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Faith and Finance

Todd W. Neller
Gettysburg College

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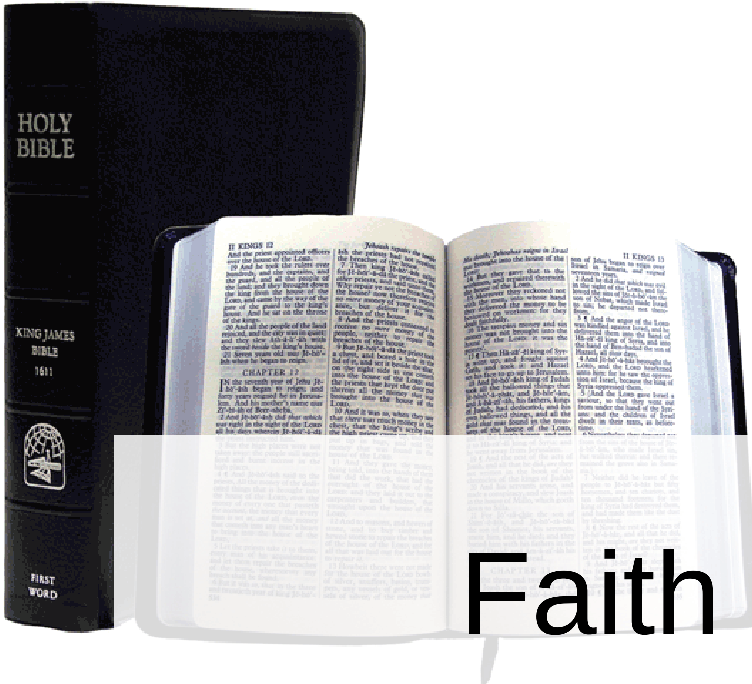
Faith and Finance

Abstract
The seminar covered scriptures concerning money, basic concepts of financial literacy, and a Christian perspective on investing. More information is available at http://cs.gettysburg.edu/~tneller/resources/investing/ .

Keywords
faith, finance, investing

Disciplines
Computer Sciences

Comments
This presentation was given for community members at the FourSquare church in Gettysburg, PA on February 19th, 2018, and for the Gettysburg College DiscipleMakers Christian Fellowship (DCF) at his home on February 24th, 2018.



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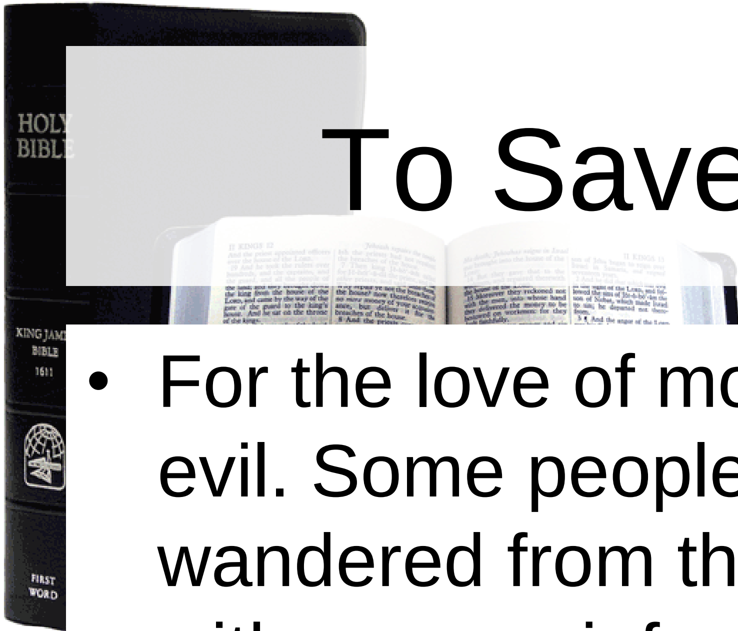
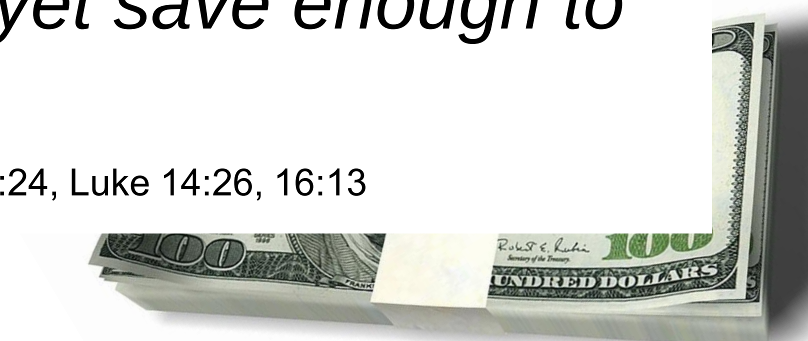
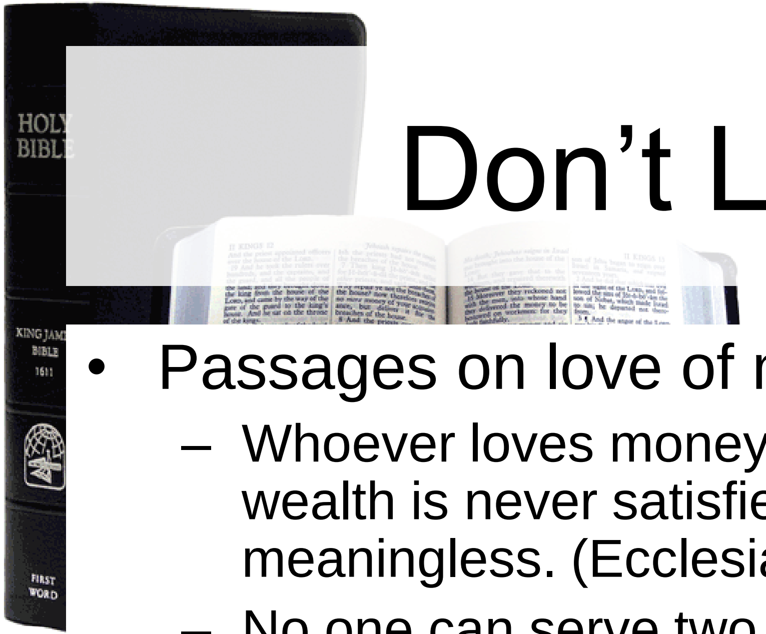


To Save or Not to Save

- For the love of money is a root of all kinds of evil. Some people, eager for money, have wandered from the faith and pierced themselves with many griefs. (1 Timothy 6:10)
- A good man leaves an inheritance for his children's children, but a sinner's wealth is stored up for the righteous. (Proverbs 13:22)
- *How can one hate* money, yet save enough to bless generations to come?*

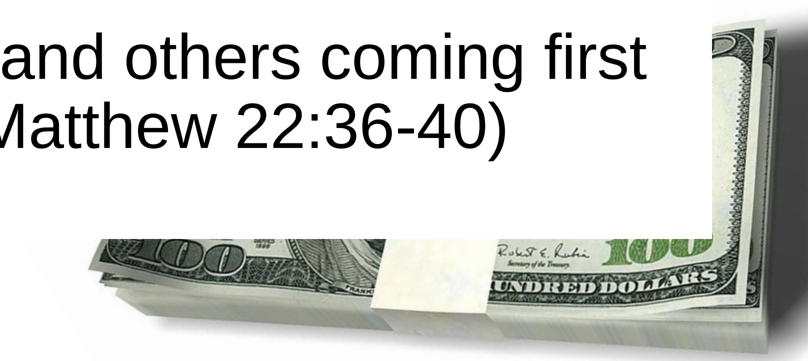
* “hate” used here in scriptural relative sense. See Matt. 6:24, Luke 14:26, 16:13

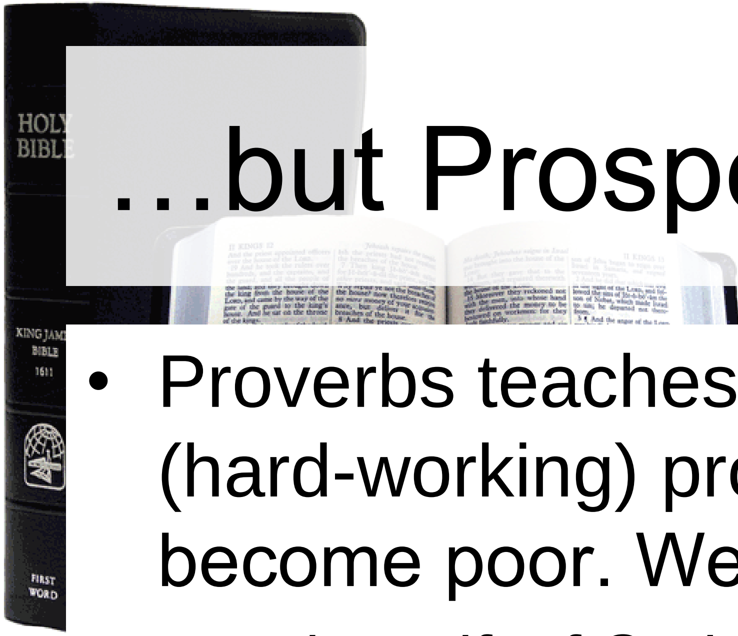




Don’t Love Money…

- Passages on love of money:
  - Whoever loves money never has money enough; whoever loves wealth is never satisfied with his income. This too is meaningless. (Ecclesiastes 5:10)
  - No one can serve two masters. Either he will hate the one and love the other, or he will be devoted to the one and despise the other. You cannot serve both God and Money. (Matthew 6:24)
  - Keep your lives free from the love of money and be content with what you have, because God has said, “Never will I leave you; never will I forsake you.” (Hebrews 13:5)
- Be content and satisfied, trusting in God.
- What you love comes first. God and others coming first is the greatest commandment. (Matthew 22:36-40)

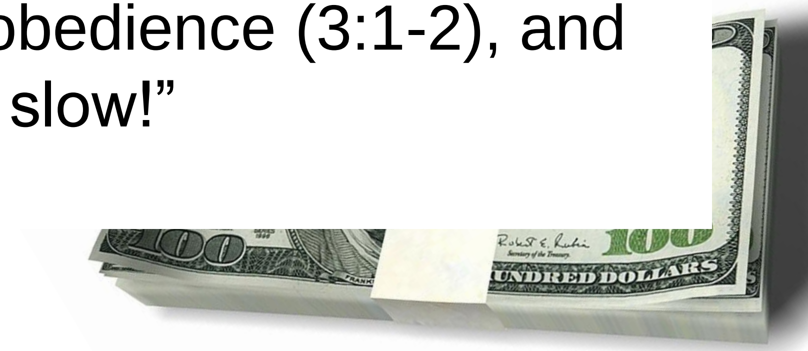


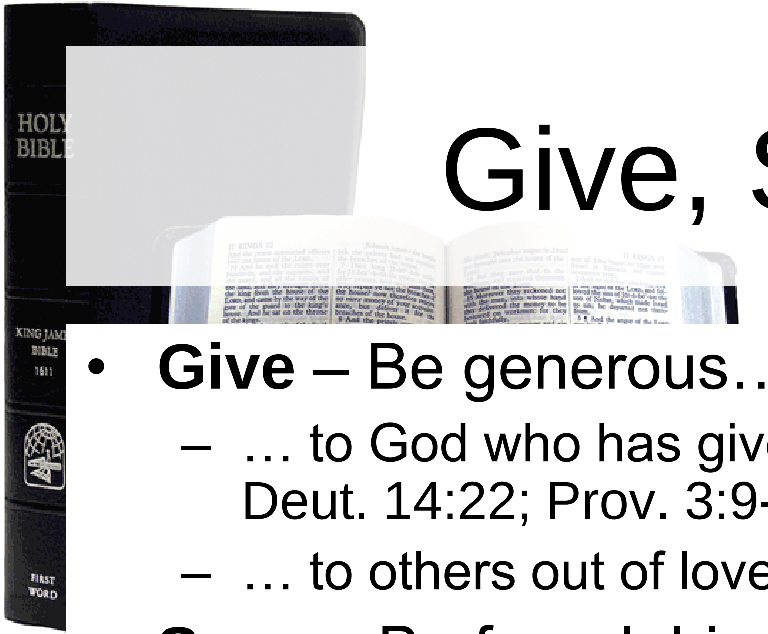


…but Prosper Through Wisdom

- Proverbs teaches that the wise and diligent (hard-working) prosper. The foolish and lazy become poor. Wealth/prosperity…
  - …is a gift of God. (10:22*)
  - …is associated with wisdom (3:16, 8:12-21), righteousness and love (21:21), humility and fear of the Lord (22:4)
  - …comes from hard work (10:4, 12:11,24,27, 13:4, 14:23, 18:9, 28:19), parental obedience (3:1-2), and slow saving (13:11). “Get rich slow!”

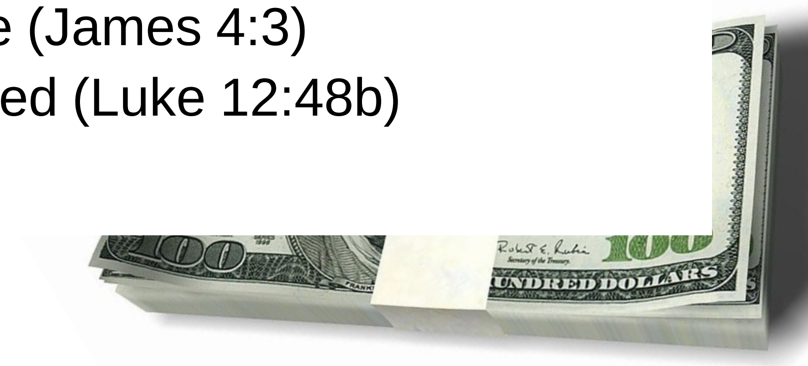
*all references here are from the book of Proverbs

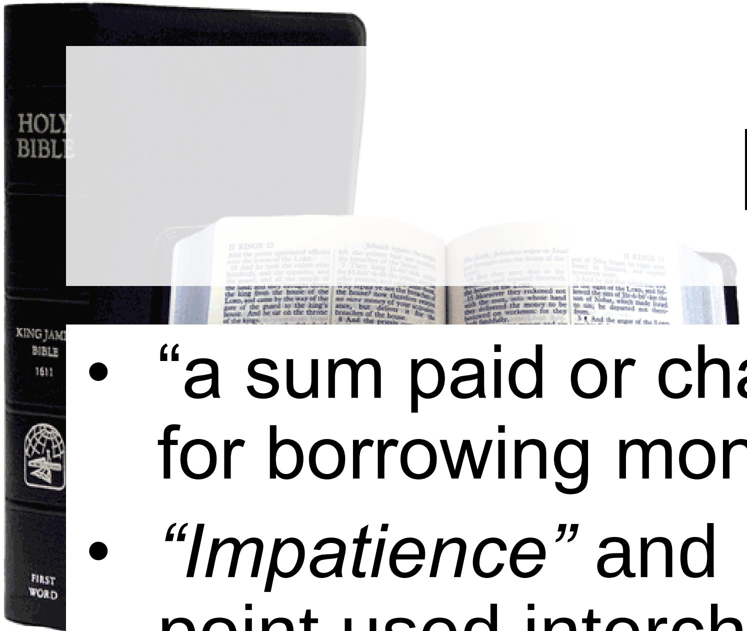




Give, Save, Spend

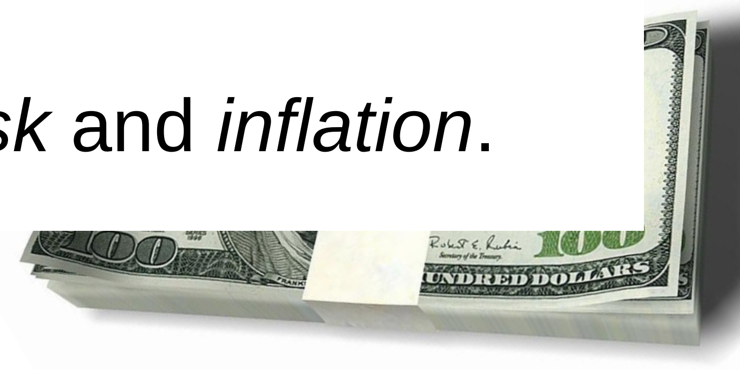
- **Give** – Be generous…
  - … to God who has given all. 10% tithe (Lev. 27:30; Num. 18:21; Deut. 14:22; Prov. 3:9-10)
  - … to others out of love. (2 Cor. 9:6-15; Prov. 11:24-25)
- **Save** – Be frugal. Live within your means…
  - … prudently for days beyond “harvest” when there is no work (Proverbs 6:6-8), Aesop’s ant/grasshopper fable
  - … generously out of love for descendants (Psalm 17:14; Proverbs 13:22)
- **Spend** – Be a wise steward.
  - Not with selfish motives for pleasure (James 4:3)
  - Resources should be wisely managed (Luke 12:48b)

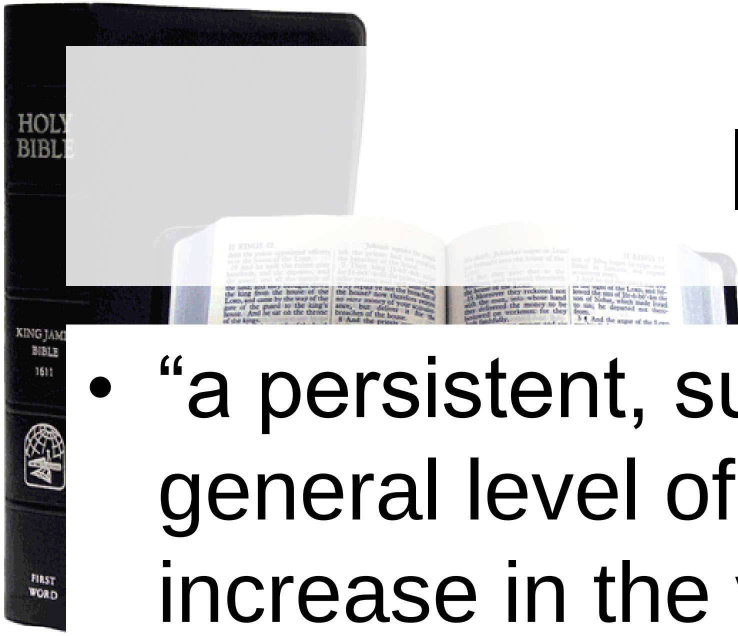




Interest

- “a sum paid or charged for the use of money or for borrowing money” (dictionary.com)
- *“Impatience”* and *“interest rate”* were at one point used interchangeably in finance literature (Bernstein, 2002, p.47)
- How much more/less we will pay for something now/later is a measure of our *impatience*.
- Recall that **patience** is a **fruit of the spirit**. (Gal. 5:22-23a)
- Interest is also impacted by *risk* and *inflation*.





Inflation

- "a persistent, substantial rise in the general level of prices related to an increase in the volume of money and resulting in the loss of value of currency" (dictionary.com, underlines added)
  - Too much money chasing too few goods
  - Same goods, higher price
  - Same money, lower value

Inflation's Corrosive Effect

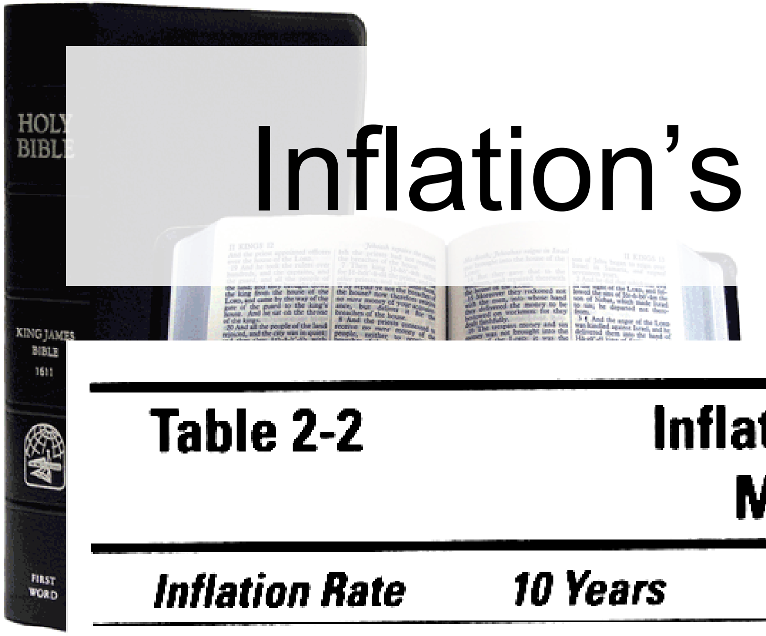
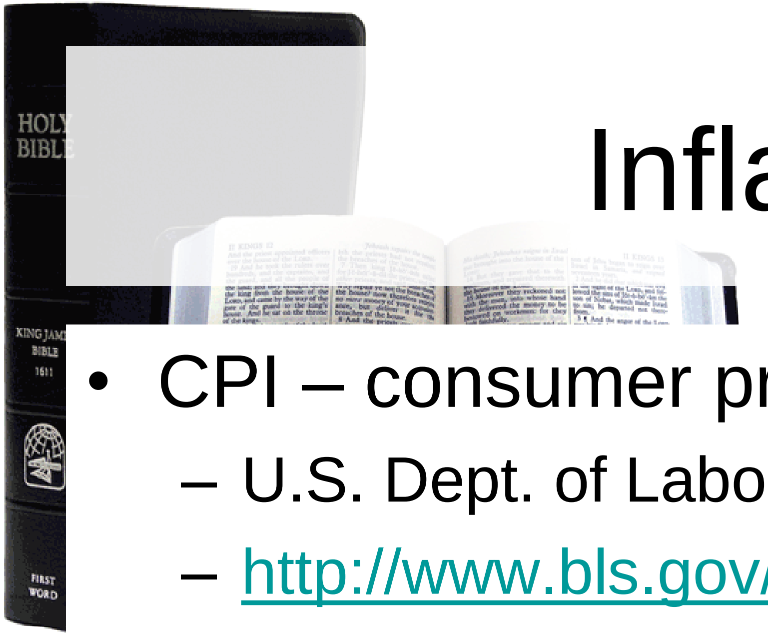


Table 2-2 **Inflation's Corrosive Effect on Your Money's Purchasing Power**

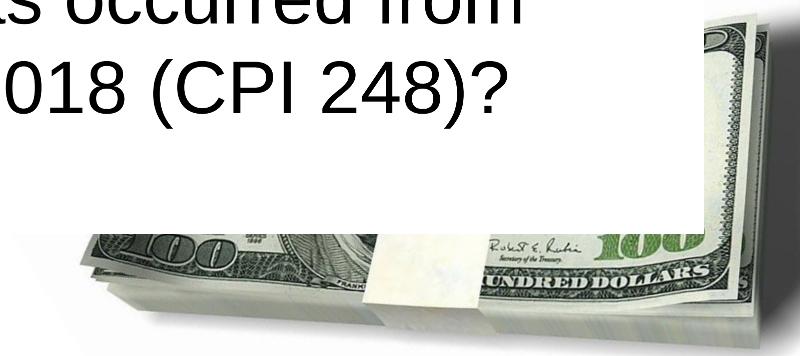
Inflation Rate	*10 Years*	*15 Years*	*25 Years*	*40 Years*
2%	–18%	–26%	–39%	–55%
4%	–32%	–44%	–62%	–81%
6%	–44%	–58%	–77%	–90%
8%	–54%	–68%	–85%	–95%
10%	–61%	–76%	–91%	–98%

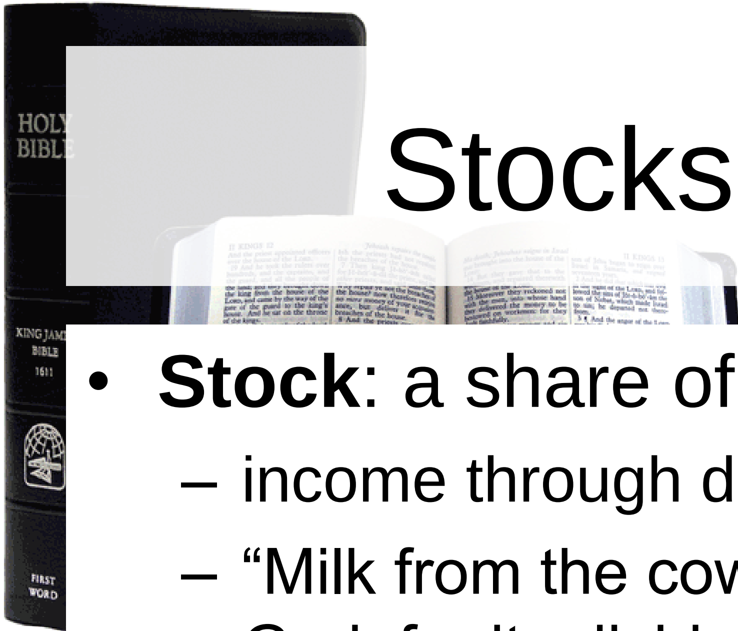
(Tyson, 2006, p.34)



Inflation Data

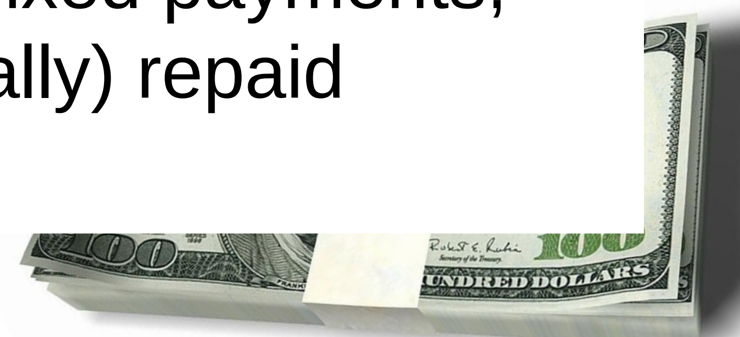
- CPI – consumer price index
  - U.S. Dept. of Labor, Bureau of Labor Statistics
  - http://www.bls.gov/cpi/tables.htm
  - https://inflationdata.com/Inflation/Consumer_Price_Index/HistoricalCPI.aspx
- Inflation from time t1 to time t2:
  CPI_{t2} / CPI_{t1}
- How much dollar inflation has occurred from your birth through January 2018 (CPI 248)?

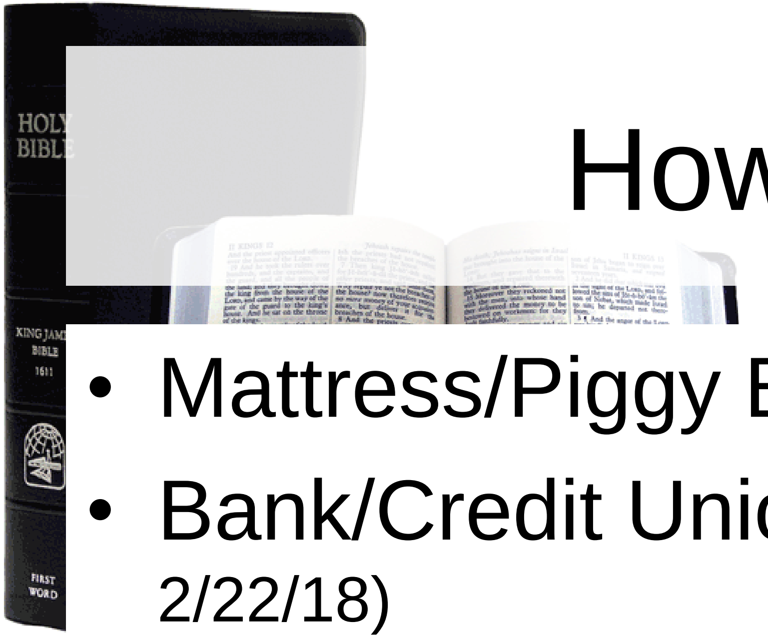




Stocks versus Bonds

- **Stock**: a share of ownership in a company
  - income through dividends and appreciation
  - “Milk from the cows, eggs from the hens. A stock, by God, for its dividends!” (Bernstein 2002, p.61)
  - **dividend**: portion of profits paid out per share
  - **appreciation**: increase in stock price
- **Bond**: a limited-time loan during which the bondholder receives periodic fixed payments, after which the loan is (nominally) repaid

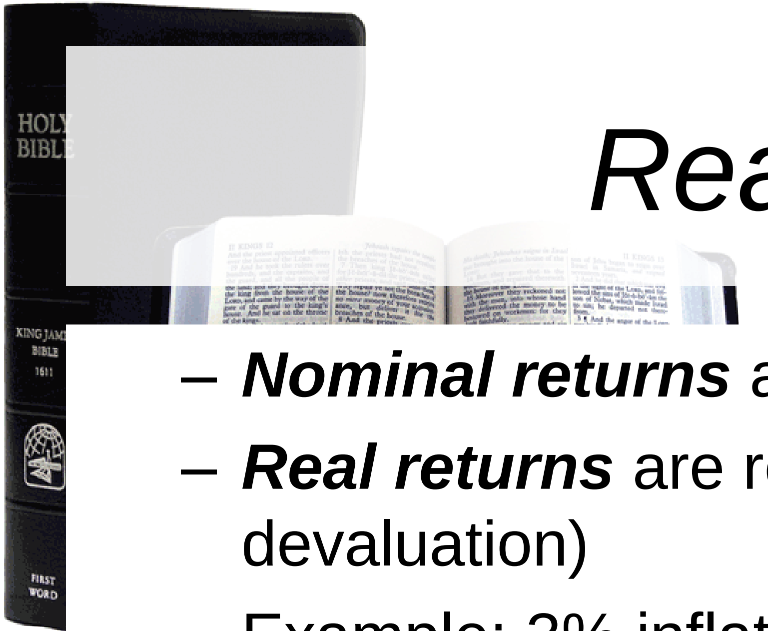




How to Save?

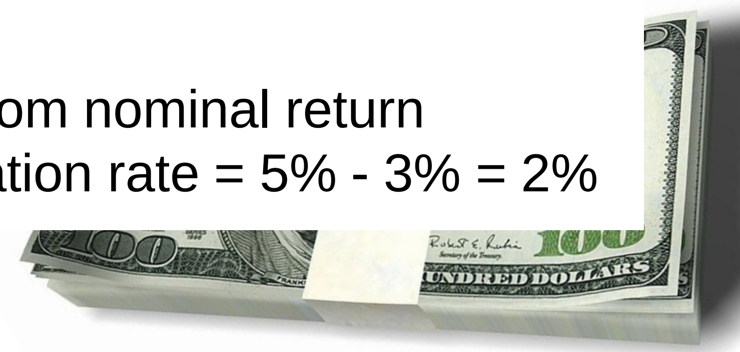
- Mattress/Piggy Bank/Safe: 0%
- Bank/Credit Union (bankrate.com, nat'l avg. 2/22/18)
  - 1-Year Certificate of Deposit: 1.89%
  - Money Market Account: 0.14%
- Treasury Bonds: 5%[1]
- Large Company Stocks: 10%[1]
- Other: Real estate, gold, etc.

[1] 20th century averages (Bernstein, 2002, p. 29)

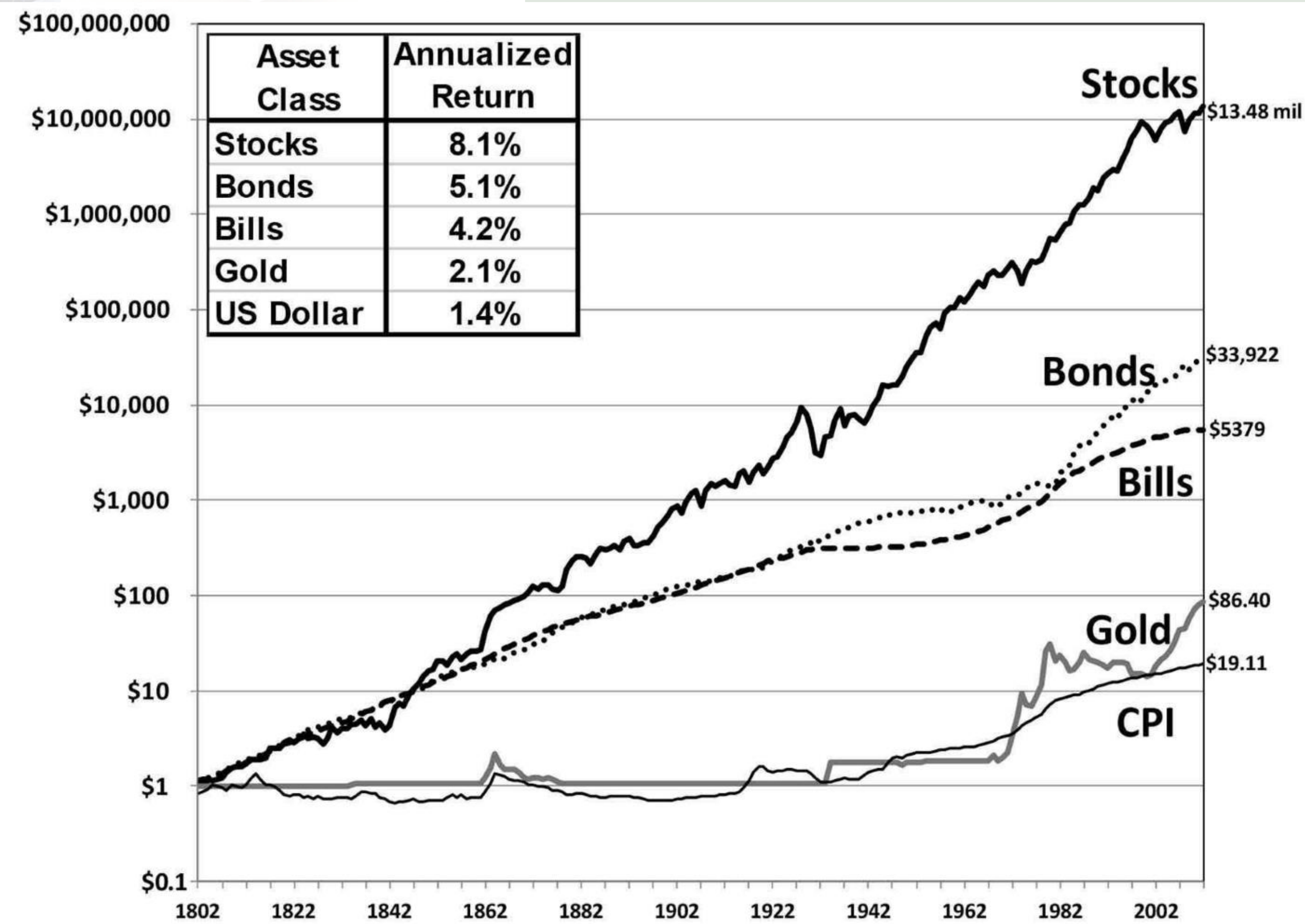


Real Returns

- ***Nominal returns*** are simple dollar returns
- ***Real returns*** are returns *after inflation* (dollar devaluation)
- Example: 3% inflation, 5% nominal return
  $1.00 invested last year is now $1.05, but it now takes $1.03 to buy last year's $1.00 worth. What's the real return?
  - (1 + real return) = (1 + nominal return) / (1 + inflation rate)
    (1 + real return) = (1 + .05) / (1 + .03) = 1.05 / 1.03 = ~1.0194
    real return = ~.0194 = ~1.94%
  - **Easy estimate**: subtract inflation from nominal return
    real return ~= nominal return – inflation rate = 5% - 3% = 2%

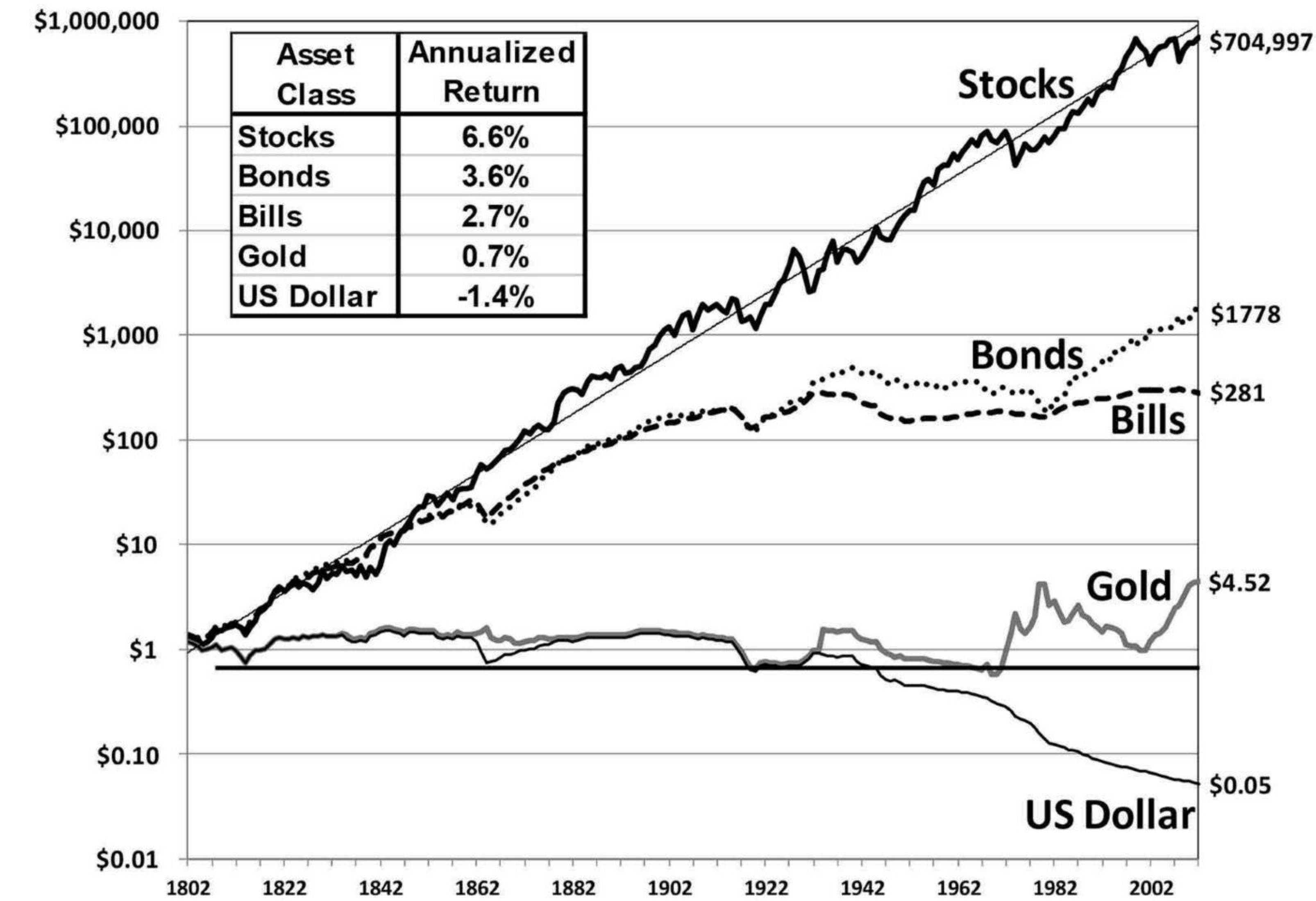


Historical Nominal Returns



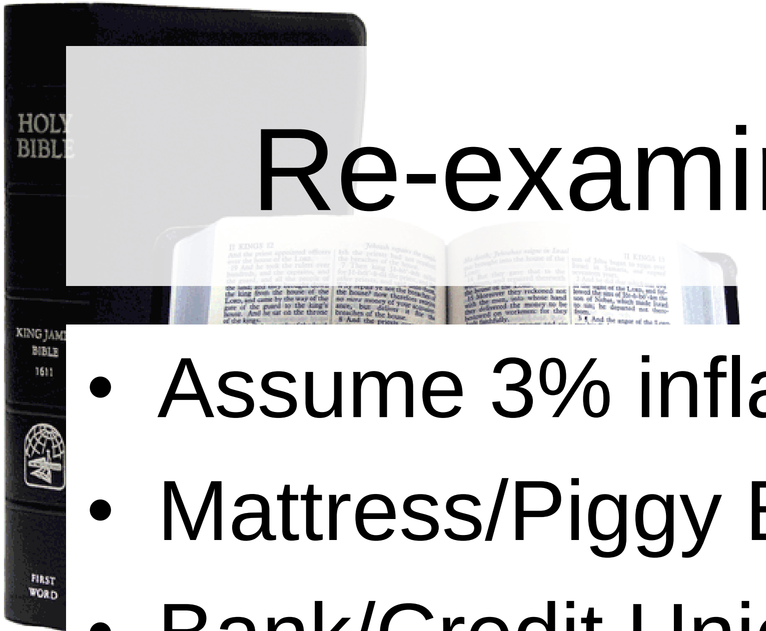
(Seigel, 2014, Fig 5-1)

Historical Real Returns



Asset Class	Annualized Return
Stocks	6.6%
Bonds	3.6%
Bills	2.7%
Gold	0.7%
US Dollar	-1.4%

(Seigel, 2014, Fig 1-1)



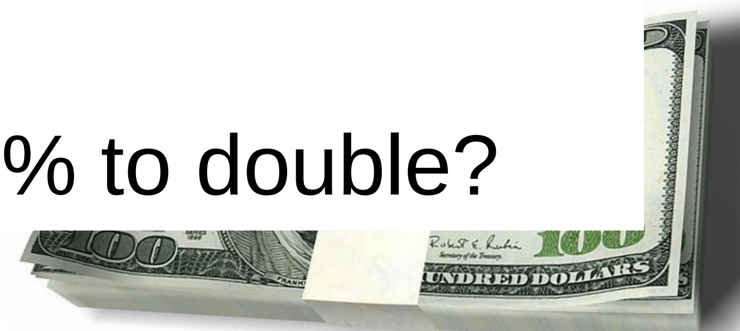
Re-examining the Options

- Assume 3% inflation[1]. Est. real returns[2]:
- Mattress/Piggy Bank/Safe: -3%
- Bank/Credit Union
  - Certificate of Deposit: -1.11%
  - Money Market Account: -2.86%
- Treasury Bonds: +2%
- Large Company Stocks: +7%

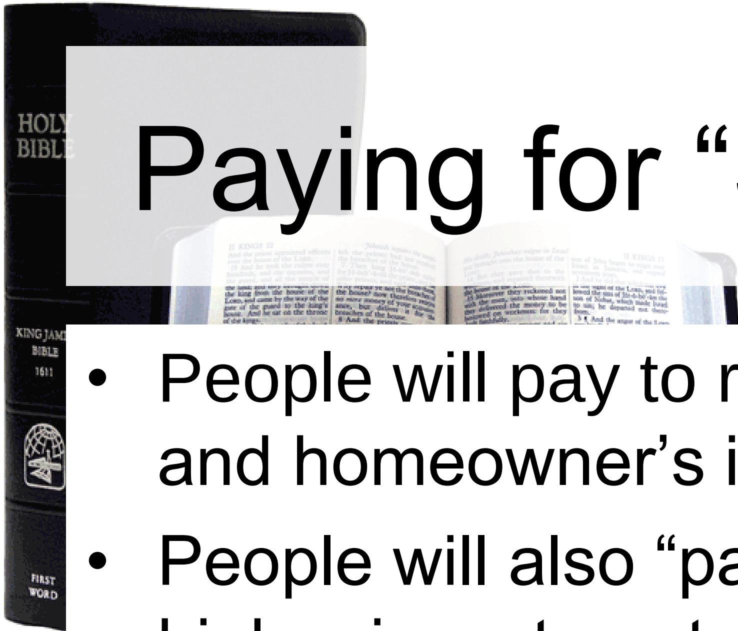
[1] 20th century average (Bernstein, 2002, p. 67)
[2] Actual returns: -2.9%, -1.1%, -2.8%, +1.9%, +6.8%

Rule of 72

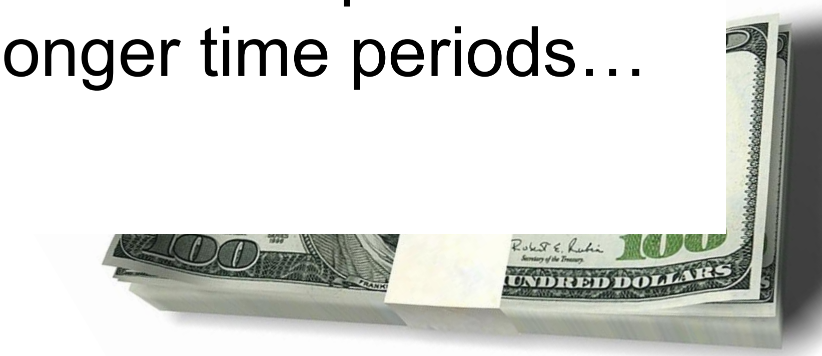
- To *estimate* the number of years it will take for an investment to double in real terms, <u>divide the real return rate into 72.</u>
- Treasury Bonds: 72 / 2 = 36
  - – Actual: log 2 / log 1.02 ~= 35.00
- Large Company Stocks: 72 / 7 = ~10.3
  - – Actual: log 2 / log 1.07 ~= 10.24
- Not a bad estimate!
- How many years for real 6% to double?



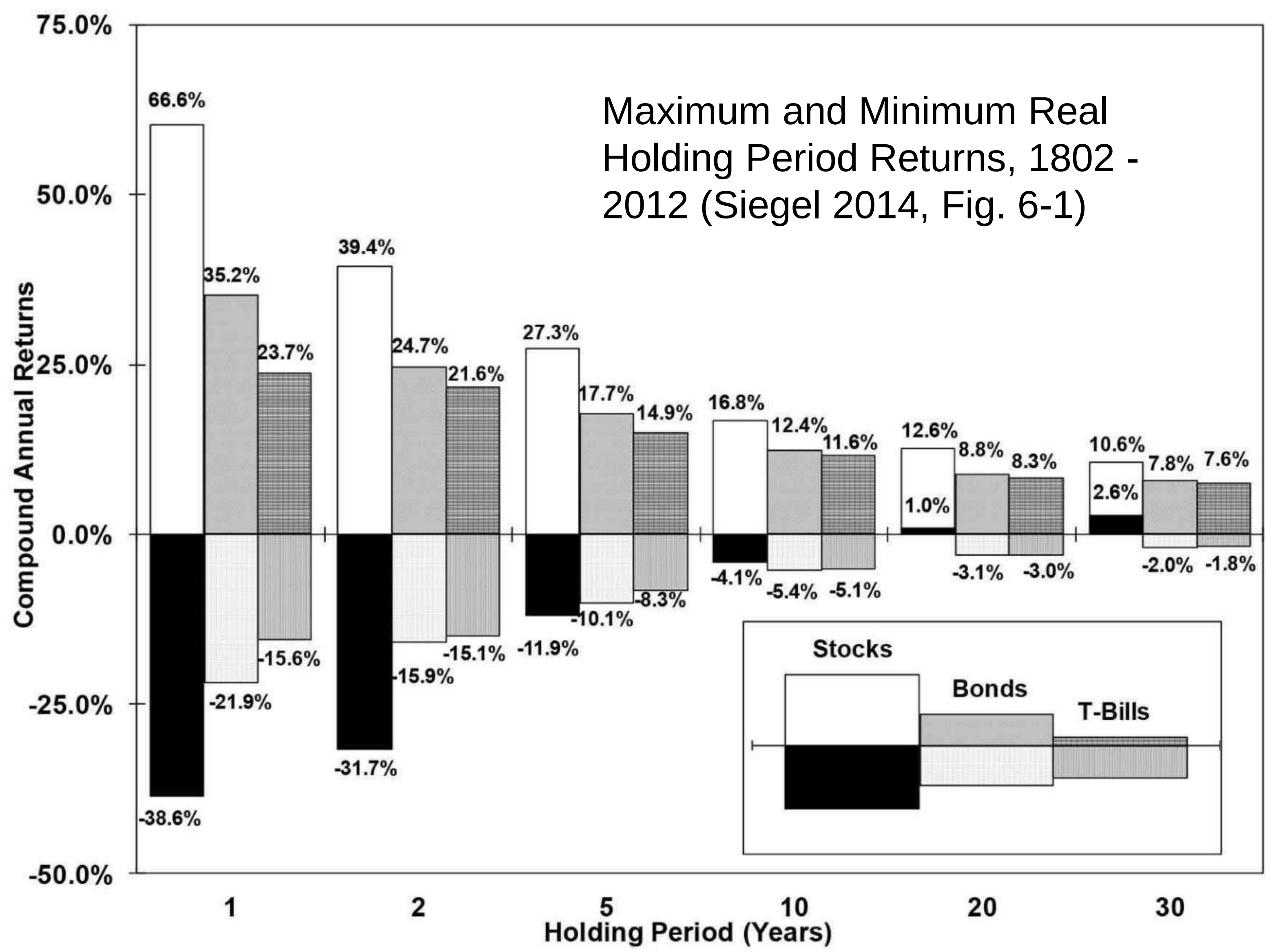
Paying for “Safety” or “Control”



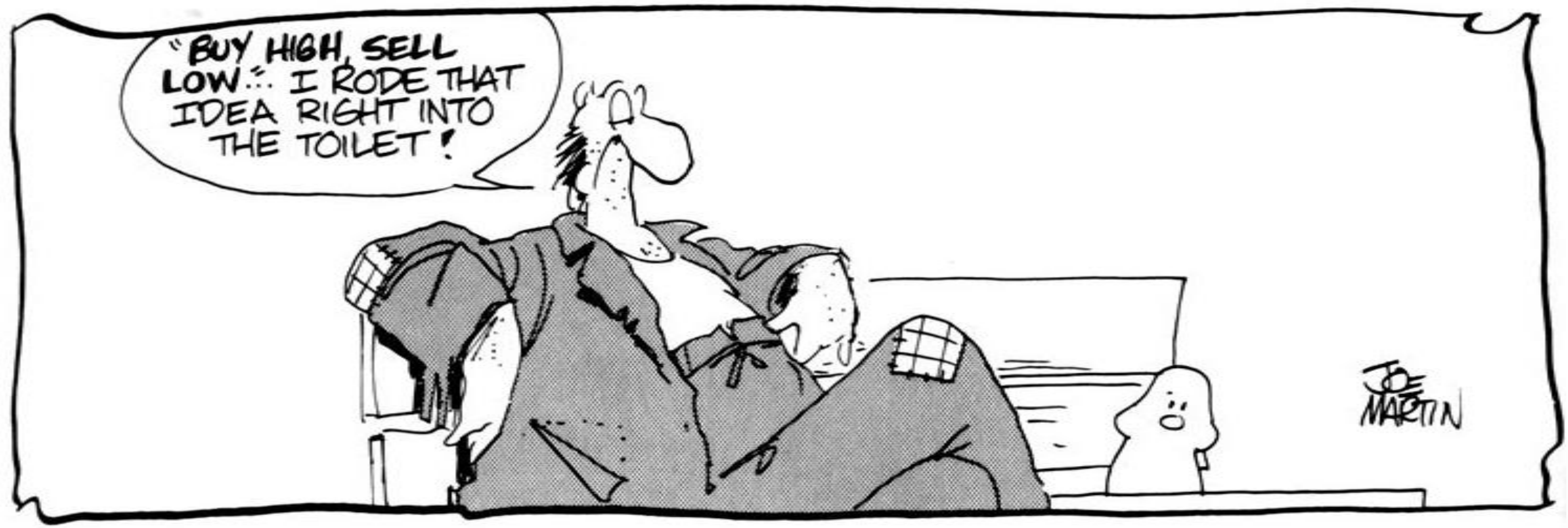
- People will pay to reduce perceived risk (e.g. auto and homeowner’s insurance).
- People will also “pay” (through lost opportunity of higher investment returns) for “safer” investments.
- Bear in mind: Prov. 16:9, 19:21; James 4:13-15. In God we trust, not markets, not statistics. God is sovereign.
- Stock investors are “paid” to face fear of possible loss, which is less likely over longer time periods…



Risk, Reward, and Time



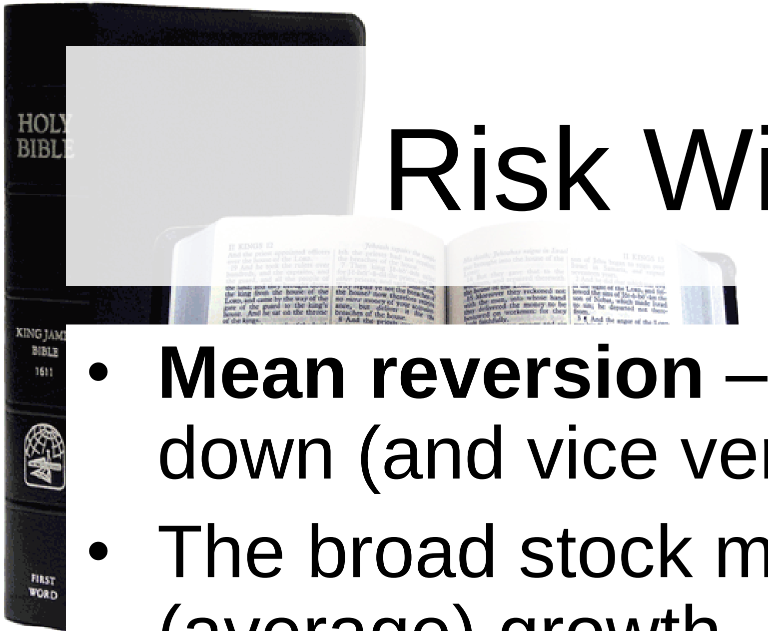
Wisdom of the Masses



(Joe Martin, Mr. Boffo – Shrink Wrapped, 1995, p. 134)

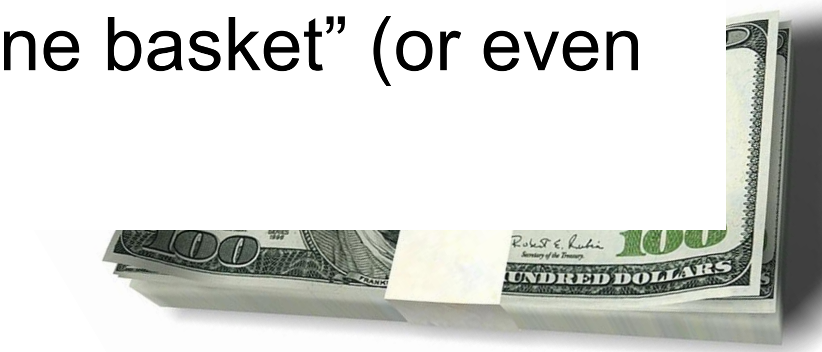
Conformity, Greed, and Fear

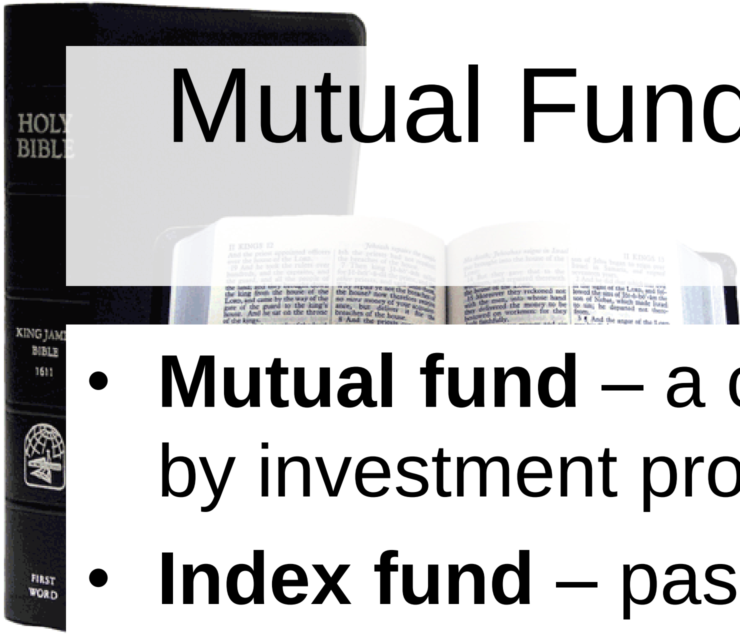
- The market rises “ever higher”
  - Overcome by **greed**, people “buy high”.
  - Investments plunge (“correction”, “bear market”)
- The market falls “ever lower”
  - Overcome by **fear**, people “sell low”.
  - Investments recover … after sale.
- Following the masses has a real cost.
- Patient, trusting “buy and hold” investing denies greed and fear.



Risk Without Reward

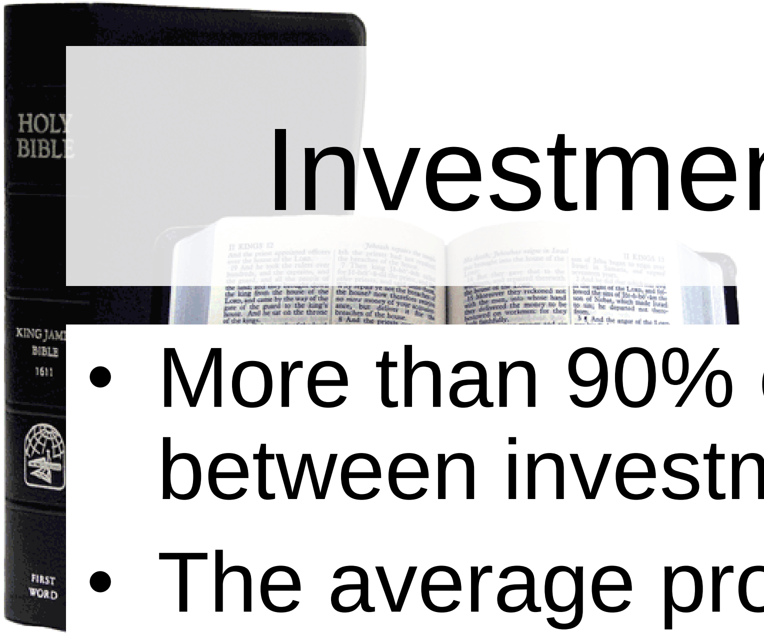
- **Mean reversion** – what goes up must come down (and vice versa)
- The broad stock market reverts to a mean (average) growth.
- However, individual stocks do not revert to a mean growth.
- Companies begin, grow, and eventually decline and die.
- “Don’t put all your eggs in one basket” (or even 10).





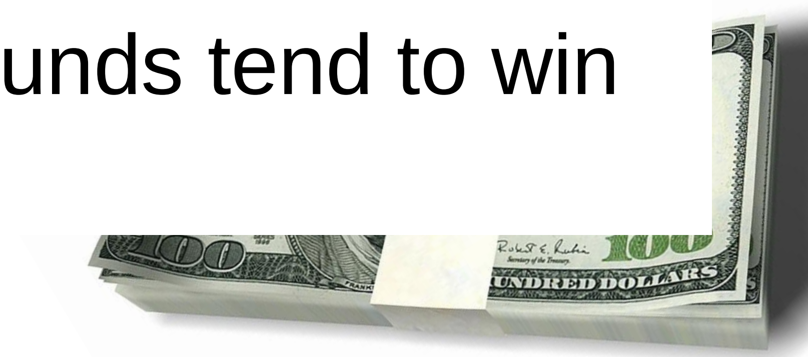
Mutual Funds, Index Funds, and ETFs

- **Mutual fund** – a collection of stocks managed by investment professionals.
- **Index fund** – passively managed collection of all/most stocks of an indexed exchange, sector, country, etc.
- **Exchange Traded Fund (ETF)** – similar to mutual fund, but traded like stocks
- For simplicity, buy *diverse* stock holdings through index funds and/or index fund ETFs

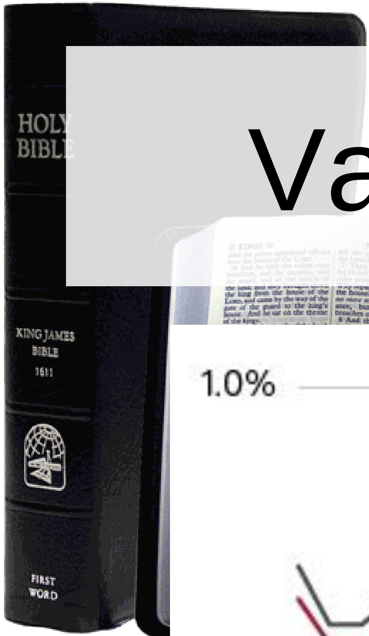


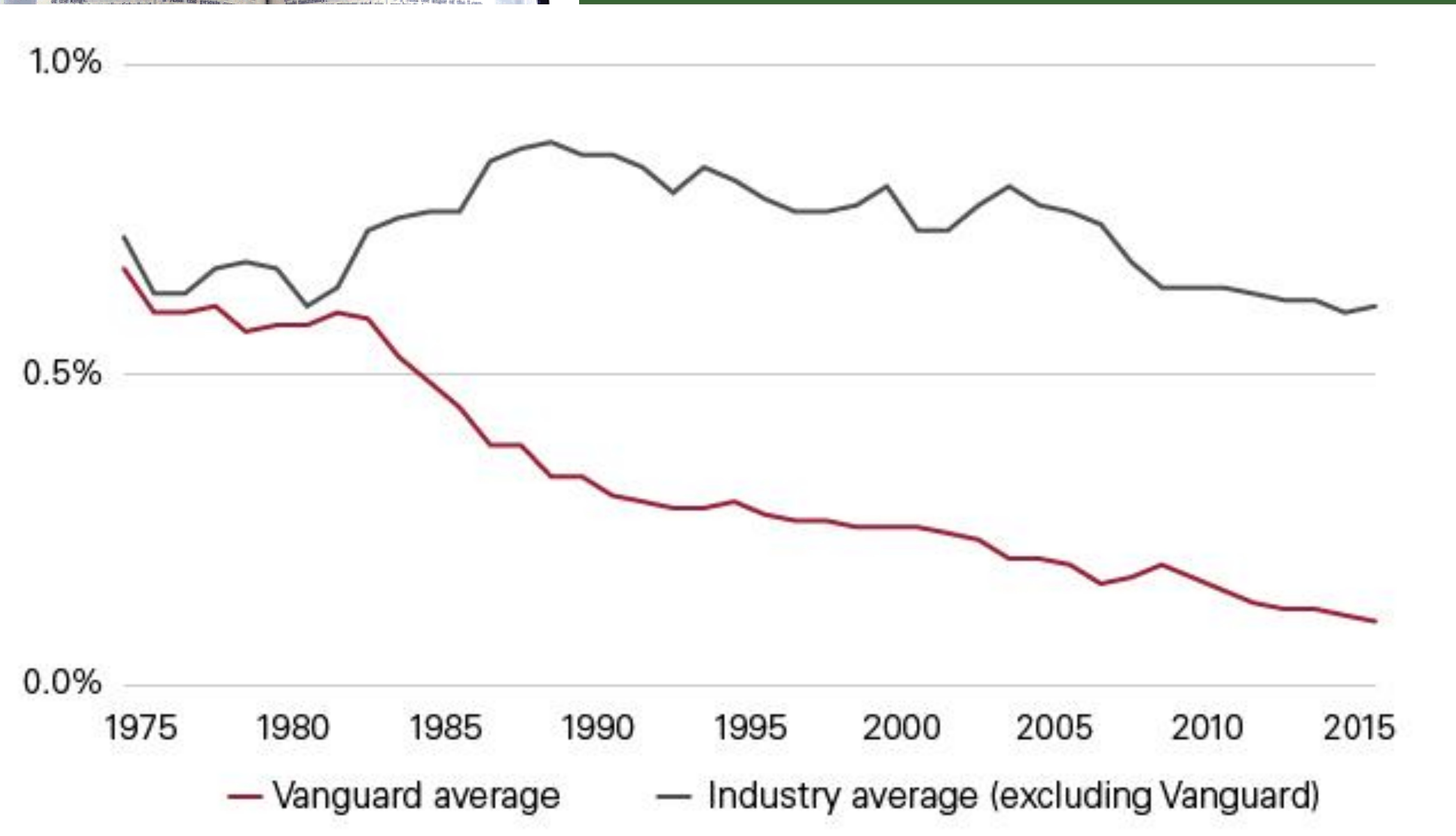
Investment Costs Matters

- More than 90% of stock trades occur between investment professionals.
- The average professional performance is *the market average.*
- Fund *expenses* then cut into returns.
- Thus, the average fund performs *below* the market average.
- *Diverse, low-cost* index funds tend to win out in the long-run.



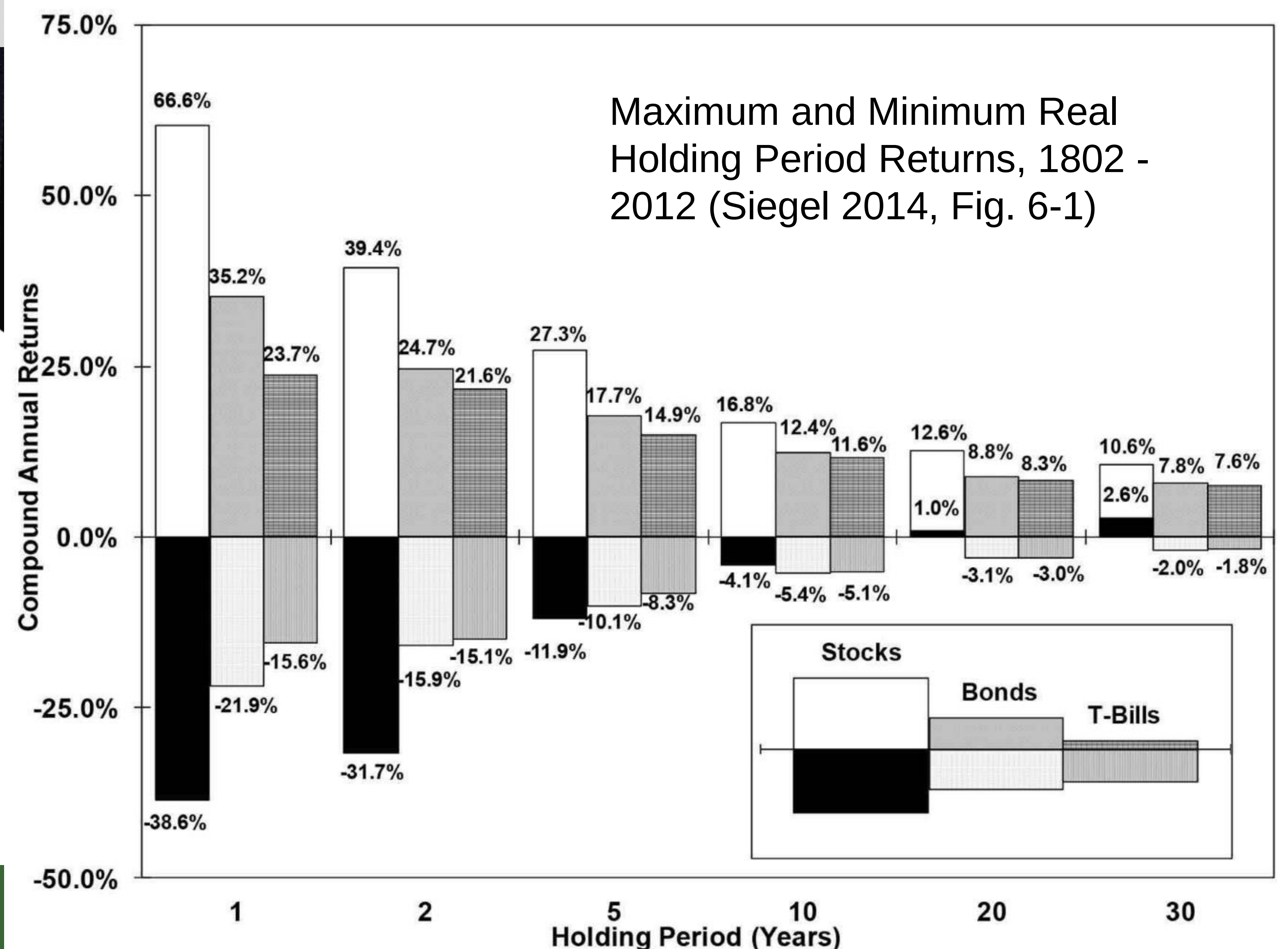
Vanguard Expense Ratios

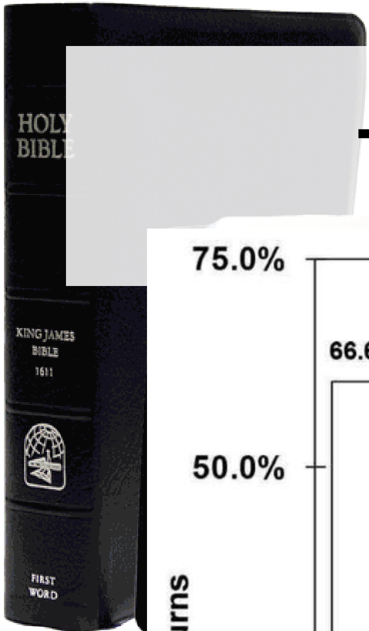


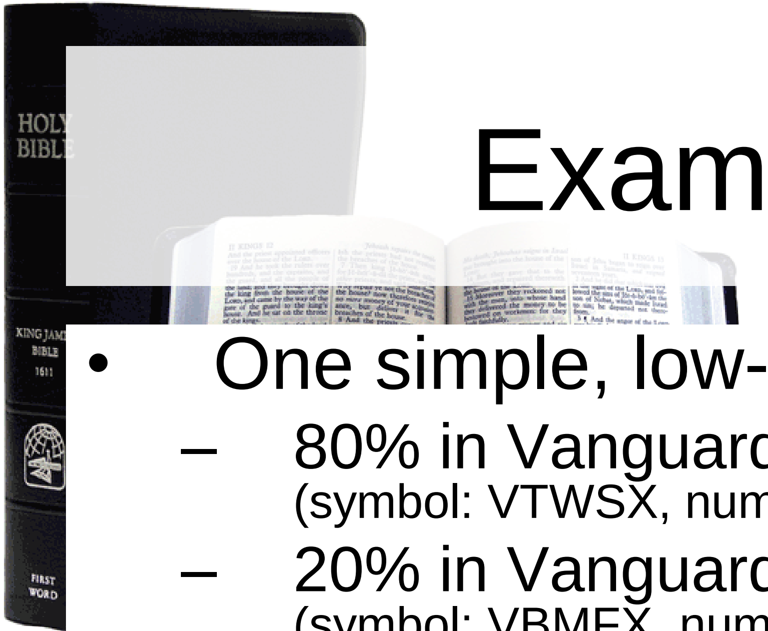


From https://investor.vanguard.com/expense-ratio/vanguard-effect (2/2/18)
All averages are asset-weighted. Industry averages exclude Vanguard.
Sources: Vanguard and Morningstar, Inc., as of December 31, 2016.

Time Frame Revisited

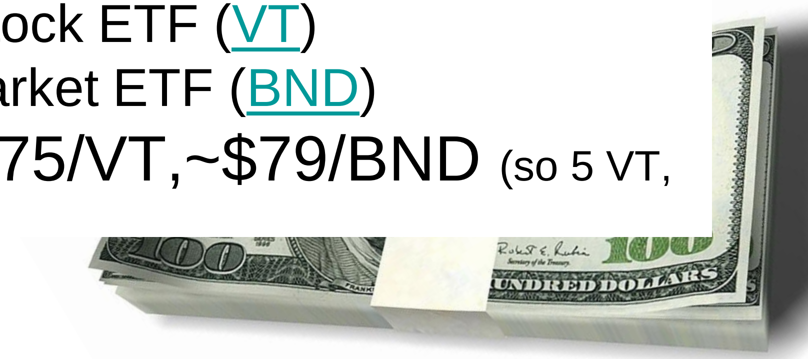


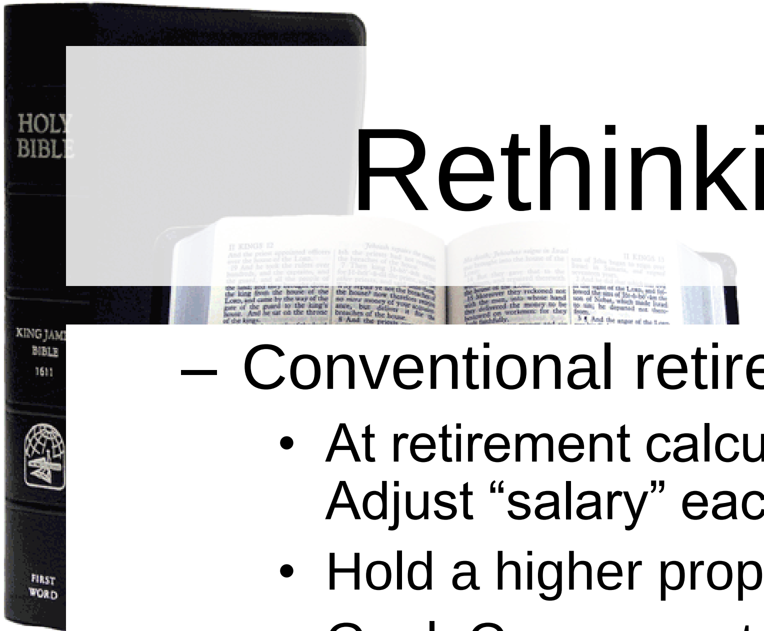




Example Portfolio

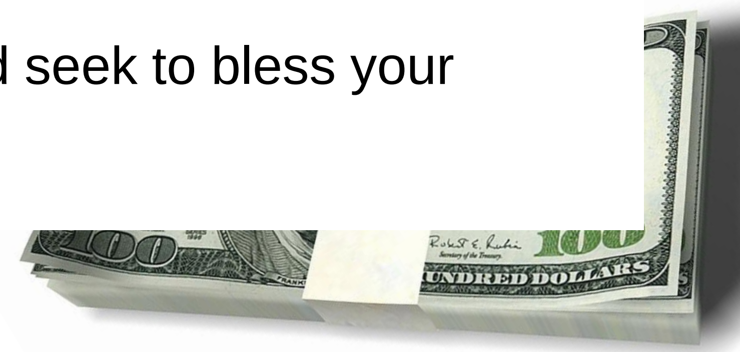
- One simple, low-cost, diverse portfolio:
  - 80% in Vanguard Total World Stock Index Fund (symbol: VTWSX, number 0628)
  - 20% in Vanguard Total Bond Market Index Fund (symbol: VBMFX, number 0084)
- Above fund minimums are $3000, so starting out:
  - Open Vanguard Roth IRA with e-delivery (no annual fee) & buy Vanguard ETFs (no trade commissions)
  - Buy basic Vanguard ETFs:
    - 80% Vanguard Total World Stock ETF (VT)
    - 20% Vanguard Total Bond Market ETF (BND)
  - As of 2/22/2018: shares: ~$75/VT,~$79/BND (so 5 VT, 1 BND ~= $455; 6 VT ~= $450)

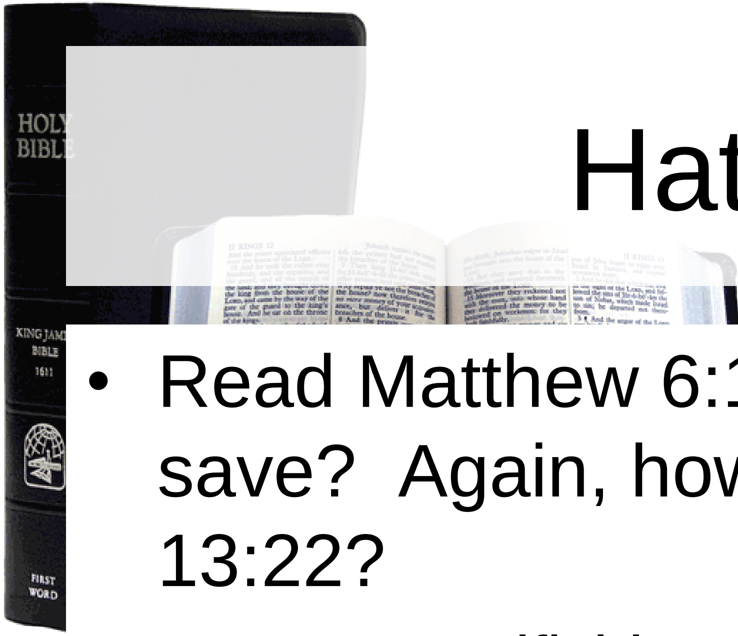




Rethinking Retirement

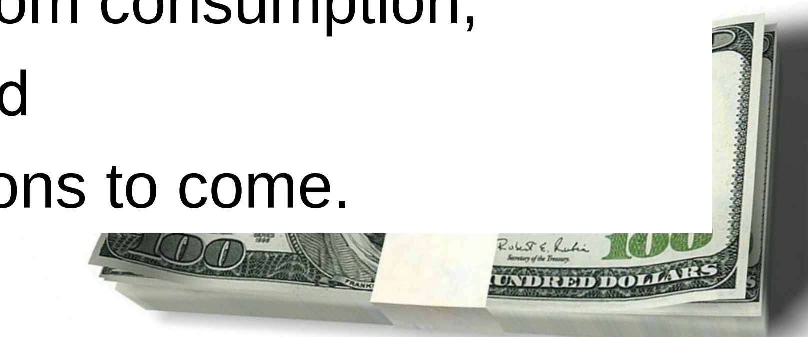
- Conventional retirement planner advice:
  - At retirement calculate 4% of savings as retirement “salary”. Adjust “salary” each year for inflation.
  - Hold a higher proportion of bonds for low risk.
  - Goal: Consume at the fastest rate possible without quite depleting savings.
- Unconventional wisdom:
  - Instead, let 3% be your retirement “salary”. Preserve savings value for your descendants. (Bernstein, 2002, p. 235)
  - Keep the same high proportion of stocks; you’re still saving for the long-term.
  - Goal: Consume what you need and seek to bless your descendants.





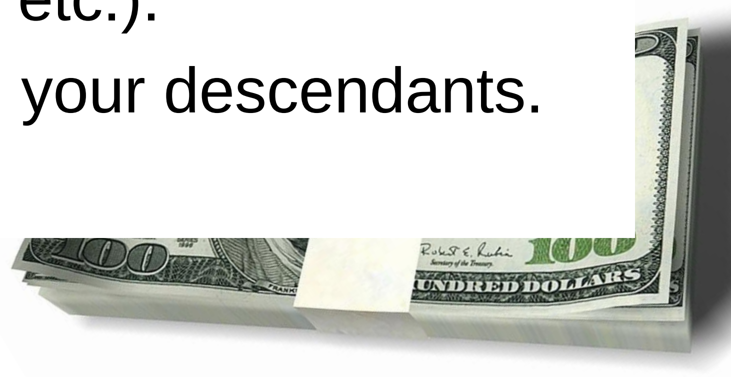
Hating Money

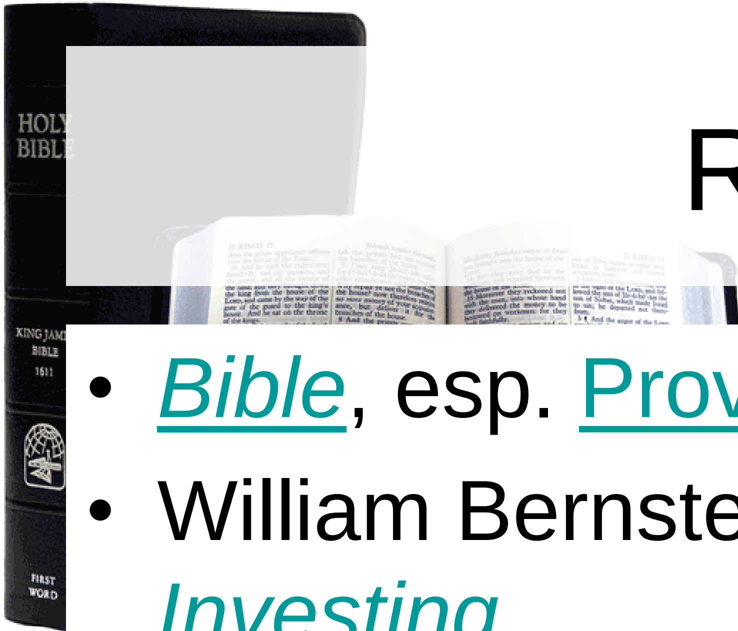
- Read Matthew 6:19-34. Does this tell us not to save? Again, how does this work with Proverbs 13:22?
  - Do not selfishly store up for **yourself**.
  - Do not **treasure** savings.
  - Do not **worry** about savings.
- Hate money by
  - Simply, patiently abstaining from consumption,
  - Trusting it to God’s hands, and
  - Giving it away to the generations to come.



Conclusion

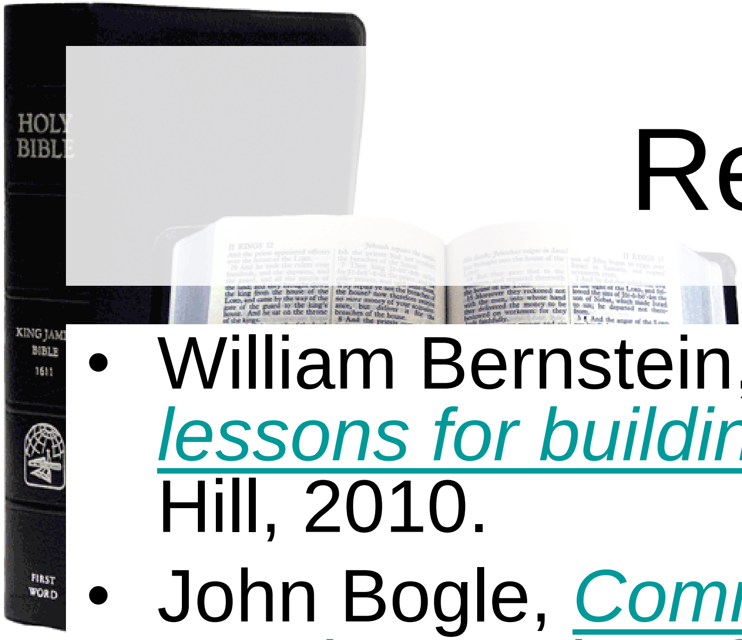
- Give, save, spend (in that order)
- Seek out and prepare for your calling (vocation). Enjoy your work! (Eccl. 2:24a, 3:22, 5:19)
- As God leads, build a faithful marriage with a contented spouse who likewise loves God and hates money.
- Live well within your means, patiently, regularly investing 10-20% of income in diverse, low-cost equities (e.g. index funds, ETFs, etc.).
- Trust God to provide for you and your descendants. (Prov. 11:28, Matt. 6:25-34)





Readings

- *Bible*, esp. Proverbs and Ecclesiastes
- William Bernstein, *The Four Pillars of Investing*.
- Eric Tyson, *Investing for Dummies*.
- Online:
  - Vanguard: www.vanguard.com,
  - Bogleheads forum: bogleheads.org



References

- William Bernstein, *The Four Pillars of Investing: lessons for building a winning portfolio*, McGraw Hill, 2010.
- John Bogle, *Common Sense on Mutual Funds: new imperatives for the intelligent investor*, 10th Anniv. Ed., John Wiley & Sons, Inc., 2009.
- Jeremy Siegel, *Stocks for the Long Run: the definitive guide to financial market returns and long-term investment strategies*, 5th edition, McGraw-Hill, 2014.
- Eric Tyson, *Investing for Dummies*, 8th edition, Wiley Publishing, Inc., 2017.