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Building and Testing a Portfolio of Marijuana Stocks: Why U.S. SEC Trading Suspensions Might Cause Some to *Crash* Before (or After) Reaching *New High*

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On November 15, 2012, Medbox, Inc., a microcap stock, reached an all-time high of \$215 per share, closing at \$205 per share. Trading volume was terribly thin, but the stock was trading at less than \$3 per share through November 2, 2012, less than two weeks earlier and prior to the November ballot measures legalizing marijuana for recreational use in the U.S. states of Washington and Colorado. Two additional U.S. states will be voting on the legalization of marijuana for recreational use in early November 2014.

Medbox is not unusual. Many of the marijuana stocks are thinly traded, micro caps. A disproportionately large percentage are incorporated in the state of Nevada, a state known for corporate laws that protect management, while providing relatively little protection for shareholders. Research has been conducted on the relative protections provided by different states in the U.S.

The focus is usually on the states of Delaware and Nevada, the two states with the largest market proportion or market share of publicly traded firms. These matters have been addressed and characterized in the financial economics and legal literature streams such as *the Nevada effect*.¹ In early 2014, several marijuana stocks have had their trading halted by the U.S. Securities and Exchange Commission (SEC), where Nevada corporations have, again, represented a disproportionately large percentage of these regulatory trading halts.

We developed an equal-weighted portfolio of 40 marijuana stocks on January 2014 and back-tested it to January 2013. Returns during this 12 month period included friction (round-trip commissions) and were approximately 228 percent. Overall and partitioned returns were very high, however, Nevada corporations generated the lowest returns and Delaware corporations generated the highest returns. These results are consistent with *the Nevada effect*.

We also examined U.S. SEC trading halts for marijuana stocks during early 2014. Nevada corporations had the highest and a disproportionately high share of trading suspensions; Delaware corporations had the lowest and a disproportionately low share of trading suspensions. These results are also consistent with *the Nevada effect*.

We provide a trading strategy for marijuana stocks. It is based on the Nevada effect and combined with stock trading *seasonals* from the financial economics literature. We also believe that this would make a fascinating project for those teaching finance and/or investment courses during the fall 2014 semester, as students will be able to examine this infant industry and stock price reactions to news, virtually in real time.

The remainder of this paper is organized, as follows: First, we provide two illustrations of market reactions (or over-reactions) to news of firms in or entering the marijuana business. Both firms are incorporated in the state of Nevada. Second, we address the legal background and likely, near-term events and event dates of relevance, including the size of the recreational marijuana market in the U.S. Third, we discuss our methodology and returns generated from our portfolio of 40 marijuana stocks. Fourth, we provide some insights into recent U.S. SEC trading suspensions, where marijuana firms have been targeted and subjected to this regulatory action. Fifth, we provide a likely seasonals-based pattern, following the November 4, 2014, ballot

¹ Barzuza (2004, 2008, 2009, 2010 and 2011) and her co-authors have published quite a bit on this topic over the past decade, from both U.S. corporate law and financial economics perspectives.

elections regarding marijuana legalization, from the financial economics literature. These represent generalized trends that may or may not impact the marijuana market or sector. We conclude with a summary of limitations and findings relevant to those interested in following the events likely to unfold, as the United States moves toward the decriminalization of marijuana for medical use and its legalization for recreational use.

II. Two Marijuana Stocks, Including an Illustration of the Impact of the Mere Mention of Marijuana in a U.S. Firm's News Headline

We provide examples of two market reactions (or over-reactions), in the form of mini-cases, to illustrate just how significant the market reaction can be for firms remaining in or announcing entry into this infant industry – the U.S. marijuana sector. The first is Medbox. The rise in this firm's stock price resulted in quite a few stories on financial news networks (e.g., CNBC and Bloomberg). The second is Bayport, a recent entrant into the marijuana business. Both Medbox and Bayport are incorporated in the state of Nevada.

A. Medbox, Inc.

Medbox, Inc. (Other OTC: MDBX) changed its name from MindfulEye, Inc. during the August through October 2011 time period. Medbox provided shareholders with 1 restricted share of stock for every share held, effectively, a 2:1 split, effective February 3, 2014. Trading on very, very thin volume, Figure I provides a graphic illustration of the firm's meteoric price per share increase, which peaked on November 15, 2012, at \$215 per share.

Refer Figure I

B. Bayport International Holdings, Inc.

Bayport International Holdings, Inc. (Other OTC: BAYPD) is incorporated in the state of Nevada. On February 18, 2014 at 6:35 AM (EST) a Marketwire announced the intention of Bayport to enter the medicinal and legalized marijuana market. The headline - *Bayport International Holdings, Inc. Set to Expand Into Legalized Marijuana Sector*. Until this announcement, Bayport was focused on the oil and gas, strategic metals and minerals markets. The mere mention of "marijuana" in the headline created a massive volume spike in Bayport – a sub-penny microcap stock. The price of the stock increased, but declined rapidly, suggesting that many sold into the news-based rally created by the headline. We present volume trading measures, from January 21 through March 18, 2014, approximately 1 month prior to and after this February 18, 2014, announcement, in Figure II.

Refer Figure II

We make no value judgments with respect to Bayport's remarkable ability to horizontally or vertically integrate their oil, gas and mineral holdings with their new ventures into the marijuana market, but note that a 100:1 reverse-split was executed on August 1, 2014. A \$500 investment in Bayport stock on or about the date of the marijuana launch announcement lost more than 80 percent of its value on or before the reverse split date, and in less than 6 months.

III. The Size of the U.S. Legal Recreational Marijuana Market

In 1932 the U.S. federal government implemented legislation that encouraged states to ban the use of marijuana.² At the end of that decade "[e]very state had some law on the books restricting

² Melanie Reid, *The Quagmire That Nobody In The Federal Government Wants To Talk About: Marijuana*, 44 N.M. L. REV. 169 (2014).

marijuana use, and thirty-five states had criminalized it. Production of marijuana-based drugs also came to a halt after the U.S. Congress passed the Marijuana Tax Act of 1937, which restricted marijuana sales to only those individuals who held prescriptions.”³ 1970’s Controlled Substances Act further criminalized and regulated drugs like marijuana.⁴

The trend, however, since the 1990s is towards legalization of marijuana for medical and increasingly for recreational use.⁵ “To date, twenty-one states and the District of Columbia have passed laws decriminalizing marijuana for those who demonstrate a medical need for the drug.”⁶ Florida⁷ and Oklahoma⁸ are conducting state votes in 2014 regarding *medical* marijuana legislation – which if successful would bring that count to 23 states. But the new battleground appears to be *recreational* use, as many commentators find medical marijuana legislation to be somewhat of a sham on the road to recreational decriminalization.⁹ We focus on these voter initiatives.

In 2012 both Washington and Colorado held plebiscites on recreational legalization of marijuana (see all U.S. states in Figure III).¹⁰ In both states voters approved the question and legalized the drug.¹¹ These votes legalized at the state level marijuana use for the adult portion of 3.88% of the population per the United States Census Bureau.¹² In 2014 another 1.47 percent of the adult population may have legal access to recreational marijuana.¹³

Refer Figure III

The Oregon Legalized Marijuana Initiative is on the November 4, 2014 ballot in that state.¹⁴ The result of an approval of this initiative will allow “[p]ossession, authorizes in-state manufacture, processing, sale of marijuana by/to adults; licensing, regulation, taxation by [the] state [and] retains current medical marijuana laws.”¹⁵ The Alaska Marijuana Legalization, Ballot Measure 2

³ *Id.* (Citations Omitted).

⁴ *Id.*

⁵ *Id.*; See also Sam Kamin, *Cooperative Federalism and State Marijuana Regulation*, 85 U. COLO. L. REV. 1105, 1107 (2014); Sam Kamin, *Medical Marijuana in Colorado and the Future of Marijuana Regulation in the United States*, 43 MCGEORGE L. REV. 147 (2012); Sam Kamin & Eli Wald, *MEDICAL MARIJUANA LAWYERS: OUTLAWS OR CRUSADERS?*, 91 OR. L. REV. 869 (2013).

⁶ 85 U. COLO. L. REV. at 1107.

⁷ See Florida Department of State Division of Elections, *Use of Marijuana for Certain Medical Conditions 13-02*, <http://election.dos.state.fl.us/initiatives/initdetail.asp?account=50438&seqnum=2> (last visited July 31, 2014).

⁸ See Oklahomans for Health, *State Question 768 Ballot Title*, <http://web.archive.org/web/20140414190119/http://www.oklahomansforhealth.com/wp-content/uploads/2014/04/StateQuestionTitleGold.pdf> (last visited July 31, 2014).

⁹ 85 U. COLO. L. REV. at 1107.

¹⁰ *Id.*; See Colo. Const. amend. 64; Washington Initiative 502, No. 63-502, Reg. Sess. (Nov. 6, 2012).

¹¹ See 44 N.M. L. REV. at 172.

¹² Washington state in 2013 had an estimated 6,971,406 residents, 77.1% of which were age 18 or over. <http://quickfacts.census.gov/qfd/states/53000.html> (Last visited July 31, 2014). Colorado in 2013 had an estimated 5,268,367 residents, 76.5% of which were age 18 or over. <http://quickfacts.census.gov/qfd/states/08000.html> (Last visited July 31, 2014).

¹³ Oregon in 2013 had an estimated 3,930,065 residents, 78.2% of which were age 18 or over. <http://quickfacts.census.gov/qfd/states/41000.html> (Last visited July 31, 2014). Alaska in 2013 had an estimated 735,132 residents, 74.4% of which were age 18 or over. <http://quickfacts.census.gov/qfd/states/02000.html> (Last visited July 31, 2014).

¹⁴ Office of the Secretary of State, State of Oregon, *Press Release* (March 7, 2014), <http://oregonvotes.org/irr/2014/053cbt.pdf>.

¹⁵ *Id.*

is scheduled for November 4, 2014.¹⁶ It “[w]ould permit adults 21 and older to possess up to one ounce (28 grams) of marijuana for private personal use and to grow as many as six cannabis plants for their own consumption.”¹⁷

In 2016 both Montana¹⁸ and Wyoming¹⁹ may see legalization initiatives. If successful they will legalize recreational use for adult residents of their respective states, constituting 0.51 percent of the national population.²⁰ There are other, smaller scale votes on the horizon. For example, in Washington D.C. the Legalization of Possession of Minimal Amounts of Marijuana for Personal Use Act of 2014 may appear on the ballot if it can clear the final procedural hurdles.²¹ The measure seeks to permit possession and use of up to 2 ounces of marijuana and the possession and cultivation of up to three marijuana plants.²² However, the D.C. vote may have little impact, even if it is approved, because the measure could be blocked by Congress in its role as an administrator of the capital city.²³

The trend in the United States is clearly towards decriminalization in one manner or another. “More than two dozen states are considering new or expanded marijuana reform legislation, including complete legalization for adults, medical marijuana, hemp use and decriminalization.”²⁴

IV. Constructing and Back Testing a Marijuana Stock Portfolio

We constructed a portfolio of 40 marijuana stocks. Many are not “pure plays.” We would have preferred to examine an external mutual fund constructed and designed to exploit returns on this infant industry, however, because so many of these firms are thinly capitalized, we suspect that any legitimate mutual fund or firm might be likely to avoid initiating the development of such a fund. We used the stock ticker listings referenced in the *Seeking Alpha* articles to assist us in building our 40 stock portfolio.²⁵ Therefore, our portfolio includes marijuana stocks, financiers

¹⁶ Steve Quinn, *Alaska Pot Legalization Vote Pushed Back to November* (April 22, 2014), <http://www.reuters.com/article/2014/04/22/us-usa-alaska-election-idUSBREA3L05820140422>.

¹⁷ *Id.*

¹⁸ Scott Zoltan, NBC Montana, *Montana Marijuana Initiative Organizers Set Eyes on 2016* (January 20, 2014), <http://www.nbcmontana.com/news/montana-marijuana-initiative-organizers-set-eyes-on-2016/24024470>.

¹⁹ Laura Hancock, Casper Star Tribune Communications, *NORML Submits Initiative To Legalize Marijuana In Wyoming, for 2016 Ballot* (January 14, 2014), http://trib.com/news/state-and-regional/govt-and-politics/norml-submits-initiative-to-legalize-marijuana-in-wyoming-for-ballot/article_56f744d7-9068-5b34-b502-ec97987b6f1b.html.

²⁰ Montana in 2013 had an estimated 1,015,165 residents, 77.9% of which were age 18 or over. <http://quickfacts.census.gov/qfd/states/30000.html> (Last visited July 31, 2014). Wyoming in 2013 had an estimated 582,658 residents, 76.4% of which were age 18 or over. <http://quickfacts.census.gov/qfd/states/56000.html> (Last visited July 31, 2014).

²¹ German Lopez, *DC May Vote on Marijuana Legalization This November* (July 7, 2014), <http://www.vox.com/2014/7/1/5861318/dc-may-vote-on-marijuana-legalization-this-november>.

²² *Id.*

²³ *Id.*

²⁴ NBC NEWS, *Red, White And Green: Which States Will Legalize Pot Next?* (June 1, 2014), <http://www.wrcbtv.com/story/25663320/red-white-and-green-which-states-will-legalize-pot-next>.

²⁵ These *Seeking Alpha* article links are available at <http://seekingalpha.com/article/2028521-busting-medbox?source=email_rt_article_readmore&uprof=14; http://seekingalpha.com/news/1615463-law-firm-has-medbox-in-its-crosshairs?source=email_rt_mc_title; http://seekingalpha.com/news/1617033-medbox-provides-shareholder-update?source=email_rt_mc_title; http://seekingalpha.com/news/1639033-las-vegas-to-allow-pot-dispensaries?source=email_rt_mc_title; <http://seekingalpha.com/news/1639033-las-vegas-to-allow-pot-dispensaries>; http://seekingalpha.com/news/1656403-medbox-posts-annual-revenue-of-5_2m; <http://seekingalpha.com/news/1663493-maybe-ill-wait-a-bit-before-buying>; [1134](http://seekingalpha.com/news/1665563-</p></div><div data-bbox=)

of marijuana stocks, firms engaged in the biodiesel fuel or other uses of hemp, and even nutrition-based firms.²⁶ Our portfolio is, admittedly, subject to selection bias. As our mini-cases suggest, the marijuana market is a “moving target,” and we recommend that you design and develop your own marijuana portfolio. (For those teaching investment courses, the development of a marijuana sector portfolio could be a class project.) Detailed information providing the composition of our marijuana portfolio is contained in Appendix III.

Our marijuana stock portfolio lists selected firm stock ticker symbols with their January 2, 2013, and January 2, 2014, price per share (PPS), ending portfolio value, and state of incorporation. Twenty-two (55 percent) of these stocks represented firms incorporated in the state of Nevada and only 6 (15 percent) were incorporated in the state of Delaware. This is nearly the opposite of what might be expected based on the distribution of the entire US market; overrepresentation of NV and underrepresentation of DE stocks. We provide these and comparable measures from Compustat for 2011, 2012 and 2013, in Table I, which has been designed for and contains additional summary data, to be referred to later in this paper.

Refer Table I

We assumed that \$500 dollars was invested in each stock (equal-weighted), for a total of \$20,000, including friction (round-trip commissions) at \$8 per buy and sell order. The value of the portfolio increased from \$20,000 to \$66,273, and, after round-trip commissions of \$640, netted \$45,633 for a 228 percent return in a single, 12 month period.

V. An Exploratory Examination of 8 Marijuana Stocks with SEC Trading Suspensions

In this section we provide selected descriptive measures associated with 8 marijuana firms suspended by the U.S. SEC from trading between March and May 2014.²⁷ Marijuana stock prices jumped after the U.S. Treasury Department and U.S. attorney general set banking rules that permitted banks to legally conduct business with those legally selling marijuana on February 14, 2014.²⁸ Effective April 1, 2014, Nevada law permitted the purchase, sale and testing of

[california-firm-wants-a-piece-of-pot-transactions;](http://seekingalpha.com/news/1766583-pot-getting-more-potent?uprof=14) [http://seekingalpha.com/news/1766583-pot-getting-more-potent?uprof=14;](http://seekingalpha.com/news/1756513-medbox-gets-notice-of-allowance-from-uspto?uprof=14) [http://seekingalpha.com/news/1756513-medbox-gets-notice-of-allowance-from-uspto?uprof=14;](http://seekingalpha.com/news/1746783-not-all-california-cities-embrace-medical-marijuana-dispensaries?uprof=14)
[http://seekingalpha.com/news/1746783-not-all-california-cities-embrace-medical-marijuana-dispensaries?uprof=14;](http://seekingalpha.com/news/1746783-not-all-california-cities-embrace-medical-marijuana-dispensaries?uprof=14)
[http://seekingalpha.com/article/2211413-medbox-did-the-recent-sell-off-make-this-medical-marijuana-stock-a-buy?uprof=14;](http://seekingalpha.com/article/2211413-medbox-did-the-recent-sell-off-make-this-medical-marijuana-stock-a-buy?uprof=14) [http://seekingalpha.com/news/1741433-im-waiting-for-a-collaboration-with-amazonfresh?uprof=14;](http://seekingalpha.com/news/1741433-im-waiting-for-a-collaboration-with-amazonfresh?uprof=14)
[http://seekingalpha.com/news/1689033-california-bill-moves-ahead;](http://seekingalpha.com/news/1689033-california-bill-moves-ahead) [http://seekingalpha.com/news/1755043-medbox-q1-results?uprof=14;](http://seekingalpha.com/news/1755043-medbox-q1-results?uprof=14) [http://seekingalpha.com/news/1812863-new-york-becomes-23rd-state-to-legalize-medical-pot?uprof=14;](http://seekingalpha.com/news/1812863-new-york-becomes-23rd-state-to-legalize-medical-pot?uprof=14)
[http://seekingalpha.com/article/2337395-how-will-marijuana-stocks-react-to-election-results-in-alaska-and-oregon?uprof=14;](http://seekingalpha.com/article/2337395-how-will-marijuana-stocks-react-to-election-results-in-alaska-and-oregon?uprof=14) [http://seekingalpha.com/news/1870785-medbox-issues-convertible-debt?uprof=14;](http://seekingalpha.com/news/1870785-medbox-issues-convertible-debt?uprof=14)
[http://seekingalpha.com/news/1619973-colorado-getting-a-high-from-pot-tax-revenue?source=email rt mc title;](http://seekingalpha.com/news/1619973-colorado-getting-a-high-from-pot-tax-revenue?source=email_rt_mc_title) <http://seekingalpha.com/news/1832605-new-york-governor-signs-pot-law?uprof=14>>.

²⁶ Three of the stocks might best be described as vitamin providers (personal products or consumer goods or specialty retail industry). Herbalife Limited (NYSE: HLF), Nutraceutical International Corporation (NASDAQ: NUTR), Star Scientific, Incorporated (NASDAQ: STSI), and the Vitamin Shoppe, Incorporated (NYSE: VSI), in aggregate, increased the value of the portfolio, where \$500 invested in HLF and NUTR contributed significant gains and the value of the \$500 invested in STSI and VSI generated losses.

²⁷ See “Not All Pot Penny Stock Took a Hit from the SEC.” Money Morning (June 10, 2014). Available at <<http://moneymorning.com/2014/06/10/not-all-pot-penny-stocks-took-a-hit-from-the-sec/>>.

²⁸ Available at <[http://seekingalpha.com/news/1572411-marijuana-stocks-jump-after-treasury-dept-sets-banking-rules?source=email rt mc title](http://seekingalpha.com/news/1572411-marijuana-stocks-jump-after-treasury-dept-sets-banking-rules?source=email_rt_mc_title)>.

marijuana.²⁹ The U.S. SEC trading suspensions of these marijuana firms might, therefore, represent a redirection of regulatory resources, designed to publicize and protect the investing public, given the flurry of new commercial endeavors and investment alternatives likely to result from the U.S. move toward legalization of this previously illegal product.

Recall that Medbox had a forward split and Bayport had a very significant reverse split, shortly after announcing entry into the marijuana sector. We examine both types of stock splits for all 8 firms enjoying U.S. SEC trading suspensions. We also examined the most recently available (1) revenues or “top line” measures, (2) operating profits (losses) or “bottom line” measures and (3) assets for these firms, all summarized in millions of U.S. dollars. These measures, and the number of corporate name changes occurring throughout the corporate lives are summarized in Table II. We found no significant differences in these measures when comparing firms incorporated in the state of Nevada or a state other than Nevada. However, we provide the raw data for the very significant number of corporate name changes and the extraordinarily high frequency and number of reverse splits and otherwise dilutive actions in Appendix I and Appendix II, respectively, for review by others.

Refer Table II

FusionPharm Inc. (OTCMKTS: FSPM), CannaBusiness Group Inc. (OTCMKTS: CBGI), Petrotech Oil and Gas Inc. (OTCMKTS: PTOG), and Citadel ETF Inc. (OTCMKTS: CDFT) are the 4 firms incorporated in the state of Nevada. The 4 firms incorporated in states other than Nevada include GrowLife Inc. (OTCMKTS: PHOT),³⁰ a firm incorporated in the state of Delaware, Fortitude Group Inc. (OTCMKTS: FRTD), a Florida corporation, Advanced Cannabis Solutions Inc. (OTCMKTS: CANN), a Colorado corporation, and Aventura Equities Inc. (OTCMKTS: AVNE), a Florida corporation.

²⁹ Available at <<http://seekingalpha.com/news/1661013-not-that-this-is-surprising>>.

³⁰ These *Seeking Alpha* article links are available at <http://seekingalpha.com/article/2001051-growlife-its-all-smoke-and-mirrors-research-uncovers-why-shares-are-overhyped-and-overvalued?source=email_rt_article_readmore&uprof=14; http://seekingalpha.com/article/2011311-growlife-why-theres-no-stock-like-it?source=email_rt_article_readmore&uprof=14; http://seekingalpha.com/article/2094693-dazed-and-confused-by-growlife-shares-are-worth-a-small-fraction-of-their-current-price?isDirectRoadblock=false&source=email_rt_article_readmore&uprof=14; http://seekingalpha.com/article/2101153-high-volatility-creates-trading-opportunities-for-marijuana-stock-growlife?isDirectRoadblock=false&source=email_rt_article_readmore&uprof=14; <http://seekingalpha.com/news/1643583-cannabis-companies-on-the-move>; <http://seekingalpha.com/article/2120933-growlife-taking-a-page-from-amazon?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/article/2123993-capitalizing-on-cannabis-key-addition-to-growlife-management-team-solidifies-story?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/news/1669673-trading-in-pot-equipment-firm-suspended>; <http://seekingalpha.com/article/2136263-sec-halts-trading-of-growlife-heres-why?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/news/1670913-trading-halt-fallout-for-growlife>; <http://seekingalpha.com/article/2138253-did-share-based-compensation-trigger-growlifes-suspension?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/article/2141573-cannabis-stocks-what-the-growlife-halt-means-for-the-industry?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/article/2159533-cannabis-stocks-what-the-growlife-un-halt-means-for-investors-in-the-industry?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/article/2165283-growlife-why-it-got-halted-and-what-you-need-to-know-before-trading-resumes-on-friday-april-25th?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/article/2200213-growing-marijuana-is-still-illegal-for-growlife-inc-and-other-pot-stocks?isDirectRoadblock=false&uprof=14>; <http://seekingalpha.com/article/2220033-growlife-inc-3-assumptions-to-rethink?uprof=14>; <http://seekingalpha.com/news/1756413-growlife-q1-results?uprof=14>; <http://seekingalpha.com/article/2242353-growlife-derivative-liabilities-high-dilution-and-possible-bankruptcy?uprof=14>; and <http://seekingalpha.com/news/1771083-growlife-ceo-bids-adieu?uprof=14>>.

Recall that Table I summarized Nevada and Delaware market proportion or size measure from Compustat for 2011, 2012 and 2013 calendar years. Note that early 2014 U.S. SEC trading suspensions and their limited or scarce regulatory resources were consumed and directed toward a disproportionately large number of firms incorporated in the state of Nevada and a disproportionately small number of firms incorporated in the state of Delaware (see Table I). This is, more likely than not, a function of the composition of this infant industry, as these measures are comparable to our self-constructed marijuana stock portfolio of N=40 firms (see Table I).

VI. A Likely Seasonals-Based Sequence from the Financial Economics Literature

In this section, we focus on broad market returns likely to occur between early November elections and mid-January time periods. This information is likely to be of some assistance to those engaged in marijuana portfolio development and exploitation, and the November 4, 2014, ballot measures for the U.S. states of Alaska and Oregon approach.

Tax loss selling (TLS) occurs in December of each calendar year. This U.S. taxpayer behavior is consistent with Keynes' transactions, precautionary and speculative motivating factors for investor liquidity preferences (Keynes 1936, Cataldo and Savage 2000, 12). Effectively, U.S. taxpayers sell their portfolio "losers" to generate and secure capital losses in December. The capital losses offset capital gains, minimizing income tax and cash outflows that would otherwise have to be paid on April 15th of the following year, when filing their individual federal income tax return.

TLS precedes the Santa Claus Rally, New Year's holiday, and the January effect. This U.S. taxpayer behavior is also consistent with Keynes' transactions, precautionary and speculative motivating factors for investor liquidity preferences (Keynes 1936, Cataldo and Savage 2000, 16-17). Fields (1931 and 1934) and Wachtel (1942) first identified and examined these normal corrections to depressed stock price levels following TLS.

We used an updated variation of the SIMS data base (Cataldo 1998) to develop and test the significance of seasonal anomalies (seasonals) for the October 1, 2007 through June 30, 2014 time period. To illustrate the anticipated seasonal sequence in stock prices, we provide the results from weak form, quasi-experimental, event date-based regression models focused only on trading days surrounding Christmas or the Santa Claus rally and New Year's Day holidays and early January (the January effect) trading days, in Equations 1, 2, and 3, as follows:

$$DJIA_{PCTCHG} = \beta_0 + \beta_1 SC_{-2} + \beta_2 SC_{-1} + \beta_3 SC_{+1} + \varepsilon \quad [1]$$

$$DJIA_{PCTCHG} = \beta_0 + \beta_1 NY_{-2} + \beta_2 NY_{-1} + \beta_3 NY_{+1} + \varepsilon \quad [2]$$

$$DJIA_{PCTCHG} = \beta_0 + \beta_1 J_{-2} + \beta_2 J_{-1} + \beta_3 J_{+1} + \beta_4 J_{+2} + \beta_5 J_{+3} + \beta_6 J_{+4} + \varepsilon \quad [3]$$

$DJIA_{PCTCHG}$ is the daily close-to-close percentage change for the Dow Jones Industrial Average index, SC represents trading days surrounding the Christmas holiday or Santa Claus rally, NY represents trading days surrounding the New Year's Day trading holiday, and J represents the trading days operationally defined as the January effect. In all cases, the subscript represents the sequence of the trading day. For example, SC_{-2} (from equation [1]) is the second trading day before the Christmas holiday, and J_{+1} (from equation [3]) is the first trading day of the new calendar year. Results are provided in Table III, where all event dates are in a positive or in a direction likely and predicted in the financial economics literature (Cataldo and Savage 2000), but all are not statistically significant at the 0.01 level.

Refer Table III

Therefore, these seasonal patterns and this seasonal sequence remain relevant for the general market and for recent years. These patterns may or may not represent economically and/or statistically significant event dates for the 2014 calendar year.

VII. Limitations and Summary

Nearly half of the U.S. states have approved the use of marijuana for medical purposes. Alaska and Oregon may follow Washington and Colorado in legalization for recreational use in upcoming November 2014 elections. The potential market for this infant industry has led to speculation by investors and created opportunities for both legitimate and opportunistic firms to enter this infant industry.

It is not difficult to understand why investors would accept the higher risks associated with investing in this new and growing sector of the U.S. economy, as our portfolio of 40 stocks produced a return of 228 percent in a single year, between January 2013 and January 2014. It is, also, not difficult to understand why the U.S. Securities and Exchange Commission has had to warn investors of opportunistic firms and managers drawn to this speculative frenzy.

Our portfolio is likely to include some selection bias, and must be modified to include new entrants and remove those exiting the marijuana market or failing to recover from SEC trading suspensions. Many of the firms involved in or entering the marijuana market are incorporated in the state of Nevada, a state known for laws that protect management over shareholders, however, these Nevada corporations should probably not be excluded from any portfolio, since the returns for these Nevada firms outperformed the Standard and Poor's 500 index returns for the same period. Instead, those pursuing investments in this sector of the economy should be more aware of these firms and *the Nevada effect*.

We would anticipate successful passage of the Alaska and Oregon measures to result in abnormally high returns for marijuana stocks in early November. Some retail investors are likely to impulsively purchase – at unfavorable prices – and hold for a very short period, only to sell in December, in an effort to match losses with gains, or in a fashion consistent with and referred to as *tax loss selling*. While an increase in the overall market might occur as part of the Christmas and New Year's holidays – an extension of what is referred to as a Santa Claus rally – micro caps tend to continue to be sold until the very end of the calendar year, when selling pressures subside, and *the January effect* lifts these stocks to higher prices.

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Table I: Compustat-Based Nevada (NV) v. Delaware (DE) Market Share of Corporations, a Comparison of 2014 SEC Trading Suspensions (N=8) to the Marijuana Portfolio (N=40), & Marijuana Portfolio v. Broader Market Index Returns for a Single Year

<u>Year & Description</u>	<u>NV</u>	<u>DE</u>	<u>NV+ DE</u>	<u>Total</u>
Compustat Market Share:				
2011	8.3%	54.3%	62.6%	
2012	7.3%	54.9%	62.2%	
2013	8.5%	55.5%	64.0%	
2014 Marijuana Firm SEC Trading Suspensions:				
Mar 2014-May 2014 (N=8)	50.0%	12.5%	62.5%	
Marijuana Portfolio (N=40):				
Marijuana Portfolio Composition	55.0%	15.0%	70.0%	
Equity Security Returns (Jan 2013-Jan 2014):				
Marijuana Portfolio Returns (N=40)	69.0%	577.0%		228.0%
DJIA Returns				22.6%
S&P500 Returns				25.3%
NASDAQ Returns				33.1%
Russell 2000 Returns				31.7%
Shanghai Composite Returns				-6.7%

Table II: Summary of Revenues, Operating Profits/(Losses) and Assets, Number of Corporate Name Changes, Reverse Splits and Forward Stock Splits for 8 Marijuana Firms with 2014 U.S. Securities and Exchange Commission Trading Suspensions
Raw Data is Contained in APPENDIX I and II

	<u>Revenues</u>	<u>Operating Losses</u>	<u>Assets</u>	<u>Number of Corporate Names</u>	<u>Reverse Splits</u>	<u>Forward Splits</u>
FSPM	\$0.6	\$0.0	\$0.0	5	4	-0-
CBGI	\$1.0	-\$0.8	\$2.3	7	3	1
PTOG	\$0.0	-\$0.3	\$0.3	7	4	1
CDFT	<u>\$0.4</u>	<u>-\$0.3</u>	<u>\$3.0</u>	<u>1</u>	<u>1</u>	<u>-0-</u>
NV Subtotal	<u>\$2.0</u>	<u>-\$1.4</u>	<u>\$5.6</u>	<u>20</u>	<u>12</u>	<u>2</u>
FRTD	\$0.0	-\$0.4	\$1.4	8	3	2
PHOT	\$4.9	-\$10.9	\$5.8	3	-0-	1
CANN	\$0.0	-\$0.7	\$0.9	2	-0-	-0-
AVNE	<u>\$0.3</u>	<u>-\$0.4</u>	<u>\$1.5</u>	<u>4</u>	<u>7</u>	<u>1</u>
Other Subtotal	<u>\$5.2</u>	<u>-\$12.4</u>	<u>\$9.6</u>	<u>17</u>	<u>10</u>	<u>4</u>
Total	<u>\$7.2</u>	<u>-\$13.8</u>	<u>\$15.2</u>	<u>37</u>	<u>22</u>	<u>6</u>

Table III: Regression Results from Regression Equations for the Santa Claus Rally [1], New Year's Holiday [2], and January Effect [3]
 Coefficient Sign & Statistical Significance

<u>Independent Variable</u>	<u>Coefficient Sign</u>	<u>Significant at the 0.01 Level?</u>
Santa Claus Rally (Eq. [1]):		
SC ₋₂	+	no
SC ₋₁	+	yes
SC ₊₁	+	no
New Year's Holiday (Eq. [2]):		
NY ₋₂	+	yes
NY ₋₁	+	yes
NY ₊₁	+	yes
January Effect (Eq. [3]):		
J ₋₂	+	yes
J ₋₁	+	yes
J ₊₁	+	yes
J ₊₂	+	yes
J ₊₃	+	no
J ₊₄	+	no

Figure I: MDBX Price per Share Increase Surrounding the November 15, 2012, All-Time High

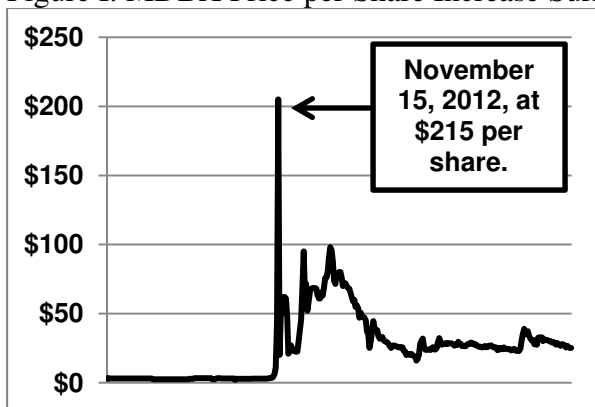


Figure II: Trading Days Surrounding BAYP Announcement on February 18, 2014
Bayport International Holdings, Inc. Set to Expand Into Legalized Marijuana Sector
Share Volume from January 21, 2014 through March 18, 2014

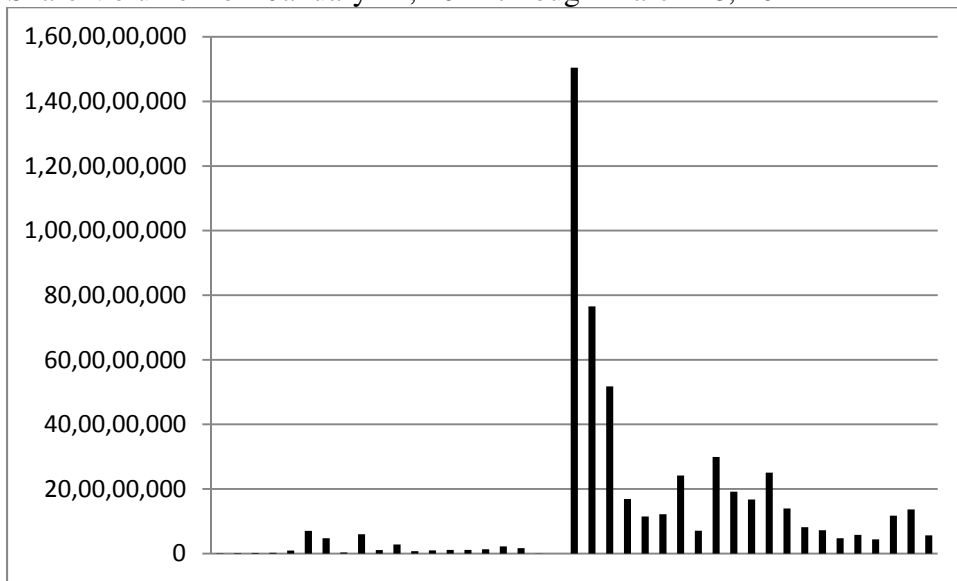
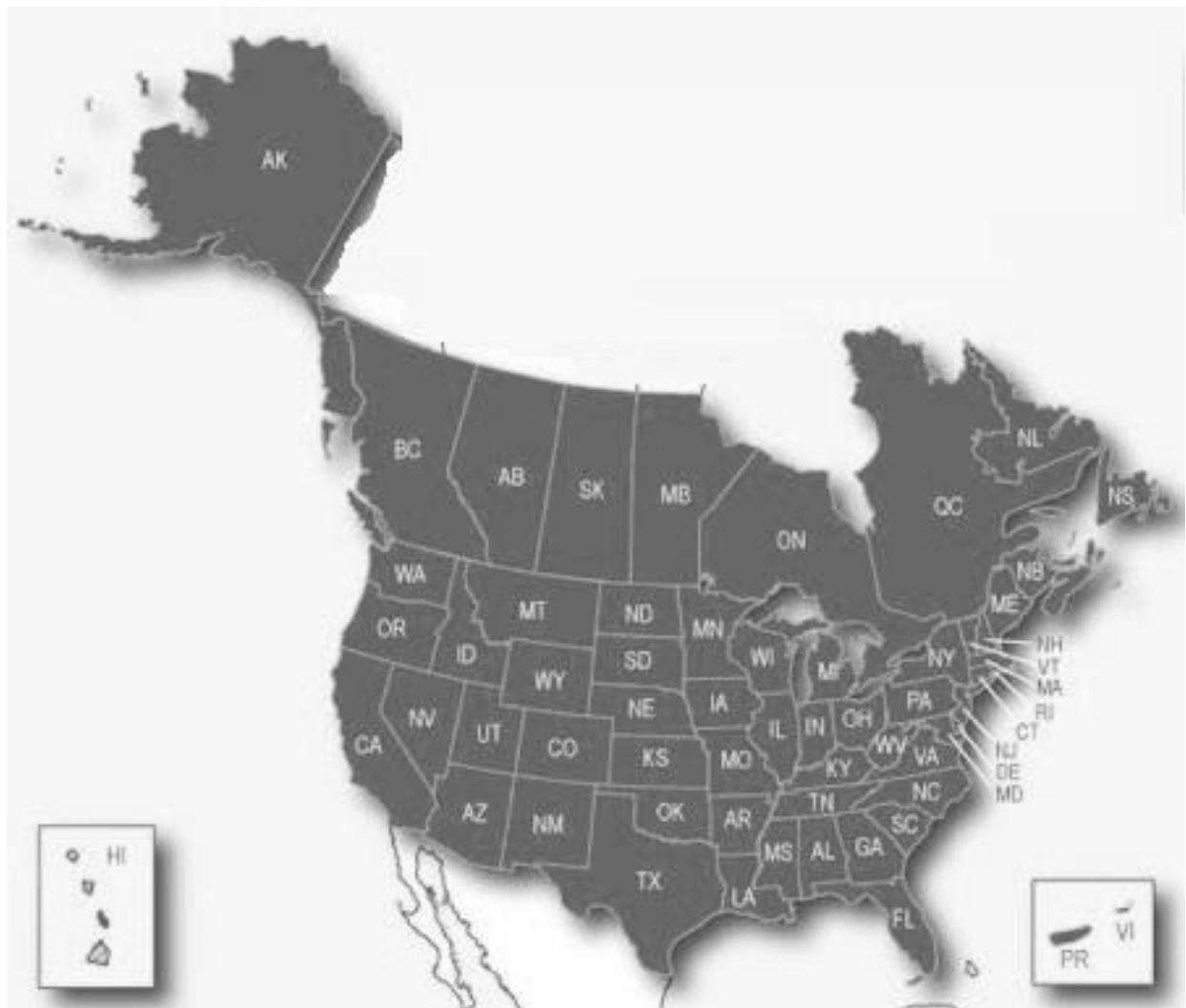


Figure III: Map of All U.S. States and Selected Canadian Provinces
Washington (WA), Colorado (CO), Alaska (AK), Oregon (OR)
Montana (MT), Wyoming (WY), Delaware (DE) & Nevada (NV) are Labelled



Appendix I: Summary of Corporate Name Changes and Current Ticker Symbol
2014 U.S. Securities and Exchange Commission Trading Suspensions of 8 Marijuana Firms

<u>Corporate Name Changes</u>	<u>Current Ticker</u>	<u>Begin Date</u>	<u>End Date</u>
Sunport Medical Corp.		1990	Feb '98
Agent Capital Corp.		Feb '98	Dec '03
Sequoia Interests Corp.		Dec '03	May '06
Baby Bee Bright Corp.		May '06	April '11
Fusion Pharm, Inc.	FSPM	April '11	
World Wide Motion Pictures Corp.		1985	April '06
Buckeye Ventures, Inc.		April '06	March '08
Energy King, Inc.		March '08	Oct '11
Godfather Media, Inc.		Oct '11	Aug '12
Embark Holdings, Inc.		Aug '12	June '13
Muscle Warfare International, Inc.		June '13	Feb '14
Cannabusiness Group, Inc.	CBGI	Feb '14	
Tiberon Resources Ltd.		1998	Aug '00
ePromo.com		Aug '00	May '07
Asia Pacific Entertainment, Inc.		May '07	Jan '09
Access Beverage, Inc.		Jan '09	Sept '09
Unity Auto Parts, Inc.		Sept '09	Jan '10
Unity Management Group, Inc.		Jan '10	March '13
Petrotech Oil & Gas, Inc.	PTOG	March '13	
Citadel EFT	CDFT	n/a	
Tel-Voice Communications, Inc.		n/a	Jan '03
Home Services international, Inc.		Jan '03	Jan '04
Internal Hydro International, Inc.		Jan '04	Feb '07
Renewable Energy Resources, Inc.		Feb '07	July '08
New Green Technologies, Inc.		July '08	Aug '10
Spur Ranch, Inc.		Aug '10	Jan '12
Rounder, Inc		Jan '12	Jan '13
Fortitude Group, Inc.	FRTD	Jan '13	
Catalyst Lighting Group, Inc.		n/a	Mar '11
Phototron Holdings, Inc.		Mar '11	Aug '12
GrowLife, Inc.	PHOT	Aug '12	
Promap Corp.		1987	Oct '13
Advanced Cannabis Solutions, Inc.	CANN	Oct '13	
October Project I Corp		1997	Sept '00
InDigiNet, Inc.		Sept '00	Mar '05
Winsted Holdings, Inc.		Mar '05	Nov '08
Aventura Equities, Inc.	AVNE	Nov '08	

Appendix II: Summary of Both Reverse (+) and Forward (-) Stock Split History
2014 U.S. Securities and Exchange Commission Trading Suspensions of 8 Marijuana Firms

<u>Ticker & Dates</u>	<u>Split</u>	<u>Adjusted Shares</u>
FSPM		60,000,000
12/30/2003	100	600,000
5/25/2006	15	40,000
2/15/2008	200	200
3/1/2011	200	1
CBGI		666,000
12/18/2001	5	133,200
12/27/2011	200	666
12/14/2013	2,000	0
1/22/2014	-3	1
PTOG		133,980,000
5/23/2007	40	3,349,500
11/5/2008	100	33,495
6/15/2009	300	112
1/12/2010	-20	2,233
1/30/2013	2,233	1
CDFT		12,000
6/14/2013	12,000	1
FRTD		551,727
1/15/2003	29	19,091
9/13/2004	-5	95,455
4/30/2008	30	3,182
8/25/2010	3,500	1
12/20/2012	-1	1
PHOT		1
3/14/2011	-2	1
CANN		n/a
AVNE		65,917,968,750,000,000,000
5/7/2001	-16	1,054,687,500,000,000,000,000
8/18/2003	250	4,218,750,000,000,000,000
8/17/2004	250	16,875,000,000,000,000
12/1/2004	1,000	16,875,000,000,000
3/7/2005	1,000	16,875,000,000
6/23/2005	1,500	11,250,000
1/26/2006	1,500	7,500
11/3/2008	7,500	1

Appendix III: Back-Testing of the Initial Portfolio of N=40 Marijuana-Related Stocks Measures Include Ticker, Beginning and Ending Price-per-Share (PPS) for Firms Incorporated in Nevada (NV) and Delaware (DE)

Ticker	52wkLO	52wkHI	Multiplier	Variance	[1]	[2]	\$500/[1]*[2]		
				HI-LO	PPS on	PPS on	1 year	NV	DE
					1/2/2013	1/2/2014	on \$500		
AEGY	\$0.0002	\$0.0175	88		\$0.0010	\$0.0004	\$200	0	0
AVTC	\$1.1300	\$8.0000	7		\$4.0800	\$1.2500	\$153	1	0
BCAP	\$0.0001	\$0.0016	16		\$0.0005	\$0.0003	\$300	0	0
CANN	\$1.5001	\$23.2500	15		\$0.1100	\$4.1000	\$18,636	0	0
CANV	\$4.5000	\$87.0000	19		\$4.5000	\$35.5100	\$3,946	0	1
CBIS	\$0.0300	\$0.1200	4		\$0.0600	\$0.0800	\$667	1	0
EAPH	\$0.0013	\$0.0989	76		\$0.0080	\$0.0027	\$169	0	0
EDXC	\$0.0100	\$0.0700	7		\$0.0100	\$0.1900	\$9,500	1	0
ENDO	\$0.0190	\$0.2500	13		\$0.1050	\$0.0485	\$231	1	0
ERBB	\$0.0010	\$0.0200	20		\$0.0027	\$0.0032	\$593	1	0
FFFC	\$0.0001	\$0.0150	150		\$0.0040	\$0.0001	\$13	1	0
FITX	\$0.0009	\$0.0849	94		\$0.0037	\$0.0057	\$770	1	0
FSPM	\$0.0800	\$8.3400	104		\$0.7500	\$0.6300	\$420	1	0
GRNH	\$0.0200	\$1.2000	60		\$0.0460	\$0.0739	\$803	1	0
GWPH	\$8.4600	\$65.5600	8		\$9.0900	\$40.5800	\$2,232	0	0
GWPRF	\$0.5800	\$5.4100	9		\$1.0600	\$3.3190	\$1,566	0	0
HEMP	\$0.0100	\$1.1000	110		\$0.0310	\$0.0255	\$411	0	0
HLF	\$34.5200	\$83.5100	2		\$32.2000	\$79.8300	\$1,240	0	0
HSCC	\$0.0049	\$0.1600	33		\$0.0040	\$0.0114	\$1,425	1	0
MCIG	\$0.0010	\$0.4000	400		\$0.5500	\$0.1300	\$118	1	0
MDBX	\$8.1100	\$93.5000	12		\$65.2500	\$24.7000	\$189	1	0
MJNA	\$0.0850	\$0.5000	6		\$0.1029	\$0.1902	\$924	0	0
MNTR	\$0.0016	\$3.9000	2,438		\$0.1900	\$0.2210	\$582	0	0
MWIP	\$0.0810	\$1.2740	16		\$0.2680	\$0.3340	\$623	0	1
NTRR	\$0.1101	\$6.5000	59		\$1.0000	\$0.3920	\$196	0	0
NUTR	\$15.6100	\$27.5400	2		\$16.7800	\$25.8000	\$769	0	1
NVLX	\$0.0201	\$0.2250	11		\$0.0300	\$0.1145	\$1,908	1	0
PHOT	\$0.0042	\$0.4670	111		\$0.0390	\$0.1991	\$2,553	0	1
REVI	\$0.0016	\$0.1416	89		\$0.1200	\$0.0045	\$19	1	0
RFMK	\$0.0002	\$0.0070	35		\$0.0013	\$0.0005	\$192	1	0
RIGH	\$0.0002	\$0.0034	17		\$0.0002	\$0.0001	\$250	1	0
SING	\$0.0020	\$0.3074	154		\$0.0037	\$0.0030	\$405	1	0
SKTO	\$0.0004	\$0.0800	200		\$0.0003	\$0.0074	\$12,333	0	1
STSI	\$0.5500	\$2.5900	5		\$2.9000	\$1.0200	\$176	0	1
TRTC	\$0.0600	\$0.8100	14		\$0.4700	\$0.1600	\$170	1	0
USEI	\$0.0007	\$0.0200	29		\$0.0095	\$0.0011	\$58	1	0
VAPE	\$0.1600	\$40.0000	250		\$0.0040	\$0.1700	\$531	1	0

VAPR	\$0.0100	\$0.4800	48	\$0.1990	\$0.0330	\$83	1	0
VSI	\$39.9200	\$65.9300	2	\$57.3600	\$51.7100	\$451	0	0
XTRM	\$0.0010	\$0.0440	44	\$0.0080	\$0.0075	\$469	1	0
							<u>22</u>	<u>6</u>
							<u>55%</u>	<u>15%</u>

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Disclosure: One or more of the authors of this paper might employ a stock trading strategy based, in whole or in part, on that proposed and presented in this paper.