management's decisions more likely follow a "pecking order." Expansion is first done with internal funds, then debt

is issued, and finally equity. The reasons are plenty but generally point to what is referred to as "agency effects", or management making decisions that prioritize the preservation of their employment contract instead of maximizing shareholder wealth. This theory also suggests that periods of strong investment opportunity will push leverage higher towards a debt capacity. Pecking Order theory has been positioned after Static Trade-Off Theory in most finance textbooks for the past 25 years, at least until recently.

In 2009, Malcolm Baker and Jeffrey Wurgler proposed a new perspective on corporate decisions about debt coined "Market Timing Theory." It contradicts these prior theories, concluding that "current capital structure is strongly related to past market values," and "capital structure is the cumulative outcome of past attempts by management to time the equity market." In other words, instead of management making their decisions based on the optimal capital structure, they do so based on perceptions of stock valuation. If management believes that their stock is overpriced, they use debt and vice versa.

This is a fantastical proposition and offensive to many who believe that the markets efficiently price stocks and that nobody can actually profit by market timing. Baker and Wurgler not just proposed this fresh perspective, but they also proved it statistically while disproving the prior theories. It is a seminal paper that will change our view of debt management for some time to come.

The Reinvestment Scorecard

be thought of as the hurdle rate to judge the quality of a firm's reinvestments. For a company to generate value for shareholders, they must invest in projects generating higher returns than their WACC. Otherwise, the reinvestment destroys shareholder value. We believe the metric "Return on Invested Capital," or ROIC, yields key insight into management's past success with capital allocation when analyzing company fundamentals. Evidence of success results in the spread between a firm's ROIC and WACC to widen. In other words, when a firm's ROIC is greater than their WACC, they are generating value for every dollar spent, and we can capture this on the financial statements.

Qube's valuation process spends much time studying the quality and availability of reinvestment opportunities. As illustrated in the "Tractor Analogy," analyzing a firm's reinvestments plays a critical role in valuation, causing us to ask the following questions:

- Does the corporate growth strategy make sense?
- What success have they found recently in adding value (quantitatively)?
- Are they reinvesting adequately to fuel growth expectations?

Reinvestment and Research & Development

Large technology companies like Microsoft must conduct costly research to develop new products and to remain at the cutting edge amidst rising competition. This kind of reinvestment is responsible for the rapid change in technology experienced over the

not all reinvestments in this category are successful, it is crucial to analyze the firm's track record of innovation and incorporate this into its valuation.

In 2021, Microsoft spent $21B on research and development (R&D), and, sadly, accountants miss reporting R&D as a "capital expenditure," which is traditionally used to gauge the level of corporate reinvestment on the financial statements. To properly measure Microsoft's ever-changing reinvestments, one must manually capitalize R&D spending. The table below shows the dramatic impact of this process, increasing the "reinvestment" from 33% of earnings to 99%. As growth is reinvestment multiplied by the "Return on Invested Capital," or g*ROIC, the impact on potential growth is significant. Microsoft is far more valuable, growing at 14.6% than 5.2%. Such analysis can therefore be key to correctly pegging an accurate valuation on the company and evaluation of management.

	Without capitalizing	With capitalizing
Operating income	74,278	78,742
Income after taxes	63,136	67,601
Net income	67,883	72,347
Book value after taxes	403,298	462,517
Return on capital	15.65%	14.62%
Capital expenditures	21,525	42,914
Depreciation & amortization	12,253	12,253
Capital expenditures + R&D expense		64,303
FCFF 2021	64,388	64,388
Reinvestment	33.43%	99.87%
Growth [reinvestment x ROIC]	5.23%	14.60%

Chart 10: The Effects of Capitalizing

Conclusion

"Debt is neither an unmixed good nor an unmitigated disaster despite the negative connotations."[1] Debt is a part of a business's healthy operation, and growing debt means a growing business.

A firm's capital structure is constantly changing and evolving from both internal and external forces.

For instance, corporate debt in America increased 9.1% in 2020 amidst the pandemic, in comparison to the 5.5% average annual rate of increase seen between 2010-2019.[2] These changes are cautiously monitored through the 3R's (risk, return, reinvestment) used in our valuation process. Like a good corporation, a good farm requires a profitable crop, and an ambitious farmer skillfully accessing available resources while making prudent and productive reinvestments.

[1]Aswath Damodaran. (March 21, 2020). Musing on Markets Blog - Debt Delusions and Reality
[2]P. Buckley, A. Barua. M. Samaddar (July 2021). Deloitte - The pandemic has forced corporate debt higher: But is that a bad thing? https://www2.deloitte.com/us/en/insights/economy/issues-by-the-numbers/rising-corporate-debt-after-covid.html
[3]M. Baker, J. Wurgler. (2009). A Market Timing Perspective
[4]Aswath Damodaran (September 9, 2010). Musing On Markets Blog – Capital Structure: Optimal or Opportunistic?

Are Cryptocurrencies Cryptic-Currencies to You As Well?

By Daniel Semenjuk

You have likely heard about the word “cryptocurrencies” and their meteoric price growth. They have recently become popularized, especially with younger generations, becoming an asset of choice for those looking at quick gains in a short amount of time. However, despite becoming a popular destination for investment capital, many people still don’t understand what cryptocurrencies are. Considering how technical the answer is, we don’t blame them.

At their basic level, cryptocurrencies based on blockchain technology are distinct transactions in a block added to a blockchain. **DON’T STOP READING!** Yes, this is a highly loaded and technical sentence. So please bear with me to break it down and explain each part. Let’s use a game of Scrabble to illustrate. Scrabble is a game in which players are given random letters and spell words with those letters. However, any word you spell **MUST** be attached to another word.

Imagine a game of Scrabble already in progress between two siblings. There are dozens of words all over the board edging off in every direction. This **ENTIRE** connection of **ALL** the words is analogous to a “blockchain,” and every word a “block.” The two siblings then go back and forth, turning their random, jumbled letters into words. Then, instead of taking turns, the siblings start rapidly and randomly creating words. Whoever can get the most

letters out of the bag fastest will likely make the most words.

The siblings are having so much fun that another sibling decides to come over and join in. Soon after, their parents join. Moments later, the two sets of grandparents join the mayhem. Before they know it, the whole neighbourhood tries to squeeze into the house and join in on the game. The entire dictionary is being spelled! But the board is starting to get filled mostly with smaller words: "and" "the," "as," "but," and "can." Eventually, the group decides on a new rule. Every time another ten people join, the words that are allowed to be spelled increase by one letter.

Under the new rules, the first thirty people could spell those easy three-letter words, but eventually, the number of words people could spell decreased with hundreds playing the game. Frustrated, players begin to leave the game. Finally, enough people leave, and players can once again complete words.

It sounds like an innocent story. However, the similarities to Bitcoin, Bitcoin mining, and other aspects are very close. Think back to the two siblings in a contentious race to spell words, no turns, just spell as quickly as you can. The same goes for Bitcoin mining. In Bitcoin mining, miners have random variables (the letters in Scrabble).

Their task is to randomly feed these variables into a formula/function (the process of spelling the word) and hope to get the desired output (the word).

A group of miners will simultaneously try to guess the correct output. Whoever gets it first (spells the next word) will have formed a **block** (think of a block as a chunk of letters that makes a word). Their newly created block will be added to the blockchain (the chain of words that already exists). In return, the miner who derived the output (spelled the word) will gain exclusive access to that block. This newly minted block is a **cryptocurrency.**

A miner who has possession of the new block (i.e., they are the only ones that know the correct output) can transfer it as a form of currency; as more miners enter the game, the difficulty of the functions that need to be solved increases. In turn, the required computing power increases. With Bitcoin, a network is responsible for regulating the difficulty of the functions. It designs the difficulty such that only 2,016 Bitcoin's are mined every two weeks. If the 2,016 Bitcoins are mined too quickly, the function becomes more complex and vice-versa.

This characteristic of fixed supply is significant with Bitcoin for several reasons.

First, price movements are tied with demand because the supply is fixed.

Usually, when there is high demand for a product, the price may increase in the short run, but producers will then increase production, and the price will drop. As Bitcoin's supply is regulated (a fixed number each period), the same phenomenon cannot occur, which pushes Bitcoin's price up. Also, some investors argue that cryptocur-

rencies, such as Bitcoin, make good hedges against currency inflation. If a foreign currency depreciates, a crypto investment's value will theoretically increase and offset the inflation. Finally, cryptocurrencies offer an "ease of transferability" thanks to blockchain technology. Think about selling/transferring your house to a buyer. The process is onerous, involving title checks, lawyers, brokers, etc. Imagine you put your title, as a block, on a blockchain. Because you have the unique key, you can quickly transfer it. The buyer would also benefit from this process because they don't have to worry about checking the title's authenticity. This ease of transferability inherent in blockchains is becoming one of the primary applications of blockchain technology.

Investing in Cryptocurrencies – Is it All Fun & Games?

We've all seen the headlines and price increases associated with some cryptocurrencies. While it is true that Bitcoin has minted many new millionaires and billionaires, the question remains, is it an investable asset? Can we realistically expect to generate a sustainable return on our cryptocurrency assets, or is it just plain luck?

I gathered historical prices for 50 of the most popular cryptocurrencies to examine this proposition. I was curious to see the average daily returns for these cryptocurrencies. Figure 1 shows the top 25 of the 50 chosen cryptocurrencies by average daily returns, and Figure 2 shows the bottom 25 of the 50.

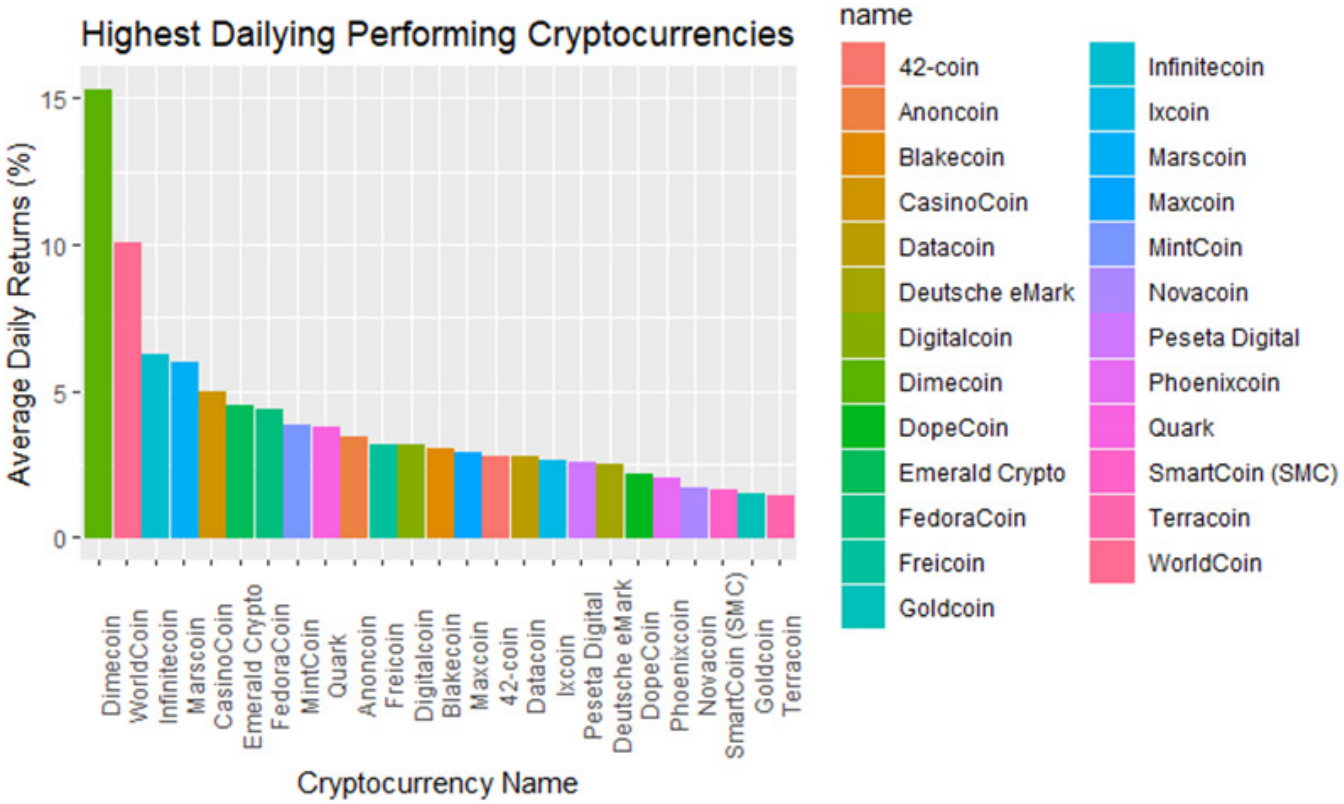


Figure 1

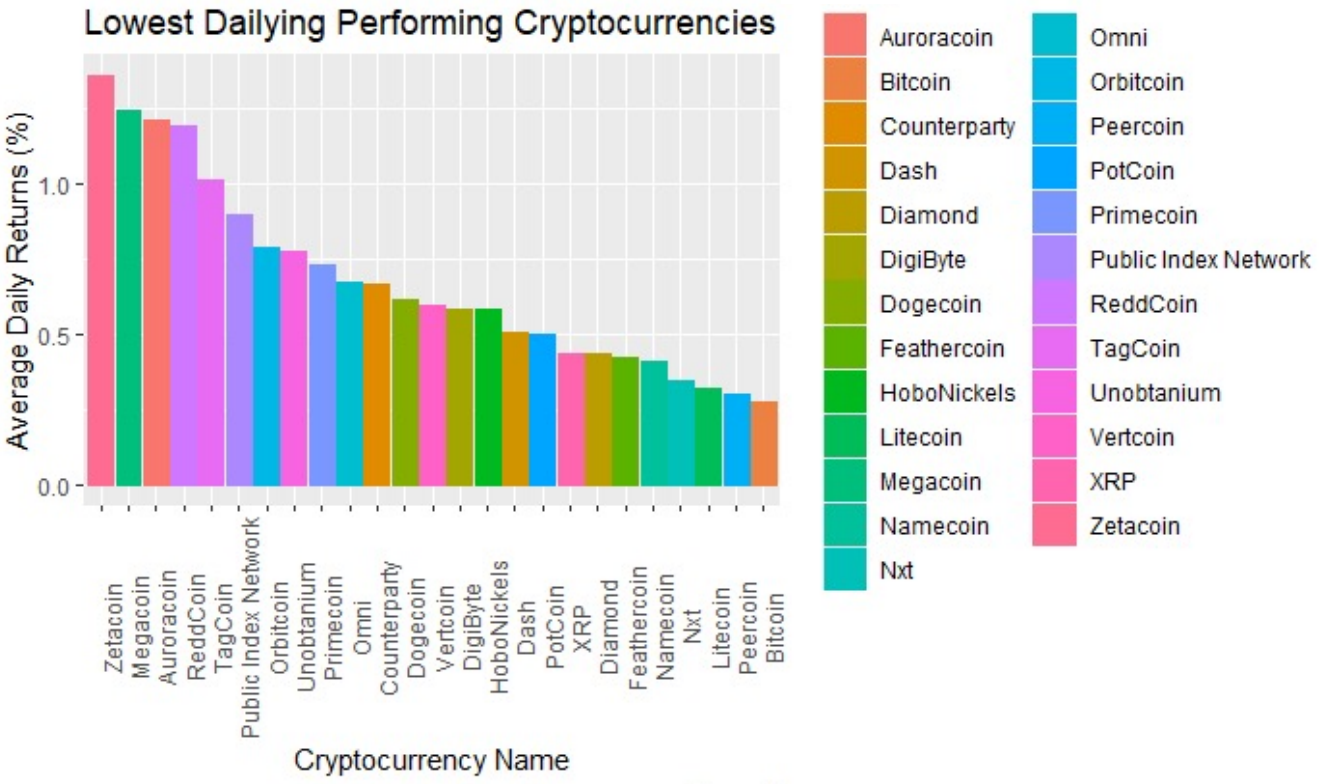


Figure 2

The highest performing cryptocurrency in the sample was Dimecoin, boasting an average daily return above **15%!** Generating a 15% return per day doesn't seem too bad. If you invest $1,000 for a month, you would have about $66,000 by the end of that month. Are these returns too good to be true? Perhaps. To understand how cryptocurrencies can post such extraordinary returns, we need to consider a few things. To do this, let's further examine Dimecoin's success.

Should We Invest in Dimecoin Immediately?

As a cryptocurrency, Dimecoin's price is extremely low per unit. On December 6, 2021, Dimecoin was trading at an exchange rate of 0.00000340 coins per USD. Any slight movement in the price results in high percentage returns/losses. To illustrate, if the price moves up during a trading day to 0.00000360, this is about a 6% return. The return is despite price only increasing milafractions of a cent. The same would hold for a similar decrease in the price.

The low exchange rate only explains part of the story behind Dimecoin's large apparent returns. To further understand how Dimecoin has posted such high returns, we must look at the journey its price has taken (refer to Figure 3):

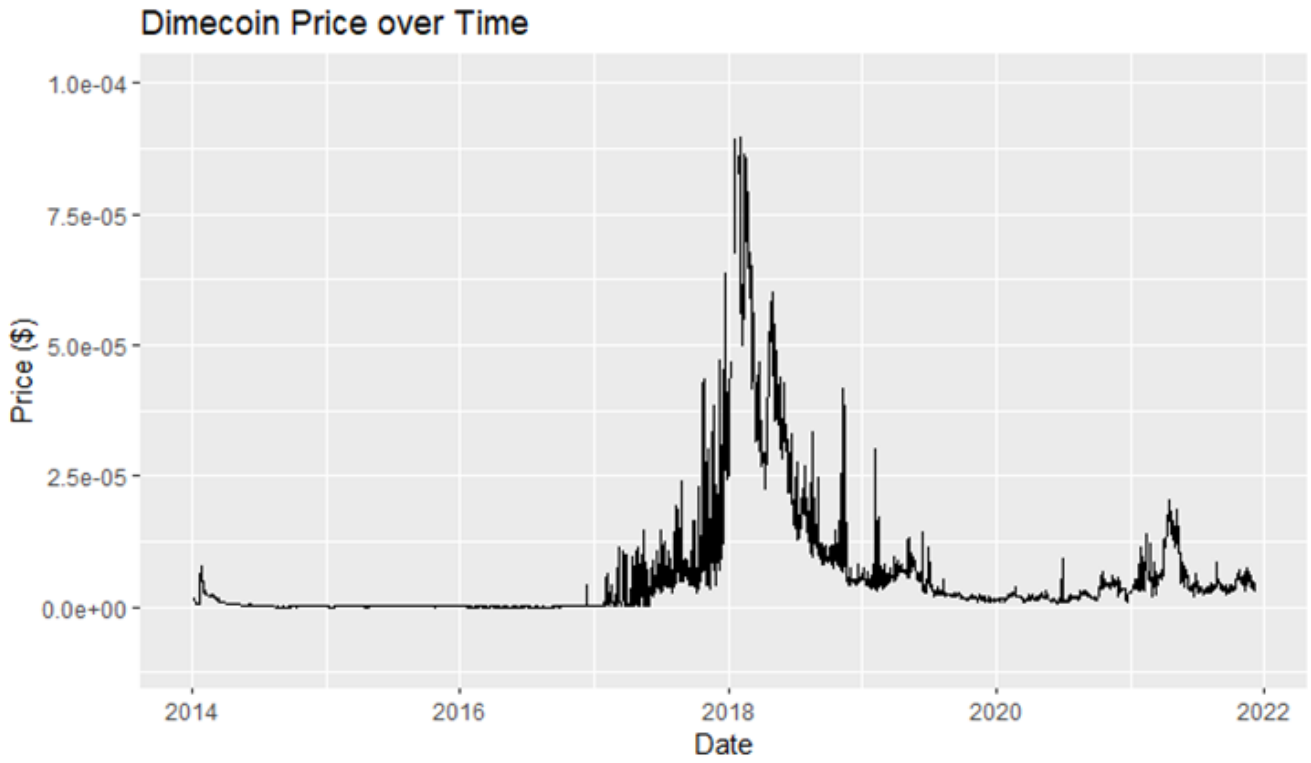
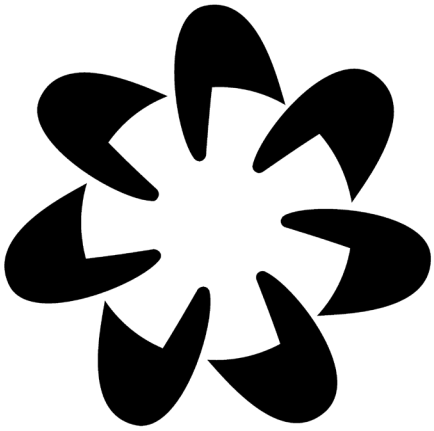


Figure 3

Dimecoin experiences sudden and massive price appreciation, as depicted in Figure 3. The rapid appreciation started in late 2017 and persisted through the early months of 2018. Almost as quick, Dimecoin depreciated, losing much of the value it gained. A similar pattern of events, albeit less pronounced, occurred again in 2021. It would have been nice to get in before the spike for investors. However, many less fortunate investors were likely left holding the bag, losing the entirety of their investment.



Are the pricing and volatility extremes of Dimecoin an outlier? Or are the extremes indicative of why many cryptocurrencies have experienced astronomic returns? We can perform a similar analysis on the second-highest performing cryptocurrency, WorldCoin.

Refer to Figure 4 to see the price chart for WorldCoin:

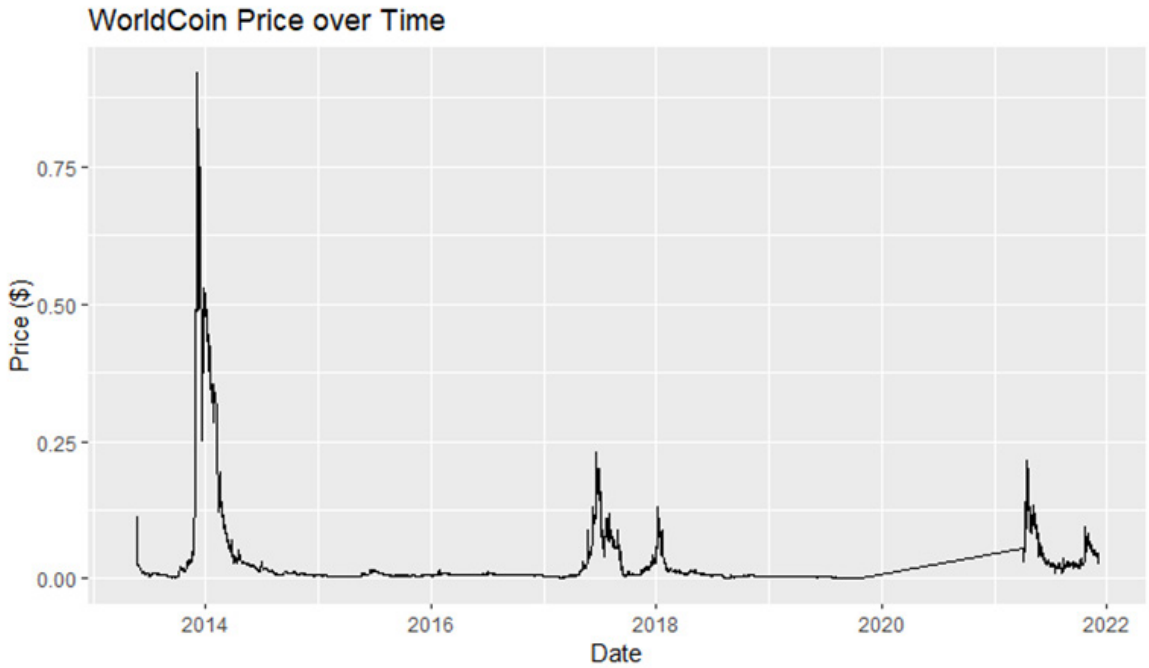


Figure 4

The story behind WorldCoin is very similar. The sizeable returns experienced were due to periods of extreme volatility.

The argument can be made that these two cryptocurrencies are less recognized. Their returns may be due to a small number of players who had an outsized impact on supply and demand. Yet, what happens when we examine the price chart of a more recognized cryptocurrency, Bitcoin (refer to Figure 5):

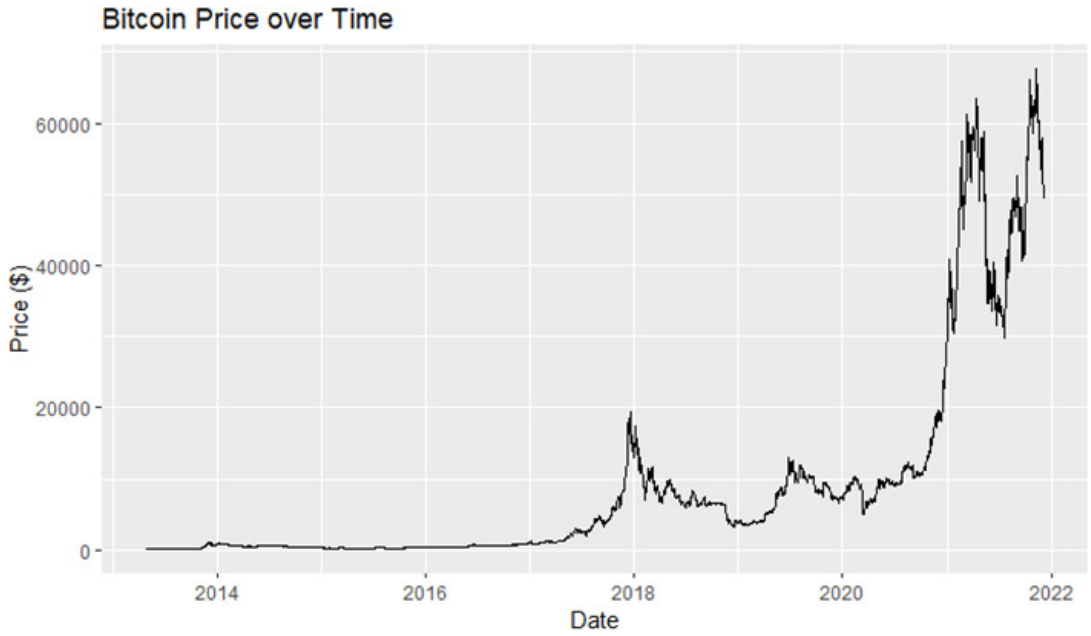
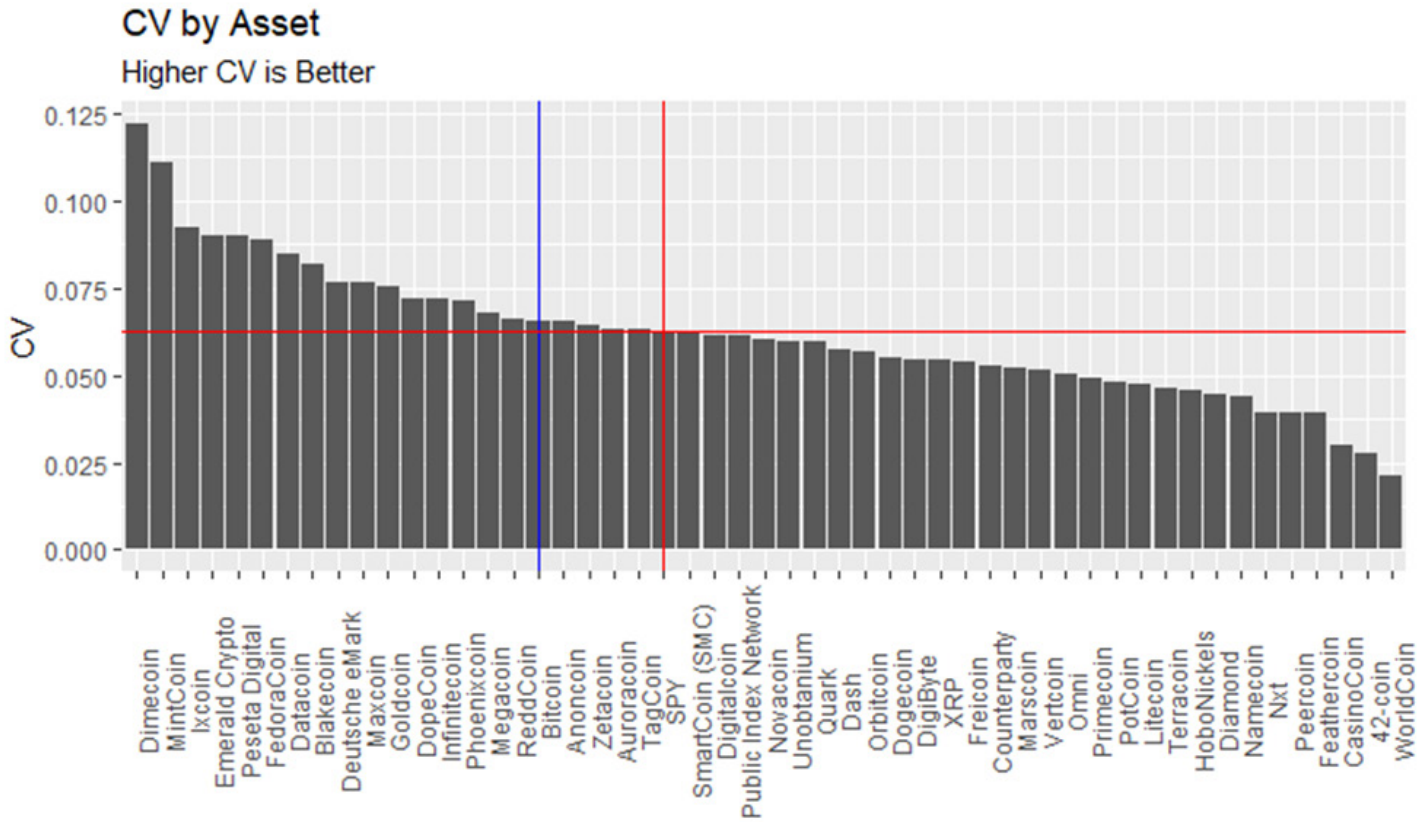


Figure 5

From Bitcoin's price chart, Bitcoin has had significant and random periods of volatility. Yet, for the most part, its returns have remained. With returns staying, there is less potential upside. Compared to Dimecoin, which posted an average of 15% returns per day with a daily return standard deviation of about 466%, Bitcoin only posted an average of about 0.27% and a daily return standard deviation of about 4.2%. Therefore, if you want more certainty in your cryptocurrency investment, you must forego the upside. How do Bitcoin's risk-return characteristics compare to equities? We can compare all cryptocurrencies' metrics to the SPY (an ETF tracking the S&P500):



CV stands for "Coefficient of Variance." It asks the question: "How much return am I getting for the risk I'm taking?" If asset A has a higher CV than asset B, then asset A gives you higher returns for less risk, making it the preferable asset.

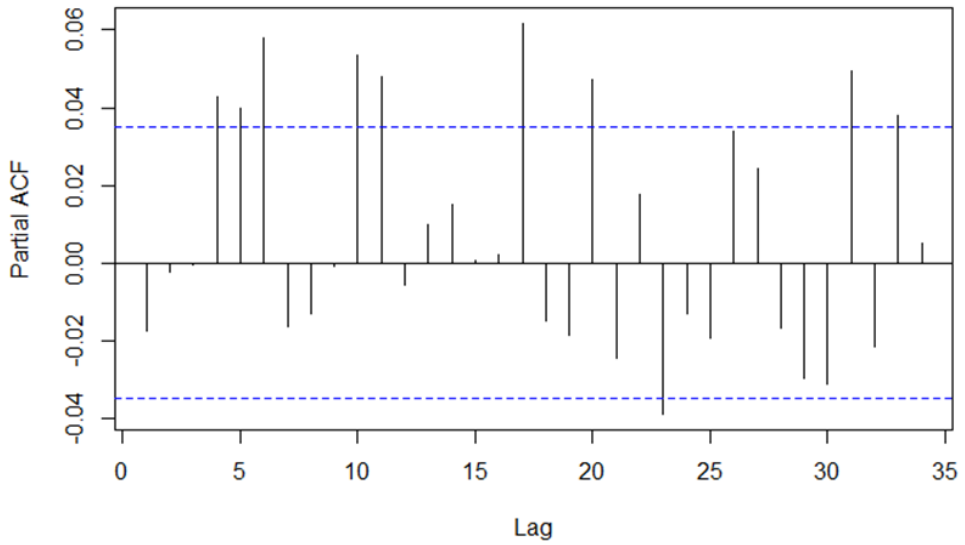
The higher the CV, the more desirable the assets' risk-return characteristics. From the chart above, Bitcoin appears to be more desirable to the SPY, offering higher returns for a given level of risk. Furthermore, other cryptocurrencies also have better CV's than the stock market. However, remember that the returns were a one-off function of volatility for most of these cryptocurrencies, e.g., Dimecoin. The asset with the lowest CV is WorldCoin, implying that even though the daily returns of this asset are very high, the returns simply aren't high enough to justify the level of risk being taken on. A lower CV than equity investing is true for over 50% of the chosen cryptocurrencies.

Momentum Investing in Bitcoin

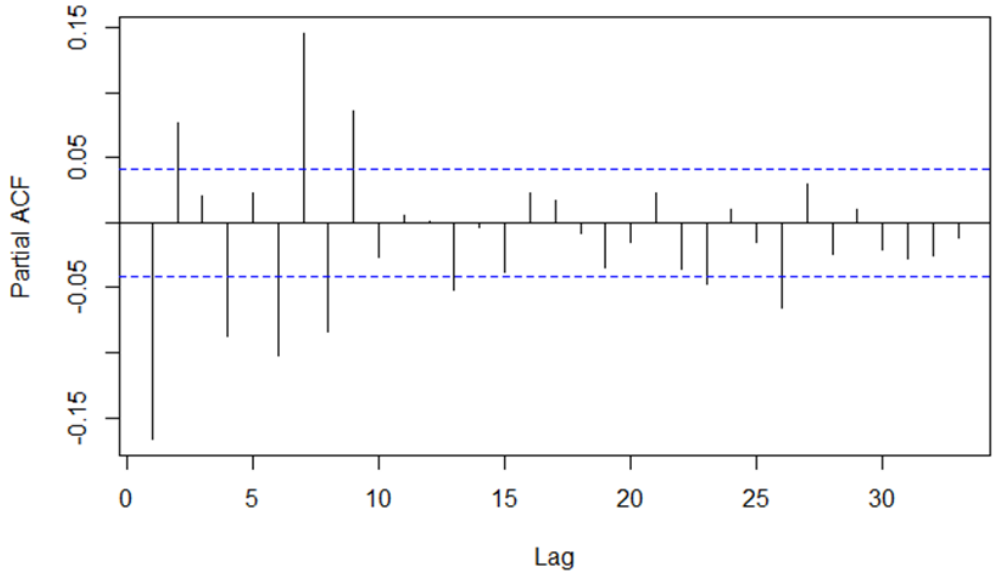
The increased prevalence of retail investors in the cryptocurrency market has resulted in many cryptocurrencies experiencing rapid pricing growth, caused primarily by momentum trading. Momentum trading is buying an asset when its price is increasing and selling when the price is decreasing. These actions are called momentum because they further contribute to the price movement (e.g., if everyone starts buying, the price will skyrocket, and the price will collapse).

To see the effects of momentum trading on crypto prices, we can run a Partial Autocorrelation Function which measures the correlation across different lags of time:

Bitcoin PACF:



SPY PACF:



A simple way of interpreting these charts is to see how many positive vertical lines appear. The lines indicate the correlations of the previous day's returns with the current day's returns. More clusters of positive lines suggest that the asset's price has been correlated with itself for a series of days. This positive line grouping may indicate momentum investing in the asset. Bitcoin has many clusters of positive vertical lines, supporting that it may be an asset heavily traded on momentum.

The risk of investing in an asset with heavy momentum trading is knowing when to get in and when to get out. At Qube, when we value a stock, we decide on a target price and then invest appropriately. However, there is little to no indication of where the asset valuation may be going with cryptocurrencies. As an investment, we believe cryptocurrencies are a game of chance.

Why Doesn't Qube Invest in Cryptocurrency

While cryptocurrencies have had their share of growth, we do not see them as an investible asset. As I have demonstrated above, cryptocurrency returns are highly volatile and random. There are few indicators to suggest when a specific currency will experience price growth and to know when to exit from a coin before the coming losses. With the increased prevalence of momentum in a cryptocurrency's price, timing the position is subjective and a literal game of chance.

As such, for now, we believe cryptocurrencies fall outside of our scope and mandate but will monitor for future consideration.

Qube Insights: Empire

By Nathaniel McNalley

EMPIRE COMPANY LIMITED

Kaleo A, Full

Empire (EMP.A): We first added Empire to the Kaleo portfolios on September 2, 2021, at a price of $40.41. While Empire is a company that most people have not heard of, many have of its subsidiary, Sobeys. Empire operates more than 1,500 locations across Canada under multiple brands including Sobeys, Safeway, IGA, and FreshCo. If you shop at one of these stores, you can now claim to be a part-owner!

Most Canadian consumers are familiar with at least one of these brands as each grocery chain targets a specific consumer demographic. Both Safeway and Sobeys are full-service operations meaning that they provide the widest selection of grocery products at a price premium. They also offer specialty departments such as pharmacies, bakeries, and delis. FreshCo is Empire's discount food retailer that caters to bargain shoppers by delivering groceries and fresh produce at discount prices. IGA locations, on the other hand, offer high-quality products with customized grocery offerings that appeal to the typically rural communities that they serve.

Sobeys is one of Canada's largest grocery retailers and has been able to increase its market share both organically and through acquisitions of smaller, more profitable, retailers such as "Farm Boy" in Ontario. Empire's revenues have grown consistently over the last few years, benefiting from the COVID pandemic as consumers stocked up on food and supplies in anticipation of government restrictions. Their historical earnings did not grow as consistently as revenues due to restructuring efforts following their acquisition of Safeway in 2013. Through Project Sunrise, they were able to solve their logistical problems and improve firm profitability by 1.6%. Management's current initiative aims to increase the company's profitability by another 1% by 2023. While single digit increases in profitability seem small, they are highly lucrative for grocery retailers pushing large volumes of goods.

We anticipate some near-term hurdles for the company in terms of revenue growth as lockdowns ease and individuals return to their pre-COVID shopping activities. Further, earnings growth could be slower than what is anticipated due to slower revenue growth and investments into grocery delivery services like Voilà. Nonetheless, we believe the strong vision at Empire with margin improvement in the coming 36 months will yield superior shareholder returns for our investors. Our valuation of Empire indicates an intrinsic value of $46.63, offering an upside potential of 22%.

Qube Insights: HCA Healthcare

By Nick Riemer

Kaleo A, Full

HCA (HCA): HCA Healthcare was first added to Kaleo on September 25th, 2020 at $120.40/shr. Since inception, the stock has generated an astounding total cumulative return of 100.3%—outpacing the 30.7% return generated by the United States healthcare sector over the same period. Even with HCA's stock price hovering around all-time highs, we still see reason for ongoing optimism.

HCA Healthcare is the largest non-government operator of acute care hospitals in the United States. The company provides a wide variety of treatments and surgical applications for severe injuries and illnesses amongst its portfolio of 183 hospitals across the nation.

While the company operates an essential service, the hospital business does not come without some challenges. For example, essentially all United States residents are insured under a government entity or private health insurer which puts a soft cap on the prices that hospitals can charge. While this is great news for citizens, it acts as a profitability headwind for hospital owners. Nonetheless, HCA has still managed to grow its operating earnings at an impressive average annual rate of 6.7% over the last 5-years. Investors have rewarded HCA by driving its stock higher, but what has driven such admirable performance, and is it sustainable? Let's investigate.

The demand and supply gap in the US healthcare sector is "growing rapidly" according to the United States-based market research firm, Grand View Research. Specifi-

cally, as the average life expectancy continues to increase the amount of people who require specialized medical care continues to grow considerably. This has created a strain on the medical system as the number of healthcare facilities across the United States cannot fulfill the current demand. Therefore, hospital owners have aggressively expanded their footprint and service offerings across the nation—HCA has added 14 large-scale hospitals to its portfolio in the last 5-years alone.

Historically, HCA's reinvestment strategy has been extremely fruitful for shareholders and there's no reason to believe this will stop anytime soon. Currently, management expects to invest $3.7 billion into new and existing hospitals by the end of 2023—enabling the company to capture a chunk of the industry's projected 8.6% compound annual growth rate over the next 6-years.

Coupled with a strong track record, impressive fundamentals, and management's plans for continued reinvestment, we still find HCA undervalued. Specifically, when quantifying the company's risk and extrapolating its growth potential as a function of management's reinvestment agenda and the expected returns on those investments, our free cash flow analysis computes HCA's intrinsic value at $319.44/shr—indicating the stock is trading at a 33.2% discount at the time of writing.

Seldom does one find a high-quality business with sound growth prospects on sale in today's markets. We plan to capitalize on the rare opportunity.

Qube Insights: Equity Research Snapshots

Equity Research Traffic Lights

Company	Sector	Current Status
PACCAR INC	Industrials	
AGCO CORP	Industrials	
WASTE MANAGEMENT	Industrials	
SITEONE LANDSCAP	Industrials	
ROPER TECHNOLOGI	Industrials	
REPUBLIC SVCS	Industrials	
AMERCO	Industrials	
MSA SAFETY INC	Industrials	
GRACO INC	Industrials	
LANDSTAR SYSTEM	Industrials	

Qube Insights: Equity Research Snapshots

Balancing traditional research techniques with modern portfolio science allows our team to find companies that demonstrate and maintain solid investing fundamentals. We look for less volatile and proven earnings combined with long-standing stable dividend policies. Share prices need to be justified on a combination of current earnings and reasonable earnings growth possibilities. Quality financial statements, coherent management and an operational business plan need to be in place before we rank a company "green."

Company	Sector	Current Status
CNH INDUSTRIAL N	Industrials	✗
ITT INC	Industrials	✗
AERCAP HOLDINGS	Industrials	~
FIVERR INTERNATI	Consumer Discretionary	~
HILTON WORLDWIDE	Consumer Discretionary	✗
DOLLARAMA INC	Consumer Discretionary	~
GARMIN LTD	Consumer Discretionary	✗
SERVICE CORP INT	Consumer Discretionary	✗
BRIGHT HORIZONS	Consumer Discretionary	✗
CHEWY INC- CL A	Consumer Discretionary	✗
BOOKING HOLDINGS	Consumer Discretionary	✗
AUTOZONE INC	Consumer Discretionary	~
WALMART	Consumer Discretionary	✓
LEAR CORP	Consumer Discretionary	✓

Qube Insights: Equity Research Snapshots

Company	Sector	Current Status
LEVI STRAUSS-A	Consumer Discretionary	
YUM! BRANDS INC	Consumer Discretionary	
HANESBRANDS INC	Consumer Discretionary	
DECKERS OUTDOOR	Consumer Discretionary	
LITHIA MOTORS-A	Consumer Discretionary	
BRP INC/CA-SUB V	Consumer Discretionary	
EMPIRE CO LTD A	Consumer Staples	
LAMB WESTON HOLDINGS INC	Consumer Staples	
CHURCH & DWIGHT	Consumer Staples	
COLGATE PALMOLIVE	Consumer Staples	
CLOROX CO	Consumer Staples	
GENERAL MILLS IN	Consumer Staples	
DARLING INGREDIE	Consumer Staples	
US FOODS HOLDING	Consumer Staples	
WEX INC	Information Technology	
CROWDSTRIKE HO-A	Information Technology	

Qube Insights: Equity Research Snapshots

Company	Sector	Current Status
FAIR ISAAC CORP	Information Technology	
TERADYNE INC	Information Technology	
TRIMBLE INC	Information Technology	
BROADCOM INC	Information Technology	
MAXIM INTEGRATED	Information Technology	
GLOBAL PAYMENTS	Information Technology	
COGNIZANT TECHNOLOGIES	Information Technology	
FLEETCOR TECHNOL	Information Technology	
CISCO SYSTEMS	Information Technology	
CHECK POINT SOFT	Information Technology	
MICRON TECHNOLOGIES	Information Technology	
FORTINET	Information Technology	
ACCENTURE	Information Technology	
ADV MICRO DEVICE	Information Technology	
NATL INSTRUMENTS	Information Technology	
PAYCOM SOFTWARE	Information Technology	

Qube Insights: Equity Research Snapshots

Company	Sector	Current Status
CADENCE DESIGN	Information Technology	
QUALCOMM INC	Information Technology	
MICROSOFT CORP	Information Technology	
LAM RESEARCH CORP	Information Technology	
HYDRO ONE LTD	Utilities	
SOUTHERN CO	Utilities	
CAN UTILITIES-A	Utilities	
NORTHLAND POWER	Utilities	
JAZZ PHARMACEUTICALS	Health Care	
HENRY SCHEIN INC	Health Care	
HILL-ROM HOLDING	Health Care	
ABBVIE INC	Health Care	
UNIVERSAL HLTH-B	Health Care	
HORIZON THERAPEU	Health Care	
IDEXX LABS	Health Care	
NOVOCURE LTD	Health Care	
OMNICELL INC	Health Care	

Qube Insights: Equity Research Snapshots

Company	Sector	Current Status
TELEFLEX INC	Health Care	
MERCK & CO	Health Care	
MEDPACE HOLDINGS	Health Care	
BECTON DICKINSON & CO	Health Care	
HCA HEALTHCARE	Health Care	
PROGRESSIVE CORP	Financials	
WILLIS TOWERS WA	Financials	
S&P GLOBAL	Financials	
BANK OF NOVA SCOTIA	Financials	
VORNADO REALTY TRUST	Real Estate	
SIMON PROPERTY GROUP	Real Estate	
KIMCO REALTY	Real Estate	
STORE CAPITAL	Real Estate	
HEALTHPEAK PROPERTY	Real Estate	
REALTY INCOME	Real Estate	
MGM GROWTH PROPERTIES	Real Estate	
INVITATION HOMES	Real Estate	

Qube Insights: Equity Research Snapshots

Company	Sector	Current Status
AMERICOLD REALTY	Real Estate	
DOUGLAS EMMET	Real Estate	
FIRST INDUSTRIAL REALTY	Real Estate	
ESSEX PROPERTY	Real Estate	
VENTAS INC	Real Estate	
WP CAREY INC	Real Estate	
DOW INC	Materials	
LINDE PLC	Materials	
TELUS CORP	Communication Services	
ELECTRONIC ARTS	Communication Services	
TAKE-TWO INTERACTIVE	Communication Services	
DISNEY	Communication Services	
FACEBOOK	Communication Services	
T-MOBILE US INC	Communication Services	
VERIZON COMMUNIC	Communication Services	
AT&T INC	Communication Services	
OMNICRON GROUP	Communication Services	

DISCLAIMER: This is an internal report intended only for clients of Qube Investment Management Inc. The ideas presented within it form part of an overall portfolio management position and are not to be acted upon without coordination from your advisor.

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Commissions, management fees and expenses may be associated with investment accounts. Please read the simplified prospectus (if applicable), or investment management agreement before investing. Many investments are not guaranteed and are not covered by the Canada Deposit Insurance Corporation or by any other government issuer. There can be no assurances that an investment will be able to maintain its net asset value or that the full amount of the investment will be returned to you. Values change frequently and past performance may not be repeated.

Qube Investment Management Inc. is a registered portfolio management firm in the Provinces of Alberta and British Columbia and was registered as a portfolio management firm on June 25, 2012. Any return period cited before this date was prior to QIM being registered as a portfolio management firm. Inception was Jan 1, 2011 and all returns are for a modeled portfolio initiated at $500,000. Your actual returns may vary according to your individual portfolio. The modeled returns are calculated inclusive of dividends, adjusted to the Canadian currency, and are determined via the IRR (Internal Rate of Return) method. The gain/loss shown are simple (non-compounded) returns for periods up to one year. If the time since inception date is more than one year, then the return shown is an annualized return. For comparison purposes, the Kaleo model(s) are reported as gross returns before investment management fees. Individual investor level returns will differ as the fees agreed to in your Investment Management Agreement (IMA) are subtracted from the gross return.

At any one point in time, the composition of the Kaleo model may change. Currently, the focus for our models (Kaleo A and Full) is to invest in a globally diversified portfolio of liquid stocks with a minimum market capitalization of $1 billion. Our diversification strategy is to have similar industry weightings between our Kaleo models A and Full, which in turn will have similar weightings to the S&P 500. Our investment mandate is to not have any one industry sector or sub-group exceed 2.0 times the percentage weighting assigned to that group by the MSCI Index unless the sector or sub-group composes less than 5% of the total index. Please refer to your Investment Policy Statement (IPS) for more details.

Index comparisons are based on the total return index defined by 50% of the MSCI Index and 50% of the S&P TSX Total Return Index. All index returns are inclusive of dividends, adjusted to the Canadian currency, and, similar to the modeled portfolio, determined via the IRR method. Please note that, as total return indices are not actual portfolios, these returns do not include the cost of management and/or trading fees.

Past performance is not indicative of future results and there is no assurance that our model portfolio will achieve its objectives or avoid significant losses.

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