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IN THE NEWS:

An article, [“Are Traditional Valuation Models Flawed? An Illustrative Example: Valuing a Hedge Fund.”](#) written by internationally renowned economist Professor Burton Malkiel, an affiliate of DSP, and Atanu Saha, Chairman of DSP, was selected by ValueWalk as a “Top Story” in March.

In this article, the authors discuss a scientific method to incorporate cash-flow cessation risk within the DCF model’s discount rate.

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SHOULD PENSION FUNDS DIVEST GUN STOCKS?

The Answer is Not Cut and Dry

Following the February 14th high school shooting in Parkland, Florida, many teachers have called on their state pension fund to sell their stakes in gun makers. John Kuczanski, a spokesman for the Florida State Board of Administration (SBA), which manages the \$161 billion state pension fund, responded to these calls by arguing against “limitations on investments that increase plan costs, potentially lower returns...” He also noted that “as fiduciaries, the SBA must act solely in the interest of the participants and beneficiaries ...”¹ Keith Brainard, director of research at the National Association of State Retirement Plan Administrators, contended: “Those who administer ... [pension] funds have a fiduciary obligation ... to make decisions that are solely in the interest of plan participants.”² The Wall Street Journal reports that officials in Colorado, Indiana and Texas have said that divestment of gun stocks might be inconsistent with their fiduciary duty.³

In this newsletter, we examine the merits of this argument. The question we ask is: would such divestments hurt the economic performance of the state pension funds? The answer is not clear-cut. Some gun stocks have indeed provided better returns than the market; but, they are also quite volatile and their returns are highly dependent on the political climate in Washington. So, while gun stocks may be attractive based on their returns, they are less so on a risk-adjusted basis. Ultimately, whether or not the pension plans should divest these stocks boils down to the degree to which they value the tradeoff between risk and return of these stocks in their portfolios. This question, however, cannot be addressed in isolation; the answer depends not only on the risk and return characteristics of the gun stocks, but, also on the characteristics and mix of other assets in their portfolios.

The Major Firearms Manufacturers

Among the ten largest U.S. firearms manufacturers, just three are publicly-traded companies. Table 1 shows that the two largest, Sturm, Ruger & Co. and Smith & Wesson, command nearly 34 percent share of firearms manufactured.

<u>Table 1</u>	<u>Company</u>	<u>Firearms Manufactured in 2015</u>
RGR	Sturm, Ruger & Co.	1,667,820
AOBC	Smith & Wesson Corp.	1,473,352
	Remington Arms Co.	1,143,671
	O.F. Mossberg & Sons Inc.	504,497
	SIG SAUER Inc.	497,218
VSTO	Savage Arms Inc.	381,695
	Henry RAC Holding Corp.	306,607
	WM. C. Anderson Inc.	300,390
	GLOCK Inc.	216,616
	Heritage Mfg. Inc.	163,933
	Others	2,702,862
	Total	<u>9,358,661</u>

Source: ATF's 2015 Annual Firearms Manufacturing and Export report

The largest manufacturer, Sturm, Ruger & Co. (RGR), is the only public pure-play firearms manufacturer. The two remaining publicly-traded firearms manufacturers, American Outdoor Brands Corporation (AOBC), formerly known as Smith & Wesson, and Vista Outdoor (VSTO), have recently been expanding into the outdoor sport industry. However, AOBC still gets 85% of its revenue from the sales of firearms and ammunition. For VSTO, this percentage is only 54%. Hence, our analysis focuses on RGR and AOBC, as the performance of VSTO reflects, non-trivially, their income unrelated to firearms sales.

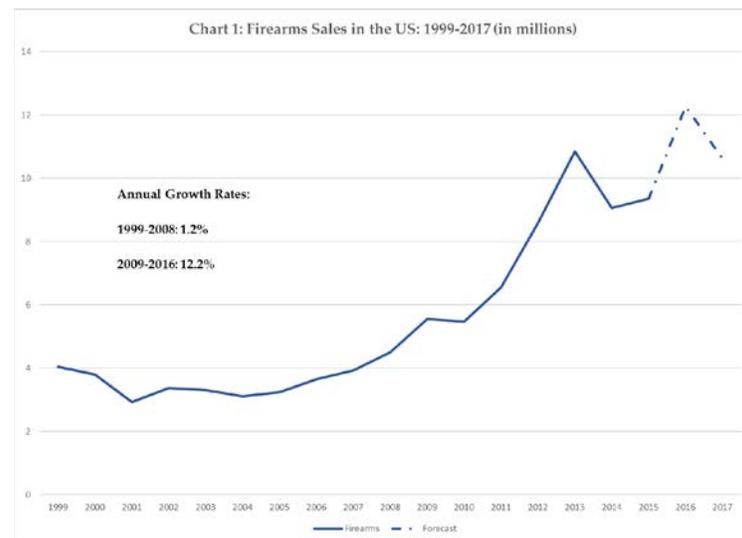
Before examining the stock price performance of these two firms, it might be useful to discuss the likely factors that affect gun sales, and hence, revenues of the firms.

Gun Sales Over Time

It is virtually impossible to get reliable data on firearms sales in the U.S. We examined two alternative data sources as proxies for sales: (a) data on firearms manufactured, from the Bureau of Alcohol, Tobacco, Firearms, and Explosives; and (b) data on gun permits, from the National Instant Criminal Background Check System. While the data on permits are fairly current, the most

recent data on firearms manufactured is from 2015. However, we found the number of firearms manufactured and gun permits move very much in tandem; thus, we used the permits data to estimate firearms manufactured for the years 2016-2017. We believe data on firearms manufactured understates the gun sales in the U.S.; yet it is the most reliable proxy for sales.

Chart 1 below presents that data. It shows that, in the pre-2008 period, gun sales have increased at an annual average rate of 1.2%; by contrast, during the eight years President Obama was in office, it has increased at an annualized rate of 12.2%!



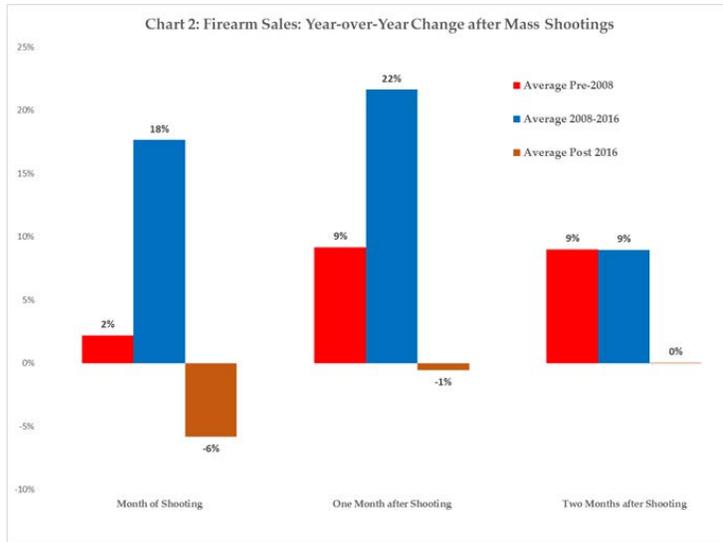
“Obama Spike” and the “Trump Slump”

The New York Times reports, according to an analysis of federal background check data, fear of gun-buying restrictions has been the main driver of gun sales.⁴ For instance, President Obama’s call for new buying restrictions triggered an unprecedented rise in gun sales, commonly referred to as the “Obama Spike.”⁵ Conversely, under President Trump, who has referred to himself as “a big fan of the NRA,”⁶ gun sales have significantly tapered down; this drop is evident from the 2017 sales data in Chart 1 above. In fact, in early 2018, Remington Outdoor, the third largest US gun manufacturer, filed for Chapter 11 bankruptcy under what has been dubbed the “Trump Slump.”⁷

Mass Shootings

It has been widely discussed in the press that under a climate of heightened focus on gun control, firearms sales generally increase in fear of potential future buying restrictions. This phenomenon is most evident in the data on gun sales following mass shootings, which typically lead to calls for gun control. In Chart 2 below, we

compare the year-over-year change in gun sales following mass shootings⁸ in schools and public spaces. During Obama’s presidency, every mass shooting, including those at Sandy Hook Elementary School and the Orlando nightclub, caused a sharp spike in gun sales, not only in the month of the shooting, but, also in one and two months following it. Even though mass shootings have occurred under Trump’s presidency, such as the Las Vegas and Stoneman Douglas High School shootings, these shootings have been followed by a *decline in gun sales*.



Performance of the Gun Stocks

The evidence on gun sales over the years, particularly, their dependence on who is in the White House, provides the necessary backdrop for the analysis of gun manufacturers’ stock price performance.

In Table 2, we show the annual average performance of the two publicly traded firearms manufacturers, Sturm, Ruger & Co. (RGR) and American Outdoor Brands Corporation (AOBC), formerly Smith & Wesson. In this table, the returns of the two stocks are net of market; that is, we have subtracted the S&P 500 return (proxy for the market) from the stock’s return.

Table 2 Average Return Net of Market

<u>Period</u>	<u>RGR</u>	<u>AOBC</u>
1993-2000	-8.5%	
2001-2008	1.0%	16.5%
2009-2016	16.5%	14.5%
2017-Q1 2018	-11.4%	-69.8%
Average	2.2%	8.7%

Over the past 25 years, from 1993 through Q1 2018, RGR’s average return has been 2.2% better than the market’s. Since 2002, AOBC, which was acquired by a public company mid-2001, has outperformed the market by an average of 8.7%. Yet, for both stocks, the performance has been poor during the 15-month period President Trump has been in office. These stock price performances are generally consistent with the pattern of firearms sales discussed earlier.

Notwithstanding the recent underperformance of the two stocks, based on the data in Table 2, one might be tempted to argue that they are attractive choices because, over the long haul, they have generally outperformed the market. It would be hasty, however, to jump to this conclusion; the market-beating returns of the stocks come at a price. The data in Table 3 show that these stocks are quiet volatile:

Table 3: Average Annualized Volatility

<u>RGR</u>	<u>AOBC</u>	<u>SP 500</u>
41.3%	59.6%	18.4%

This result is not unexpected given the high degree of dependence of stock price performance on the political climate in Washington.

The Holdings of the Pension Funds

The question of whether or not to divest gun stocks needs to be viewed in perspective: they are a miniscule portion of overall holdings of the state pension funds. Among the four largest pension funds, which have combined assets under management of approximately \$1.5 trillion,⁹ just \$5 million is directly invested in VSTO and negligible, if any, funds are directly invested in AOBC or RGR.¹⁰ Therefore, even if a pension fund chooses to divest gun stocks, the asset mix of the funds—and thus their overall performance—would likely stay largely unchanged.

Although most pension funds have trivial direct holdings of gun manufacturer stocks, they may indirectly invest in these stocks through their holdings in index funds. However, of the 507 index funds that hold gun manufacturer stocks, 98% have investments that comprise less than 2% of the total portfolio.¹¹ Hence, even indirect investments in gun manufacturer stocks are so small that they likely have an insignificant impact on total returns of the pension funds.

Concluding Comments

The question of divestiture, not just of gun stocks, but of any asset in a portfolio cannot be answered in isolation. The answer depends on what else is in the portfolio. One or several stocks' addition or removal impacts the portfolio's asset mix, which, in turn, affects the overall portfolio's return and risk profile. And it is this analysis that needs to be undertaken to determine whether a stock belongs in a portfolio. There is no one-size-fits-all answer to the question of divestiture. It is true for gun stocks as well.

DSP's leaders and experts have been providing expert testimony and analyses in the area of risk-return composition of investment portfolios. By continuing to think critically, we ensure our clients get the most accurate and defensible analysis for their particular situation.

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Contact Us

Atanu Saha Ph.D.
asaha@datasp.com
212-554-3511

Alexander Rinaudo
arinaudo@datasp.com
212-554-3512

¹ Thomas Heath, "Why taking stocks out of the Florida teachers' pension is not simple", The Washington Post, February 22, 2018.

² Jonathan Berr, "Should pension plans Invest in gunmakers," MoneyWatch, February 23, 2018.

³ Heather Gillers, "Why Some Pension Funds Aren't Giving Up Their Guns," Wall Street Journal, March 4, 2018.

⁴ Gregor Aisch & Josh Keller, "What Happens After Calls for New Gun Restrictions? Sales Go Up," The New York Times, June 13, 2016.

⁵ Kit R. Roane, "How Smith & Wesson lost its apocalypse opportunity," Fortune, November 17, 2010.

⁶ Chris Cillizza, "Donald Trump Said He Would Stare Down the NRA. Then He Blinked." CNN, March 12, 2018.

⁷ Ryan Sit, "NRA, Gun Makers Should've Feared the 'Trump Slump' Instead of President Hillary Clinton," Newsweek, March 26, 2018.

⁸ Includes 12 mass shootings from 2005-2017, excludes Fort Hood Army Base and Washington Navy Yard shootings.

⁹ Federal Retirement Thrift, CalPers, CalSTRS, NYSCRF
¹⁰ SEC 13F February 2018.

¹¹ Jon Hale, "Finding Gun Stocks in Fund Portfolios," Morningstar, March 2018.