

Backtest Portfolio Asset Allocation

This portfolio backtesting tool allows you to construct one or more portfolios based on the selected mutual funds, ETFs and stocks to analyze and backtest portfolio returns, risk characteristics, standard deviation, annual returns and rolling returns. The results include a visualization of the portfolio growth chart and rolling returns, CAGR, standard deviation, Sharpe ratio, Sortino ratio, annual returns and inflation adjusted returns. A periodic contribution or withdrawal can also be specified together with the preferred portfolio rebalancing strategy. You can also analyze and compare asset class based lazy portfolios with a longer time horizon starting from 1972.

Time Period	<input type="text" value="Year-to-Year"/>
Start Year	<input type="text" value="2004"/>
End Year	<input type="text" value="2014"/>
Initial Amount	<input type="text" value="\$ 10000"/> <input type="text" value=".00"/>
Periodic Adjustment	<input type="text" value="None"/>
Rebalancing	<input type="text" value="Rebalance annually"/>
Display Income	<input type="text" value="No"/>
Benchmark	<input type="text" value="None"/>

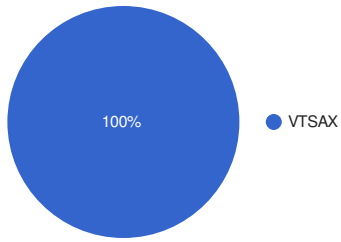
Portfolio Assets			Portfolio #1	Portfolio #2	Portfolio #3
Asset 1	<input type="text" value="VTSAX"/>	<input type="text" value="Q"/>	<input type="text" value="100"/> %	<input type="text" value="50"/> %	<input type="text" value="0"/> %
Asset 2	<input type="text" value="VBTXL"/>	<input type="text" value="Q"/>	<input type="text" value="0"/> %	<input type="text" value="50"/> %	<input type="text" value="100"/> %
Asset 3	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 4	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 5	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 6	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 7	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 8	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 9	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Asset 10	<input type="text" value="Ticker symbol"/>	<input type="text" value="Q"/>	<input type="text" value=""/> %	<input type="text" value=""/> %	<input type="text" value=""/> %
Total			<input type="text" value="100"/> %	<input type="text" value="100"/> %	<input type="text" value="100"/> %

Portfolio Analysis Results (Jan 2004 - Dec 2014)

Portfolio Allocations

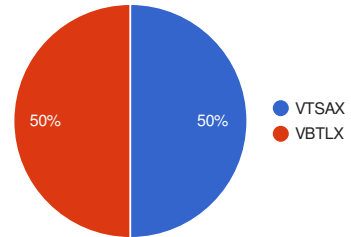
Portfolio 1

Ticker	Name	Allocation
VTSAX	Vanguard Total Stock Mkt Idx Adm	100.00%



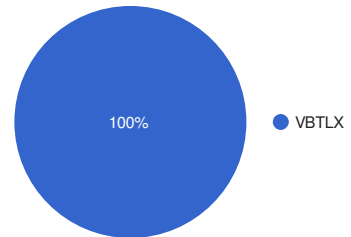
Portfolio 2

Ticker	Name	Allocation
VTSAX	Vanguard Total Stock Mkt Idx Adm	50.00%
VBTLX	Vanguard Total Bond Market Index Adm	50.00%



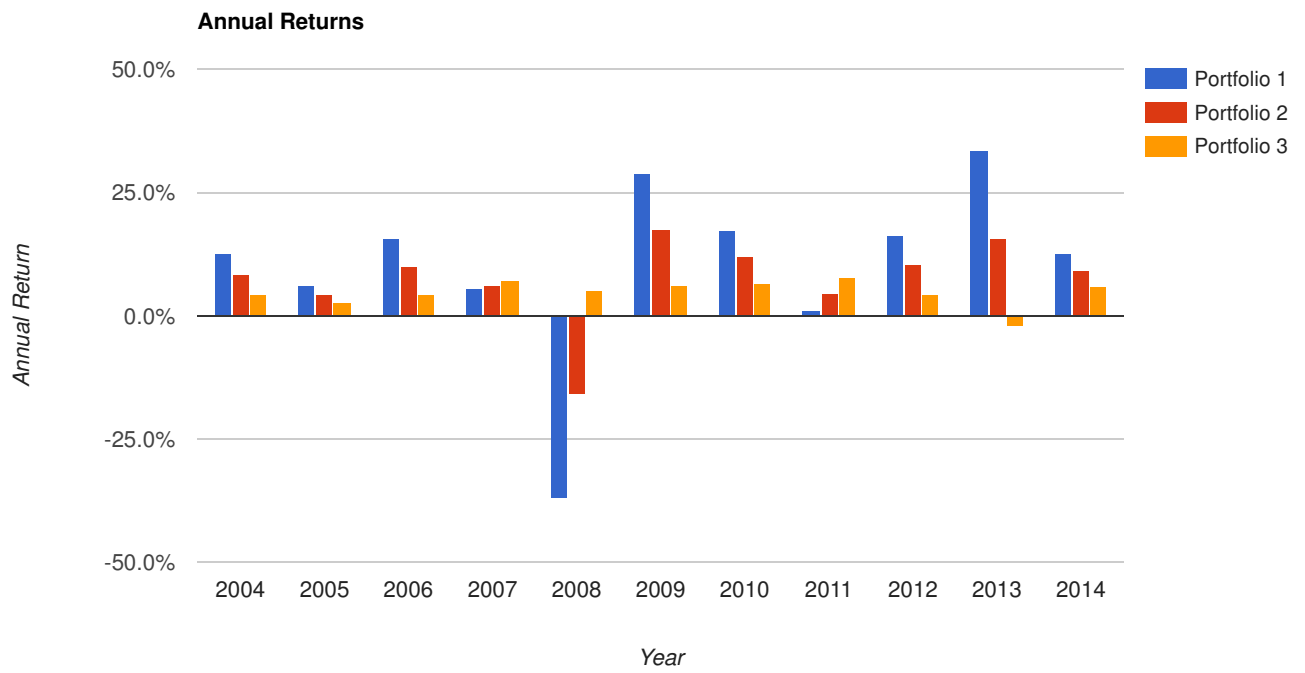
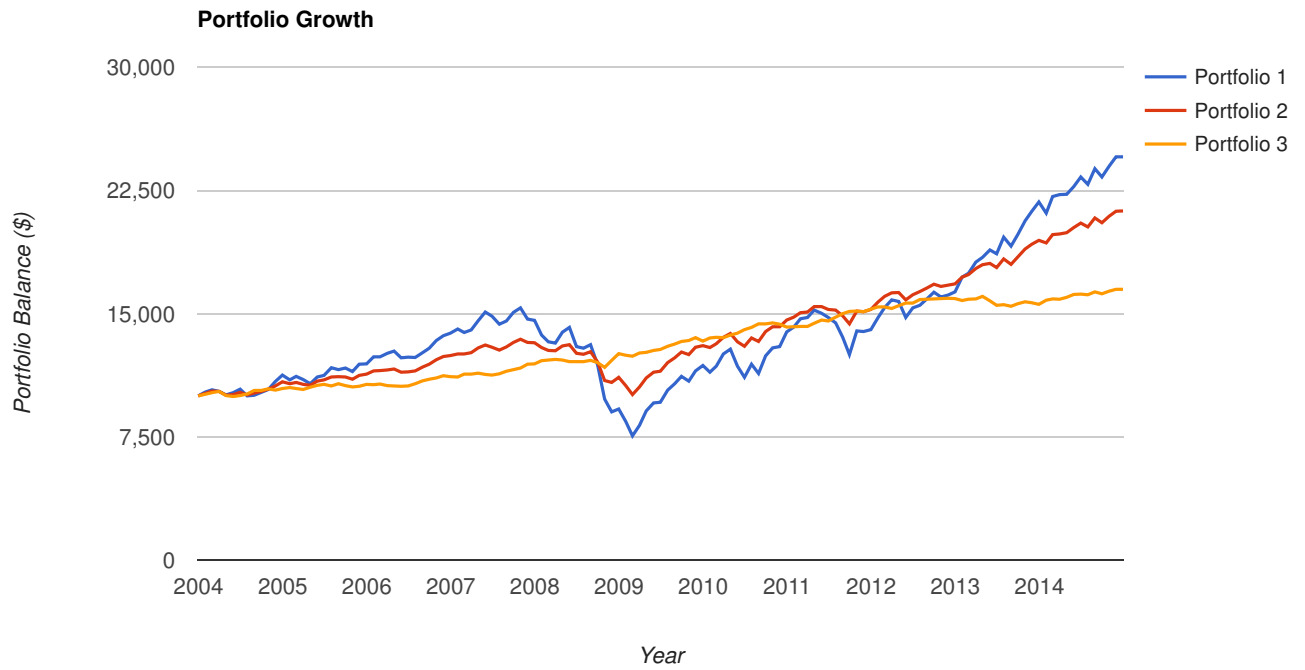
Portfolio 3

Ticker	Name	Allocation
VBTLX	Vanguard Total Bond Market Index Adm	100.00%



Portfolio Returns

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	US Mkt Correlation
Portfolio 1	\$10,000	\$24,541	8.50%	14.72%	33.52%	-36.99%	-50.84%	0.54	0.76	1.00
Portfolio 2	\$10,000	\$21,253	7.09%	7.38%	17.43%	-15.92%	-25.07%	0.78	1.16	0.97
Portfolio 3	\$10,000	\$16,487	4.65%	3.33%	7.69%	-2.15%	-3.94%	0.95	1.64	0.02



Notes on results:

- Past performance is not a guarantee of future returns and data and other errors may exist. See Disclaimer and Terms of Use
- The entered time period is automatically adjusted based on the available return data for the specified assets
- CAGR = Compound Annual Growth Rate
- Stdev = Annualized standard deviation of monthly returns
- Sharpe and Sortino ratios are calculated and annualized from monthly excess returns over risk free rate (1-month treasury bill)
- Stock market correlation is based on the correlation of monthly returns
- Drawdowns are calculated based on monthly returns excluding cashflows
- The backtested results include annual rebalancing of portfolio assets to match the specified allocation
- The results use total return and assume that all received dividends and distributions are reinvested. Taxes and transaction fees are not included
- Portfolio cashflows and rebalancing for quarterly and annual periods are aligned with calendar periods.

Year	Inflation	Return			Balance			Vanguard Total Stock Mkt Idx Adm (VTSAX)	Vanguard Total Bond Market Index Adm (VBTLX)
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 1	Portfolio 2	Portfolio 3		
2004	3.26%	12.61%	8.47%	4.33%	\$11,261	\$10,847	\$10,433	12.61%	4.33%
2005	3.42%	6.09%	4.29%	2.49%	\$11,946	\$11,312	\$10,693	6.09%	2.49%
2006	2.54%	15.63%	10.00%	4.36%	\$13,813	\$12,443	\$11,159	15.63%	4.36%
2007	4.08%	5.57%	6.29%	7.02%	\$14,583	\$13,226	\$11,942	5.57%	7.02%
2008	0.09%	-36.99%	-15.92%	5.15%	\$9,189	\$11,120	\$12,557	-36.99%	5.15%
2009	2.72%	28.83%	17.43%	6.04%	\$11,837	\$13,059	\$13,315	28.83%	6.04%
2010	1.50%	17.26%	11.90%	6.54%	\$13,880	\$14,612	\$14,186	17.26%	6.54%
2011	2.96%	1.08%	4.38%	7.69%	\$14,030	\$15,253	\$15,277	1.08%	7.69%
2012	1.74%	16.38%	10.27%	4.15%	\$16,329	\$16,819	\$15,911	16.38%	4.15%
2013	1.50%	33.52%	15.69%	-2.15%	\$21,803	\$19,458	\$15,570	33.52%	-2.15%
2014	0.76%	12.56%	9.23%	5.89%	\$24,541	\$21,253	\$16,487	12.56%	5.89%

Year	Month	Return			Balance			Vanguard Total Stock Mkt Idx Adm (VTSAX)	Vanguard Total Bond Market Index Adm (VBTLX)
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 1	Portfolio 2	Portfolio 3		
2004	1	2.23%	1.55%	0.87%	\$10,223	\$10,155	\$10,087	2.23%	0.87%
2004	2	1.47%	1.25%	1.04%	\$10,373	\$10,283	\$10,192	1.47%	1.04%
2004	3	-1.09%	-0.15%	0.80%	\$10,260	\$10,267	\$10,274	-1.09%	0.80%
2004	4	-2.11%	-2.36%	-2.61%	\$10,044	\$10,025	\$10,006	-2.11%	-2.61%
2004	5	1.38%	0.48%	-0.42%	\$10,183	\$10,074	\$9,964	1.38%	-0.42%
2004	6	2.07%	1.33%	0.57%	\$10,394	\$10,207	\$10,021	2.07%	0.57%
2004	7	-3.80%	-1.46%	0.97%	\$9,999	\$10,058	\$10,118	-3.80%	0.97%
2004	8	0.31%	1.13%	1.95%	\$10,030	\$10,172	\$10,315	0.31%	1.95%
2004	9	1.76%	0.95%	0.17%	\$10,206	\$10,270	\$10,333	1.76%	0.17%
2004	10	1.71%	1.28%	0.85%	\$10,381	\$10,401	\$10,421	1.71%	0.85%
2004	11	4.68%	1.94%	-0.80%	\$10,867	\$10,603	\$10,338	4.68%	-0.80%
2004	12	3.62%	2.31%	0.92%	\$11,261	\$10,847	\$10,433	3.62%	0.92%
2005	1	-2.68%	-1.01%	0.66%	\$10,960	\$10,738	\$10,502	-2.68%	0.66%

Year	Month	Return			Balance			Vanguard Total Stock Mkt Idx Adm (VTSAX)	Vanguard Total Bond Market Index Adm (VBTLX)
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 1	Portfolio 2	Portfolio 3		
2005	2	2.11%	0.72%	-0.62%	\$11,191	\$10,815	\$10,437	2.11%	-0.62%
2005	3	-1.76%	-1.12%	-0.48%	\$10,994	\$10,694	\$10,386	-1.76%	-0.48%
2005	4	-2.32%	-0.46%	1.36%	\$10,738	\$10,645	\$10,528	-2.32%	1.36%
2005	5	3.77%	2.38%	1.06%	\$11,143	\$10,898	\$10,640	3.77%	1.06%
2005	6	0.84%	0.70%	0.56%	\$11,236	\$10,973	\$10,699	0.84%	0.56%
2005	7	4.14%	1.59%	-0.89%	\$11,701	\$11,148	\$10,604	4.14%	-0.89%
2005	8	-0.94%	0.15%	1.26%	\$11,591	\$11,165	\$10,738	-0.94%	1.26%
2005	9	0.85%	-0.12%	-1.09%	\$11,690	\$11,151	\$10,621	0.85%	-1.09%
2005	10	-1.86%	-1.34%	-0.80%	\$11,472	\$11,002	\$10,536	-1.86%	-0.80%
2005	11	4.01%	2.25%	0.49%	\$11,931	\$11,250	\$10,587	4.01%	0.49%
2005	12	0.13%	0.55%	1.00%	\$11,946	\$11,312	\$10,693	0.13%	1.00%
2006	1	3.50%	1.70%	-0.10%	\$12,365	\$11,504	\$10,682	3.50%	-0.10%
2006	2	0.03%	0.20%	0.38%	\$12,369	\$11,528	\$10,723	0.03%	0.38%
2006	3	1.79%	0.42%	-0.99%	\$12,590	\$11,577	\$10,617	1.79%	-0.99%
2006	4	1.11%	0.48%	-0.20%	\$12,730	\$11,632	\$10,595	1.11%	-0.20%
2006	5	-3.23%	-1.72%	-0.09%	\$12,318	\$11,432	\$10,586	-3.23%	-0.09%
2006	6	0.20%	0.16%	0.11%	\$12,343	\$11,450	\$10,598	0.20%	0.11%
2006	7	-0.10%	0.61%	1.35%	\$12,331	\$11,520	\$10,742	-0.10%	1.35%
2006	8	2.31%	1.99%	1.65%	\$12,616	\$11,749	\$10,919	2.31%	1.65%
2006	9	2.26%	1.55%	0.82%	\$12,901	\$11,931	\$11,008	2.26%	0.82%
2006	10	3.56%	2.18%	0.73%	\$13,361	\$12,191	\$11,088	3.56%	0.73%
2006	11	2.23%	1.70%	1.12%	\$13,659	\$12,398	\$11,212	2.23%	1.12%
2006	12	1.13%	0.36%	-0.47%	\$13,813	\$12,443	\$11,159	1.13%	-0.47%
2007	1	1.88%	0.90%	-0.07%	\$14,073	\$12,555	\$11,151	1.88%	-0.07%
2007	2	-1.61%	-0.07%	1.51%	\$13,846	\$12,547	\$11,319	-1.61%	1.51%
2007	3	1.13%	0.57%	0.03%	\$14,002	\$12,619	\$11,323	1.13%	0.03%
2007	4	4.04%	2.28%	0.52%	\$14,567	\$12,906	\$11,382	4.04%	0.52%
2007	5	3.69%	1.50%	-0.77%	\$15,104	\$13,099	\$11,294	3.69%	-0.77%
2007	6	-1.68%	-1.05%	-0.38%	\$14,851	\$12,961	\$11,251	-1.68%	-0.38%
2007	7	-3.38%	-1.34%	0.85%	\$14,349	\$12,788	\$11,346	-3.38%	0.85%
2007	8	1.45%	1.40%	1.35%	\$14,557	\$12,967	\$11,499	1.45%	1.35%
2007	9	3.61%	2.19%	0.73%	\$15,083	\$13,251	\$11,583	3.61%	0.73%
2007	10	1.82%	1.39%	0.93%	\$15,358	\$13,435	\$11,691	1.82%	0.93%
2007	11	-4.46%	-1.37%	1.92%	\$14,673	\$13,251	\$11,916	-4.46%	1.92%
2007	12	-0.61%	-0.19%	0.22%	\$14,583	\$13,226	\$11,942	-0.61%	0.22%
2008	1	-6.08%	-2.19%	1.70%	\$13,696	\$12,936	\$12,145	-6.08%	1.70%

Year	Month	Return			Balance			Vanguard Total Stock Mkt Idx Adm (VTSAX)	Vanguard Total Bond Market Index Adm (VBTXX)
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 1	Portfolio 2	Portfolio 3		
2008	2	-3.04%	-1.36%	0.20%	\$13,279	\$12,760	\$12,169	-3.04%	0.20%
2008	3	-0.59%	-0.12%	0.30%	\$13,201	\$12,745	\$12,206	-0.59%	0.30%
2008	4	5.02%	2.20%	-0.29%	\$13,864	\$13,026	\$12,170	5.02%	-0.29%
2008	5	2.12%	0.62%	-0.78%	\$14,158	\$13,107	\$12,075	2.12%	-0.78%
2008	6	-8.20%	-4.02%	0.00%	\$12,997	\$12,580	\$12,075	-8.20%	0.00%
2008	7	-0.77%	-0.36%	0.01%	\$12,897	\$12,536	\$12,076	-0.77%	0.01%
2008	8	1.61%	1.13%	0.71%	\$13,105	\$12,677	\$12,162	1.61%	0.71%
2008	9	-9.28%	-4.93%	-1.10%	\$11,889	\$12,052	\$12,028	-9.28%	-1.10%
2008	10	-17.63%	-9.28%	-2.53%	\$9,794	\$10,933	\$11,724	-17.63%	-2.53%
2008	11	-7.86%	-1.03%	3.65%	\$9,024	\$10,821	\$12,152	-7.86%	3.65%
2008	12	1.83%	2.76%	3.33%	\$9,189	\$11,120	\$12,557	1.83%	3.33%
2009	1	-8.26%	-4.47%	-0.69%	\$8,430	\$10,623	\$12,470	-8.26%	-0.69%
2009	2	-10.45%	-5.24%	-0.42%	\$7,549	\$10,067	\$12,418	-10.45%	-0.42%
2009	3	8.73%	4.77%	1.49%	\$8,208	\$10,547	\$12,603	8.73%	1.49%
2009	4	10.60%	5.18%	0.36%	\$9,078	\$11,094	\$12,649	10.60%	0.36%
2009	5	5.33%	3.07%	0.86%	\$9,562	\$11,435	\$12,757	5.33%	0.86%
2009	6	0.37%	0.45%	0.55%	\$9,597	\$11,487	\$12,827	0.37%	0.55%
2009	7	7.87%	4.69%	1.44%	\$10,352	\$12,025	\$13,011	7.87%	1.44%
2009	8	3.63%	2.38%	1.02%	\$10,728	\$12,311	\$13,144	3.63%	1.02%
2009	9	4.25%	2.81%	1.20%	\$11,184	\$12,657	\$13,302	4.25%	1.20%
2009	10	-2.61%	-1.20%	0.42%	\$10,892	\$12,506	\$13,358	-2.61%	0.42%
2009	11	5.66%	3.63%	1.37%	\$11,509	\$12,960	\$13,541	5.66%	1.37%
2009	12	2.85%	0.76%	-1.67%	\$11,837	\$13,059	\$13,315	2.85%	-1.67%
2010	1	-3.46%	-0.94%	1.58%	\$11,428	\$12,936	\$13,526	-3.46%	1.58%
2010	2	3.36%	1.74%	0.20%	\$11,812	\$13,161	\$13,554	3.36%	0.20%
2010	3	6.26%	3.06%	-0.07%	\$12,551	\$13,565	\$13,544	6.26%	-0.07%
2010	4	2.21%	1.65%	1.07%	\$12,828	\$13,788	\$13,689	2.21%	1.07%
2010	5	-8.00%	-3.67%	0.88%	\$11,802	\$13,282	\$13,810	-8.00%	0.88%
2010	6	-5.67%	-1.95%	1.62%	\$11,133	\$13,022	\$14,033	-5.67%	1.62%
2010	7	7.03%	3.82%	0.95%	\$11,916	\$13,519	\$14,166	7.03%	0.95%
2010	8	-4.75%	-1.54%	1.49%	\$11,350	\$13,311	\$14,377	-4.75%	1.49%
2010	9	9.50%	4.47%	-0.00%	\$12,428	\$13,905	\$14,377	9.50%	-0.00%
2010	10	3.94%	2.13%	0.37%	\$12,918	\$14,201	\$14,430	3.94%	0.37%
2010	11	0.58%	0.01%	-0.56%	\$12,992	\$14,203	\$14,349	0.58%	-0.56%
2010	12	6.83%	2.88%	-1.14%	\$13,880	\$14,612	\$14,186	6.83%	-1.14%
2011	1	2.19%	1.14%	0.09%	\$14,183	\$14,779	\$14,199	2.19%	0.09%

Year	Month	Return			Balance			Vanguard Total Stock Mkt Idx Adm (VTSAX)	Vanguard Total Bond Market Index Adm (VBTXX)
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 1	Portfolio 2	Portfolio 3		
2011	2	3.63%	1.92%	0.17%	\$14,698	\$15,062	\$14,224	3.63%	0.17%
2011	3	0.45%	0.23%	0.00%	\$14,763	\$15,097	\$14,224	0.45%	0.00%
2011	4	2.99%	2.18%	1.33%	\$15,205	\$15,427	\$14,413	2.99%	1.33%
2011	5	-1.16%	0.03%	1.31%	\$15,028	\$15,431	\$14,602	-1.16%	1.31%
2011	6	-1.79%	-1.10%	-0.38%	\$14,760	\$15,261	\$14,547	-1.79%	-0.38%
2011	7	-2.22%	-0.35%	1.58%	\$14,432	\$15,207	\$14,777	-2.22%	1.58%
2011	8	-6.02%	-2.27%	1.47%	\$13,563	\$14,862	\$14,995	-6.02%	1.47%
2011	9	-7.75%	-3.25%	0.90%	\$12,512	\$14,378	\$15,130	-7.75%	0.90%
2011	10	11.54%	5.38%	0.17%	\$13,956	\$15,152	\$15,156	11.54%	0.17%
2011	11	-0.29%	-0.29%	-0.29%	\$13,916	\$15,108	\$15,112	-0.29%	-0.29%
2011	12	0.82%	0.96%	1.09%	\$14,030	\$15,253	\$15,277	0.82%	1.09%
2012	1	5.08%	2.98%	0.88%	\$14,743	\$15,708	\$15,412	5.08%	0.88%
2012	2	4.26%	2.15%	-0.04%	\$15,371	\$16,046	\$15,406	4.26%	-0.04%
2012	3	3.07%	1.32%	-0.57%	\$15,842	\$16,258	\$15,318	3.07%	-0.57%
2012	4	-0.63%	0.21%	1.15%	\$15,743	\$16,292	\$15,493	-0.63%	1.15%
2012	5	-6.23%	-2.82%	0.96%	\$14,762	\$15,833	\$15,641	-6.23%	0.96%
2012	6	3.94%	2.02%	0.04%	\$15,343	\$16,152	\$15,648	3.94%	0.04%
2012	7	1.03%	1.21%	1.39%	\$15,502	\$16,347	\$15,866	1.03%	1.39%
2012	8	2.51%	1.31%	0.04%	\$15,891	\$16,562	\$15,873	2.51%	0.04%
2012	9	2.58%	1.40%	0.12%	\$16,300	\$16,794	\$15,891	2.58%	0.12%
2012	10	-1.76%	-0.87%	0.12%	\$16,014	\$16,647	\$15,910	-1.76%	0.12%
2012	11	0.74%	0.48%	0.20%	\$16,132	\$16,727	\$15,942	0.74%	0.20%
2012	12	1.22%	0.55%	-0.19%	\$16,329	\$16,819	\$15,911	1.22%	-0.19%
2013	1	5.50%	2.40%	-0.70%	\$17,227	\$17,222	\$15,799	5.50%	-0.70%
2013	2	1.28%	0.93%	0.55%	\$17,447	\$17,382	\$15,886	1.28%	0.55%
2013	3	3.91%	2.07%	0.09%	\$18,129	\$17,741	\$15,901	3.91%	0.09%
2013	4	1.70%	1.33%	0.92%	\$18,437	\$17,977	\$16,048	1.70%	0.92%
2013	5	2.35%	0.44%	-1.70%	\$18,870	\$18,056	\$15,775	2.35%	-1.70%
2013	6	-1.24%	-1.43%	-1.64%	\$18,635	\$17,798	\$15,516	-1.24%	-1.64%
2013	7	5.46%	3.04%	0.21%	\$19,652	\$18,339	\$15,548	5.46%	0.21%
2013	8	-2.80%	-1.83%	-0.63%	\$19,102	\$18,004	\$15,450	-2.80%	-0.63%
2013	9	3.67%	2.45%	0.97%	\$19,803	\$18,444	\$15,600	3.67%	0.97%
2013	10	4.25%	2.70%	0.79%	\$20,644	\$18,942	\$15,723	4.25%	0.79%
2013	11	2.88%	1.47%	-0.34%	\$21,238	\$19,220	\$15,669	2.88%	-0.34%
2013	12	2.66%	1.24%	-0.64%	\$21,803	\$19,458	\$15,570	2.66%	-0.64%
2014	1	-3.11%	-0.78%	1.55%	\$21,126	\$19,307	\$15,812	-3.11%	1.55%

Year	Month	Return			Balance			Vanguard Total Stock Mkt Idx Adm (VTSAX)	Vanguard Total Bond Market Index Adm (VBTLX)
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 1	Portfolio 2	Portfolio 3		
2014	2	4.75%	2.57%	0.49%	\$22,130	\$19,804	\$15,889	4.75%	0.49%
2014	3	0.52%	0.19%	-0.14%	\$22,245	\$19,841	\$15,867	0.52%	-0.14%
2014	4	0.06%	0.42%	0.78%	\$22,260	\$19,925	\$15,991	0.06%	0.78%
2014	5	2.17%	1.61%	1.06%	\$22,743	\$20,247	\$16,160	2.17%	1.06%
2014	6	2.57%	1.35%	0.12%	\$23,327	\$20,519	\$16,180	2.57%	0.12%
2014	7	-1.98%	-1.12%	-0.25%	\$22,865	\$20,289	\$16,140	-1.98%	-0.25%
2014	8	4.18%	2.67%	1.14%	\$23,821	\$20,830	\$16,324	4.18%	1.14%
2014	9	-2.11%	-1.42%	-0.71%	\$23,319	\$20,534	\$16,208	-2.11%	-0.71%
2014	10	2.74%	1.86%	0.95%	\$23,958	\$20,915	\$16,362	2.74%	0.95%
2014	11	2.43%	1.57%	0.66%	\$24,540	\$21,243	\$16,471	2.43%	0.66%
2014	12	0.00%	0.05%	0.10%	\$24,541	\$21,253	\$16,487	0.00%	0.10%

Portfolio Returns Based Style Analysis

Style Category	Portfolio 1	Portfolio 2	Portfolio 3
Large-cap Value	38.15%	15.07%	0.00%
Large-cap Growth	42.49%	26.00%	2.83%
Mid-cap Value	5.20%	9.41%	0.06%
Mid-cap Growth	8.52%	0.76%	0.00%
Small-cap Value	3.45%	0.00%	0.00%
Small-cap Growth	1.47%	0.00%	0.00%
Global ex-US Developed Markets	0.24%	0.00%	0.00%
Emerging Markets	0.49%	1.19%	1.57%
Corporate Bonds	0.00%	6.42%	12.84%
Long-Term Treasuries	0.00%	0.80%	1.53%
Intermediate-Term Treasuries	0.00%	14.39%	30.59%
Short-Term Treasuries	0.00%	25.96%	50.59%
R Squared	99.89%	99.48%	88.61%

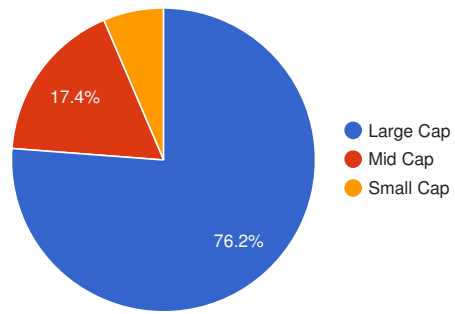
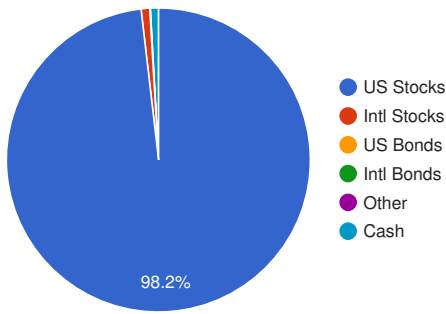
Style analysis is based on monthly returns from Apr 2005 to Dec 2014 and uses total portfolio return with monthly rebalancing. Returns based style analysis aims to explain the portfolio returns based on asset class exposures, it does not identify the actual portfolio holdings.

Holdings Based Exposures for Portfolio 1

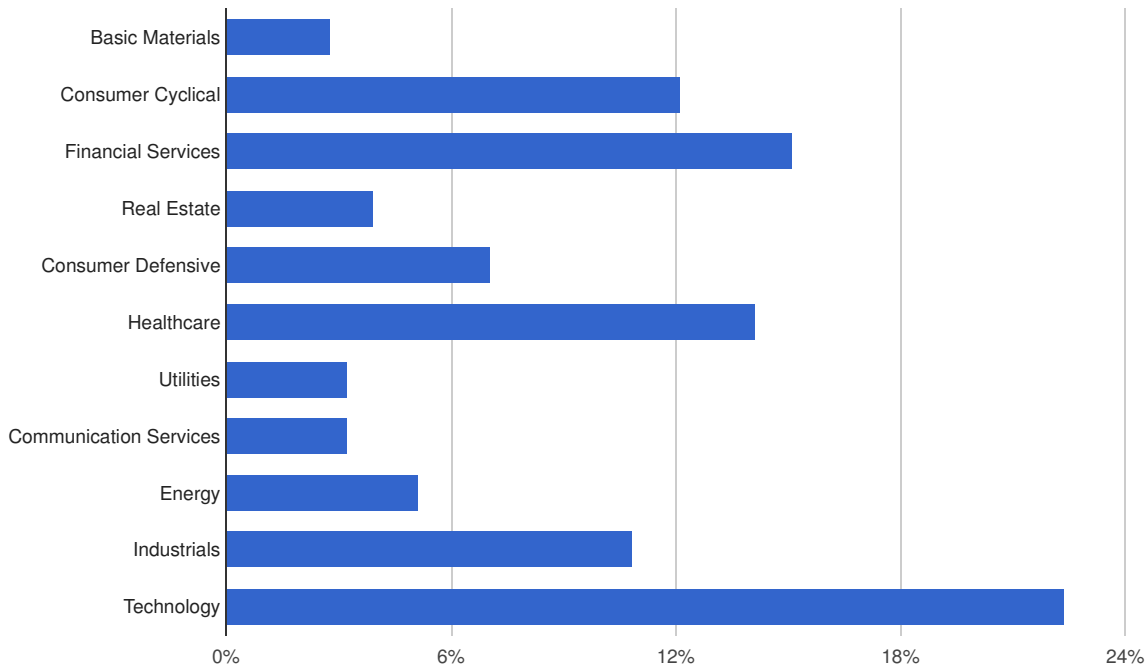
Ticker	Name	Category	ER	Weight	Return Contribution	Risk Contribution
VTSAX	Vanguard Total Stock Mkt Idx Adm	Large Blend	0.04%	100.00%	\$14,541	100.00%

Asset Allocation

Equity Market Capitalization



Equity Sectors

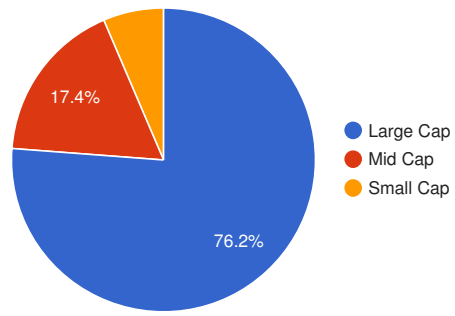
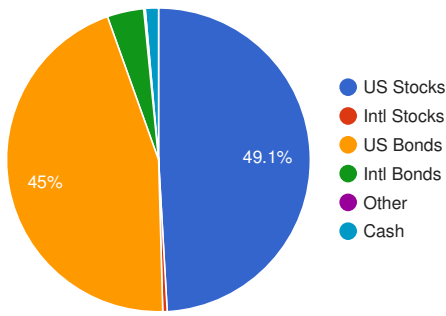


Holdings Based Exposures for Portfolio 2

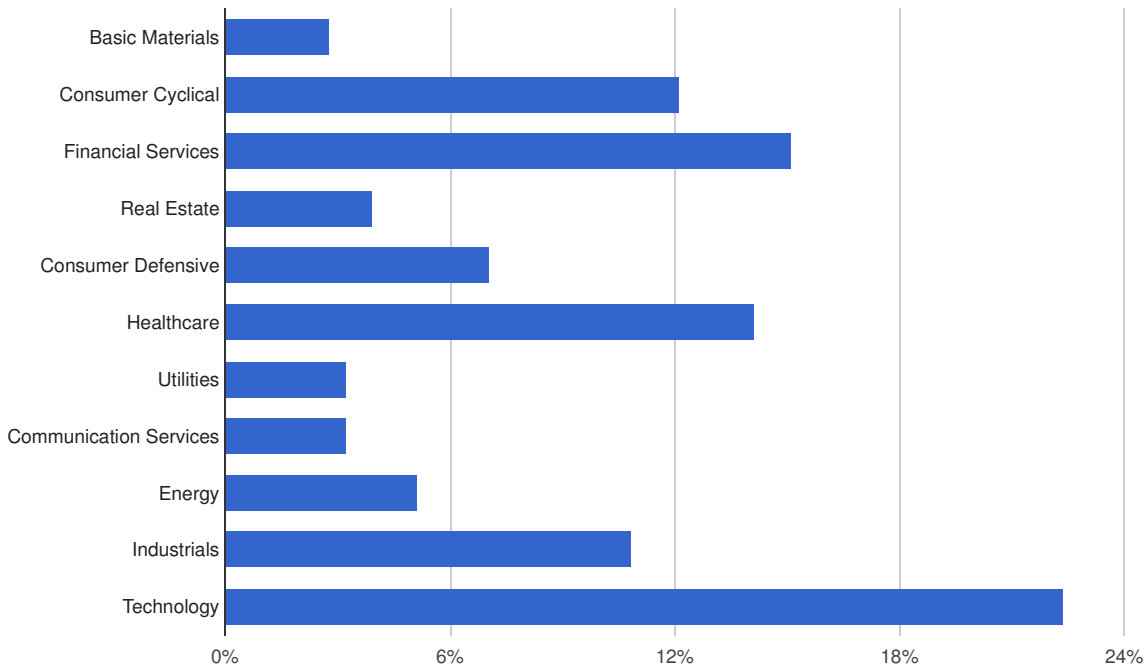
Ticker	Name	Category	Duration	ER	Weight	Return Contribution	Risk Contribution
VTSAX	Vanguard Total Stock Mkt Idx Adm	Large Blend		0.04%	50.00%	\$7,844	94.54%
VBTLX	Vanguard Total Bond Market Index Adm	Intermediate Core Bond	6.03	0.05%	50.00%	\$3,409	5.46%

Asset Allocation

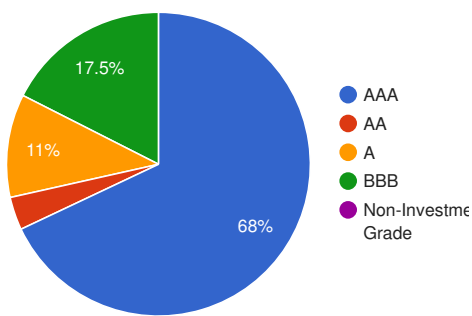
Equity Market Capitalization



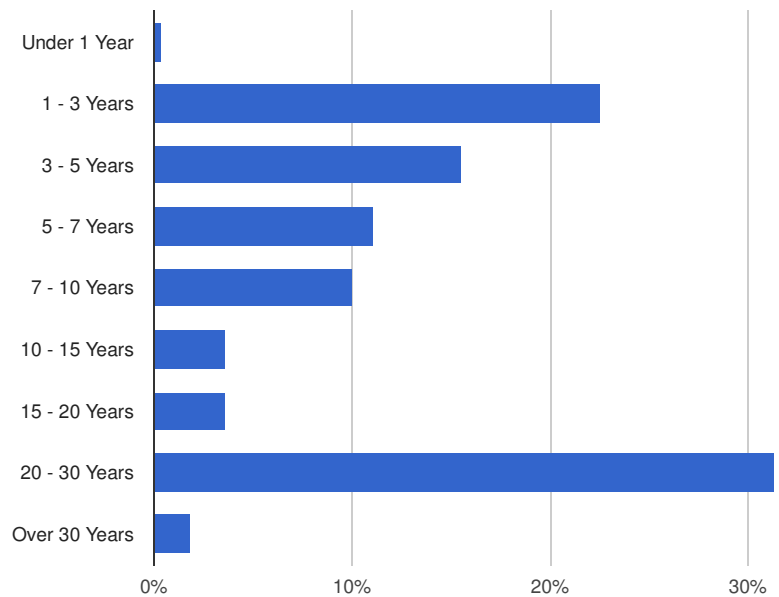
Equity Sectors



Fixed Income Credit Quality



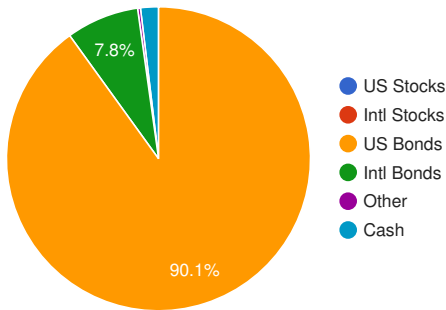
Fixed Income Maturity



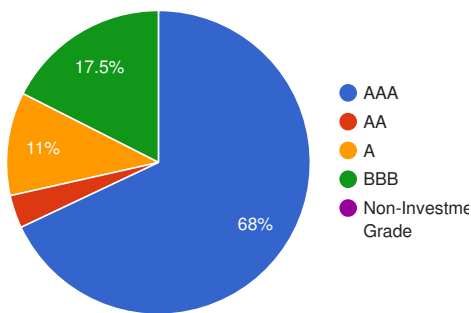
Holdings Based Exposures for Portfolio 3

Ticker	Name	Category	Duration	ER	Weight	Return Contribution	Risk Contribution
VBTLX	Vanguard Total Bond Market Index Adm	Intermediate Core Bond	6.03	0.05%	100.00%	\$6,487	100.00%

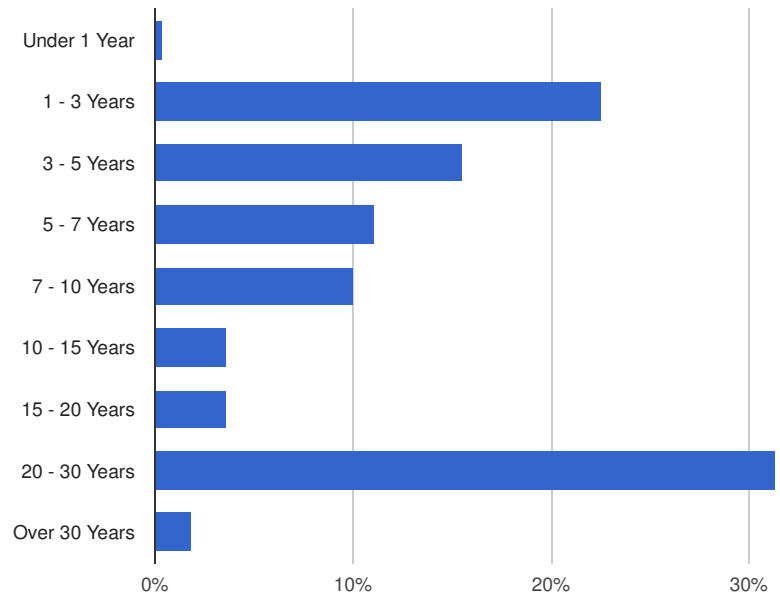
Asset Allocation



Fixed Income Credit Quality



Fixed Income Maturity



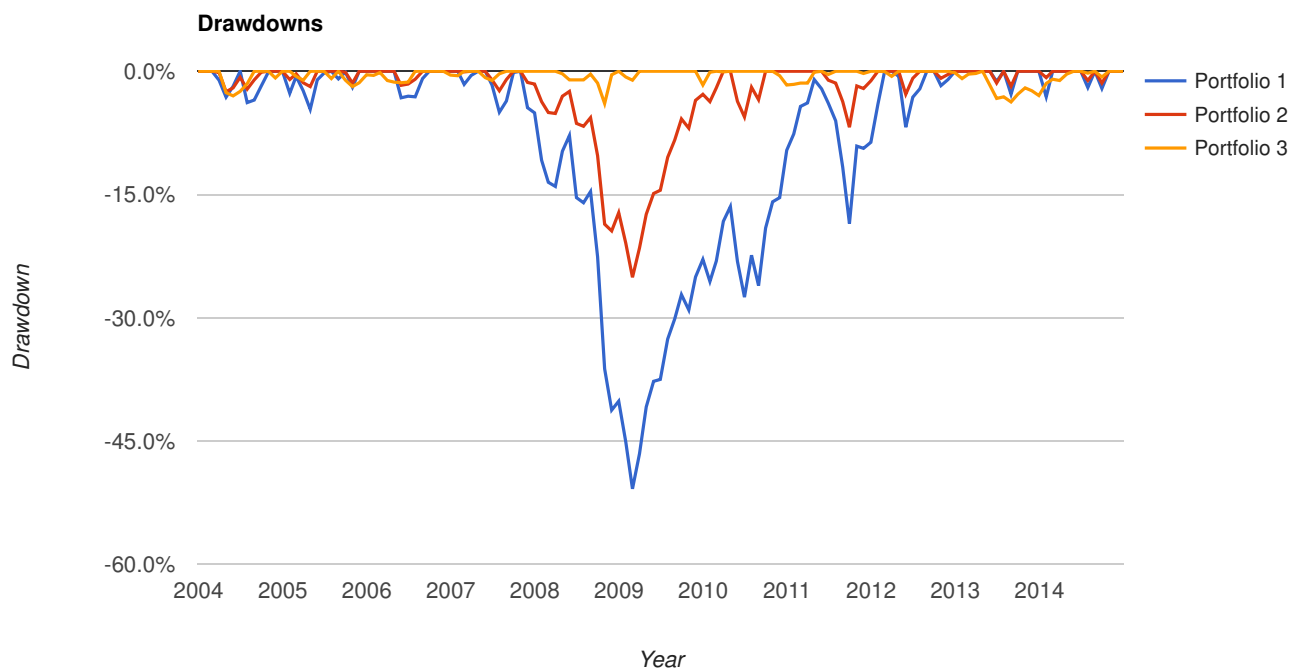
Fund fundamentals data as of 05/03/2019. © 2019 Morningstar. All Rights Reserved. The fund fundamentals information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.

Metric	Portfolio 1	Portfolio 2	Portfolio 3
Arithmetic Mean (monthly)	0.77%	0.60%	0.38%
Arithmetic Mean (annualized)	9.69%	7.38%	4.71%
Geometric Mean (monthly)	0.68%	0.57%	0.38%
Geometric Mean (annualized)	8.50%	7.09%	4.65%
Volatility (monthly)	4.25%	2.13%	0.96%
Volatility (annualized)	14.72%	7.38%	3.33%

* US stock market is used as the benchmark for calculations. Value-at-risk metrics are based on monthly values.

Metric	Portfolio 1	Portfolio 2	Portfolio 3
Downside Deviation (monthly)	2.95%	1.40%	0.51%
Max. Drawdown	-50.84%	-25.07%	-3.94%
US Market Correlation	1.00	0.97	0.02
Beta ^(*)	1.00	0.49	0.00
Alpha (annualized)	0.10%	2.67%	4.57%
R ²	100.00%	94.42%	0.04%
Sharpe Ratio	0.54	0.78	0.95
Sortino Ratio	0.76	1.16	1.64
Treynor Ratio (%)	7.89	11.82	678.79
Calmar Ratio	3.00	4.15	0.69
Active Return	0.11%	-1.30%	-3.74%
Tracking Error	0.07%	7.74%	15.01%
Information Ratio	1.64	-0.17	-0.25
Skewness	-0.87	-1.03	-0.12
Excess Kurtosis	2.51	3.27	1.40
Historical Value-at-Risk (5%)	-7.91%	-3.40%	-1.11%
Analytical Value-at-Risk (5%)	-6.22%	-3.01%	-1.20%
Conditional Value-at-Risk (5%)	-10.30%	-5.27%	-1.88%
Upside Capture Ratio (%)	100.37	53.82	10.63
Downside Capture Ratio (%)	99.87	44.38	-11.65
Safe Withdrawal Rate	10.86%	10.91%	10.29%
Perpetual Withdrawal Rate	5.78%	4.54%	2.32%
Positive Periods	88 out of 132 (66.67%)	91 out of 132 (68.94%)	91 out of 132 (68.94%)
Gain/Loss Ratio	0.81	0.93	1.26

* US stock market is used as the benchmark for calculations. Value-at-risk metrics are based on monthly values.



Drawdowns for Historical Market Stress Periods

Stress Period	Start	End	Portfolio 1	Portfolio 2	Portfolio 3
Subprime Crisis	Nov 2007	Mar 2009	-50.84%	-25.07%	-3.94%

Drawdowns for Portfolio 1

Rank	Start	End	Length	Recovery By	Recovery Time	Underwater Period	Drawdown
1	Nov 2007	Feb 2009	1 year 4 months	Feb 2012	3 years	4 years 4 months	-50.84%
2	Apr 2012	May 2012	2 months	Aug 2012	3 months	5 months	-6.82%
3	Jun 2007	Jul 2007	2 months	Oct 2007	3 months	5 months	-5.00%
4	Jan 2005	Apr 2005	4 months	Jul 2005	3 months	7 months	-4.64%
5	Jul 2004	Jul 2004	1 month	Nov 2004	4 months	5 months	-3.80%
6	May 2006	May 2006	1 month	Sep 2006	4 months	5 months	-3.23%
7	Mar 2004	Apr 2004	2 months	Jun 2004	2 months	4 months	-3.17%
8	Jan 2014	Jan 2014	1 month	Feb 2014	1 month	2 months	-3.11%
9	Aug 2013	Aug 2013	1 month	Sep 2013	1 month	2 months	-2.80%
10	Sep 2014	Sep 2014	1 month	Oct 2014	1 month	2 months	-2.11%

Worst 10 drawdowns included above

Drawdowns for Portfolio 2

Rank	Start	End	Length	Recovery By	Recovery Time	Underwater Period	Drawdown
1	Nov 2007	Feb 2009	1 year 4 months	Mar 2010	1 year 1 month	2 years 5 months	-25.07%
2	Jun 2011	Sep 2011	4 months	Jan 2012	4 months	8 months	-6.82%

Worst 10 drawdowns included above

Rank	Start	End	Length	Recovery By	Recovery Time	Underwater Period	Drawdown
3	May 2010	Jun 2010	2 months	Sep 2010	3 months	5 months	-5.56%
4	May 2012	May 2012	1 month	Jul 2012	2 months	3 months	-2.82%
5	Mar 2004	Apr 2004	2 months	Oct 2004	6 months	8 months	-2.50%
6	Jun 2007	Jul 2007	2 months	Sep 2007	2 months	4 months	-2.38%
7	Jan 2005	Apr 2005	4 months	May 2005	1 month	5 months	-1.87%
8	Aug 2013	Aug 2013	1 month	Sep 2013	1 month	2 months	-1.83%
9	May 2006	May 2006	1 month	Aug 2006	3 months	4 months	-1.72%
10	Sep 2005	Oct 2005	2 months	Nov 2005	1 month	3 months	-1.46%

Worst 10 drawdowns included above

Drawdowns for Portfolio 3

Rank	Start	End	Length	Recovery By	Recovery Time	Underwater Period	Drawdown
1	Apr 2008	Oct 2008	7 months	Dec 2008	2 months	9 months	-3.94%
2	May 2013	Aug 2013	4 months	May 2014	9 months	1 year 1 month	-3.73%
3	Apr 2004	May 2004	2 months	Aug 2004	3 months	5 months	-3.01%
4	Sep 2005	Oct 2005	2 months	Jul 2006	9 months	11 months	-1.89%
5	Nov 2010	Dec 2010	2 months	May 2011	5 months	7 months	-1.69%
6	Dec 2009	Dec 2009	1 month	Feb 2010	2 months	3 months	-1.67%
7	May 2007	Jun 2007	2 months	Aug 2007	2 months	4 months	-1.15%
8	Jan 2009	Feb 2009	2 months	Mar 2009	1 month	3 months	-1.11%
9	Feb 2005	Mar 2005	2 months	Apr 2005	1 month	3 months	-1.10%
10	Dec 2012	Jan 2013	2 months	Apr 2013	3 months	5 months	-0.89%

Worst 10 drawdowns included above

Portfolio Assets

Ticker	Name	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	US Mkt Correlation
VTSAX	Vanguard Total Stock Mkt Idx Adm	8.50%	14.72%	33.52%	-36.99%	-50.84%	0.54	0.76	1.00
VBTLX	Vanguard Total Bond Market Index Adm	4.65%	3.33%	7.69%	-2.15%	-3.94%	0.95	1.64	0.02

Monthly Correlations

Ticker	Name	VTSAX	VBTLX	Portfolio 1	Portfolio 2	Portfolio 3
VTSAX	Vanguard Total Stock Mkt Idx Adm	-	0.02	1.00	0.97	0.02
VBTLX	Vanguard Total Bond Market Index Adm	0.02	-	0.02	0.25	1.00

Portfolio Return Decomposition

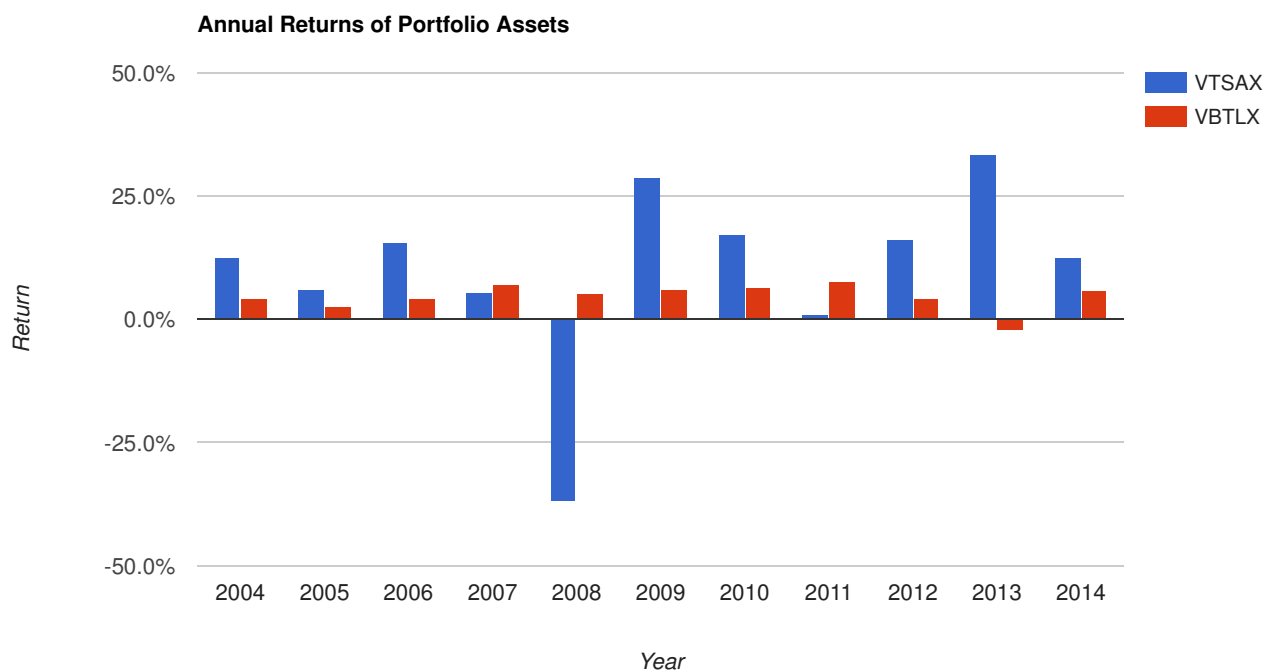
Ticker	Name	Portfolio 1	Portfolio 2	Portfolio 3
VTSAX	Vanguard Total Stock Mkt Idx Adm	\$14,541	\$7,844	

Ticker	Name	Portfolio 1	Portfolio 2	Portfolio 3
VBTLX	Vanguard Total Bond Market Index Adm		\$3,409	\$6,487

Portfolio Risk Decomposition

Ticker	Name	Portfolio 1	Portfolio 2	Portfolio 3
VTSAX	Vanguard Total Stock Mkt Idx Adm	100.00%	94.54%	
VBTLX	Vanguard Total Bond Market Index Adm		5.46%	100.00%

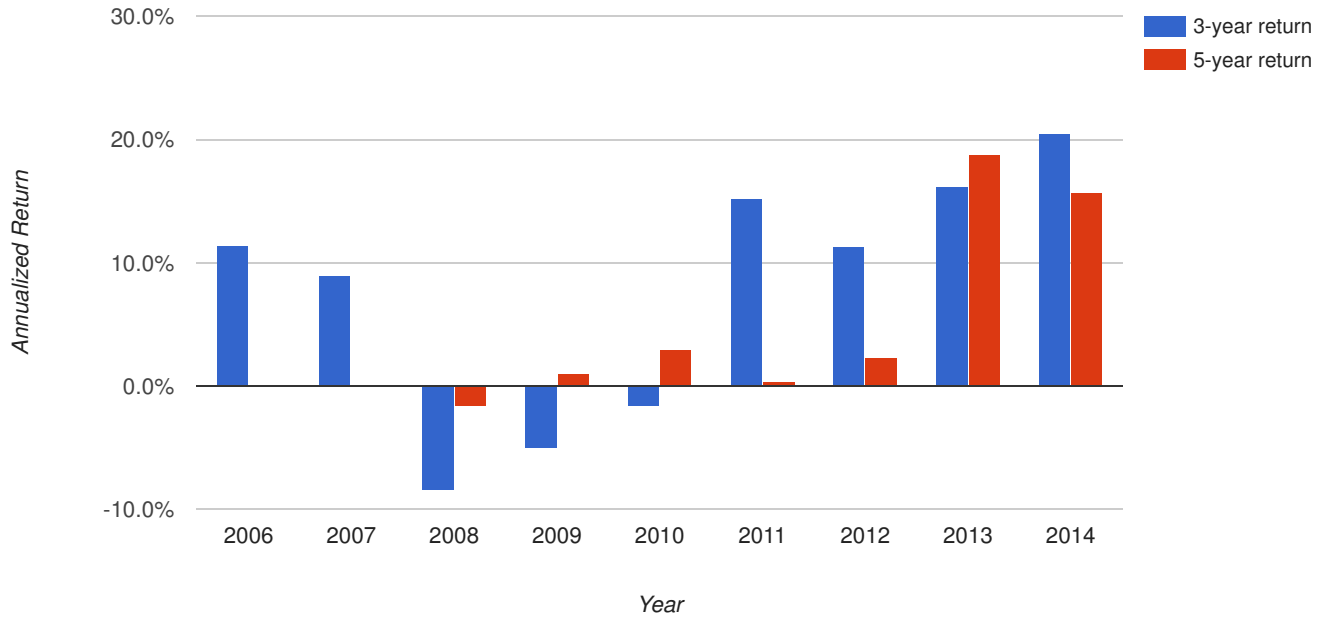
Annual Asset Returns



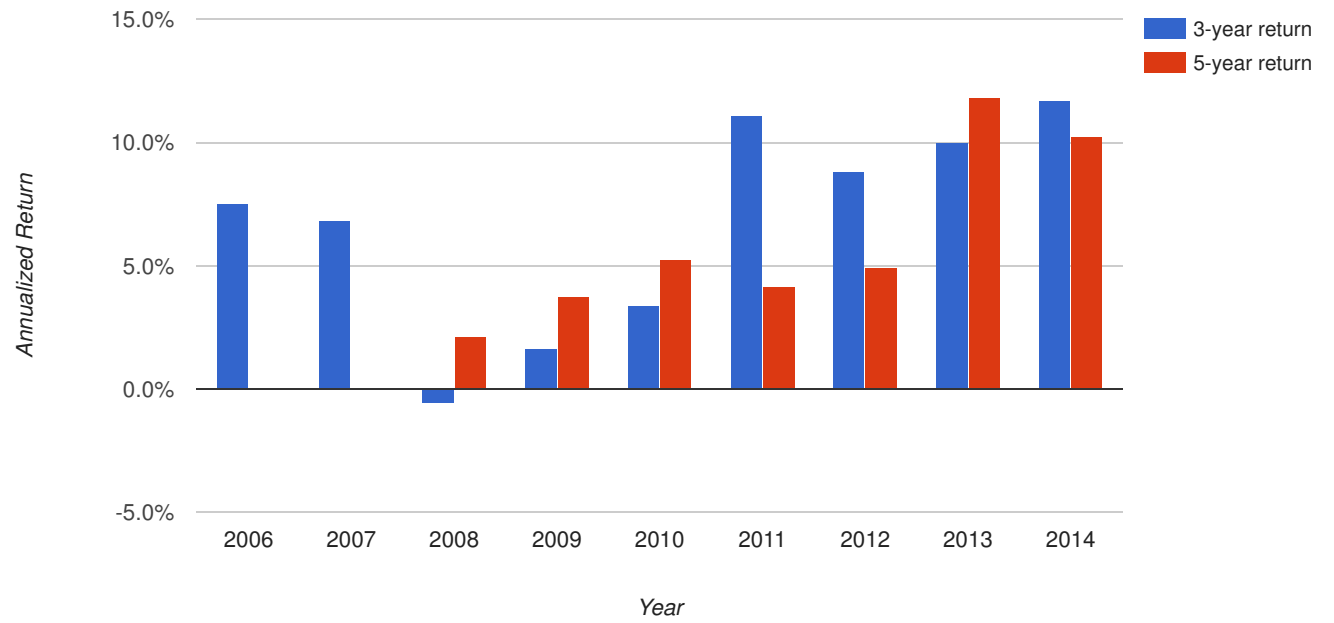
Roll Period	Portfolio 1			Portfolio 2			Portfolio 3		
	Average	High	Low	Average	High	Low	Average	High	Low
1 year	10.23%	33.52%	-36.99%	7.46%	17.43%	-15.92%	4.68%	7.69%	-2.15%
3 years	7.62%	20.49%	-8.38%	6.72%	11.69%	-0.57%	4.93%	6.75%	2.57%
5 years	5.65%	18.86%	-1.68%	6.05%	11.84%	2.15%	5.23%	6.48%	4.37%
7 years	5.40%	7.72%	3.19%	6.00%	7.01%	4.99%	5.23%	5.84%	4.72%
10 years	8.10%	8.11%	8.10%	6.92%	6.96%	6.88%	4.60%	4.68%	4.53%

Result statistics are based on annualized rolling returns over full calendar year periods

Portfolio 1 Rolling Returns



Portfolio 2 Rolling Returns



Portfolio 3 Rolling Returns

