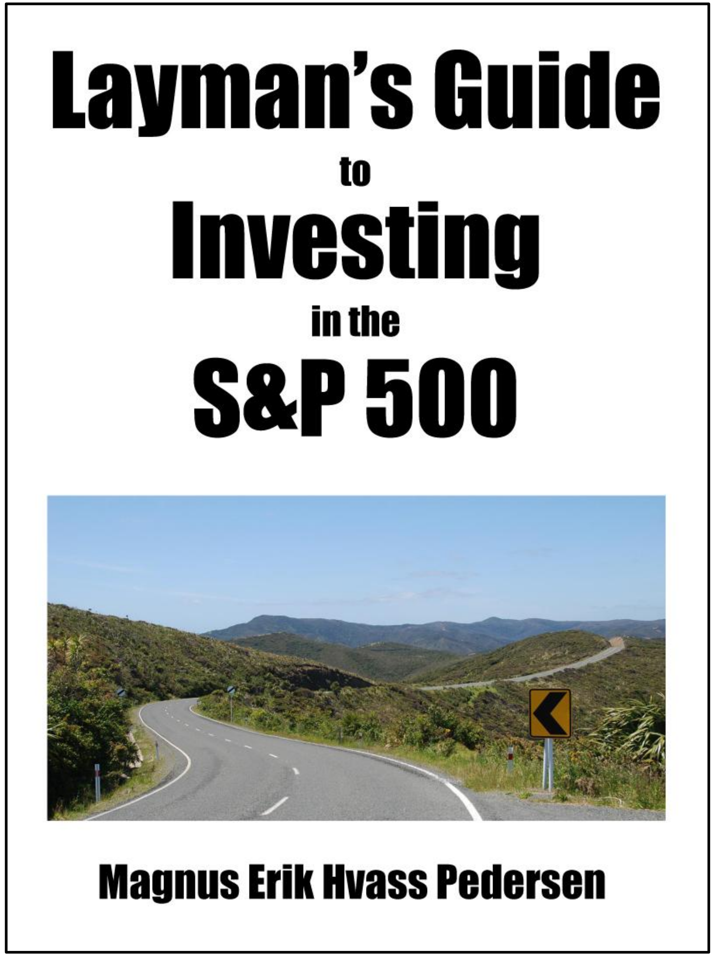

Portfolio Rebalancing

By

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S&P 500

- S&P 500 is a stock-market index of 500 large companies in USA.
- Consider investments in the S&P 500 for all 10-year periods between January 1962 and December 2013.
- Assume dividends are reinvested in S&P 500 and there are no taxes.
- Average annualized return was 10.1% for all 10-year periods.
- Worst 10-year period had a loss of (4.0%) per year, which corresponds to a loss of (33.6%) over 10 years.
- Best 10-year period had a return of 19.8% per year. Total gain 509%.

US Government Bonds

- You lend money to the US government. They give you a "bond" as proof. This is considered the safest investment in the world.
- The bond pays interest to compensate you.
- Between 1962 and 2015 the interest rate (aka. yield) on US gov. bond with 1-year maturity was 5.5% on average.
- In 1981 the bond yield was 17%. But in 2011 it was almost 0%.
- Return of your money is guaranteed by the US government. If you own the bond until it matures then you cannot lose money.

Portfolio Allocation

- The worst historical loss of the S&P 500 started in October 2007 and the loss reached about (55%) for a short time in March 2009.
- Rule of thumb is to multiply the max amount you can tolerate losing by 2 and invest that amount in the S&P 500.
- If your savings are $100,000 and you believe you can tolerate losing $20,000 in a stock-market crash that is hopefully recovered within a few years, then you multiply the $20,000 by 2 to get $40,000 which is the amount you should invest in the S&P 500. The remaining $60,000 should be invested in US government bonds.

Annual Rebalancing

- Rebalance your portfolio once a year back to your desired allocation.
- Example: Your portfolio is divided 50/50 between the S&P 500 and US gov. bonds so you have $50,000 invested in each.
- If the S&P 500 gains 20% and the gov. bonds only return 5% then your portfolio has $60,000 in the S&P 500 and $52,500 in bonds.
- To get the portfolio back to 50/50 you sell $3,750 of your S&P 500 and buy more bonds so that $56,250 are invested in each.

50% S&P 500 / 50% US Gov. Bond (1962-2013)

- Average annualized return of 8.5% for all 10-year periods.
- Worst 10-year period had a return of 0.5% per year.
- Best 10-year period had a return of 14.5% per year.
- Under-performed the S&P 500 in about 69% of all 10-year periods.
- Under-performed US gov. bonds in 22% of all 10-year periods.
- Had losses in 15% of all one-year periods, worst loss was (22.5%).
- Losses were small and very rare after 5 years of rebalancing. No losses after 10 years of rebalancing with a 50/50 allocation.

Conclusion

- The S&P 500 can be very volatile.
- US gov. bonds have low, guaranteed returns.
- Multiply your max tolerable loss by 2 and invest that amount in S&P 500, rest in bonds.
- Rebalancing your portfolio between S&P 500 and gov. bonds lowers the volatility and losses, but also lowers the long-term returns.

The book gives more details.