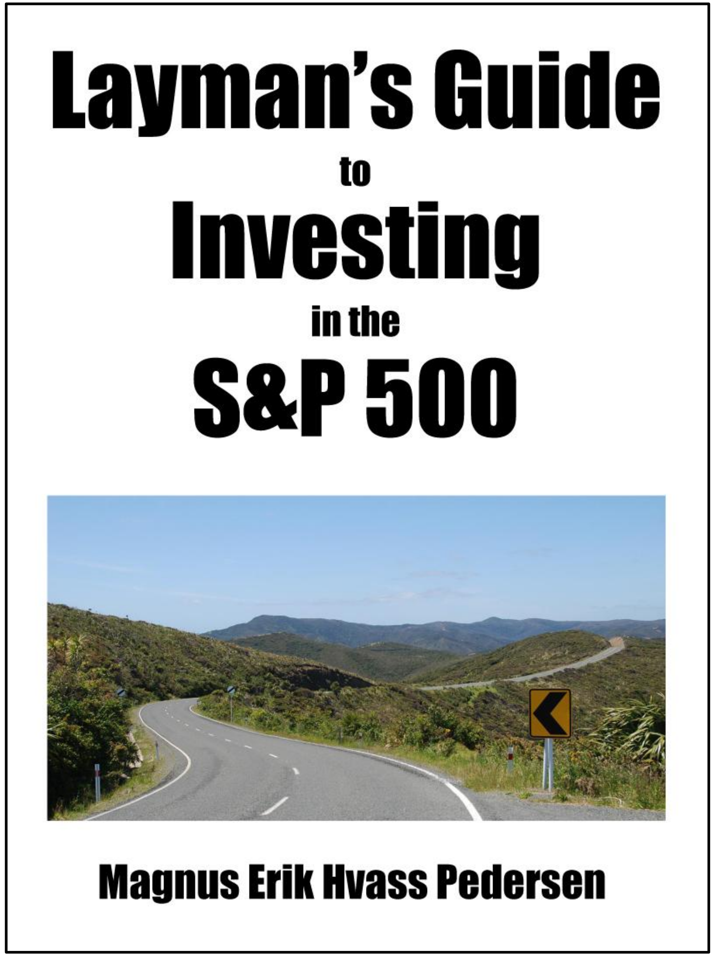


# Protection Against Inflation

By

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# What is Inflation?

- Inflation is the increase in prices of goods and services over time.
- Example: In 1950 a 12-oz bottle of Coca-Cola cost $0.05
- In 2015 a 12-oz can cost $0.40 (depending on where you bought it).
- This is an 8-fold increase in price over 65 years.
- This corresponds to an average price increase of 3.3% per year.
- Such price increases are typical for most goods and services.
- Inflation should be expected to continue in the future.

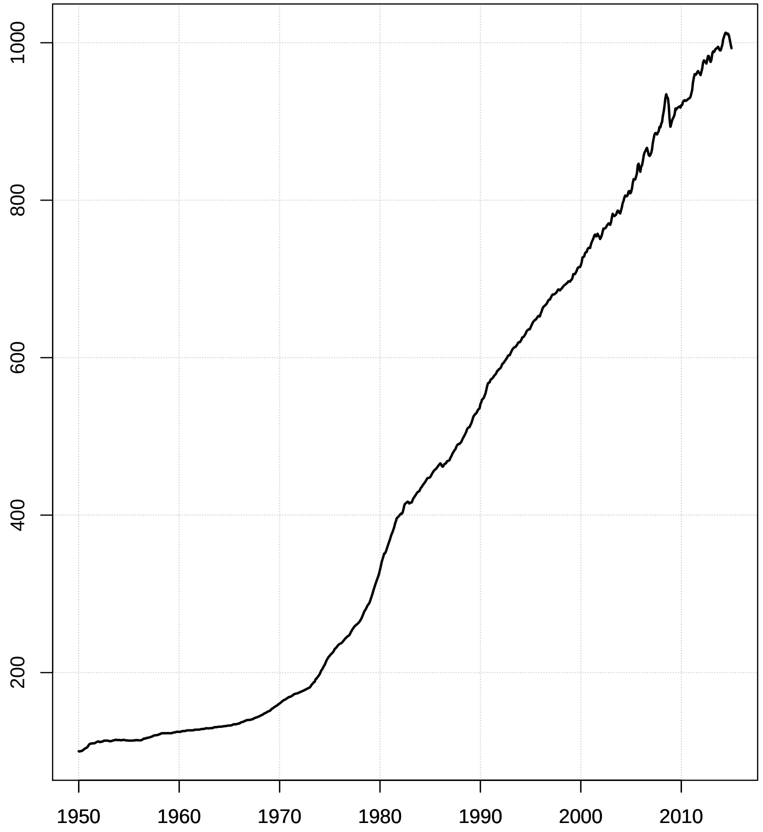
# Consumer Price Index (CPI)

- The CPI measures the price change for a basket (i.e. list) of goods and services consumed by typical US households.
- Housing is about 42% of the total expenses for a typical US household, food and beverages are 15% and transportation also 15%.
- Between 1950 and 2015 the CPI increased 3.6% per year on average.
- This means the price of goods and services consumed by typical US households increased 10-fold between 1950 and 2015.
- Some years had very high inflation e.g. in the 1970’s while a few years had deflation (falling prices) e.g. the financial crisis in 2008-9.

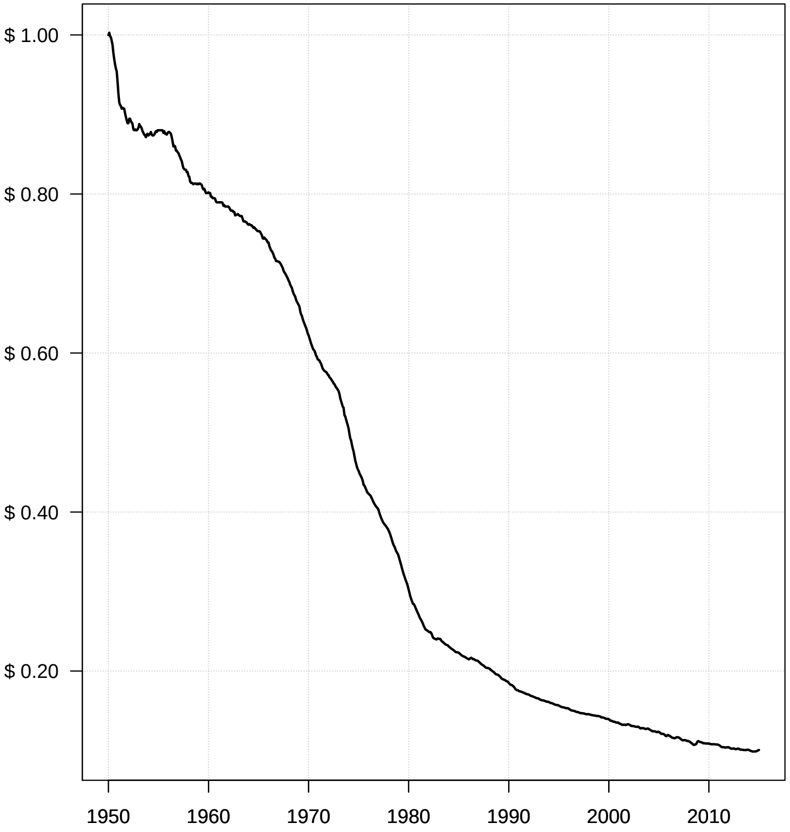
# Purchasing Power

- The CPI measures the change in prices of goods and services.
- Purchasing power measures the corresponding change in the amount of goods and services that $1 purchases. *PP = 100 / CPI*
- Example: If you had $1 in 1950 and spent it on Coca-Cola at $0.05 per 12 oz bottle then you would have bought 20 bottles in 1950.
- If instead you had kept the $1 in a safe and spent it in 2015 then you would only get 2.5 cans of coke for $1. Purchasing power decreased.
- Between 1950 and 2015 the purchasing power of $1 halved every 20 years on average for common goods and services.

# Inflation (CPI)




# Purchasing Power



# Inflation vs. US Government Bonds

- Don’t keep cash for extended periods of time because of inflation.
- You can invest in US government bonds.
- Between 1962 and 2015 the interest earned on US government bonds with 1-year maturity was greater than inflation in 7 out of 10 years.
- On average the bond yield was 1.5% greater than inflation.
- The worst year was 1974 where bonds yielded 7.3% but inflation was 12.2%, so your purchasing power still decreased almost 5%.
- The best year started in September 1981 where the government bonds returned more than 17% and inflation was only 5%.

# Treasury Inflation-Protected Securities (TIPS)

- TIPS are US government bonds protected from price inflation.
- But the yields on TIPS are also lower than for normal bonds. The difference is the market's expectation for future inflation.
- Whether TIPS or normal bonds are better depends on whether the actual inflation is lower or higher than the expected inflation.
- This is impossible to predict.
- TIPS have long maturity of 5, 10 or 30 years.
- You must be able to own TIPS until they mature because you could lose a lot of money if you sell before maturity, aka. interest rate risk!

# Inflation vs. S&P 500

- The S&P 500 is a stock-market index of 500 large US companies.
- Between 1962 and 2013 the S&P 500 returned 7.1% more than inflation per year, on average.
- But the S&P 500 is very volatile in any single year.
- The S&P 500 out-performed inflation in 7 out of 10 years.
- Over longer periods the S&P 500 performs increasingly better.
- The S&P 500 out-performed inflation in 75% of all 10-year periods.
- The S&P 500 out-performed inflation in ALL 20-year periods.

# Conclusion

- Inflation destroys the value of cash savings.
- Historically, US government bonds protected against inflation in 7 out of 10 years.
- It is impossible to predict whether TIPS will be better or worse than normal bonds.
- The S&P 500 offers good long-term protection against inflation but crashes sometimes.

The book gives more details.