Economics and Finance Review Vol. 2(8) pp. 23 – 34, October, 2012 ISSN: 2047 - 0401
Available online at http://www.businessjournalz.org/efr

EARLY EVIDENCE ON US STOCK MARKET EFFICIENCY: "Market vs. State" Debate and Deregulation Implications

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ABSTRACT

Evidence shows that the economic assumption of efficient "free markets"—which underpins the "market versus state" debate—is questionable. Market efficiency is a significant foundation theory for neoliberal economists. Prove it wrong, and the neoliberals' philosophy of market based theories and globalization become doubtful. For the first time, late 19th century to early 20th century US stock market data are examined—prior to the US federal government instituting securities regulations. The relative maxima and minima stock trading rule methodology—used on S&P 500 Index portfolio B—makes +177% more money than buy-and-hold S&P 500 Index portfolio A—and is only 60% as risky. This calls into question the weak-form of the efficient market theory. The deregulated US stock market is inefficient during this early period. Therefore, government deregulation may hinder rather than help solve the ongoing worldwide 2008 credit crisis.

Keywords – *market versus state debate, deregulation, globalization, 2008 credit crisis, efficient market theory, technical analysis.*

JEL Classification: *G11, G12, G14.*

1. INTRODUCTION

Efficient markets are vitally important in economic theory, as well as for the "real economy." The assumption that markets are efficient is a foundation theory in economics, on which most neoliberal and neoconservative economic theories are based. Neoliberal economic philosophy promotes laissez-faire economic policies of reducing the size of government, deregulation, privatization of government services, and globalization (Stojanov and Jakovac, 2012). Neoliberal economists develop market-based theories based on the belief that neoclassical economic theory of efficient markets is correct. The question of market efficiency goes to the heart of the "market versus state" debate (Marangos, 2012).

Fama (1970, 1991) reviews the literature on efficient markets and reports no published empirical research on the United States (US) stock market, during the late 19th century to early 20th century. After an extensive review of the more recent academic literature, there is no knowledge of any empirical studies of this early period on the stock market. This is surprising, because the late 19th century to early 20th century period is prior to US federal government regulation of the financial securities markets, resulting from the lessons learned during the Great Depression.

The Securities Act of 1933, for the first time, regulates IPOs, where corporations originally issue securities in the primary market. The Securities Exchange Act of 1934, for the first time, governs the trading of securities on the secondary market, which is between investors on exchanges, where common stock are purchased and sold through brokers or dealers. The Securities and Exchange Commission (SEC) is established to enforce US securities laws.

This paper empirically tests, for the first time, a significant foundation theory in economics—that is whether the US stock market is efficient, during the late 19th century to early 20th century. In this early period, the US stock market functions without US federal government regulation. Therefore, the neoliberal economist's belief is examined, which is, to increase economic efficiency, capital market deregulation is necessary to help solve the ongoing worldwide 2008 credit crisis

The rest of the paper's organization is as follows. Section 2 defines the three tenets of the theory of efficient markets. Section 3 explains why existing research studies supporting efficient markets are mistaken. Section 4 references the relative maxima and minima stock trading rule used in this study, while section 5 explains data selection. Section 6 presents the empirical results and reasons for their significance. Section 7 is a discussion of the "market versus state" debate, globalization, market manipulation, deregulation and political action. Section 8 recommends structural solutions to the ongoing worldwide 2008 credit crisis, and offers conclusions.

2. THREE TENETS DEFINE EFFICIENT MARKETS.

The first tenet of market efficiency—that markets are in equilibrium and if unexpected events cause disequilibrium, it is only temporary, because markets are self-equilibrating—is disputed in the literature by Grossman and Stiglitz (1980). A stock market always in equilibrium and efficient is impossible because traders have different endowments, beliefs and preferences. In addition, arbitrage costs throw markets out of equilibrium.

The second tenet of market efficiency—that stock prices "fully reflect" all information—has long been challenged in the literature by Ball and Brown (1968), and Bernard and Thomas (1990), with many inconsistencies reported. Tenet number two goes on to say asset prices properly represent each asset's intrinsic value, and as a result, prices are always accurate signals for capital allocation. Researchers in behavioral economics (Shiller, 2003) find fault with this efficient market assumption, because it does not account for human nature and inherent herding behavioral instincts of market participants.

Efficient market theorists (Fama, 1965, 1970, 1991, 1998) (Malkiel, 2005)—claim assuming market equilibrium is close enough to reality, and that research into tenet number two contests only the semi-strong form of market efficiency. That is, where earning higher returns than the stock market, with lower risk, is not achievable by knowing all publicly available information. Efficient market theorists continue to support the efficient markets and say, "If you want to do better than stock market returns, you have to take on more risk than the overall stock market affords."

Therefore, efficient market theory tenet number three is most important—that is**,** stock prices move randomly or are uncorrelated with, if not independent of the prior period's price change. Therefore, earning higher returns than the stock market, with lower risk, is impossible to achieve using only past prices (i.e., stock trading rules or stock charts). Empirically proving tenet number three wrong— because it tests the weak form of market efficiency**—**calls the theory of efficient markets into question.

Efficient market theorists specify two methods to test tenet number three. The first method is statistical inference. Calculate serial correlation coefficients of stock price changes. If the serial correlation coefficients are zero or close to zero, this supports assuming serial independence in the price data. Therefore, one can infer that stock trading rules cannot work. The second method requires using a stock trading rule, based solely on past prices—where expected profits are greater and risk lower than they would be under a naïve buy-and-hold policy.

3. RESEARCH SUPPORTING EFFICIENT MARKETS MAKES ONE-OR-MORE OF THE FOLLOWING MISTAKES.

3.1 Using the Wrong Data

Systemic market risk and random unsystemic risk make up individual company stock price movements. As much as 50% of a company's stock price actions are random unsystemic risk variations associated with the internal circumstances within that particular company. The remaining 50% of a company's stock price movements represent the systemic risk of the overall market. The random unsystemic risk is the chaotic portion of the stock price data—that if removed leaves only the systemic market risk of the overall market, which may then be analyzed.

Most efficient market research studies day-to-day stock price movements of individual companies, which is mistaken. Granted, this unsystemic and systemic day-to-day individual company data look random, but it is the wrong data to analyze to determine overall, long-term market trends (Jung and Shiller, 2005).

3.2 Using the Wrong Method to Analyze the Data

Most researchers use statistical inference to test tenet number three. However, there is a serious problem with using statistical inference to test whether stock price data are independent. That is, it is difficult to distinguish between a rootless series and one where the systemic quality is faint.

Research shows that five-thousand years of data are needed to identify independence in stock price data using statistical inference (Summers, 1986). However, these data do not exist. Consequently, statistical inference is not the correct method to use to test tenet number three.

3.3 Jumping to Mistaken Conclusions Based on Half-Truths

Statistical inference tests using day-to-day individual company data report **s**erial correlation coefficients that are close to zero. This supports assuming serial independence in the price data. Therefore, one can infer that tenet number three is valid. Unfortunately, this proves nothing of the sort. Analyzing the wrong data over an inadequate number of years simply gives a false positive (Findlay and Williams, 2000).

What day-to-day stock price movements are for individual companies is the wrong research question. Instead, we want to know what the overall stock market is doing over the long term. The correct method to analyze market data follows.

4. METHOD

The relative maxima and minima stock trading rule—presented by Prentis (2011)—is used to make buy and sell decisions. The relative maxima and minima stock trading rule specifically accounts for, and follows, all of the efficient market theorist's rules set down by Fama (1998) and Malkiel (2003)—when testing market efficiency.

This 1871-through-1927 study uses two identical well-diversified S&P 500 Index no-load mutual funds, both with beta values equal to one ($B = 1$). Each no-load mutual fund represents only systemic market risk. S&P 500 Index portfolio A is the buy-and-hold benchmark. Actively managed S&P 500 Index portfolio B, uses only the relative maxima and minima stock trading rule to decide when to be either invested in the stock market, or out, and invested in interest bearing risk-free 3-month Treasury bills (T-bills).

Accordingly, **i**ndividual company stock price behavior, which includes the randomness of unsystemic risk, is not evaluated in this research. Focusing only on systemic market risk in the data studied, removes much of the random or chance stock market price behavior of individual companies.

5. DATA

5.1. Stock Prices

Standard & Poor's (S&P) Security Price Index Record is the source for the S&P 500 Index average monthly stock prices, from January 1885 through December 1927. Shiller (2005) provides the S&P 500 Index average monthly stock price data from January 1871 through December 1884. All available S&P 500 Index data found in the literature are used in this 1871-through-1927 study, making it complete and robust.

Because only S&P 500 Index average monthly price data exist, for this1871-through-1927 study, the no-load mutual fund S&P 500 Index portfolio B cannot be invested or redeemed at the close of trading on the first trading day of the following month (i.e., t + 1). Investing or redeeming at the next month's stock price is too long a duration. Adjusting to the data limitation, this 1871-through-1927 study uses data from Prentis (2011), to determine average redemption or investing values. The difference from the end-of-month prices to the close of trading on the first trading day of the following month average is +0.0356% for redemptions and +0.3058% for investments. Hence, average monthly data prices in this 1871-through-1927 study are increased by these average percentages, when making redemption and investment calculations. Therefore, over 57 years, prices average out.

This 1871-through-1927 empirical research is over a duration of 57 years, which assures that stock market data are collected during normal times. As well as when the stock market is either panicking, and plunging lower

under duress—or booming and surging higher with confidence—because of either fear or greed controlling investors' emotions (Naoui, 2011).

5.2. Dividend and Interest Payments

When portfolios A and B are invested in the S&P 500 Index no-load mutual funds, they both receive identical dividend payments. For this study, no accounting for either portfolio's accrued dividends is made during these concurrent periods in the stock market. When portfolio B is transferred out of the stock market into an interest bearing account, the interest earned is at the risk-free 3-month Treasury bill (T-bill) rate. Therefore, a determination of whether 3-month T-bill interest rates are either higher or lower than S&P 500 Index dividend yield payments is needed.

Risk-free 3-month T-bill interest rate data are not available from 1871-through-1927. However, Macaulay (1938) records 60-90 day commercial paper interest rates, from 1871-through-1927, averaging 5.06%. These 60-90 day commercial paper interest rates are used to calculate 3-month T-bill interest rates, by looking at the relative comparison of more recent interest rate data.

The Federal Reserve Bank of St. Louis reports on their website, 90-day commercial paper interest rates from 1971-through-1997, averaging 7.57%, and 3-month T-bill interest rates averaging 6.89%, over the same period. As expected, interest rates on 90-day commercial paper are higher than risk-free 3-month T-bills, from 1971-through-1997, because they are riskier. Three-month T-bills average 91% (6.89% ÷ 7.57%) of the 90-day commercial paper interest rate. The same percentage relationship, for the 1871-through-1927 60-90 day commercial paper interest rates, is used to calculate the risk-free 3-month T-bill interest rates from 1871-through-1927, averaging 4.61% (91% x 5.06%). This method determines the risk-free 3-month T-bill interest rate, from 1871-through-1927.

Over this empirical study of 57 years, from January 1871 through December 1927 (i.e., 684-months), S&P 500 Index dividend yields average 5.26%, based on S&P 500 Index historical dividend yield data supplied by Shiller (2005), who cites Cowles and Associates (1939) as the source for dividend yields prior to 1926. During the same period, 3-month T-bill interest rates average 4.61%, based on 60-90 commercial paper interest rates from Macaulay (1938), and relative interest rate data from the Federal Reserve Bank of St. Louis. Average 3-month T-bill interest rates being less than S&P 500 Index dividend yields are expected over the entire 684-month planning horizon of this study, given the risk-free nature of T-bills.

From January 1871 through December 1927, portfolio B is at times out of the S&P 500 Index no-load mutual fund and invested at the risk-free 3-month T-bill interest rate. Dividends accrue to the buy-and-hold S&P 500 Index portfolio A at the dividend yield to interest rate differential of 0.65% (i.e., 5.26% - 4.61%) each year or 0.00054 each month. The number of S&P portfolio A shares increase by dividing the dividend-interest differential earned by the S&P 500 Index share price, when the S&P portfolio B is reinvested.

6. RESULTS

6.1. Initial and Final Position

Portfolios A and B—when invested in the stock market—are in identical S&P 500 Index no-load mutual funds. Portfolios A and B, each originally invest $225.00 dollars. Portfolio B may trade into the S&P 500 Index no-load mutual fund or out, earning interest on risk-free 3-month T-bills. All S&P 500 Index no-load mutual fund shares or 3-month T-bills are redeemed for cash at the study's conclusion, on December 1927.

Portfolio A is the buy and hold strategy. Two hundred and twenty-five dollars are invested in January 1871—in an S&P 500 Index no-load mutual fund at the S&P 500 Index price of $4.44 dollars for each share. The 50.676 shares bought are held until redeemed on December 1927 for the S&P 500 Index price of $17.46 dollars for each share, equaling $884.80 dollars.

6.2. Dividends

When portfolios A and B are concurrently invested in S&P 500 Index no-load mutual funds, identical dividends are paid to both portfolios, which are excluded from these results. From January 1871 through December 1927,

portfolio B is periodically invested at the risk-free 3-month T-bill interest rate. Shares are added to portfolio A because S&P 500 Index dividend yields are higher than 3-month T-bill interest rates. Portfolio A adds dividend-interest differential payments at the rate of 0.65% each year or 0.00054 each month. Table 1, S&P 500 Index portfolio A: added shares – 1871-through-1927, steps through the added share calculations.

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Insert Table 1 Here
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The added portfolio A shares, because of dividend-interest differential payments, increase from 50.676 to 58.745 shares, up through the end of 1927. Each time portfolio B is traded out of the S&P 500 Index no-load mutual fund into 3-month T-bills, portfolio A receives higher dividends than portfolio B receives in interest. Dividend-interest differential accrues on August 1874 by taking portfolio A's 50.676 shares, times S&P 500 Index share price of $4.48, equaling $227.03 dollars, times 11 months. Which represents the total period before portfolio B is transferred back into the S&P 500 Index no-load mutual fund—times 0.00054, to equal $1.35 dollars. Representing the dividend-interest differential earned and credited to portfolio A. The 0.301 shares added to portfolio A—shown in the last column of Table 1—is calculated by dividing the $1.35 dollars of dividend-interest differential earned, by the S&P 500 Index share price of $4.48. From January 1871 through December 1927, each time portfolio B earns interest by trading out of the stock market, portfolio A is credited with the difference, because dividend yields are higher than interest payments.

Calculating portfolio A's total final value is as follows. The added S&P 500 shares, because of dividend-interest differential payment calculations, are 8.069 shares (i.e., 58.745 ending shares, minus the 50.676 shares originally bought), times the S&P 500 Index redemption price on December 1927 of $17.46—shown on Table 2—equaling $140.88 dollars. The total value of buy-and-hold S&P 500 Index portfolio A on December 1927 is $1,025.68 dollars (i.e., $884.80 + $140.88).

The results for portfolio B are determined by trading in-and-out of the S&P 500 Index no-load mutual fund. Based on S&P 500 Index nine and two-month simple moving average (SMA) trend lines and relative maxima and minima stock trading rule, shown in Table 2, S&P 500 Index portfolio B: gain from trading–1871-through-1927.

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Insert Table 2 Here
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The beginning $225.00 dollar investment in S&P 500 Index portfolio B on January 1871 of 50.676 shares, at $4.44 dollars for each share, is redeemed on September 1873 at $4.59 for each share, totaling $232.60 dollars. From September 1873 to August 1874, portfolio B is out of the stock market and invested in risk-free 3-month T-bills. Portfolio B is reinvested in the S&P 500 Index on August 1874, at $4.48 dollars for each share—buying 51.920 shares. Portfolio B is redeemed on June 1875 for $227.41 dollars (i.e., 51.920 shares, times $4.38 for each share). From June 1875 to January 1878, portfolio B is out of the stock market and invested in risk-free 3-month T-bills. Portfolio B is reinvested in the S&P 500 Index on January 1878, at $3.26 dollars for each share—buying 69.758 shares.

The original $225.00 investment in the S&P 500 Index portfolio B grows to $2,842.70 dollars (i.e., 162.812 shares, times $17.46 for each share), when redeemed on December 1927. Money in the relative maxima and minima stock trading rule S&P 500 Index portfolio B account, on December 1927, equals $2,842.70 dollars. Relative maxima and minima stock trading rule, S&P 500 Index portfolio B—by $1,817.02 dollars (i.e., $2,842.70 - $1,025.68)—is +177% superior to buy-and-hold S&P 500 Index portfolio A, from January 1871 through December 1927.

6.3. Risk-Adjusted Returns

Trading rule S&P 500 Index portfolio B is superior to the buy-and-hold S&P 500 Index portfolio A, by +177%. In addition, each portfolio has a different risk profile. When either portfolio A or B is invested in a S&P 500

Index no-load mutual fund—a proxy for the stock market—each has a beta value equal to one (B_A=1) (B_B=1). When portfolio B is invested in risk-free 3-month T-bills, its beta value is equal to zero (B_B=0). Portfolio B is in 3-month T-bills for 275-months out of a total planning horizon of 684-months, or 40% of the time. And is invested in a S&P 500 Index no-load mutual fund the remaining 60% of the time.

Using a proportionate portfolio risk weighting measure for 3-month T-bills and the S&P 500 Index no-load mutual fund, results in a beta value for portfolio B (B_B) that is linearly additive over the entire 684-months. Equaling: B_B = 0.40 (0) + 0.60 (1) = 0.60. The buy-and-hold S&P 500 Index portfolio A has a beta value equal to one (B_A=1), throughout this study's planning horizon.

Many studies use the S&P 500 Index as the benchmark for the overall market, but compare it to trading in individual company securities, with beta values greater than one. Consequently, the results are not adjusted for risk when making comparisons (Fama, 1998) (Malkiel, 2003). The relative maxima and minima stock trading rule eliminates this mistake by evaluating two identical S&P 500 Indexes, each with beta values equal to one.

6.4. Results Conclusion

Fama says that beating the buy-and-hold benchmark stock market portfolio over a long duration, using a stock trading rule, should be impossible, if it can be achieved by both earning more money—and at the same time—with lower risk than the buy-and-hold benchmark portfolio.

The relative maxima and minima stock trading rule makes substantially more money at significantly less risk than the naïve buy-and-hold policy. Efficient market theorists say this thorough beating of the US stock market should be impossible to achieve using only a stock trading rule, based solely on past prices. Thus, tenet number three and the weak form of the theory of efficient markets is invalid during this early stock market period, prior to US government financial markets regulation. This calls the theory of efficient markets into question.

6.5. Reasons Results Are Significant

These results are significant because the unsystemic risk of individual companies is not in the data, unlike other studies that support the theory of efficient markets. Only the systemic risk of the entire market, over the long-term, is investigated—making this research different from studies supporting efficient markets, which test day-to-day stock price movements of individual companies.

Another reason the relative maxima and minima stock trading rule succeeds in the aggregate is because of market participants' emotions. Investor fear and panic selling plunges stock prices downward below equity intrinsic values at market bottoms. Investor greed brings stock prices above equity intrinsic values at market tops. Where investors act with a herd mind-set and trade based on the madness of crowd behavior, rather than on market fundamentals—spurred on by the financial media—resulting in market bubbles (Yalamova and McKelvey, 2011).

7. DISCUSSION

Neoliberal economists endorse efficient "free markets," which supports their market based stance in the "market versus state" debate, because they assume special interest groups subvert the political process of the state—causing political and government failures. Rent seeking behavior by those buying power with campaign contributions, Super PACs, and employing lobbyists to influence politicians—try to unfairly monopolize gains from public policy, at the expense of the public and overall economy (Marangos, 2012). Therefore, neoliberal economists assume markets are better than the state in setting scarce resource allocation priorities.

Neoliberal economists emphasize the inherent superiority of efficient "free markets," to secure Pareto optimal social welfare. At the same time, advocating a minimalist state—which achieves balanced budgets and low inflation. This efficient "free market" strategy—also known as the "Washington Consensus," should produce sustained robust economic growth and economic efficiency—not a global credit crisis.

The ongoing worldwide credit crisis, beginning in 2008, puts the status of the efficient "free market" economy into question in the public's imagination, in a way that it has not taken shape since the Great Depression

(Boettke, 2010) (Dobrota, 2012). Especially, since the Bretton Woods period, of the 1950s and 1960s, yields no credit crises and produces dynamic economic growth and financial stability (Hsu, 2012). Alarmingly, the severe ongoing worldwide 2008 credit crisis has evolved into a sovereign debt emergency in Greece, Ireland, Portugal, Spain, Italy and Japan; and more recently into the political turmoil of a constitutional crisis—where Catalonia is exploring secession from Spain—making the eventual expected economic and political consequences considerably worse than the original 2008 credit crisis (Rengasamy, 2012). This deteriorating economic and political progression is troubling, exposing incorrect policy actions.

7.1. Globalization

In conjunction with their belief in efficient "free markets," neoliberal economists champion globalization, which is the privatization of world economic resources by "mega-capital." The reason given—neoliberal economists think efficient "free markets" make better economic decisions, when allocating scarce resources, than politicians.

The neoliberal economist and "Washington Consensus" goal is to transition from traditional "nation states"—based on geographical location—into "mega-capitalism." "Mega-international corporations" and "worldwide private banks" will control this new "world-market-state" (Stojanov and Jakovac, 2012). The International Monetary Fund (IMF), World Bank and bureaucrats at central banks (i.e., at the Federal Reserve, ECB, Bank of England, Bank of Japan, and PBOC) will determine the political and economic agendas of the "world-market-state"—at the expense of democratically set priorities by politicians of the "nation states." This is the new world order of the "world-market-state," as envisioned by neoliberal economists advocating "mega-capitalism."

However, in a recent study, Yan (2012) reports that banks caused global imbalances by failing to provide essential banking services during the worldwide 2008 credit crisis. Aiyar (2012) concludes that worldwide private banks contributed to the global 2008 credit crisis, by transmitting financial stress to the "real economy." Rather, the belief is efficient "free markets" should be independent, decentralized markets—not markets dominated and controlled by "mega-international corporations" and "worldwide private banks"—as a part of mega-capital's "world-market-state" globalization strategy.

7.2. Market Manipulation

The neoliberal theory of efficient "free markets" assumes markets are trustworthy and infallible. However, this faith is misplaced. Big market players easily manipulate markets. For example, worse by orders-of-magnitude—in the most blatant colossal financial scandal in history—the London Interbank Offered Rate (LIBOR), affecting $350 trillion dollars in loans and derivatives, is systematically manipulated by the British Bankers' Association (BBA), for over 20 years. News of BBA's LIBOR systemic fraud manipulation only becomes public in June 2012. Also, a recent $3.7 trillion dollar municipal bond bid rigging conspiracy by the largest American Banks, illegally skims billions of dollars from the budgets of most US cities and towns.

In addition, accounting laws are changed (e.g., FAS-157) so large Wall Street banks no longer have to mark their assets to market, thereby hiding their insolvency. High Frequency Trading (HFT), a form of front running—represents 70% of all trading and 99.9% of all quotes on stock exchanges—which unfairly affects market prices, to the detriment of retail investors. The favorable huckstering of stock positions on CNBC—owned by Comcast and General Electric—manipulates markets by infecting investors' sentiment. Federal Reserve Chairman Bernanke, because of his trillions of dollars in quantitative easing programs, takes credit for the Russell 2000 Index of small company stocks reaching an all-time high price of 868.5 during September 2012, thus artificially bolstering the "wealth effect." These are just some of the most recent egregious examples of market manipulation, by the big market players.

7.3. Deregulation

The neoliberal economists' faith in an efficient "free market" globalization policy rests on the assumption that markets are efficient. Prior to government's financial market regulation in the late 19th century to early 20th century, the stock market should be at its most efficient. Instead, this study shows that the US stock market,

during this early period, is inefficient. Consequently, government deregulation may be taking the US economy in the wrong direction, by contributing to—rather than alleviating—the ongoing worldwide 2008 credit crisis.

7.4. Political Action

US politicians—relying on neoliberal and neoclassical economists' advice—believe that "free markets" are efficient and consequently, defer to them. Therefore, US politicians abdicate their responsibility to manage the economy. As a result, misguidedly, politician's primary focus during the 2008 credit crisis is on fixing the financial markets (i.e., Wall Street banks) and not the "real economy."

US politicians mistakenly use efficient "free market" based economic theories to pass laws favorable to the financial industry, but not to the "real economy." First causing and now aggravating the ongoing 2008 credit crisis. Examples of credit crisis enabling legislation include: 1) Gramm–Leach–Bliley Financial Services Modernization Act of 1999; 2) Commodity Futures Modernization Act of 2000; 3) Bankruptcy Abuse Prevention and Consumer Protection Act of 2005; and 4) Jumpstart Our Business Startups (JOBS) Act of 2012.

The Federal Reserve (Fed), on September 13, 20012, implements open-ended quantitative easing (QE)-3, increasing debt monetization by $40 billion dollars per month. This is added to the continuing $45 billion a month used in the extension of Operation Twist to stimulate the economy by lowering long-term interest rates. QE overinflates the stock and commodity markets by manipulating prices. Unfortunately, this mainly helps the richest 1% of Americans and hurts the "real economy," with higher gasoline and food prices. Despite QE-1-to-3 and Operation Twist Fed programs, the US is experiencing the worst economic recovery from a recession, ever! As importantly, the Fed has no exit strategy to safely unwind the trillions of dollars of US securities they are adding to their balance sheet, by monetizing the debt. The Fed is merely postponing America's day-of-reckoning, which will be substantially worse because of this delay.

7.5. Worldwide 2008 Credit Crisis

The continuing worldwide 2008 credit crisis is serious—with the world economy poised for a double-dip recession. The US government's policy of increasing the national debt by $5 trillion dollars over the past four years, keeping insolvent zombie banks from going bankrupt, and a Federal Reserve zero interest rate policy (ZIRP)—starting in 2008 and now extended by Chairman Bernanke into 2015—is counterproductive. The Federal Reserve has monetized the national debt by purchasing 77% of all US Treasury debt issued by the US treasury in 2011. This gross manipulation of the credit market by the Federal Reserve, which is expected to be in place for six years, causes malinvestment—eventually resulting in crippling long and medium-term penalties for the "real economy."

This "cover-up and pray" policy of hoping that rekindled "animal spirits" will bring the economy back in time to save the status quo is misguided. This is impossible because the trust is gone. Instead, the "real economy" flounders with high unemployment, unsustainable budget deficits, a struggling real estate market, and low capital formation, crumbling infrastructure and high gasoline and food price inflation.

8. CONCLUSION

For the first time, this research investigates US stock market data from the late 19th century to early 20th century—to determine if markets are efficient—prior to the US government instituting federal regulations in the securities markets. This paper finds that markets are inefficient during this early period, which has a fundamental bearing on the "markets versus state" debate, globalization and the US passage of 2008 credit crisis enabling legislation.

This 1871-through-1927 study uses the relative maxima and minima stock trading rule to test market efficiency, a key theory in economics. Relative maxima and minima stock trading rule S&P 500 Index portfolio B—by $1,817.02 dollars—is +177% superior to the buy-and-hold benchmark S&P 500 Index portfolio A, over a duration of 57 years, from January 1871 through December 1927. And is only 60% as risky as the buy-and-hold benchmark S&P 500 Index portfolio A—because of investing in risk-free 3-month T-bills for 275 out of 684-months.

The relative maxima and minima stock trading rule makes substantially more money at significantly less risk than the naïve buy-and-hold benchmark portfolio. Efficient market theorists say this thorough beating of the US stock market should be impossible to achieve using a stock trading rule. Thus, tenet number three and the weak form of the theory of efficient markets is invalid. From 1871-through-1927, when the US stock market is deregulated, the market data do not support the efficient market theory. Consequently, government deregulation may be detrimental in solving the continuing worldwide 2008 credit crisis.

Rather than independent, decentralized efficient "free markets," instead, America has inefficient, manipulated markets controlled by "mega-international corporations" and "worldwide private banks," who dominate the global economy during the worldwide 2008 credit crisis. To pull the economy out of the ongoing 2008 credit crisis, the following structural solutions are recommended:

1) Reenact the Glass-Steagall Act of 1933. Allowing investment banks to speculate with savers' money is ill-considered.
2) The daisy-chained, unregulated $707 trillion dollar OTC Derivatives market will bring down the world economy, when it fails. JP Morgan's May 2012 OTC Derivative trading losses of between $5.8-to-$7 billion dollars are a prelude to this eventuality, with more instances to come. Start unwinding the OTC Derivatives market now, before it is too late.
3) Insolvent banks are a drain on the "real economy." Force insolvent banks to go bankrupt. Too Big to Fail (TBTF) is an irrational policy. Allow capitalism to work for Wall Street banks.
4) Public and private debt to GDP is about 355%, and bill collectors hound 10% of Americans for unpaid debts. Americans can no longer service their massive debt loads. Adding even more debt will make the matter worse. Instead, allow debt forgiveness.
5) ZIRP is destroying capital formation, savers and threatening the solvency of pensions—including Social Security. Allow interest rates to rise, which will increase consumer demand and permit the elderly over 65 to retire. The Fed's massive manipulation of capital markets causes malinvestment—which over the long and medium-term—severely damages the "real economy."

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TABLE(s)

Table 1. S&P 500 Index portfolio A: added shares – 1871-through-1927

Date	Total Shares (Rounded)	S&P 500 Index Price	Portfolio A Value	Months	Dividend-Interest Diff.	Added Shares
(R) 9/1873						
(I) 8/1874	50.676	$4.48	$227.03	11 mo.	1.35	0.301
(R) 6/1875						
(I) 1/1878	50.977	3.26	166.19	31	2.78	0.853
(R) 1/1882						
(I) 10/1882	51.830	6.09	315.64	9	1.53	0.251
(R) 6/1883						
(I) 8/1885	52.081	4.72	245.82	26	3.45	0.731
(R)8/1887						
(I) 1/1889	52.812	5.26	277.79	17	2.55	0.485
(R)10/1890						
(I) 8/1891	53.297	4.95	263.82	10	1.42	0.287
(R) 4/1893						
(I) 4/1894	53.584	4.58	245.41	12	1.59	0.347
(R) 7/1894						
(I) 4/1895	53.931	4.38	236.22	9	1.15	0.263
(R)4/1896						
(I) 6/1897	54.194	4.28	231.95	14	1.75	0.409
(R)12/1899						
(I) 12/1900	54.603	6.89	376.21	12	2.44	0.354
(R)3/1903						

(I) 6/1904	54.957	6.80	373.71	15	3.03	0.446
(R) 3/1907						
(I) 7/1908	55.403	7.94	439.90	16	3.80	0.479
(R) 5/1910						
(I) 4/1911	55.882	9.31	520.26	11	3.09	0.332
(R) 8/1911						
(I) 5/1912	56.214	9.61	540.22	9	2.63	0.274
(R) 1/1913						
(I) 5/1915	56.488	7.97	450.21	28	6.81	0.854
(R) 6/1917						
(I) 8/1918	57.342	7.60	435.80	14	3.29	0.433
(R) 2/1920						
(I) 12/1921	57.775	7.33	423.49	22	5.03	0.686
(R) 6/1923						
(I) 3/1924	58.461	8.73	510.36	9	2.48	0.284
Totals	58.745 sh			275 mo	$50.17	8.069 sh

This table shows, from 1871 through 1927, while portfolio B is invested at the risk-free 3-month T-bill interest rate, how shares are added to portfolio A. Because S&P 500 Index dividend yields are higher than 3-month T-bill interest rates. The letters used in this table represent: (I) Invest in the S&P 500 Index no-load mutual fund; (R) Redemption of S&P portfolio B and start of investment in 3-month T-bills. The average dividend yield less interest rate differential is 0.65% each year or 0.00054 each month.

Table 2. S&P 500 Index portfolio B: gain from trading – 1871-1927

Date	Total Shares (Rounded)	S&P 500 Index Price	Portfolio B Value
(I) 1/1871	50.676	$4.44	$225.00
(R) 9/1873		4.59	232.60
(I) 8/1874	51.920	4.48	
(R) 6/1875		4.38	227.41
(I) 1/1878	69.758	3.26	
(R) 1/1882		5.92	412.97
(I) 10/1882	67.811	6.09	
(R) 6/1883		5.82	394.66
(I) 8/1885	83.614	4.72	
(R) 8/1887		5.45	455.70
(I) 1/1889	86.635	5.26	
(R)10/1890		5.09	440.97
(I) 8/1891	89.085	4.95	
(R) 4/1893		5.31	473.04
(I) 4/1894	103.284	4.58	
(R)7/1894		4.25	438.96
(I) 4/1895	100.219	4.38	
(R)4/1896		4.42	442.97

(I) 6/1897	103.498	4.28	
(R)12/1899		6.02	623.06
(I) 12/1900	90.430	6.89	
(R) 3/1903		8.09	731.58
(I) 7/1904	107.585	6.80	
(R)3/1907		8.35	898.33
(I) 7/1908	113.140	7.94	
(R)5/1910		9.56	1,081.62
(I) 4/1911	116.178	9.31	
(R)8/1911		9.18	1,066.51
(I) 5/1912	110.979	9.61	
(R)1/1913		9.30	1,032.10
(I) 5/1915	129.498	7.97	
(R)6/1917		9.04	1,170.66
(I) 8/1918	154.034	7.60	
(R) 2/1920		8.11	1,249.22
(I) 12/1921	170.426	7.33	
(R)6/1923		8.34	1,421.35
(I) 3/1924	162.812	8.73	
(C)12/1927		17.46	$2,842.70

This table shows the portfolio value calculations from 1871 through 1927 for portfolio B which are determined by trading in and out of the S&P 500 Index no-load mutual fund. Based on S&P 500 Index nine and two-month SMA trend lines and the relative maxima and minima stock trading rule. The letters used in this table represent: (I) Invest in the S&P 500 Index no-load mutual fund; (R) Redemption of S&P portfolio B and start of investment in 3-month T-bills; and (C) Portfolio B redeemed for cash on December 1927.