

The Performance of Canadian Listed Cannabis Equities: 1996-2020

Raymond A.K. Cox¹, Quan Cheng²

¹ School of Business and Economics, Thompson Rivers University, Kamloops, Canada

² School of Business, University of the Fraser Valley, Abbotsford, Canada

Correspondence: Raymond A.K. Cox, School of Business and Economics, Thompson Rivers University, Kamloops, British Columbia, V2C 0C8, Canada.

Received: May 31, 2021

Accepted: June 30, 2021

Online Published: July 9, 2021

doi:10.5539/ibr.v14n8p17

URL: <https://doi.org/10.5539/ibr.v14n8p17>

Abstract

This research investigates the investment performance of Canadian listed cannabis stocks. Canada legalized medical marijuana in 2001, following the initiation of medical marijuana authorization by some states in the US starting in 1996, and completely approved cannabis products in 2018. Investing in the 89 Canadian cannabis equities (listed on the Toronto Stock Exchange, Canadian Securities Exchange, Toronto Venture Stock Exchange, and Over-the-Counter Market) as an industry portfolio, based on weekly returns for the 1996 to 2020 period, generated high mean returns, standard deviation, positive skewness, and kurtosis. Robustness tests taking the winsorised returns (deleting the top and bottom 10 percent of returns) produced qualitatively similar results. Further, both the portfolio alpha and beta were extremely high. More so, the Canadian cannabis portfolio garnered excess returns when compared to the Standard and Poor's Toronto Stock Exchange Composite Index. Money managers, financial analysts, and investors should contemplate including Canadian listed cannabis stocks based on their high investment return.

Keywords: cannabis, Canadian, equities, stocks, performance

1. Introduction

News is new information, and the novelty of brand-new products developed and manufactured by state-of-the-art technology continues to fascinate consumers over time. The corporations that offer this modern merchandise are held in high regard by both the public and investors. Venture capitalists and lenders are quick to jump on the bandwagon to back these firms by snapping up their stock in anticipation of enjoying supernormal growth and wealth accumulation.

One such new product creating an additional industry in the mosaic of investment opportunities is cannabis. Cannabis, or marijuana or weed or Maryjane or dagga or ganja or hashish or hemp, has been around since prehistoric time. However, in recent times this substance was classified as a narcotic and banned. In Canada, the manufacture, sale, and consumption were prohibited starting in 1923. Nonetheless, an illegal underground economy in cannabis existed during the marijuana prohibition years. Then, in recognition of the pharmaceutical benefits of cannabis, Canada legalized medical marijuana effective July 30, 2001. Subsequently, marijuana was legalized for recreational use with the first bill reading on November 27, 2017, the second bill reading on March 22, 2018, then the third and final bill reading on June 20, 2018. The effective legalization date in Canada was October 17, 2018.

The creation of the legal Canadian cannabis industry parallels what has happened in the United States, where the state of California was the first to legalize medical marijuana in 1996. As of 2021, medical marijuana is legal in 42 (out of 50) states, and 17 states have fully legalized marijuana. Nevertheless, marijuana is still illegal under US federal law.

We study the performance of Canadian listed cannabis stocks for the 1996 to 2020 period. Our empirical evidence shows that Canadian listed cannabis equities provided high nominal returns as well as superior market-adjusted excess returns. Further, the greater returns are accompanied by higher risk, both systematic (market) risk and total risk (standard deviation). Moreover, we compare our findings to the literature of 2 fields of study: 1. Sin stocks, and 2. Emerging markets. Our study contributes to the financial literature reinforcing the high returns of sin stocks and emerging market equities. In contrast to the sin stocks research, our results show

high beta risk. However, when compared to the emerging markets studies, our investigation is congruent with a greater total risk.

2. Literature Review

At first glance, the consideration that the Canadian cannabis industry is like an emerging market seems far-fetched. Canada is a developed country, G7 member, with the 9th largest economy by GDP in the world in 2020 and has the 10th largest stock exchange (TMX Group) by market capitalization of about USD 2 Trillion as of October 2020. Nonetheless, the nature of cannabis equities resembles emerging markets: 1. newly formed firms, 2. small individual size, 3. customer and marketing distribution to be greenfield created, 4. supply chain to be developed, 5. social stigma, 6. few international connections, and 7. investors unfamiliar with the risk and return of the securities.

The need for the benefits of international investment diversification was magnified starting in the late 1980s coupled with the newly formed stock markets of Russia, China, Eastern Europe and elsewhere with opening access to foreigners. Hamao, Masulis, and Ng (1990) showed the end of the era when mature country equity markets were uncorrelated with each other. Studying the New York, London, and Tokyo stock exchanges pre-1987 stock crash, no price spillover effects are indicated in contrast to the post-crash period. Saunders and Walters (2002) showed emerging market equities to initially be a separate asset class but later become integrated. Van Der Hart, Slagter, and Dijik (2003) found for 32 emerging markets (1985 to 1999) that value, momentum, and earnings revisions strategies worked to generate excess returns. Donadelli and Prosperi (2011) and Batter and Vo (2019), researching the equity risk premium in emerging markets, identified liquidity risk and the compensation for illiquidity. Prasanna (2012), examining 82 exchange-traded-funds (ETFs) in India, discovered large ETFs were not efficient funds (in a Capital Asset Pricing Model sense) compared to the CNX NIFTY. Also, ETFs earned excess returns to CNX NIFTY from 2006 to 2011. Vu (2012) presented evidence of higher returns from momentum strategies in emerging markets due to market isolation. Blitz and Hui (2012) for emerging market ETFs (2003 to 2010) detected tracking errors are much higher than developed market ETFs, especially when there is high-cross-sectional stock returns dispersion. Sherwood and Pollard (2017) uncovered high returns from environmental, social and governance (ESG) integration on the MSCI Emerging Market Index (2007 to 2016). Koepke (2019) noticed the drivers of capital flows to emerging markets were risk aversion and rates of returns.

The genre on cannabis stocks is part of the studies on sin stocks, also known as vice stocks, shunned stocks, controversial stocks, and unethical stocks (Blitz and Fabozzi, 2017). The lines of business of sin stocks include alcohol, gambling, tobacco, weapons, or porn and now include cannabis. Previous literature supports the hypothesis that sin stocks earn high returns. Sin stocks offer shareholders a reputation risk premium. That is, stockholders demand a higher return from sin stocks to compensation for their negativity. The reputation risk premium is in addition to the inflation risk premium, liquidity risk premium, and other risk premiums. Salaber (2007) researched 18 European countries for the 1975 to 2006 period. Sin stocks experienced higher returns attributed to a litigation risk premium. More so, countries were classified as Protestant or Catholic. In Protestant countries, as opposed to Catholic countries, sin stocks were subject to more lawsuits which resulted in higher required returns. Salaber (2009) examined 183 US sin stocks, monthly returns from 1926 to 2005, and found positive excess returns and some support for sin stock return being counter-business cycle. Fabozzi, Ma, and Oliphant (2008) surveyed 21 countries from 1970 to 2007 and observed positive abnormal returns for sin stocks. Both Hong and Kacperczyk (2009) and Statman and Glushkov (2009), with US only samples from 1965 to 2006 and 1992 to 2007 respectively, detected positive Jensen (1968) alphas from sin stocks. Liston and Soydemir (2010) showed the sin-based stock portfolio with a significantly positive Jensen alpha versus a faith-based stock portfolio having a significantly negative alpha. Derwall, Koedijk and ter Horst (2011) distinguished between short-run investment performance as opposed to long-run investment performance for socially responsible investments versus profit-run investments. Durand, Koh, and Limriangkrai (2013) discovered the impact on saint-stocks, as opposed to sin-stocks, from social norms. Actions that positively (negatively) affect saints result in a negative (positive) effect on sinners. Durand, Koh, and Tan (2013) displayed empirical evidence from Australia, India, Japan, South Korea, Malaysia, New Zealand, and Singapore for the 1990 to 2009 period. Investors in sin stocks earned negative risk-adjusted returns. On the other hand, Mollet and Ziegler (2014) found insignificant abnormal returns for US and European socially responsible investments. The evidence presented by Lobe and Walkshausl (2016) is that sin stocks generate returns commensurate with their beta risk, i.e. neither positive nor negative alphas. Liston (2016) used an asset pricing model including an investor sentiment factor. Abnormal returns found in previous studies disappeared when controlling for investor sentiment. Blitz and Fabozzi (2017) studied a global sin stock sample from the 1963 to 2016 period. The results varied by geographic

sector. In general, sin stocks delivered a positive alpha and low beta.

Lu-Andrews (2017) looking at 28 OTC (over-the-counter) US stocks (in 2016 only), examined IPO (initial public offering) spillover effects of IIPR (Innovative Industrial Properties), a new Real Estate Investment Trust (REIT) with marijuana real estate facilities. The marijuana stocks experienced positive abnormal returns (market and risk-adjusted) during the announcement period and downsized period and negative abnormal returns in the final completion period. This showed that contagion effects outweighed competition effects during the announcement versus completion period. Guttery and Poe (2018) explored the legal issues of REITs as marijuana is still illegal according to federal statutes. Further, in the US REITs are required to distribute 90% of their income to trust holders, leaving little internally generated capital to finance future growth. Weisskopf (2020), with 33 US cannabis stocks, 2014 to 2018 period, found positive abnormal returns. Andrikopoulos Gebka, and Kallinterakis (2020) studied the herding of 303 US and 156 Canadian cannabis stocks, 2011 to 2019. Herding is where the individual firm's stock returns in the industry move together. They discovered herding for Canadian cannabis stocks but no herding for US cannabis stocks. Our study aims to shore up the gap in the literature in so far as Canadian listed cannabis equities have been examined but once before.

3. Data, Methodology and Hypotheses

We select our sample from MarijuanaStocks.com, their list of marijuana stocks. The first marijuana stocks, Cresco Labs Inc. (stock symbol CL.CN), Future Farm Technologies Inc. (stock symbol FFT.CN), World Class Extractions Inc. (stock symbol PUMP.CN), and Zenabis Global Inc. (stock symbol ZENA.TO), began trading in Canada on August 12, 1996. We gather 1222 adjusted (for cash dividends, stock splits, and stock dividends) weekly stock prices from Yahoo.Finance until January 6, 2020. We employ the jump method for missing price data. That is, the last known market price is the plug for a missing price until the next known (actual) share price. We calculate 1221 weekly returns by the holding period return (HPR) formula 1:

$$R_t = (P_t - P_{t-1})/P_{t-1} \quad (1)$$

where R is the holding period return,

P is the share price,

t is the week.

The sample size is 89 Canadian listed cannabis stocks across the 24-year period. Of the 89 stocks, 16 are listed on the Toronto Stock Exchange (TSX), 51 on the Canadian Securities Exchange (CSE), 12 on the Toronto Venture Stock Exchange (TSXV), and 10 on the Over-the-Counter (OTC) Exchange. Normally, the OTC is not considered a true exchange but more of a trading platform between brokers and dealers. In addition, of the 89 firms with the Canadian stock listing, 74 and 15 were headquartered in Canada and the US, respectively.

A Canadian listed cannabis industry portfolio is formed on an equal-weight basis by formula 2:

$$CCP_t = \sum_{x=1}^n R_{t,x}/n \quad (2)$$

Where CCP_t is the Canadian listed cannabis portfolio return in week t,

$R_{t,x}$ is the stock return in week t for stock x,

n is the total number of Canadian listed cannabis stocks trading in week t.

Initially, there are few stocks in the industry portfolio. Not until April 11, 2011 is the Canadian listed industry portfolio at the n-size of 20. Elton and Gruber (1977) indicated it is necessary to have 20 stocks in a diversified portfolio to eliminate 95% of unsystematic risk.

We hypothesize that Canadian listed cannabis stocks on average and as an industry portfolio will earn high excess returns by formula 3:

$$ER_t = \sum_{t=1}^n (CCP_t - B_t)/n \quad (3)$$

where ER_t is the excess mean return of the Canadian listed cannabis portfolio across time t,

CCP_t is the weekly return of the Canadian listed cannabis portfolio at time t,

B_t is the weekly return of the stock market benchmark at time t,

n is the number of weeks.

We handle the sensitivity of the results to outliers by winsorising the return distribution in a separate second method of analysis.

We employ the Standard and Poor's Toronto Stock Exchange (S&P/TSX) Composite Index as the stock market benchmark. We examine 2 time periods: (1) Complete time period, for all stocks in the sample, August 12, 1996 to January 6, 2020 (1221 weekly returns), and (2) 20 stocks or more time period, April 11, 2011 to January 6, 2020 (457 weekly returns).

We hypothesize that the Canadian listed industry portfolio will have higher variability of return (standard deviation shown in formula 4) and higher covariance risk (beta from the capital asset pricing model- market model version displayed in formula 5).

$$SD = \sum_{t=1}^n [(CCP_t - R_n)^2 / (n - 1)]^{0.5} \quad (4)$$

where SD is the standard deviation across the time-period,

CCP_t is the return in week t of the Canadian listed cannabis industry portfolio,

R_n is the mean weekly return for the time-period n weeks (i.e. $\sum_{t=1}^n CCP_t/n$),

n is the number of weeks in the time-period.

A simple linear regression is run to compute the alpha and beta of each stock and the industry portfolio. The industry portfolio is expressed in formula 5:

$$CCP_t = \alpha_p + \beta_p I_t \quad (5)$$

where CCP_t is the return in week t of the Canadian listed cannabis industry portfolio,

I_t is the return in week t of the stock market index benchmark,

α_p is the alpha (intercept) of the Canadian listed cannabis industry portfolio,

β_p is the beta of the Canadian listed cannabis industry portfolio.

We considered employing a multi-factor (macroeconomic variables) capital asset pricing model in the vein of Ross (1976). We decided not to proceed with such methodology due to: 1. Sample size with continuous data over the time period is insufficient, 2. No prespecified macroeconomic variables exist in the literature, and 3. The consensus methodology in the literature is the capital asset pricing model for studies of sin stocks. We report the skewness (formula 6) and kurtosis (formula 7) statistics:

$$Skewness = \sum_{i=1}^T (x_i - \bar{x})^3 / (n - 1) \cdot s^3 \quad (6)$$

$$Kurtosis = \sum_{i=1}^T (x_i - \bar{x})^4 / (n - 1) \cdot s^4 \quad (7)$$

where S is the SD (standard deviation)

4. Results

Descriptive statistics are reported in table 1 for the Canadian listed cannabis stock portfolio of All Stocks from 1996 to 2020, and 20+ Stocks from 2011 to 2020. In addition, the descriptive statistics are described for the S&P/TSX stock market benchmark. Observing tables 1 and 2 in both time periods the Canadian listed cannabis industry portfolio clearly generates (in decimal form for weekly returns) high mean return (0.197036 for 1996 to 2020, and 0.145725 for 2011 to 2020) high standard deviation (2.080684 for 1996 to 2020, and 1.347297 for 2011 to 2020), much higher skewness (12.630890 for 1996 to 2020, and 11.623329 for 2011 to 2020) with a positive sign (rather than a negative sign for the S&P/TSX benchmark), and far more kurtosis (169.021200 for 1996 to 2020, and 137.691997 for 2011 to 2020), when compared to the benchmark.

Table 1. All Stocks 1996-2020

Weekly Returns	Canadian Cannabis Industry Portfolio	S&P/TSX Composite Index
Mean	0.197036	0.001269
Standard Deviation	2.080684	0.022822
Skewness	12.630890	-0.64715
Kurtosis	169.021200	6.304727
Alpha	0.193243	
Beta	2.990214	

Table 2. 20+ Stocks 2011-2020

Weekly Returns	Canadian Cannabis Industry Portfolio	S&P/TSX Composite Index
Mean	0.145725	0.000557
Standard Deviation	1.347297	0.016397
Skewness	11.623329	-0.483860
Kurtosis	137.691997	1.645257
Alpha	0.143663	
Beta	3.697835	

Overall, clearly the Canadian listed cannabis industry equities portfolio experienced higher return and risk when matched to the stock market portfolio. Also, the capital asset pricing model (market model version) alpha and beta metrics in tables 1 and 2 strongly support the hypothesis that Canadian listed cannabis stocks as a whole have a high degree of systematic risk, as evidenced by the beta of 2.990214 and 3.697835 for All Stocks (1996-2020) and 20+ Stocks (2011-2020), respectively. Further, the alphas are large at 0.193243 and 0.143663 for All Stocks and 20 + Stocks, respectively. The high beta shows the benefits of a Canadian listed cannabis industry equities portfolio in a bull market. However, in a bear market, investor's risk exposure will be heightened. Individual data of the six metrics for the 89 stocks are reported in Appendix A.

Most of the stocks have low prices of less than a dollar per share (CAD 1.00), with some less than a penny (CAD 0.01). These low prices cause larger spikes (both positive and negative) in returns for relatively small absolute price changes. To mitigate the possible distortion on the performance results, we winsorise both portfolios by eliminating the bottom and top 10 percent of returns. The results for the winsorised returns are given in table 3 for All Stocks and table 4 for 20+ Stocks. The All Stocks portfolio (1996 to 2020) mean weekly return drops to 0.008798, whereas the 20+ Stocks portfolio (2011 to 2020) declines to 0.011599. Otherwise, there is a substantial decrease in the standard deviation to 0.036707 (1996 to 2020) and 0.032722 (2011 to 2020), skewness falls to 0.433483 (1996 to 2020) and 0.546462 (2011 to 2020), and kurtosis plunges to -0.0491304 (1996 to 2020) and -0.362536 (2011 to 2020). Note the change in sign from positive to negative of the kurtosis for each of the two industry portfolios. Scrutinizing the winsorised Canadian listed cannabis equities portfolios relative to the S&P/TSX Composite Index, each of the two cannabis industry portfolios have a higher mean return and standard deviation. However, the disparity between the industry and stock market benchmark, mean and standard deviation, has diminished. These results boost support for the hypotheses of greater return and risk of Canadian listed cannabis equities.

Table 3. All Stocks – Winsorised Returns 1996-2020

Weekly Returns	Canadian Cannabis Industry Portfolio	S&P/TSX Composite Index
Mean	0.008798	0.001269
Standard Deviation	0.036707	0.022822
Skewness	0.433483	-0.64715
Kurtosis	-0.491304	6.304727

Table 4. 20+ Stocks – Winsorised Returns 2011-2020

Weekly Returns	Canadian Cannabis Industry Portfolio	S&P/TSX Composite Index
Mean	0.011599	0.000557
Standard Deviation	0.032722	0.016397
Skewness	0.546462	-0.48386
Kurtosis	-0.362536	1.645257

Table 5 presents the market-adjusted excess returns. Panel A shows the outcome for the total sample. Regardless of which of the two time periods were observed, the excess returns are strongly positive. The excess return in the 1996 to 2020 period, compared to the S&P/TSX benchmark, is 0.195768, and for 2011 to 2020, the excess return versus the benchmark is 0.145167. The winsorised samples continue to produce positive excess returns, especially for the later time period. During the 1996 to 2020 time period, the excess return contrasted to the benchmark is 0.007348. For the 2011 to 2020 period, the excess return is 0.010597 relative to the S&P/TSX.

Table 5. Market-Adjusted Excess Returns Canadian Cannabis Industry Portfolio

Panel A: All Returns

	All Stocks 1996 - 2020	20+ Stocks 2011 - 2020
Average Weekly Excess Return	0.195768	0.145167

Panel B: Winsorised Returns

	All Stocks 1996 - 2020	20+ Stocks 2011 - 2020
Average Weekly Excess Return	0.007348	0.010597

5. Conclusions

We find investing in a portfolio of Canadian listed cannabis stocks from 1996 to 2020 outperformed the Standard and Poor's Toronto Stock Exchange Composite Index. Nevertheless, this portfolio experienced great risk based on standard deviation, skewness, kurtosis, and beta. Socially conscious shareholders may view investing in sin stocks with their line of business in the cannabis sector as unethical and inappropriate. From a wealth perspective, these investors would be best to follow the Latin saying *pecunia non olet*; that is, money does not smell.

Implications for money managers and investors considering Canadian listed cannabis equities is to invest in these stocks for their high return, especially in a bull market. Nonetheless, safeguards to manage the downside of standard deviation risk such as purchasing put options or acquiring stop-loss orders may be needed depending on the capacity and risk profile of those investors.

Future research should focus on other financial characteristics and market conditions that affect the performance of Canadian listed cannabis equities. Moreover, how Canadian listed cannabis equities behave relative to other country cannabis equities is of interest.

References

- Andrikopoulos, P., Gebka, B., & Kallinterakis, V. (2019). How 'High' on Herding are Cannabis Stocks? <https://doi.org/10.2139/ssrn.3508297>
- Batten, J., & Vo, X. V. (2019). Liquidity and firm value in an emerging market. *The Singapore Economic Review*, 64(2), 365-376. <https://doi.org/10.1142/S0217590817470063>
- Blitz, D., & Fabozzi, F. J. (2017). Sin Stocks Revisited: Resolving the Sin Stock Anomaly. *Journal of Portfolio Management*, 44(1), 105-111. <https://doi.org/10.3905/jpm.2017.44.1.105>
- Blitz, D., & Hui, J. (2012). Evaluating the performance of global emerging markets equity exchange-traded funds. *Emerging Markets Review*, 113(2), 149-158. <https://doi.org/10.1016/j.ememar.2012.01.004>
- Derwall, J., Koedijk, K., & ter Horst, J. (2011). A Tale of Values Driven and Profit-seeking Social Investor. *Journal of Banking and Finance*, 35(8), 2137-2147. <https://doi.org/10.1016/j.jbankfin.2011.01.009>
- Donadelli, M., & Prosperi, L. (2011). *The Equity Risk Premium: Empirical Evidence from Emerging Markets* (May 23, 2011). <https://doi.org/10.2139/ssrn.1893378>
- Durand, R. B., Koh, S. K., & Limriangkrai, M. (2013). Saints versus sinners. Does morality matter? *Journal of International Financial Markets Institutions and Money*, 24, 166-183. <https://doi.org/10.1016/j.intfin.2012.12.002>
- Durand, R. B., Koh, S. K., & Tan, P. L. J. (2013). The price of sin in the Pacific Basin. *Pacific-Basin Finance Journal*, 21, 899-913. <https://doi.org/10.1016/j.pacfin.2012.06.005>
- Elton, E. J., & Gruber, M. J. (1977). Reduction and Portfolio Size: An Analytic Solution. *Journal of Business*, 50,

- (October), 415-437. <https://doi.org/10.1086/295964>
- Fabozzi, F. J., Ma, K. C., & Oliphant, B. J. (2008). Sin Stock Return. *Journal of Portfolio Management*, 35(1), 82-94. <https://doi.org/10.3905/JPM.2008.35.1.82>
- Guttery, R. S., & Poe, S. L. (2018). Using a Cannabis real estate investment trust to capitalize a marijuana business. *Journal of Real Estate Portfolio Management*, 24, 201-206. <https://doi.org/10.1080/10835547.2018.12090018>
- Hamao, Y., Masulis, R., & Ng, V. (1990). Correlations in Price Changes and Volatility across International Stock Markets. *Review of Financial Studies*, 12(2), 281-308. <https://doi.org/10.1093/rfs/3.2.281>
- Hong, H., & Kacperczyk, M. (2009). The Price of Sin: The Effect of Social Norms on Markets. *Journal of Financial Economics*, 93(1), 15-36. <https://doi.org/10.1016/j.jfineco.2008.09.001>
- Jensen, M. C. (1968). The Performance of Mutual Funds in the Period: 1945-1964. *Journal of Finance*, 23(2), 389-416. <https://doi.org/10.1111/j.1540-6261.1968.tb00815.x>
- Koepke, R. (2019). What drives capital flows to emerging markets? A survey of the empirical literature. *Journal of Economic Surveys*, 33(2), 516-540. <https://doi.org/10.1111/joes.12273>
- Liston, D. P. (2016). Sin stock returns and investor sentiment. *Quarterly Review of Economics and Finance*, 59(1), 63-70. <https://doi.org/10.1016/j.qref.2015.08.004>
- Liston, D. P., & Soydemir, G. (2010). Faith-based and sin portfolios an empirical inquiry into norm-neglect vs norm-conforming investor behavior. *Managerial Finance*, 36, 876-885. <https://doi.org/10.1108/03074351011070242>
- Lobe, S., & Walkshausl, C. (2016). Vice versus Virtue Investing Around the World. *Review of Managerial Science*, 10(2), 303-344. <https://doi.org/10.1007/s11846-014-0147-3>
- Lu-Andrews, R. (2018). IPO Spillover Effects in a New and Uncertain Sector: The Case of a Marijuana REIT. *Journal of Management Policy and Practice*, 19(3), 147-169. <https://doi.org/10.33423/jmpp.v19i3.54>
- Mollet, J. C., & Ziegler, A. (2014). Socially Responsible Investing and Stock Performance: New Empirical Evidence for the US and European Stock Markets. *Review of Financial Economics*, 23(4), 208-216. <https://doi.org/10.1016/j.rfe.2014.08.003>
- Prasanna, P. K. (2012). Performance of Exchange-Traded Funds in India. *International Journal of Business and Management*, 7(23), 122-143. <https://doi.org/10.5539/ijbm.v7n23p122>
- Ross, S. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory*, 13(3), 341-360. [https://doi.org/10.1016/0022-0531\(76\)90046-6](https://doi.org/10.1016/0022-0531(76)90046-6)
- Salaber, J. M. (2007). *The Determinants of Sin Stock Returns: Evidence on the European Market*. DRM: Publications, Universite Paris-Dauphine. <https://doi.org/10.2139/ssrn.1071746>
- Salaber, J. M. (2009). *Sin Stock Returns Over the Business Cycle*. <https://doi.org/10.2139/ssrn.1443188>
- Saunders, A., & Walter, I. (2002). Are emerging markets equities a separate asset class? *Journal of Portfolio Management*, 28(3), 102-114. <https://doi.org/10.3905/jpm.2002.319848>
- Sherwood, M. W., & Pollard, J. L. (2017). The risk-adjusted return potential of integrating ESG strategies into emerging market equities. *Journal of Sustainable Finance and Investment*, 8(1), 26-44. <https://doi.org/10.1080/20430795.2017.1331118>
- Statman, M., & Glushkov, D. (2009). The Wages of Social Responsibility. *Financial Analysts Journal*, 65(4), 33-46. <https://doi.org/10.2469/faj.v65.n4.5>
- Van Der Hart, J., Slagter, E., & Dijk, D. (2003). Stock selection strategies in emerging markets. *Journal of Empirical Finance*, 10(1-2), 105-132. [https://doi.org/10.1016/S0927-5398\(02\)00022-1](https://doi.org/10.1016/S0927-5398(02)00022-1)
- Vu, J. D. (2012). Do momentum strategies generate profits in emerging stock markets? *Problems and Perspectives in Management*, 10(3), 9-22. Retrieved from [https://efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%](https://efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20)
- Weisskopf, J. P. (2020). Breaking Bad: An Investment in Cannabis. *Finance Research Letters*, 33(March). <https://doi.org/10.1016/j.frl.2019.05.019>

Appendix A

	Stock Symbol	Sample Size	Mean	Standard Deviation	Skewness	Kurtosis	Alpha	Beta
1	ACB.TO	170	0.0074	0.1222	1.2441	4.3123	0.0049	2.3288
2	ACG.CN	237	0.0234	0.2622	1.8348	7.3663	0.0245	(1.4177)
3	AFL.CN	394	0.0390	0.4266	8.5642	102.8535	0.0366	2.0364
4	AGRA.CN	322	0.0179	0.2014	1.5728	5.2046	0.0164	1.7454
5	AH.TO	93	0.0042	0.1413	1.2675	3.7281	0.0014	2.1214
6	AHG.CN	154	(0.0182)	0.1417	1.5143	4.0135	(0.0187)	0.7278
7	APHA.TO	419	0.0077	0.0983	1.9153	17.1979	0.0075	0.2420
8	APP.CN	276	0.0105	0.2152	2.4599	13.9318	0.0097	1.2887
9	BAMM.CN	384	0.1146	2.0074	19.0862	370.3914	0.1401	(23.9743)
10	BE.CN	210	0.0039	0.1511	2.2854	10.4974	0.0003	2.5290
11	BLO.CN	316	0.0267	0.2579	7.0568	82.8395	0.0256	1.1909
12	CALC.CN	347	0.0072	0.1743	9.8044	134.6162	0.0064	0.7746
13	CBIL.CN	44	(0.0132)	0.1096	0.7103	1.4882	(0.0220)	5.0389
14	CGOC.CN	101	(0.0073)	0.1049	0.9073	2.7522	(0.0101)	(0.0101)
15	CHOO.CN	629	0.0177	0.2100	2.8793	18.2958	0.0170	1.1002
16	CHV.CN	1019	0.0268	0.4972	22.3082	615.8414	0.0271	(0.3671)
17	CL.CN	1222	0.0327	0.3110	3.2330	18.6481	0.0323	0.3089
18	CLIQ.TO	797	0.0007	0.0410	(0.8036)	6.4031	0.0000	0.6215
19	CLSH.CN	52	(0.0074)	0.1158	0.4703	2.2040	(0.0043)	(1.1335)
20	CRON.TO	264	0.0167	0.1326	1.7446	5.9394	0.0153	1.8552
21	CROP.CN	371	0.0004	0.1557	3.2890	25.7916	(0.0005)	0.8569
22	CURA.CN	219	0.2059	2.8978	14.7007	217.0552	0.1890	14.0445
23	CWEB.TO	69	(0.0019)	0.1137	1.2834	2.3172	(0.0039)	1.6682
24	CXXI.CN	1222	0.0209	0.2434	3.2389	25.0754	0.0202	0.5525
25	CYX.V	416	0.0098	0.2105	3.3699	22.3053	0.0087	1.1159
26	DN.TO	113	(0.0094)	0.0852	0.4864	0.8324	(0.0104)	1.3916
27	EASY.CN	368	0.0968	1.0098	11.5912	151.2704	0.0895	7.3319
28	EAT.CN	250	0.0123	0.2212	6.2511	62.8996	0.0116	0.9971
29	EMH.V	136	(0.0006)	0.1370	1.1618	4.3891	(0.0017)	1.1405
30	FFT.CN	1222	0.0188	0.2813	8.0130	96.7275	0.0180	0.6931
31	FIRE.TO	135	(0.0025)	0.0970	0.6290	1.6795	(0.0042)	1.9665
32	FONE.CN	651	0.0084	0.1927	11.0393	201.3671	0.0080	0.8345
33	GENE.V	145	(0.0141)	0.1012	0.7406	1.5344	(0.0156)	1.9726
34	GGB.CN	90	0.0108	0.2564	6.0593	46.1512	0.0125	(1.3266)
35	GHG.CN	484	0.0364	0.3821	9.2646	135.2145	0.0346	2.2692
36	GLH.CN	220	(0.0106)	0.1242	1.0275	2.1807	(0.0119)	1.2140
37	GUIL.CN	845	4.3980	40.3426	9.1088	81.5215	4.2984	84.5369
38	HARV.CN	324	0.1308	2.0146	17.6922	316.5367	0.1337	(3.2899)
39	HEXO.TO	146	0.0049	0.1027	(0.1402)	1.1990	0.0033	1.9821
40	HITL.CN	55	(0.0074)	0.1140	2.1813	8.5720	(0.0153)	2.0288
41	HVT.V	145	(0.0042)	0.1115	0.5553	1.8366	(0.0056)	1.7517
42	IAN.CN	174	0.0072	0.1103	1.2055	4.3763	0.0061	0.9705
43	IN.TO	93	(0.0126)	0.1076	1.6717	5.4215	(0.0174)	3.6865
44	INCB.CN	8	(0.0521)	0.2707	1.1193	1.9287	(0.0559)	2.5056
45	ISOL.CN	287	(0.0018)	0.1730	2.4293	12.6848	(0.0026)	1.3520
46	J.CN	471	0.0348	0.6622	20.0545	423.3202	0.0389	(6.1892)
47	KBEV.CN	376	0.0402	0.4282	8.3991	105.9045	0.0387	1.4752
48	KHRN.V	85	0.0037	0.1208	1.0529	1.7568	0.0017	2.2279
49	LHS.CN	278	0.0170	0.3207	6.8600	72.6362	0.0174	(0.8858)
50	LIB.CN	694	0.0157	0.2522	3.5198	21.0161	0.0147	1.2129
51	LIFT.V	68	(0.0172)	0.1917	3.4114	19.6156	(0.0208)	3.6901
52	MJ.CN	256	0.0076	0.1306	1.4560	4.3750	0.0073	0.4307
53	MJAR.CN	394	0.5324	10.3668	19.8390	393.7232	0.5565	(20.8897)
54	MMEN.CN	457	0.0236	0.3184	5.0421	33.2637	0.0235	0.1784
55	MYM.CN	276	0.0189	0.2199	2.8085	14.9320	0.0184	0.7222
56	N.V	88	(0.0060)	0.1505	1.5788	4.2575	(0.0085)	2.2550
57	NDVA.V	107	(0.0103)	0.1053	0.0751	0.5349	(0.0111)	1.1702
58	NEPT.TO	965	0.0075	0.1169	1.1478	5.7536	0.0062	1.2545
59	NRTH.V	82	(0.0068)	0.1157	1.5078	4.1128	(0.0072)	0.5806
60	NSHS.CN	751	0.0094	0.2386	5.0764	51.9398	0.0080	1.5199
61	NSP.V	357	0.0037	0.1234	1.8177	6.9559	0.0026	1.2408

62	OGI.TO	418	0.0332	0.5701	19.1862	383.7351	0.0315	1.7872
63	OH.CN	63	0.0017	0.1086	0.3987	1.0354	(0.0029)	1.9219
64	PILL.CN	451	0.0788	0.8285	12.7351	195.9191	0.0780	1.2629
65	PLTH.CN	81	0.0198	0.1485	2.5461	12.9139	0.0184	2.0798
66	PLUS.CN	62	(0.0162)	0.1219	0.6276	1.7635	(0.0199)	1.6855
67	PUMP.CN	1222	0.0071	0.1772	3.6591	30.9509	0.0068	0.1674
68	PURE.V	372	0.0238	0.2765	2.8262	14.5007	0.0249	(1.0788)
69	QCA.CN	511	0.0174	0.2126	5.3220	50.3218	0.0176	(0.2677)
70	RIV.TO	63	(0.0157)	0.1026	0.2237	1.3455	(0.0212)	2.2821
71	RVV.CN	339	0.0057	0.1593	2.1189	8.7922	0.0056	0.0605
72	SOL.CN	373	0.0151	0.2366	3.1049	19.9908	0.0156	(0.4668)
73	STEM.CN	72	(0.0154)	0.0936	0.9744	2.9817	(0.0157)	0.3950
74	SUN.CN	510	0.0677	0.5825	7.9267	75.7930	0.0673	0.4705
75	TBP.TO	78	0.0060	0.1562	2.3124	10.7895	0.0054	0.9032
76	TER.CN	140	0.0156	0.1610	4.1418	30.0201	0.0156	(0.0207)
77	TGIF.CN	569	0.0175	0.2900	9.9041	149.0332	0.0180	(0.3309)
78	TGOD.TO	88	(0.0119)	0.1337	0.8472	3.7375	(0.0141)	1.9531
79	TILT.CN	394	0.0127	0.2805	14.5724	246.3874	0.0148	(1.7943)
80	TNY.CN	749	0.0285	0.5277	20.2978	490.9097	0.0268	1.9207
81	TRST.TO	124	0.0041	0.1287	0.2214	2.7112	0.0013	2.4374
82	TRUL.CN	67	0.0023	0.0940	0.1980	0.1412	(0.0007)	2.6596
83	VIDA.CN	107	(0.0168)	0.1158	0.5098	0.6738	(0.0175)	1.0485
84	VIVO.V	140	(0.0044)	0.1151	0.7956	3.1382	(0.0057)	1.6265
85	VPCN	360	0.0173	0.3114	11.7307	183.5889	0.0164	0.8783
86	VRT.CN	278	0.0278	0.5655	14.5396	230.8434	0.0265	2.6583
87	WMD.V	105	(0.0079)	0.0908	0.3035	0.5220	(0.0087)	1.4861
88	XLY.V	83	(0.0046)	0.1104	1.6625	4.1350	(0.0059)	1.5436
89	ZENA.TO	1222	0.0070	0.1318	2.6253	25.1730	0.0070	0.0338

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).