

American Radio Relay League
Treasurer's Report
Rick Niswander, K7GM
For the year ended December 31, 2016

The 2016 equity and bond markets were a tail of two halves – the first half good for bonds, and the last half good for stocks. For the year, domestic stocks returned 12.74%, with about ¾ of that gain occurring in the last half of the year. The 1-5 year bond market returned 1.65% for the year, but that return was all from the first half, as the last half return was a small loss.

Our portfolio return versus the benchmark was also like the overall markets – a tail of two halves. We outperformed the benchmark in the first half and underperformed in the last half. In the first half, our portfolio outperformed the benchmark by 0.69% in the first quarter and 0.77% in the second. In the second half, we gave it all back with underperformance of 1.13% in the third quarter and 0.50% in the fourth.

For the year, our portfolio returned 6.49% versus our benchmark of 6.66%, a 0.17% (17 basis point) underperformance. Remember that the benchmark does not include any holding costs. While our portfolio has very low costs, they are not zero. Almost all of that full-year underperformance was due to a small underweight in equities and overweight in bonds. That helped in the first half when stocks generally underperformed bonds, but hurt us in the second half when stocks were the dominant asset class.

In 2016, we started the year with \$21,826,857, earned \$1,424,271, added contributions of \$1,023,137, transferred \$500,000 to the general account, and ended the year with \$23,774,265.

Here is a little more information on our stock returns for 2016. The chart below shows our best and worst holdings in terms of total return percentage change for 2016.

2016 Top Five Percentage Stock Winners and Losers (Total Return)					
Top Five Percentage Increases			Bottom Five Percentage Decreases		
Stock	Percent Change	End Balance	Stock	Percent Change	End Balance
Spectra Energy	78.4%	\$ 41,090	Novo Nordisk	(35.8%)	\$ 35,860
Apache Corp	45.0%	95,205	Gilead Sciences	(27.4%)	71,610
Devon Energy	44.0%	68,505	Express Scripts	(21.3%)	137,580
CSX Corp	41.2%	125,755	Bristol Myers Squibb	(13.4%)	48,739
Texas Instruments	35.6%	72,970	Novartis	(12.2%)	109,260

The gainers and losers reflect the shifting fortunes of equity sectors. For the most part, stocks in industries that topped the charts in 2016 had less-than-stellar returns in 2015 and the industries that suffered in 2016 did relatively well in 2015. Our top three percentage gainers are in the energy sector which had a great 2016 (following a horrible 2015). All of the biggest decliners are in the biotech or health care industry. In 2016, the NYSE biotech index was down over 19%, pharma was down over 11%, and healthcare was down almost 4%. In 2015, these three indices were all firmly in positive territory even though overall markets were essentially flat.

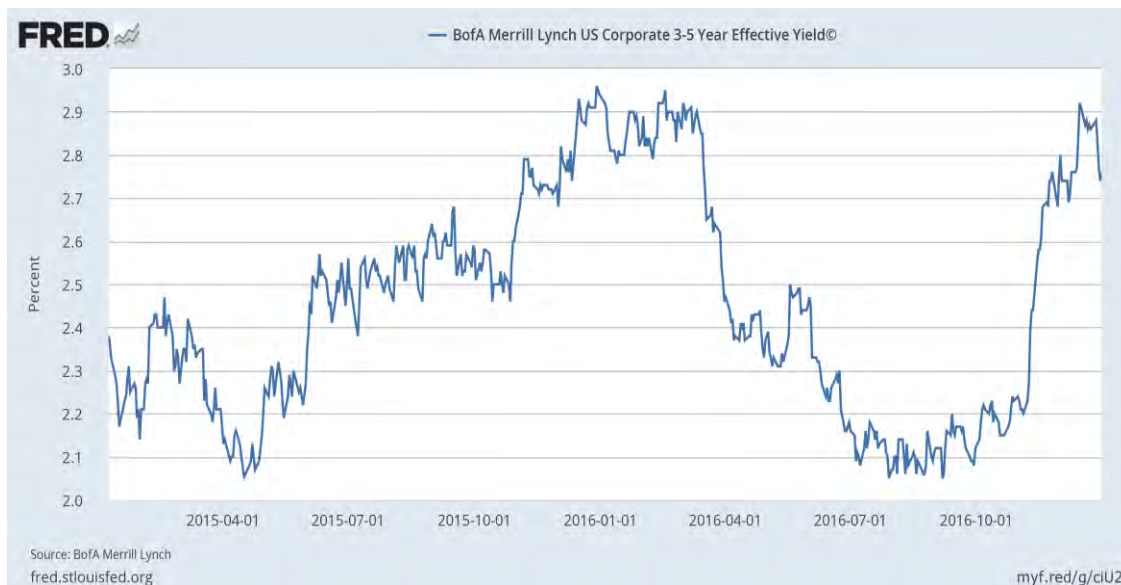
The following chart looks at 2016 total returns on our largest (dollar-value) stock and ETF holdings. In general, our ETFs are all broadly based and had returns which approximated the market. Our large-holding individual stocks did well with the exception of Disney. It had a very good 2015 (up 13% in a flat market) but in 2016 was hampered by concerns related to the long term strength of ESPN.

2016 Total Return on Top Five Largest Stock and ETF Holdings					
Total Return on Largest Five Stock Holdings			Total Return on Largest Five ETF Holdings		
Stock	Percent Change	End Balance	ETF	Percent Change	End Balance
Berkshire Hathaway	23.4%	\$ 325,960	VG Total Stock Mkt	12.8%	\$ 2,260,272
United Technologies	16.8%	274,050	VG Dividend Apprec.	12.0%	889,279
Johnson & Johnson	15.2%	230,420	VG S&P 500	12.2%	847,930
Pepsico	7.7%	209,260	VG Mega Cap	11.9%	671,792
Disney	0.6%	208,440	ISh Min Volatility	10.6%	411,502

Here is a little more info about the bond market.

The chart below shows the effective yield on 3-5 year corporate debt over the last two years. In the first half of 2016, yields dropped from 2.94% to 2.18% - fairly significant for short term debt. In the last half, yields increased to 2.76%, making up most of the first half decline. The steep down movement and subsequent steep up movement over the short periods of time is unusual, although not unheard of.

Because bond prices move in the opposite direction of yields, overall prices went up in the first half (1.58% in the first quarter and 0.96% in the second quarter) and went down in the second half (up 0.21% in the third quarter when yields did not change much and -1.09% in the fourth quarter when rates rose fairly steeply).



In our bond portfolio, we own about \$1.53 million of bond ETFs as well as \$9.8 million face value of individual bonds. Our practice is to buy bonds of about 5 year maturity as existing bonds mature. It is important to monitor the average maturity and credit quality of the bond portfolio. A portfolio with longer maturities and/or poorer credit ratings will realize higher interest income but will have an increased exposure to interest rate risk (as rates rise, prices fall and that effect increases as maturities increase) as well as increased credit risk (poorer credit ratings translate into higher probability of default). Because we hold our bonds to maturity, the credit risk component is more important to us.

We have a portfolio that adheres to the five-year time horizon with very good credit quality. Here are two charts. One shows maturities over the next five years and the other shows credit quality (high to low). We do not own any bonds with credit quality lower than investment grade.

Bond Maturities by Year	
2017	\$ 2,300,000
2018	2,700,000
2019	1,700,000
2020	1,600,000
2021	1,500,000
Total	\$ 9,800,000

Bond Credit Ratings (S&P)	
AA+	\$ 400,000
AA	900,000
AA-	1,800,000
A+	800,000
A	1,500,000
A-	1,400,000
BBB+	2,000,000
BBB	800,000
BBB-	200,000
Below BBB-	0
Total	\$ 9,800,000

From the above, we can deduce that our \$9.8 million individual bond portfolio has an average maturity of about 2 years and average S&P rating of A. Our \$1.53 million of ETFs are about 57% governmental (AAA rated) with an average A rating on the remainder. Average ETF maturity is about 2.7 years.

At some point in the future, as interest rates rise, we will likely start to replace maturing bonds with bonds with maturities longer than 5 years (assuming we will be able to continue to hold bonds to maturity). We have a large enough bond portfolio to move towards a 10-year ladder (replacing maturing bonds with 10 year bonds) which will increase the average interest income of the portfolio.

Appendix A**American Radio Relay League
Portfolio Flow**Page 1
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	Investment Portfolio Market Value
Balance, December 31, 2014	21,754,511
Additions from contributions	182,444
Subtractions	(50,000)
Total Return	143,499
Balance, March 31, 2015	<u>22,030,454</u>
Balance, March 31, 2015	22,030,454
Additions from contributions	96,327
Subtractions	0
Total Return	(77,797)
Balance, June 30, 2015	<u>22,048,984</u>
Balance, June 30, 2015	22,048,984
Additions from contributions	300,262
Subtractions	(500,000)
Total Return	(733,318)
Balance, September 30, 2015	<u>21,115,928</u>
Balance, September 30, 2015	21,115,928
Additions from contributions	204,205
Subtractions	0
Total Return	506,724
Balance, December 31, 2015	<u>21,826,857</u>
Balance, December 31, 2015	21,826,857
Additions from contributions	158,943
Subtractions	0
Total Return	396,174
Balance, March 31, 2016	<u>22,381,974</u>
Balance, March 31, 2016	22,381,974
Additions from contributions	362,370
Subtractions	0
Total Return	529,807
Balance, June 30, 2016	<u>23,274,151</u>
Balance, June 30, 2016	23,274,151
Additions from contributions	340,124
Subtractions	(500,000)
Total Return	297,996
Balance, September 30, 2016	<u>23,412,271</u>
Balance, September 30, 2016	23,412,271
Additions from contributions	161,700
Subtractions	0
Total Return	200,294
Balance, December 30, 2016	<u>23,774,265</u>
Two-Year Summary	
Beginning Balance, December 31, 2014	21,754,511
Cumulative Additions from contributions	1,806,375
Cumulative Subtractions	(1,050,000)
Cumulative Market Returns	1,263,379
Ending Balance, December 31, 2016	<u>23,774,265</u>

Appendix B

American Radio Relay League Portfolio Composition as of December 31, 2016

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	Fair Value	Percentage	Amortized Cost
Investment Portfolio			
Stock (of which \$928,464 is international)	11,349,811	47.7%	8,182,904
Bond	11,334,639	47.7%	11,349,032
Cash	1,089,815	4.6%	1,089,815
Total Investment Portfolio	<u>23,774,265</u>	<u>100.0%</u>	<u>20,621,751</u>

American Radio Relay League Portfolio Return and Total Return Metrics

	2016 1st Quarter	2016 2nd Quarter	2016 3rd Quarter	2016 4th Quarter	Calendar Year 2016	Calendar Year 2015	Calendar Year 2014	Calendar Year 2013	Calendar Year 2012
Applicable Total Return Indices									
US Stock - Russell 3000 TR	0.97%	2.63%	4.40%	4.21%	12.74%	0.48%	12.56%	33.55%	16.42%
Foreign Stock - FTSE AW Ex US TR	-0.36%	-0.35%	6.94%	-0.99%	5.12%	-4.46%	-3.04%	15.63%	17.80%
Bonds - Barclays US Agg 1-5Yr TR	1.58%	0.96%	0.21%	-1.09%	1.65%	1.07%	1.69%	0.25%	2.21%
VG Prime Money Market	0.01%	0.01%	0.01%	0.01%	0.04%	0.04%	0.04%	0.04%	0.04%
Benchmark Blended Total Return (45% us, 5% intl, 45% bonds, 5% mmkt)	1.13%	1.60%	2.42%	1.36%	6.66%	0.48%	6.26%	15.99%	9.28%
Benchmark Bended Total Return (above)	1.13%	1.60%	2.42%	1.36%	6.66%	0.48%	6.26%	15.99%	9.28%
Actual Total Return									
In Percent	1.82%	2.37%	1.29%	0.86%	6.49%	-0.74%	5.77%	14.66%	11.04%
In Dollars (from page 1)	396,174	529,807	297,996	200,294	1,424,271	(160,892)	1,220,626	2,654,016	1,769,299

Notes:

Returns for greater than one quarter will be different than the sum of the quarterly returns because of compounding

The Russell 3000 Index is a measure of the total US stock market.

The FTSE index measures the World (AW) stock market, minus the US market

The Barclays index measures the aggregate US bond market for maturities of 1-5 years (the type of bonds in which we invest)

The Vanguard Prime Money Market is a proxy for the overall US money market

The Benchmark Blended Total Return is calculated from the above indexes in the proportions noted. It represents the expected return on the portfolio.

The Actual Total Return is calculated based on the dollar amount of Total Return relative to the original principal amount for the period calculated.

If there are significant increases or decreases to the investment portfolio in the period, the calculated Actual Total Return is adjusted accordingly.