

8. Investing 101 and Why Economists Drive Dodge Darts

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Joe Arata teaches courses, provides information and conducts research on commodity futures, options on futures and off exchange derivatives.

Currently he is working on an analysis of futures market price valuation and market information; analyzing profit due to underlying asset price changes as opposed to profit due to option mispricing; and decomposing option mispricing into volatility and formula error.

Abstract/Summary

Economic financial theory is based in part on the theories that include the Efficient Market Hypothesis, Random Walk theory and other that are manifestly false and incorrect.

Investing

Why Economist Drive Dodge Darts

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2013 Dodge Dart

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Here's the Plan

- Saving - Investing
- What Economists Believe
- Stocks
- Financial Ratios

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Saving VS Investing

Saving

- Short-term
- Postpones spending
- Has safety precautions

Investing

- Longer term capital
- Exchanges money for something with the future expectation of receiving a profit
- Has risk factors

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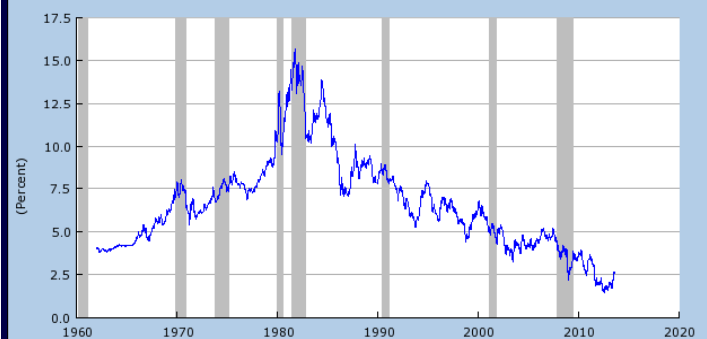
Saving VS Investing

Places to Invest

- Bonds
- Collectibles/Valuables
- Mutual Funds
- Retirement Plans
- Real Estate
- **Stocks**

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10-Year Treasury Constant Maturity Rate (WGS10YR)
Source: Board of Governors of the Federal Reserve System



FRED

Shaded areas indicate US recessions.
2013 research.stlouisfed.org

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What Economists Believe

- Efficient Markets Hypothesis
- Random Walk Theory
- Micro Economics Theory

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Efficient Markets Hypothesis Textbook Version

- “Security prices accurately reflect available information, and respond rapidly to new information as soon as it becomes available”

Richard Brealey & Stewart Myers,
Principles of Corporate Finance, 2007

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Efficient Markets Hypothesis

- “Investors, as a group, can do no better than the market, because collectively they are the market. Most investors trail the market because they are burdened by commissions and fund expenses.” — Jonathan Clements, the *Wall Street Journal*, June 17, 2007

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Efficient Markets Hypothesis

- 80-90% of price volatility is the result of the internal dynamics of speculators watching other speculators:
 - EMH idea of investors focusing solely upon expected risk/return is wrong:

Instead,
Prices are determined by speculation on immediate behavior of other speculators, rather than rational calculation

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Market Realities

Professional managers: “choose portfolios that are close to the benchmark they are evaluated against ...

- To minimize the risk of underperforming this benchmark...
- Select stocks that other managers select,
 - Again to avoid falling behind and looking bad...
- Add stocks that have recently done well, and
- Sell stocks that have recently done poorly,
 - To look good to investors who are getting end of year reports on portfolio holdings

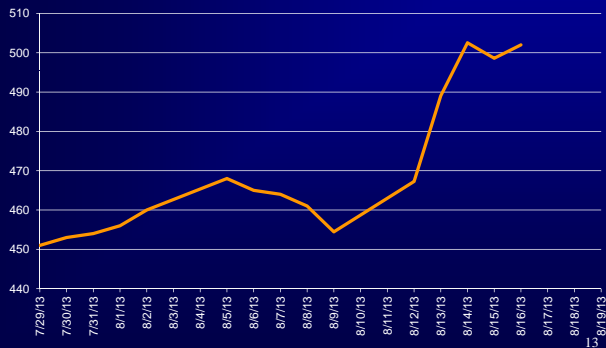
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Market Realities

- Individual investors *do not* do this
 - Self-defeating (“irrational”?) behavior as well...
 - “follow the advice of financial gurus,
 - Fail to diversify,
 - Actively trade stocks and churn their portfolios,
 - Sell winning stocks and hold on to losing stocks thereby increasing their tax liabilities...” (Shleifer 2000 p. 10)
 - Undermines both EMH and possible gains from market inefficiency
 - » Also partly explains market inefficiency
- As does behavior of money managers... 12

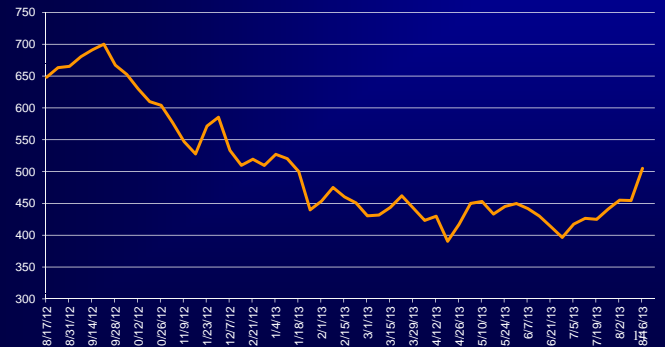
Apple Stock

Apple

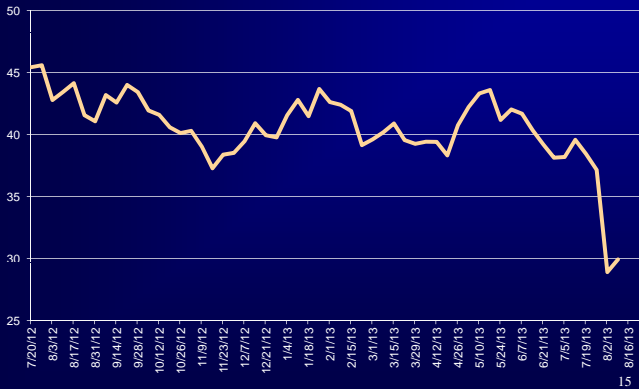


Apple Stock

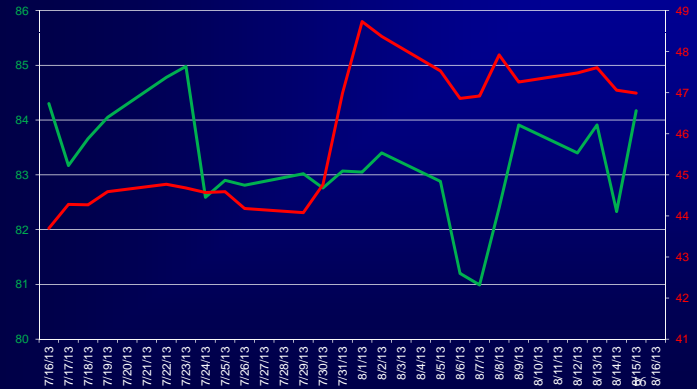
Apple



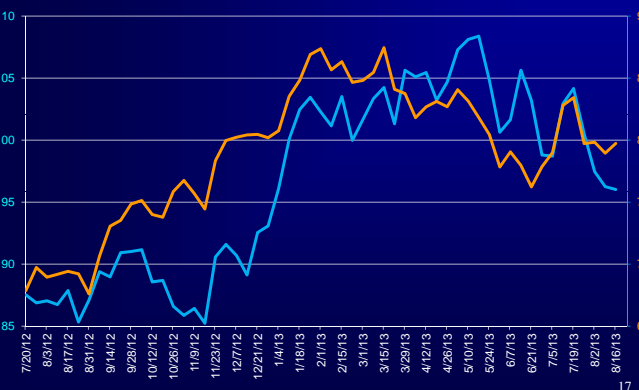
Potash of Saskatchewan



Deere - CNH



Monsanto-Syngenta



The Richest People

1. Carlos Slim Helu
2. William Gates
3. Amancio Ortega
4. Warren Buffett
5. Larry Ellison
- 6-7. C&D Koch
8. Li Ka-shing
9. Liliane Bethencourt
10. Bernard Arnault
11. Christy Walton
12. Stefan Persson
13. Michael Bloomberg
14. Jim Walton
15. Sheldon Adelson
16. Alice Walton
17. Bobson Walton
18. Karl Albrecht
19. Jeff Bezos
20. Larry Page
21. Sergey Brin
22. Mukesh Ambani
23. Michele Ferrero
24. LeeShau Kee
25. David Thomson

People who earned it all

1. Carlos Helu-telecom
2. W. Gates-Microsoft
3. A. Ortega-Zara
- 4.
5. L. Ellison-Oracle
- 6-7.
8. L. Ka-shing-stocks
- 9.
- 10.
- 11.
12. S. Persson-H&M
13. M. Bloomberg-Bloomberg
- 14.
15. S. Adelson-casinos
- 16.
- 17.
18. K. Albrecht-Aldi
19. J. Bezos-Amazon
20. L. Page-Google
21. S. Brin-Google
22. M. Ambani-oil&gas
- 23.
24. L. Kee-stocks
- 25.

The Richest Showbiz Women

1. [Oprah Winfrey](#)
2. [J.K. Rowling](#)
3. [Martha Stewart](#)
4. [Celine Dion](#)
5. [Madonna](#)
6. [Mariah Carey](#)
7. [Janet Jackson](#)
8. [Julia Roberts](#)
9. [Jennifer Lopez](#)
10. [Jennifer Aniston](#)
11. [The Olsen Twins](#)
12. [Britney Spears](#)
13. [Judge Judy](#)
14. [Sandra Bullock](#)
15. [Cameron Diaz](#)
16. [Gisele Bundchen](#)
17. [Ellen DeGeneres](#)
18. [Nicole Kidman](#)
19. [Christina Aguilera](#)
20. [Renee Zellweger](#)

What is a Random Walk? Textbook Version

Formal Definition: In simple symmetric random walk on a locally finite lattice, the probabilities of the location jumping to each one of its immediate neighbors are the same. The best studied example is of random walk on the d -dimensional integer lattice (sometimes called the hypercubic lattice).

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What is a Walk?

An Intuitive understanding: A series of movement which direction and size are randomly decided (e.g., *the path a drunk person left behind*).

Stock market prices evolve according to a random walk and thus cannot be predicted. It is consistent with the efficient market hypothesis.

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Random Walk

Individual stocks prices are extremely volatile and that volatility is too large to rationalize with a random walk

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Definitions of Volatility

- Historical Volatility – based on the s.d. of continuously compounded stock returns.
- Idiosyncratic Volatility – based on the s.d. of residuals from a factor model for returns.
- Implied Volatility – the volatility level that would produce an observed option price.
- VIX (“fear index”) – measures the market’s volatility expectation over the next 30 days.

Why Volatility Increased

- Firm-Specific Factors:
 - The number of stocks on U.S. exchanges has more than doubled since 1980, but the average size of the newly listed firms is smaller
 - Newly listed firms are younger, riskier, and need a less proven track record (to be listed)
 - Increased Volatility of Firm Fundamentals like EPS and ROE (levels declining, variability up)
 - More Financial Leverage and Innovation

Stock Price Volatility

- Discrete jumps often occur when reported earnings are different than expectations.
- Institutional investors now react quite swiftly to such news, and in similar fashion.
- Thus, stock price change distributions have higher kurtosis/fatter tails (v. normal), especially among lightly traded stocks.
- Recently, the magnitude of price changes has exceeded what fundamentals dictate.

Volatility v. Return

- Stocks with large sensitivities to market volatility have lower average returns.
- Periods of high volatility tend to occur in bear markets, and periods of low volatility occur in bull markets.
- Return dispersion is countercyclical, but is related positively to subsequent market volatility, and tends to lead unemployment.

Why Care about Volatility?

- High Volatility may make a diversified portfolio 'less diversified.'
- Arbitrageurs can get it wrong when volatility becomes too high.
- Abnormal event-related returns are strongly impacted by volatility.
- Both stock and option prices are associated with changes in volatility.

Explanation for Relationship

- It is no surprise that high-risk stocks do relatively well in 'up' markets, but *relatively poorly in 'down' markets.*
- *However,* the negative effects from 'down markets' often dominate the positive effects from 'up markets.'
- This might indicate an inverse relationship between risk (historical volatility) + return.

Liquidity

- Liquidity is like pornography. Easy to identify when seen, but it is difficult to define. But, CLM defines liquidity as: *"Ability to buy or sell significant quantities of a security quickly, anonymously, and with minimal or no price impact."*

Extreme Volatility Events

- Volatility Spikes tend to occur during times of low or insufficient liquidity:
 - October 19, 1987 (portfolio insurance)
 - August (2nd half), 1998 (Russian financial crisis)
 - September 11, 2001 (WTC / markets closed for 4 days)
 - May 6, 2010 (Flash Crash)

Extreme Volatility Episodes

- The Great Depression
- The Internet Bubble
- The Recent Financial Crisis
 - In 2008: the daily DJIA changes were at least 1% on 134/253 (53%) of all trading days
 - This compares to a 15.6% avg. (2004-2007)
- European Debt Crisis / U.S. Treasury Downgrade (3rd Quarter 2011)

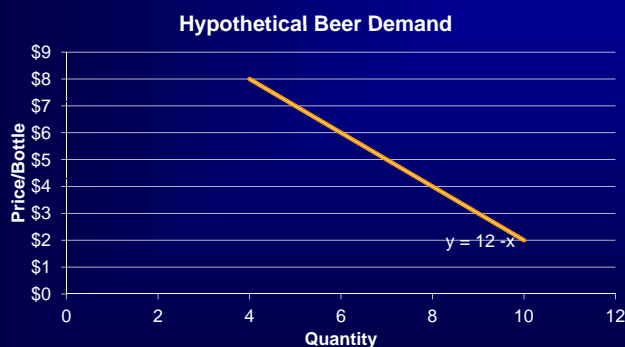
Micro Economic Theory

- Normal micro economic theory:
 - Supply a positive function of price
 - Demand a negative function of price
 - Supply and demand independent
- If price rises
 - Supply rises
 - Demand falls
 - Tendency towards equilibrium

Supply



Demand



Market Realities

- With the stock market
 - Supply (of assets, shares) possibly a positive function of price
 - Demand also a **positive** function of price:
- If price of assets (shares, real estate, etc.) rising, demand also rises
 - Buyers hope to buy and sell on a rising market
- The faster the rate of price increase (generally speaking) the faster the growth of demand

Market Realities

- Tendency to move away from “equilibrium” (“fundamental value”, historic price to earnings ratios, etc.)
- Price thus destabilizes an asset market
- Far-from-equilibrium process means
 - Overvaluation of popular “growth” stocks
 - Undervaluation of unpopular “value” stocks...

Market Realities

- Argument that investors
 - React slowly to news
 - Under-react and Over-react
 - Ignore “reversion to the mean”
- Series of good reports leads to expectation of more good news
- Firm valuation rises, seen as “growth stock”
 - rise becomes self-fulfilling; bandwagon buying

Market Realities

- Firm cannot sustain above sector/economy performance indefinitely
- Initial “bad news” reports ignored as firm “reverts to mean”
- Finally, “bear” valuations set in; bandwagon selling
 - “growth stock” underperforms in medium term

Stocks

- Standard & Poor’s 500: 90 U.S. stocks up to 1957 and 500 after that. Leaders in their industries and among the largest firms traded on U.S. Markets.
- Small stocks: Securities traded on the NYSE with market capitalizations in the bottom 10%.

Stocks

	S&P 500
• January 3, 2012	1,258.86
• August 13, 2013	1,691.42
• January 2, 1975	70.71
• January 3, 1977	107.00

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Major Stock Classes

- Large company growth stocks
- Large company value stocks
- **Small company growth stocks**
- Small company value stocks
- Mid cap growth stocks
- Mid cap value stocks
- Mid Foreign stocks
 - » Developed
 - » Emerging

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Small company growth stocks

- **Growth stock** generates substantial and sustainable positive cash flow and whose revenues and earnings are expected to increase at a faster rate than the average company within the same industry
- Small stocks: Securities traded on the NYSE with market capitalizations in the bottom 10%.

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Wrong ETF

- Brazil
- China
- Chile
- Turkey
- United States
- South Africa

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Price Earnings Ratio

- Ratio of a stock's price to the companies earning per share
- P_0/E_1

P_0 – market price per share

E_1 – Earnings per share

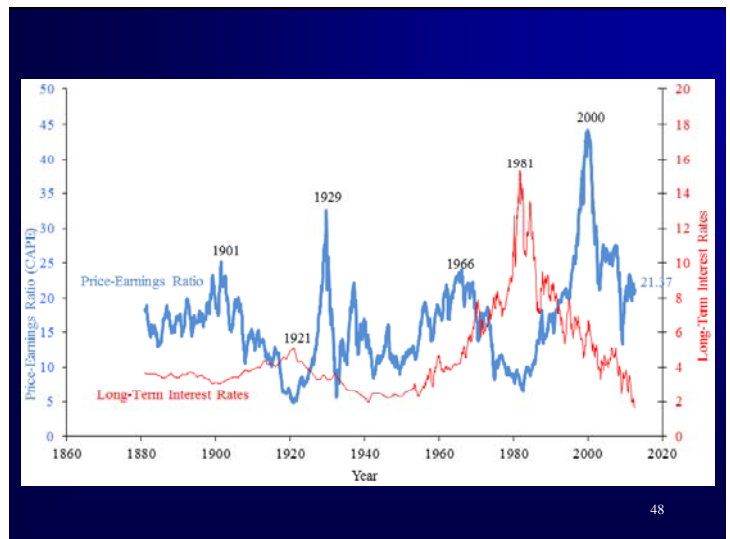
Earnings per share – $\frac{\text{net income} - \text{dividends}}{\text{average shares}}$

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Price Earnings Ratio

- Ratio of a stock's price to the companies earning per share
- P_0 / E_1
- Conventional wisdom,
Riskier stocks have lower P/E

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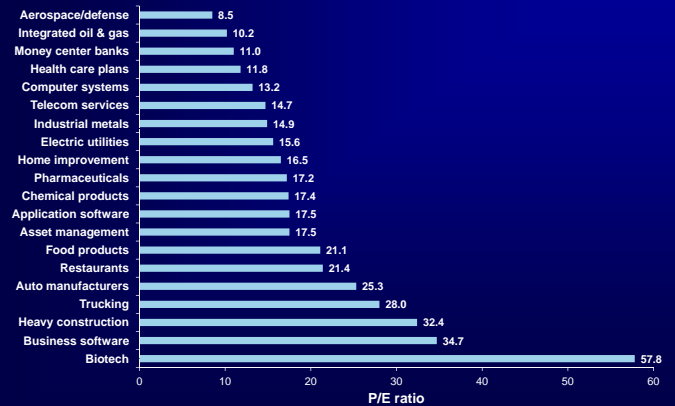


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Price Earnings Ratios

- Problems with the P/E
 - Earnings Management
 - Practice of using flexibility in accounting rules to improve apparent profitability of firm
 - Large amount of discretion in managing earnings

2012 P/E Ratios



Financial Statements

- www.sec.gov/edgar.shtml
- dripinvesting.org/Tools/Tools

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Financial Ratios: Can the Business Pay Its Debts?

- **CURRENT RATIO** is the ratio of current assets to current liabilities.

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$

- For instance, if JOE'S BAR AND GRILL has \$10 million in current assets and \$5 million in current liabilities, you get:
 - Current Ratio = \$10 million / \$5 million = 2.0
 - As a general rule, a current ratio of 1.5 or greater is normally sufficient to meet near-term operating needs.

Financial Ratios: Can the Business Pay Its Debts?

- The **ACID TEST (QUICK) RATIO**, the ratio of current assets minus inventory to current liabilities, is more rigorous.

- $$\frac{\text{Current assets} - \text{inventory}}{\text{Current liabilities}}$$

- The balance sheet of Joe's Bar and Grill shows that they have \$2.5 million of their current assets in hamburger buns that are sitting in inventory. You now can figure out the company's quick ratio:

Financial Ratios: Can the Business Pay Its Debts?

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- The balance sheet of Joe's Bar and Grill shows that they have \$2.5 million of their current assets in hamburger buns that are sitting in inventory. You now can figure out the company's quick ratio:

- Quick Ratio =
$$\frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$$

$$= \$10 \text{ mm} - \$2.5 \text{ mm} / \$5 \text{ mm}$$

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Financial Ratios: Can the Business Pay Its Debts?

- **WORKING CAPITAL** is the amount of current assets less current liabilities.
 - Current assets - Current liabilities

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Financial Ratios: Can the Business Pay Its Debts?

- **ACCOUNTS RECEIVABLE TO WORKING CAPITAL** shows the riskiness of the company's ability to make current payments.

$$\frac{\text{Accounts receivable}}{\text{Working capital}}$$

- **INVENTORY TO WORKING CAPITAL** states the riskiness in terms of inventory.

$$\frac{\text{Inventory}}{\text{Working capital}}$$

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Bottom line

Inefficiency markets generate opportunities

- Fund managers can't pursue because of short-term monitoring
 - Individuals tend to miss by "following the crowd"
 - Fund Managers
 - » Short-term horizon forces index following
 - Individuals
 - » Behavioral herding causes following of fads
- Opportunities to profit from individual investing
- Buy high out of favor sectors, low volatility, low PE
 - Worse performance over short term possible
 - Better performance over medium-long term likely

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