American Radio Relay League

Treasurer's Report
Rick Niswander, K7GM
For the year ended December 31, 2018

Stock Markets

What a difference a year makes. In 2017, major stock markets around the world were all up 20% or more. In 2018, there is not a positive number among them.

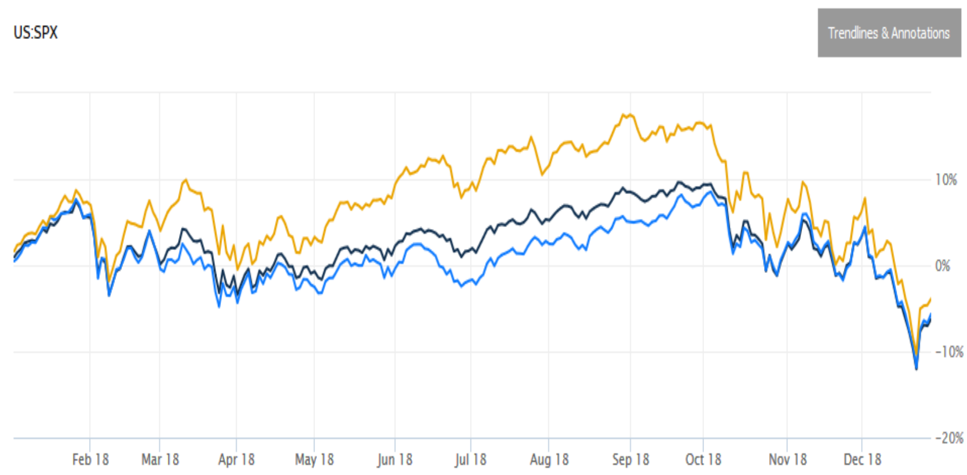
	2018 Total Return
US Indexes	
S&P 500	(4.38%)
Russell 3000 (total US stock market)	(5.24%)
NASDAQ	(2.84%)
Dow Jones Industrial Average	(3.48%)
International Indexes	
FTSE AW ex-US (world except US)	(13.87%)
Russell Emerging Markets	(14.54%)
Russell Developed Markets	(8.96%)
Nikkei (Japan)	(10.29%)
Shanghai/Shenzhen 300 (China)	(27.47%)

Note that the percentages above are Total Returns – increase or decrease in the price index (the number announced on TV) plus dividend income. For example, the S&P 500 price index was down 6.24% in 2018, but once dividend income is included, the total return index was down only 4.38%.

In the US, after a choppy but flat first quarter, the equity markets did well in the second and third quarters. On the last day of September, the Dow price index was up 5.5%, the S&P500 price index was up 7%, and the NASDAQ price index was up 13.7%. At that point, the wheels started getting wobbly and, in December, a couple wheels fell off. By the end of the day on December 24, all three price indices were down between 12.5-13.6% for the year. [What is really sobering is that from the end of September to December 24, the Dow price index fell almost 19%, the S&P price index fell 20.7% and the NASDAQ price index dropped over 26%.]

The last few trading days of the year pulled the markets up considerably off their lows, but we still ended the year with all indices (price or total return) down for the year. The last time the total return for the Dow and S&P were down for the year was 2008 and the last time the total return for the NASDAQ was negative was 2011 (and that was only negative by 0.83%).

Below is a chart of the price indexes for the NASDAQ (top orange line), the S&P500 (middle black line), and Dow (bottom blue line) for all of 2018.



Quarter 4 of 2018 will also be known for some severe positive and negative daily swings, particularly around the end of the year. In the four trading days through Christmas Eve the Dow fell over 1,800 points. On the day after Christmas the Dow increased by over 1,000 points and on the next day the Dow added 260 points but that overall daily increase masked an intraday 600+ point drop and 800+ point recovery.

While the volatility in December was stark, it really was not much more than the long run average; we were just lulled into complacency after about a two-year period of very low volatility. Starting about the second quarter of 2016, the volatility index (VIX) was about as benign as it gets. The second half of 2016 and all of 2017 saw few days which were up or down more than 1%. In February 2018 it started accelerating and jumped in the last two months of the first quarter and the fourth quarter, in particular. As scary as December was, on average, 2018 volatility was just a bit below the long run average. Short story is that we should expect more of the same in 2019.

The matrix on the top of the next page shows a style box breakdown of US equity returns for calendar year 2018. The chart comes from Morningstar which tracks the entire US market using a slightly different basket of stocks than does the Russell 3000. As you can see, large growth stocks were the only stock class that had total returns, on average, above zero. For the year growth stocks outperformed value stocks and large companies outperformed small. That relationship has been true for the last few years.

Calendar Year 2018

		Value	Core	Growth
	US Market -5.05%	-7.51%	-9.05%	0.78%
Large Cap	-3.44%	-5.90%	-8.22%	2.94%
Mid Cap	-8.34%	-10.63%	-11.20%	-3.16%
Small Cap	-12.11%	-16.61%	-13.66%	-5.67%

Data as of 12-31-18

The matrix for the 4th quarter of 2018 is all red, although value stocks were better than growth stocks (technically "less-bad") across all company sizes.

4th Quarter 2018

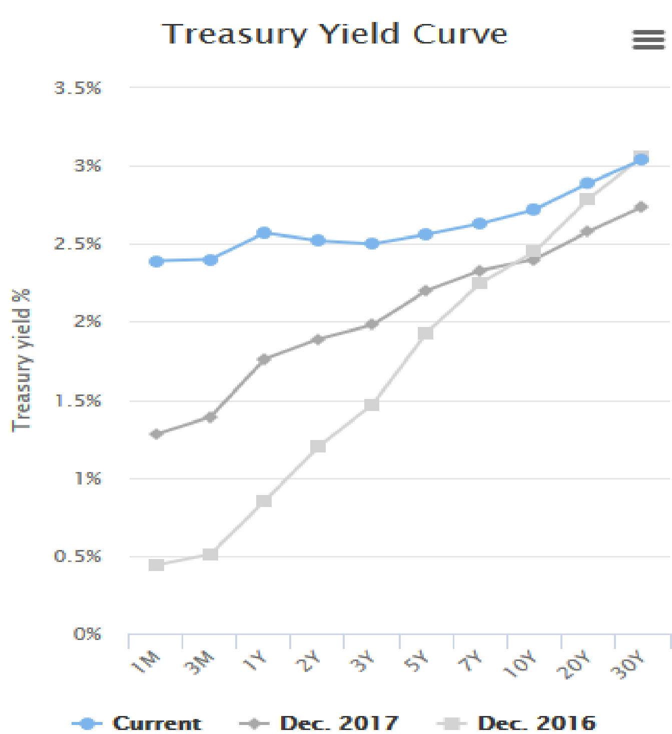
		Value	Core	Growth
	US Market -14.08%	-10.98%	-14.89%	-16.39%
Large Cap	-13.29%	-9.59%	-14.82%	-14.48%
Mid Cap	-15.08%	-13.48%	-14.22%	-17.26%
Small Cap	-19.54%	-19.19%	-17.54%	-21.44%

Data as of 12-31-18

Notwithstanding the stock market, the US economy is actually doing fairly well. Unemployment is 3.9%, monthly job growth has been positive for 99 straight months (a record), GDP growth will be 3% or so in 2018 and is expected to be around 2.5% in 2019, inflation is not bothersome, and loan delinquency rates are low. There are some darker clouds on the horizon, among them: trade uncertainties; significantly slowing growth in many parts of the world outside the US; high debt levels for governments and corporations in the US and around the world; modestly slower growth in the US; and lower expectations for growth in corporate profits in 2019. Nonetheless, the US economy is not on the verge of recession. Economically, 2019 should be ok, at least the first half. 2020 will probably be another matter.

Bond Market

In the last half of 2016, short term interest rates started to increase while long-term rates have not moved a whole lot. The following chart shows the yield on US Treasuries of varying maturities as of the end of 2016, 2017, and 2018. [a chart of corporate bonds would have approximately the same shape, although the rates would be shifted upwards for all maturities.] So, for example, at the end of 2016, US Treasury debt with a maturity of one year had an effective interest rate of about 0.8%. At the end of 2017, the effective rate for one-year debt was about 1.8%, and at the end of 2018 it was almost 2.6%.



Normally, short term interest rates are lower than long term interest rates (called an "upward sloping" yield curve). During 2017, the yield curve "flattened out" a bit – short maturities went up and the long maturities went down a bit. In 2018, the curve flattened more and the long end went back to where it was at the end of 2016. A flat yield curve or an inverted yield curve (where long rates are less than short rates) are not the normal picture. In fact, while it is hard to generalize, an inverted yield curve is normally an indicator of an upcoming recession.

Having said that, there is an old adage that says the economic indicator of your choice has predicted 10 of the last 6 recessions (yes, I typed that correctly). Such might be the case with a yield curve that appears to be moving from upward sloping through flat to inverted. Inversion may happen in 2019, and it might not. Nonetheless, the bond market is flashing a sign that we need to be cautious going forward.

<u>ARRL Portfolio</u>

In 2018, our portfolio recorded a total return (price changes plus interest and dividends) of ($486,201), or a decrease of 1.75%. The portfolio benchmark (45% US stocks, 5% international stocks, 45% bonds, 5% money market) fell by 2.11%. So, we beat the benchmark by 0.36% (also called 36 basis points) for the year. We were behind the benchmark in the first and second quarters by 0.56% and 0.34%, respectively, and beat the benchmark in the third and fourth quarters by 0.40% and 0.83%.

When comparing benchmark return to actual return, variability from quarter-to-quarter or year-to-year should be expected. Comparisons should be made with caution over three-to-five-year time horizon. Further, comparison indexes do not include any transaction/holding costs (trading commissions and annual fees). While our transaction/holding costs are low, they are not zero.

The top of Appendix B provides detail concerning the dispersion of investment portfolio assets across investment classes. The composition of the investment portfolio conforms to the asset allocation policy.

We started 2018 with $27,478,256, had a total return loss of ($486,201), added contributions of $625,786, transferred zero to the general account, and ended the year with $27,617,841.

ARRL Stock Portfolio

Here is a little more information on the ARRL stock portfolio for 2018. The chart below shows our best and worst holdings in terms of total return percentage change for 2018.

2018 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
Mastercard	25.3%	$ 188,650		General Electric	(54.5%)	$ 19,773
Pfizer	24.3%	87,300		Devon Energy	(44.8%)	43,254
Visa	16.5%	263,880		Apache	(35.5%)	39,375
Cisco	15.6%	56,546		Goodyear	(35.0%)	40,820
Medtronic	15.1%	45,480		Enbridge	(15.2%)	30,583

Mastercard and Visa were in the top 5 last year as well. Three of the losers – Apache, Devon, and Enbridge – are in the energy business. Apache and Devon were in the bottom 5 in 2015, top 5 in 2016, back to the bottom 5 in 2017 and 2018. Energy is a very cyclical business and it will bounce back. GE was a big, big disappointment in both 2017 and 2018.

The following chart looks at 2018 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 also did well.

2018 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	3.0%	$ 408,360		VG Total Stock Mkt	(5.2%)	$ 2,629,178
United Technologies	(14.3%)	266,200		VG S&P 500	(4.5%)	1,178,925
Visa	16.5%	263,880		VG Dividend Apprec.	(2.8%)	1,022,598
Johnson & Johnson	(5.1%)	258,100		VG Mega Cap	(3.4%)	764,544
Pepsico	(4.9%)	222,175		ISh Min Volatility	1.4%	476,840

In the individual stock portfolio, we had holdings in 31 different companies that we held throughout the year. When you compare the returns of these 31 against the return on the Russell 3000 (the broad market index that returned -5.24%), 19 holdings beat the Russell 3000 and 12 did not. Even more important, the total investment in those that beat the Russell 3000 was over $2.66 million and the total investment in the those that did not beat the metric was $959K.

Of the five largest ETF holdings, 4 beat the Russell 3000 and one was in a virtual tie (since the Vanguard Total Stock Market ETF is supposed to track the entire market as is the case with the Russell 3000, close to a tie should be expected).

The entire portfolio had a positive total return in seven months in 2018 with the biggest monthly gain occurring in January ($583K). The other 5 months were negative with the biggest loss (by far) occurring in December (just over $1 million).

ARRL Bond Portfolio

In our bond portfolio, we own $11.9 million face value ($11.7m market value) of individual bonds as well as about $1.9 million of bond ETFs. The bonds are spread over 92 different bond issues from 70 different corporations plus the US Treasury. Our largest holdings are $400K with each of Apple, Exxon, Intel, and Visa. 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 generally adheres to the five-year time horizon with very good credit quality. Here are two charts. One shows maturities over the next six calendar 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	
2019	$ 2,700,000
2020	1,600,000
2021	1,400,000
2022	3,300,000
2023	2,300,000
2024	600,000
Total	$ 11,900,000

Bond Credit Ratings (S&P)	
Short Term Treasuries	$ 800,000
CDs (fully FDIC insured)	300,000
AAA	100,000
AA+	800,000
AA	500,000
AA-	1,500,000
A+	1,500,000
A	1,400,000
A-	2,200,000
BBB+	1,800,000
BBB	1,000,000
BBB-	100,000
Below BBB-	0
Total	$ 11,900,000

Our $11.9 million individual bond portfolio has an average maturity of 2.7 years and average S&P rating between A+ and A. Our $1.9 million of ETFs are 80% governmental (AAA rated) with an average rating of A+ on the reminder. Average ETF maturity is about 2.8 years. The credit rating and maturity of the bond portfolio at the end of 2018 is comparable with the end of 2017.

We have an unrealized loss of about $200K in our individual bond portfolio. That is because short term interest rates have been rising (as shown in the chart above) which means that bond prices have fallen (the teeter-totter effect). Since we hold our individual bonds to maturity, the drop in value does not ultimately matter. By the time the bonds mature their prices will rise to face value and we will recover the $200K unrealized loss and then some.

As interest rates rise, I 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). In the last quarter of 2018 I purchased some bonds with maturities of about 5.5 years. That's why we have some maturities in 2024. We have a large enough bond portfolio to eventually increase the maturity dates of our new bond purchases to somewhere in the 7-year timeframe. This move will increase the average interest income of the portfolio.

Appendix A

American Radio Relay League
Portfolio Flow de K7GM

	Investment Portfolio Market Value
Balance, December 30, 2016	23,774,265
Additions from contributions	177,307
Subtractions	0
Total Return	675,202
Balance, March 31, 2017	24,626,774
Balance, March 31, 2016	24,626,774
Additions from contributions	100,293
Subtractions	0
Total Return	454,172
Balance, June 30, 2017	25,181,239
Balance, June 30, 2017	25,181,239
Additions from contributions	712,899
Subtractions	0
Total Return	527,319
Balance, September 30, 2017	26,421,457
Balance, September 30, 2017	26,421,457
Additions from contributions	298,327
Subtractions	0
Total Return	758,472
Balance, December 31, 2017	27,478,256
Balance, December 30, 2017	27,478,256
Additions from contributions	555,282
Subtractions	0
Total Return	(313,833)
Balance, March 31, 2018	27,719,705
Balance, March 31, 2018	27,719,705
Additions from contributions	18,459
Subtractions	0
Total Return	376,607
Balance, June 30, 2018	28,114,771
Balance, June 30, 2018	28,114,771
Additions from contributions	12,060
Subtractions	0
Total Return	1,057,816
Balance, September 30, 2018	29,184,647
Balance, September 30, 2018	29,184,647
Additions from contributions	39,985
Subtractions	0
Total Return	(1,606,791)
Balance, December 31, 2018	27,617,841

Two-Year Summary	
Beginning Balance, Dec 31, 2016	23,774,265
Cumulative Additions from contributions	1,914,612
Cumulative Subtractions	0
Cumulative Market Returns	1,928,964
Ending Balance, Dec 31, 2018	27,617,841

Appendix B

American Radio Relay League de K7GM
Portfolio Composition as of December 31, 2018

	Fair Value	Portfolio Percentage	Amortized Cost
Investment Portfolio			
Stock (of which $1,028,231 is international)	12,462,070	45.1%	8,921,367
Bond	13,574,766	49.2%	13,785,354
Cash	1,581,005	5.7%	1,581,005
Total Investment Portfolio	27,617,841	100.0%	24,287,726

American Radio Relay League
Portfolio Return and Total Return Metrics

	2018 1st Quarter	2018 2nd Quarter	2018 3rd Quarter	2018 4th Quarter	Calendar Year 2018	Calendar Year 2017	Calendar Year 2016	Calendar Year 2015	Calendar Year 2014	Calendar Year 2013	Calendar Year 2012
Applicable Total Return Indices											
US Stock - Russell 3000 TR	-0.63%	3.89%	7.12%	-14.30%	-5.21%	21.13%	12.74%	0.48%	12.56%	33.55%	16.42%
Foreign Stock - FTSE AW Ex US TR	-1.12%	-2.54%	0.93%	-11.44%	-13.87%	27.47%	5.12%	-4.46%	-3.04%	15.63%	17.80%
Bonds - Barclays US Agg 1-5Yr TR	-0.52%	0.17%	0.25%	1.47%	1.37%	1.30%	1.65%	1.07%	1.69%	0.25%	2.21%
VG Federal Money Market	0.01%	0.02%	0.03%	0.12%	0.20%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Benchmark Blended Total Return (45% us, 5% intl, 45% bonds, 5% mmkt)	-0.57%	1.70%	3.36%	-6.34%	-2.11%	11.11%	6.66%	0.48%	6.26%	15.99%	9.28%
Benchmark Bended Total Return (above)	-0.57%	1.70%	3.36%	-6.34%	-2.11%	11.11%	6.66%	0.48%	6.26%	15.99%	9.28%
Actual Total Return											
In Percent	-1.13%	1.36%	3.76%	-5.51%	-1.75%	10.11%	6.49%	-0.74%	5.77%	14.66%	11.04%
In Dollars (from page 1)	(313,833)	376,607	1,057,816	(1,606,791)	(486,201)	675,202	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 (All World) 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.