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14. ABSTRACT
The 2016 NDAA's creation of the Blended Retirement System introduced a defined contribution portion to the military retirement system. This change increases the investing burden on military personnel, since it requires them to invest prudently for retirement to achieve retirement benefits commensurate with what they would receive under the previous system. This thesis explores investment literature and investment training best practices to identify the essential elements of an investor training program. It then analyzes the sufficiency of Air Force, Army, and Navy investor training programs in light of those elements. The analysis finds current military investor training neither covers the essential investor training elements nor does it reach all military members. Thus, the author recommends DoD create a standardized investor training program that includes all the essential elements of investor training, and provide that training to all military personnel—officer and enlisted.

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Blended Retirement System; BRS; 2016 National Defense Authorization Act; NDAA; military investor training; military financial literacy; defined benefit; defined contribution; Thrift Savings Plan; TSP

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Private Ryan's Savings:
Investment Training Essentials for Military Blended Retirement System Participants

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Executive Summary

Title: Private Ryan's Savings: Investment Training Essentials for Military Blended Retirement System Participants

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Thesis: Current military financial education does not adequately prepare servicemembers to make the investment decisions necessary under the Blended Retirement System. To effectively train military investors, DoD should develop standardized investment training for all military personnel that teaches essential investment elements to help servicemembers answer three basic questions: *when*, *where*, and *how much* to invest.

Discussion: Over the last several decades many private employers shifted their retirement programs from defined benefit (DB) plans to defined contribution (DC) plans. The 2016 National Defense Authorization Act (NDAA) brought a similar shift to the military retirement system, implementing a combined DB, DC Blended Retirement System (BRS). This new system requires military members to invest personal and government contributions in their Thrift Savings Plan prudently to achieve retirement benefits commensurate with the supplanted system. Because Congress has increased investment responsibility for military members, the Department of Defense (DoD) should prepare those members to invest wisely. Analysis of Air Force, Navy, and Army investor training programs, however, demonstrates current training is insufficient to prepare military members to invest—it is not taught to all personnel and lacks essential content.

Conclusion: Investment literature and respected investor training programs reveal essential investment-training elements. These elements provide the answers to three crucial questions all military investors must answer: *when*, *where*, and *how much* to invest. To effectively train military investors, DoD must develop investment training for all military members that includes these essential elements. Furthermore, DoD should standardize the training across the military services. By furnishing sufficient investor training to military investors, DoD will prepare servicemembers to create a retirement portfolio that falls within reasonable risk parameters while providing ample cash flow during retirement.

Disclaimer

Preface

A paper of this scope requires the efforts of many, and I would be remiss not to thank those that provided me valuable assistance. First, I thank Dr. Francis Marlo for his mentorship, guidance, and relentless editing. I am also grateful to Dr. Paul Gelpi and Michael Tanner for volunteering their valuable time to proofread drafts of this thesis, yielding crucial improvements. I also thank the numerous individuals in the Pentagon, and at bases across the military establishment, who provided me vital information about financial training policy, current financial training practices, and the blended retirement system.

Most of all, I thank my patient, capable wife who graciously allowed me to spend dozens of hours researching, writing, and re-writing while she singlehandedly wrangled four precious but *very* energetic children while growing a fifth.

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Motivation and Overview

Over the last several decades, the retirement system in the United States has undergone a massive shift. Overwhelmingly, US companies stopped offering employees defined benefit (DB) plans that provide guaranteed pension payments during retirement based on "a formula which takes into account years of service for the employer and, in most cases, wages or salary,"[1] in favor of defined contribution (DC) plans. A DC plan's retirement benefits rely on the employee's, and in some cases the employer's, "contributions and investment earnings of the accumulation in the account."[2] In 1983, 62% of workers had pension coverage under DB plans and only 12% had DC plans. Thirty years later, in 2013, those numbers had shifted to 17% and 71% respectively—a complete reversal.[3]

For many American employees, this shift has had unfortunate implications. Under a DC plan, employees bear the burden of making sufficient contributions and properly investing those contributions to provide retirement income. Unfortunately, most have not handled this burden well: a 2014 study found 30% of US households approaching or at retirement age have less than $10,000 in available assets. The next 24% have less than $100,000 saved. Therefore, the study concludes, more than half of Americans will rely primarily on social security in retirement.[4]

In 2015, the military's retirement system underwent a substantial change. The 2016 National Defense Authorization Act (NDAA) contained the largest military retirement revamp in seventy years: a shift from a DB plan to a blended DB and DC system.[5] Under this Blended Retirement System (BRS), servicemembers shoulder an increased burden to both contribute to the retirement plan and make wise investment choices to cover the DB shortfall in retirement. As demonstrated in the civilian sector, if the Department of Defense (DoD) fails to train servicemembers to contribute and invest wisely, military personnel may not prepare adequately for retirement.

This thesis proposes a military investor training program that informs servicemembers of their investing responsibilities under the BRS, and prepares them to make the requisite investment choices for retirement. To lay the training plan's foundation, one must first understand the history of US military retirement and exactly how it changed under the BRS. These changes—in concert with a survey of financial industry best practices, training, and investor education material—make it clear that to prepare military personnel to make keen investment decisions, DoD must prepare servicemembers to answer three basic questions: *when*, *where*, and *how much* to invest. Unfortunately, current military financial training neither comprehensively covers these essential questions nor does it reach the entire active duty community. This thesis helps fill the military investor education gap by arguing DoD should train all military members, enlisted and officer, via standardized investing training that answers these three questions.

Section One: Military Retirement System History

The history of US military retirement and the nature of the recent changes to that system provide context to motivate the essential elements that military investor training must include. Although retirement eligibility criteria and calculation of benefits have changed numerous times, the United States has provided some form of military retirement to servicemembers since the earliest days of the nation. During the Revolutionary War, Congress promised officers who served until the end of the war "half pay for life."[6] In subsequent American wars, Congress offered officers pensions of varying amounts. This ad-hoc approach continued until 1861, when Congress passed the "first major nondisability retirement act, which provided for the voluntary retirement of regular officers of all branches of Service after forty years of duty."[7] To this point, retirement pay calculations varied based on the member's branch of service. In 1948, however, Congress passed legislation to standardize retirement across the services. It established a twenty-year minimum service requirement prior to retirement and provided a pension of 2.5% of an individual's final base pay for each year of service.[8]

The system that the BRS supplanted was remarkably similar to that set up in 1948. More than 97%, of active duty retirees who entered service after 1980 and before 2018 fall under either the Final Pay or High Three retirement system.[9] Under these systems, servicemembers are eligible for retirement after twenty years of service. This method of vesting is known as "cliff vesting," in which an individual has no retirement benefits for twenty years then becomes fully vested.[10] Upon retirement, the DB is determined by multiplying the "computation base"—the average of the highest thirty-six months of basic pay under the High Three system or the base pay from the final paycheck under the Final Pay system—by 2.5% for each year of service. Thus, the minimum retirement benefit is 50% of the member's computation base (2.5% times 20 years).[11]

Servicemembers entering service on or after January 1, 2018, will fall under the BRS. The DB portion of the BRS is similar to that of the High Three and Final Pay systems; however, the computation base is multiplied by only 2% for each year of service.[12] Consequently, the minimum retirement benefit drops from 50% to 40% of the computation base. To counteract this 10% DB decline, the BRS provides a DC element with a government match of up to 5% of a member's base pay contributed to an individual's Thrift Savings Plan (TSP) retirement account. Beginning sixty days after a member enters the service, DoD makes monthly contributions of 1% of the member's base pay. This contribution continues until the member either separates or accrues twenty-six years of service. Additionally, after two years of service, DoD matches servicemember contributions to the TSP, up to an additional 4% of base pay. In contrast to "cliff vesting," members are fully vested in the DC portion after two years of service.[13] Finally, servicemembers receive a "mandatory mid-career continuation bonus at twelve completed years of service" of between 2.5 and 13 times the member's base pay at that time.[14]

Numerous individuals have compared the BRS to previous retirement systems to determine which system is more beneficial for retirees.[15] Certainly, for those who serve fewer than twenty years and would have received nothing under the old system, the BRS is preferable. For those serving longer than twenty years, however, the answer depends heavily on assumptions about market returns and whether members invest their continuation bonus. Whether the BRS is better or worse than the old system is beyond the scope of this thesis. What is relevant and certain, however, is that to make up for the DB decrease, servicemembers must now regularly contribute to their TSP to take advantage of DoD matching. Furthermore, as TSP savings will be invested in market securities, they must now "contend with the variability of market returns and its impact on their retirement, something their predecessors did not have to face."[16] Even mature, well-educated individuals may be overwhelmed by market variability and investment decisions. Congress has placed a responsibility to invest on military personnel, some of them teenagers just out of high school. DoD has a duty to prepare these members for this new responsibility.

Section Two: Essential Elements of Investor Training

It is unrealistic to expect a military investor training program to turn military personnel into experts. Instead, training should educate individuals on the basics, motivate them to invest, help them avoid common mistakes, and provide tools to create a reasonable investment portfolio based on investment goals and risk tolerance. In each case, investors must understand the "why" behind each training element and recommendation, so that they make informed choices.

A new military investor is faced with numerous decisions which inevitably raise a variety of questions including: *when, where, and how much should I invest*? The answers to these questions drive investment choices and, ultimately, determine whether servicemembers achieve their investment goals. Fortunately, there is a plethora of investment literature available that can help answer these questions. An interview with a professional financial planner and an in-depth analysis of twelve investment books and the online training of three major investment entities (The Vanguard Group, Fidelity, and the US Securities and Exchange Commission) uncovered widely-agreed-upon investment training principles. Analyzing the information in these sources makes it possible to determine the essential training elements, shared in the following sections, that prepare military investors to shrewdly navigate investment decisions.

Answering the Question: When to Invest?

The first decision an investor must make is *when* to invest. While it is beneficial to begin investing as early as possible, military members must first be in a safe financial position. Then, servicemembers must decide with what frequency to invest. The correct decisions become clear when one understands the power of compounding returns, the necessity to achieve financial prerequisites before investing, and the value of dollar cost averaging.

Compounding has a powerful effect on investments for two reasons: it provides the rapid growth that makes investing worthwhile and it answers *when* one should invest. Compounding occurs when interest or stock dividends are reinvested; in that case, subsequent interest and dividends will be calculated on increasingly large amounts so that the investment grows faster and faster, like a snowball growing as it rolls down a slope.[17] Because of compounding returns, investors can accumulate sums of money far larger than their initial investments. For example, assuming an 8% annual return, a 20-year-old needs only an initial investment of $31,327.88 to accumulate $1,000,000 at age 65.[18]

Teaching this concept to new investors is crucial. It shows how fruitful investing can be, and it motivates them to begin investing. More importantly, compound interest shows the "time value" of money, the fact that money invested earlier is much more valuable than money invested later. Consider two hypothetical investors, both earning the same 8% annual return. The first investor invests $4,000 a year from age 25 to age 35, a total of $40,000, then stops investing. The second investor waits until age 35 to begin investing and invests $4,000 a year for 30 years, a total investment of $120,000. At age 65, the first investor, with only one-third the total investment of the second investor, will have $629,741 while the second investor will only have $489,383.[19] Thus, investing less money as early as possible results in significantly more money in retirement. Military investor training should teach servicemembers about the power of compounding returns to motivate them to begin investing early. Using examples that depict enlisted personnel and officers choosing different times to begin investing in the TSP would make the training even more memorable.

It is also vital to teach individuals to *wait* to invest until they achieve some basic financial prerequisites: eliminate high-interest debt, establish an emergency fund, and create a budget. Unfortunately, according to a 2013 Financial Industry Regulatory Authority (FINRA) study, military members tend to "be more at risk than the national population when it comes to managing […] mortgages and other types of debt."[20] In fact, almost half of the military credit card holders polled admitted to engaging in "costly behaviors such as paying the minimum," accruing late and over the limit fees, and using cash advances. That study also found that one-third of the members used risky borrowing methods such as payday loans, tax refund advances, or pawn shops.[21] It is foolish for personnel to seek a *potential* investment return when they can earn a *guaranteed*, no-risk return by paying down high-interest debt. Training must emphasize paying down debt *prior to* investing and avoiding future debt, especially risky borrowing.

There are two other investing prerequisites that investor training should include: establishing an emergency fund and creating a budget—both of which help avoid the aforementioned debt. An emergency fund, recommended by many experts to be at least three months' expenses, enables one to weather inevitable economic shocks, such as home or car repairs. The FINRA study found, however, that 43% of military members do not have *any* emergency fund—they live paycheck to paycheck.[22] Teaching members to establish an emergency fund prior to investing prevents them from leveraging high-interest debt to handle minor financial setbacks. Furthermore, servicemembers should learn the importance of developing, and living on, a monthly budget. A budget helps in several ways. First, it provides an individual a plan to live within their means, further reducing indebtedness. Second, it allows a member to *plan* to set aside money to invest. Finally, it provides a clear record of the member's cost of living. This record helps members assess how much money they need in retirement, thus influencing the amount they should invest.

Once members accomplish investing prerequisites, they must decide how often to invest. Some investors try to wait until the market is at a "low price" to get a good deal. However, all the reviewed investing literature states an investor should invest a fixed amount on a regular schedule, regardless of the current share price.[23] This simple concept, known as dollar cost averaging (DCA), is based on the principle that it is impossible to know the future price of an investment.[24] By buying investments periodically, investors spread out the risk of buying at an inopportune time. Additionally, DCA allows an investor to place money in the market immediately and take advantage of the power of compounding.[25] Therefore, military investors should learn about the importance of DCA.

Answering the Question: Where to Invest?

The training thus far demonstrates to military members that compound returns make investing worthwhile and the "time value" of money encourages them to invest as soon as they meet the investing prerequisites. Once servicemembers are ready to DCA their money into the market, they must face the next critical question: *where* to invest the money? When choosing where to invest, military members need to understand investing's inherent risks, how to assess personal risk tolerance, and principles for managing risk. Then, guided by that knowledge, the servicemember must make the variety of decisions necessary to create an investment portfolio.

Investing is inherently risky: there is a possibility of losing money. To develop a strategy that effectively manages risk, investors first need to understand the major risks involved: market, interest rate, credit, and inflation risks.[26] Market risk, the possibility that the value of a stock or bond will decrease because of market changes, is inherent in all securities.[27] However, bonds are also subject to interest rate and credit risk. Interest rate risk stems from the fact that, as interest rates rise, the value of an investor's bond with a lower interest rate decreases. Credit risk, on the other hand, is the risk that the issuer of the bond may not be able to pay the interest or principle on the bond, resulting in a loss to the investor.[28] The final risk to teach investors is inflation risk. Over time the cost of everything tends to increase due to inflation, which the United States tracks via the Consumer Price Index (CPI). Based on the CPI, a basket of consumer goods purchased in in 1975 for $1,000 would have cost $3,454 in 2001.[29] Because of this phenomenon, an investment must increase in value at a rate greater than the inflation rate to truly increase its purchasing power. Thus, it is important to teach servicemembers that investments such as a savings accounts may appear to be low-risk since the balance continues to increase, but the investment is likely *losing* purchasing power due to inflation.

Avoiding risk seems ideal, but investing at higher risk levels tends to yield higher investment returns given sufficient time.[30] Much of investing, therefore, is dedicated to managing risk levels to achieve a sufficient return without undue risk. Risk tolerance levels vary widely among individuals. In general, the more an investment's value rises and falls during a given time period, the riskier it is.[31] There are a variety of questionnaires that walk an investor through different scenarios to help them determine their risk tolerance (Appendix A). For example, one questionnaire asks individuals to "choose the maximum short-term (one-year) loss" they would be willing to accept on a given investment.[32] Military investor training should employ a similar method to help servicemembers determine their personal risk tolerance so that they can make informed investments with an appropriate, tailored risk level.

Once servicemembers understand investing risks and their risk tolerance, they should learn how to manage risk by diversifying, buying and holding, and minimizing investment costs. Diversification is spreading out investments within and among asset classes.[33] There is great danger in holding too much of an investing portfolio in a single investment. For example, some Enron workers placed all their retirement savings in Enron stock. When the company collapsed, so did their retirement portfolios.[34] To decrease this risk, investors should learn to spread their investments so that the collapse of one company or market sector does not devastate their assets.[35] Mutual funds are an excellent way to diversify since they allow an investor to purchase hundreds or thousands of stocks through a single instrument. Military members should learn about various asset classes and the importance of spreading assets among these classes. By diversifying, servicemembers can significantly reduce the risk of their portfolio.

Another way to reduce risk is to buy and hold investments, rather than actively buying and selling based on market timing or emotions. Over the long-term, the stock market produces substantial gains, averaging 9.53% per year from 1928 through 2016.[36] A 2015 Dalbar study, though, showed that the average *individual investor* in stock mutual funds underperformed the market by an astonishing 3.66% due to excessive investment costs, to be discussed in the next section, and a failure to buy and hold.[37] Such massive underperformance has devastating effects on a portfolio. If, for example, the market returned an average of 10%, investing $10,000 for 30 years would yield $174,494. In the same scenario, underperforming by 3.66% results in a yield of only $63,226–a more than $110,000 difference!

There are a variety of reasons investors choose not to buy and hold funds, but two of the primary ones are fear and greed.[38] When the market drops significantly, some investors get scared and pull their money out to avoid further loss. Markets, however, tend to recover to a state of normalcy.[39] By selling, investors merely “lock in” their losses and miss the eventual recovery.[40] A knowledge of market risks and personal risk tolerance can help military investors avoid this mistake. Greed also motivates investors to buy and sell funds frequently. In the financial world, as even a cursory review of financial television shows and magazines proves, there is no shortage of opinions on what the market will do in the future or on the best strategy to beat the market. Some investors, persuaded by these opinions or their own notions, try to buy and sell investments on a regular basis to beat the market. As the Dalbar study demonstrates, however, on average, active buying and selling significantly *hurts* portfolio returns. Considering this reality, military investors should learn to buy and hold rather than allow fear and greed to drive them to harmful investment behaviors.

The other cause of the investor underperformance found in the Dalbar study was excessive investment costs. Very little in investing can be controlled, but investment costs can be. Therefore, military investors should learn the impact of costs on portfolio performance. A simple example illustrates the importance of costs. The TSP C Fund is an index fund that mimics the performance of the Standard & Poor's 500 Index.[41] The TSP charges a 0.029% annual fee for administrative expenses, while the average cost for an essentially identical fund is 1.03%. That 1% difference may seem tiny, but over the long-term it makes a big difference. $10,000 invested in the C fund at a 10% annual return for 30 years grows to $172,982 while the higher-cost fund only grows to $127,905—a difference of $45,077. This example does not even account for additional fees, which many companies charge. Because of the significance of costs to investment performance, fourteen of the fifteen investor training materials reviewed discussed the importance of minimizing costs. Training should include examples showing the long-term effect of costs and that low-cost investments increase return with no additional risk.

Armed with an understanding of investing's inherent risks and ways to manage that risk, a military investor can learn to navigate the decisions necessary to construct an investment portfolio: choosing an investment company, a tax vehicle, and an asset allocation. Under the BRS, since the government matches contributions, the decision on which investment company to use may initially seem obvious: invest in the TSP. That may hold true up to the 5% government match, but what about after that? A 2013 study found that 76% of military personnel have a retirement account but only 44.9% of them participate in the TSP—around one-third of members are exclusively investing in a non-TSP account.[42] Clearly there is a significant draw for servicemembers to invest with companies other than the TSP.

Because of this fact, it is important to highlight the benefits of the TSP so military members can make an informed choice between the TSP and commercial investment firms. The benefits of investing in the TSP are simplicity, access to basic asset classes, and low-fees. Having all retirement investments in one location grants a level of simplicity that servicemembers may find attractive. As they already invest in the TSP to receive the government match, it may make sense for them to continue to invest beyond the match to simplify and consolidate their portfolio. The TSP also offers access to all the basic asset classes previously discussed: bonds, US stocks, and international stocks. While investors desiring additional asset classes would need to look elsewhere, the TSP's offerings are sufficient to create a globally diversified portfolio. Finally, the TSP offers extraordinarily low investment fees, often 90% lower cost than the cheapest equivalent fund on the open market. As demonstrated earlier, this superior cost structure significantly increases long-term returns. Highlighting these TSP benefits helps servicemembers make informed decisions when choosing an investment company.

Once military investors choose an investment company, they must choose a tax shelter. To assist with this decision, investors must understand the differences between traditional and Roth tax shelters, both an option in the TSP. The traditional TSP offers an immediate tax deduction, but the IRS taxes retirement distributions at the individual's marginal tax rate.[43] Conversely, the Roth TSP does not provide an immediate tax deduction, but retirement distributions are tax-free. For individuals in lower tax brackets, like many military members, the Roth option is generally considered to be superior.[44] Young, keen military investors will likely end up with significant retirement savings—the tax implications in retirement are therefore substantial. Because of the substantial tax impact on a portfolio, investor training should teach military personnel how to determine which tax vehicle is best for them.

To this point, the proposed investor training has taught military members about investing risks, managing those risks, and choosing an investment company and tax shelter. However, investors need to learn how to make a crucial choice: what investments will they purchase in their tax-sheltered account? As previously discussed, the superior diversification offered by mutual funds makes them an excellent choice for both stocks and bonds. There are essentially two types of mutual funds: index funds and actively managed funds.[45] Index funds seek to mimic certain sectors of the stock or bond market, such as US large stocks or international small stocks, and thus provide a return roughly equivalent to the return of that market sector.[46] Actively managed funds, on the other hand, hire fund managers who attempt to beat market returns.[47] Actively managed funds have significantly higher fees than index funds. Consequently, a study of stock mutual fund returns from 1980 to 2005 showed that the average actively managed mutual fund returned only 10.0% per year while the average market return was 12.5% per year.[48] The higher fees and expenses caused the average actively managed fund to underperform the market. Therefore, military investors should learn that index funds, such as those offered by the TSP, are an excellent way to invest.

If purchased in the correct ratios, the chosen index funds will keep the portfolio risk within risk tolerance limits while achieving the returns necessary to realize retirement goals.[49] In fact, studies show that the asset allocation—the allocation of a portfolio across market sectors—decision accounts for more than 90% of a portfolio's risk and return.[50] Military investors must learn how to choose a prudent ratio between stocks and bonds based on their investing timeline and risk tolerance. Stocks are typically riskier but provide higher returns, while bonds tend to lower risk and volatility, but also reduce overall return.[51] Most investment literature recommends young investors saving for retirement should have a larger stock allocation in their portfolio. That stock portion, however, should not be so large that it exceeds an investor's risk tolerance, since a large stock market dip could then cause the investor to sell out of fear. As investors get closer to retirement, the possibility that a major stock market dip will hurt their retirement lifestyle increases, so they should increase their bond allocation to reduce volatility.

To help servicemembers make informed asset allocation decisions, trainers should provide them information on a variety of stock, bond mixes and, for each of those mixes, provide the return, volatility, worst twelve-month loss, and worst sixty-month loss based on historical data (Appendix B).[52] Furthermore, they should learn how further diversifying the stock portion of a portfolio among US, international, large, and small companies impacts a portfolio's risk and return. This information would provide military personnel an idea of what the return of a particular asset allocation might be and whether it is within their risk tolerance.

Finally, servicemembers have two choices: a do-it-yourself approach or an all-in-one fund. If individuals choose to manage their own portfolio, trainers should encourage them to make an appointment with a military financial counselor. The counselor should teach them how to maintain an asset allocation over time and how to periodically reassess that allocation. However, many may be overwhelmed by the idea of creating and maintaining their own portfolio. For that reason, trainers should teach servicemembers about TSP lifecycle funds. Lifecycle funds, or "L" funds, are designed by investment experts to provide a single, well-diversified fund for long-term investors and have an asset allocation based on the member's retirement year. The L2030 fund, for example, is designed for individuals that expect to retire between the years of 2025 and 2034.[53] L funds invest in a variety of stock and bond index funds and automatically decrease the stock allocation over time to decrease risk as an individual approaches retirement. Trainers should provide the historical risks and returns of these funds so that individuals can choose one that fits their risk tolerance. The simplicity, low-cost, and global diversification of L funds make them an excellent choice for military investors.

Answering the Question: How Much to Invest

The investor training outlined to this point prepares servicemembers to determine when and where to invest. Even the most ingeniously constructed portfolio, however, will not provide suitable retirement income if funded inadequately. For this reason, military investor training should teach personnel how to create specific retirement goals and determine a savings rate to achieve those goals.

The reviewed investment literature emphasizes creating an investment plan. The "where to invest" portion of the training provided many of the tools needed to create this plan. A plan, however, is designed to achieve a specific end state. Therefore, training should teach members to articulate two specific goals: *when* they plan to retire and *how much* income they desire during retirement. Trainers should have servicemembers write down what retirement will look like for them: their age, travel plans, retirement activities, and retirement location. Based on this exercise, individuals should create a budget that estimates the monthly expenses (and hence, required monthly income) required to fund that lifestyle.[54]

Once servicemembers establish estimated monthly retirement expenses, they should determine how much of that cost will be borne by their portfolio. There are three primary sources of retirement income: pension plans, social security, and retirement investments.[55] Trainers should provide tools to help members estimate pension and social security income. The difference between this income and the estimated monthly expenses provides the key metric to determine how much the member must save in their retirement portfolio. It is critical to provide servicemembers a calculator to adjust the income requirement for inflation since that will have a big effect. For example, if a servicemember's investment portfolio needs to provide monthly income of $3,000 today, at the average long-term inflation rate of 3.1%, that portfolio would need to provide $7,497 monthly for the servicemember to retire in 30 years.[56]

To translate a monthly income requirement into a required portfolio value, members must learn about "safe withdrawal rate." A safe withdrawal rate is the percentage that an individual can withdraw from a portfolio yearly with a reasonable chance of providing a constant, inflation-adjusted income, without depleting the portfolio prior to death.[57] Based on studies, financial literature agrees that a safe withdrawal rate for most portfolios falls between 3-5%.[58] Therefore, military members may reasonably expect to withdraw 4% of their retirement portfolio each year during retirement. In other words, servicemembers can multiply their annual expenses by twenty-five to determine how much they must save. To simplify this calculation, trainers should provide members with an investment calculator that considers current portfolio value, government TSP matching, and expected rate of return based on the member's asset allocation to calculate how much the member must save monthly to accumulate the required portfolio value.

Through this systematic training, military personnel will learn the essential information necessary to make informed investment decisions. First, the training sets members up for success by teaching investing prerequisites, and motivates them to invest early by teaching them the power of compounding. Next, it outlines investing risks to ensure members understand potential dangers while providing them the tools to manage risk. Then, it helps the member determine in which investment vehicle and which specific funds to invest. Finally, it teaches members to set specific retirement goals to calculate exactly how much they must invest each month. By teaching them these essential elements, military members will be prepared to take on the increased investment responsibility levied on them by the Blended Retirement System.

Section Three: Analysis of Current Military Investor Training

Current military financial education does not sufficiently address the previously-outlined essential investment elements. Identifying specific gaps, however, makes it possible to improve the training. In recent years, many have questioned the sufficiency of military financial education. A 2015 Military Compensation and Retirement Modernization Commission report, for example, stated that "existing financial literacy programs do not adequately educate Service members and their families on financial matters."[59] Most critiques are general in nature and do not specifically speak to the adequacy of military investor education. While all military services provide financial training, this thesis focusses analysis on the three major services: Air Force, Navy, and Army (Appendix C). By reviewing the audience and content of these services' current investor training, it becomes clear the training neither covers the essential investor training elements nor does it reach all military members.

Prior to analyzing the individual services, however, it is worthwhile to briefly highlight the law and policy that mandate military financial education. Current DoD Family Readiness Policy requires uniformed services to "provide Service members and their families with the tools and information they need to develop individual strategies to achieve financial goals and address financial challenges."[60] The same 2016 NDAA that established the BRS also changed the financial education section of Title 10 in two significant ways. First, it changed the name of the training from "Consumer Education" training to "Financial Literacy Training," thus broadening the scope. Second, Title 10 now requires services to provide *all* military personnel Financial Literacy Training at a minimum of eleven specific times throughout their career. Most of the training requirements focus on lower ranking military members—E-5 and below for enlisted members and O-4 and below for officers—but training is still prescribed throughout a member's career, from initial entry training through retirement.[61] Despite the name change, however, the training content required by Title 10 remains largely the same as it had been. It requires training on financial services available to servicemembers, financial services offered by the private sector to members, and the marketing practices of those private sector entities.[62] In addition, Title 10 includes verbiage allowing service secretaries to include training on "other financial practices" they deem appropriate.[63] Noticeably absent, is any requirement to provide investing training.

Status of Air Force Investor Training

The Air Force financial training program is governed by Air Force Instruction 36-3009, and provides airmen financial training taught by financial services counselors. Some classes are mandatory while others are voluntary, taught on an as-needed basis.[64] Most mandatory training is scripted while the content of voluntary classes vary based on "expertise of the certified financial counselor and the needs of the community."[65] The voluntary investor training classes cover important topics: budgeting; retirement planning; TSP; social security; and basic, intermediate, and advanced investing. The voluntary courses, however, have no standardized content. Therefore, this analysis of Air Force investor training is limited to the mandatory training. An analysis of Air Force investor training demonstrates that, while the mandatory training is provided to the entire force, it does not cover the essential elements necessary to prepare airmen to make prudent investment decisions.

Mandatory, scripted training is provided to enlisted personnel during Basic Military Training (BMT), upon arrival at their first duty station, and to all personnel prior to separation.[66] The Air Force also provides mandatory financial training to officers upon arrival at their first duty station, but, since the training is not scripted, it cannot be analyzed effectively. Additionally, while the separation training is valuable, since this thesis is focused on Active Duty personnel, it is excluded from analysis. Fortunately, regulations require each base have at least one certified personal financial counselor to provide financial counseling and training.[67] BMT investor training covers budgeting, savings, savings bonds, mutual funds, stocks, TSP, and Individual Retirement Accounts (IRA).[68] Because of time constraints, trainers do little more than briefly introduce these concepts.

Upon arrival at their first base, courses provide enlisted airmen training that covers everything from the BMT training, along with more depth on investing. Prior to the investing portion of the course, airmen learn the importance of eliminating debt, creating an emergency fund, and living on a budget.[69] The investing training begins by discussing the difference between saving and investing, then briefly defines stocks, bonds, mutual funds, and a few other potential investments.[70] The script goes on to teach about compound interest and the importance of investing early.[71] Next, the course teaches members about IRAs and the benefits of the Roth and traditional options.[72] Finally, the training introduces the TSP and discusses the different funds available within the TSP.[73] It closes by recommending individuals begin investing immediately and make it a goal to invest 10% of their income.[74]

While Air Force training covers some of the essential investor training elements, there are notable gaps. For instance, the training does not teach airmen how to assess personal risk tolerance or about inherent investing risks. There is also limited discussion about managing investing risk. There is no discussion about DCA or how fees and inflation degrade investment returns. While the training introduces TSP funds, it does not teach members how to build an investment portfolio with those funds, the risks a given asset allocation induces, the importance of buying and holding, or the differences between index and actively managed funds. Finally, servicemembers do not learn about safe withdrawal rate, or how to create retirement goals and estimate how much income their portfolio will need to produce in retirement. This estimate, along with the safe withdrawal rate, dictates how large their portfolio must be at retirement and, consequently, how much they must save. Some of these topics may be covered in voluntary training, but there is no way to tell to what extent. While Air Force investor training program has many positive characteristics, it does not sufficiently cover the essential investment training elements to prepare airmen under the BRS to make prudent investment decisions.

Status of Navy Investor Training

The Navy's financial training program is governed by Office of the Chief of Naval Operations Instruction 1740.5C, which states its purpose is to "provide financial education, counseling, information, and referral to Navy personnel and commands in order to increase personal, family, and operational readiness."[75] To accomplish this goal, the Navy provides a variety of courses to create a "continuum of learning," from when sailors enters recruit training to when they retire or separate.[76] To facilitate this training, and to provide financial counseling to sailors and their families, the Navy employs a fleet of specially trained command financial specialists—the regulation requires one specialist for every seventy-five personnel.[77] In addition to voluntary courses, the Navy provides mandatory financial training to their personnel on financial management issues.[78] These personal training courses are the focus of this analysis.

The Navy delivers mandatory personal financial training courses to officers only at their commissioning source and upon separation. The initial training for officers is not standardized and varies based on the commissioning source.[79] In contrast, the Navy provides enlisted personnel standardized personal financial management training during recruit training, job skills training, and in their annual military training.[80] Enlisted financial training, part of a course called "LifeSkills Training," is conducted based on a detailed script which lends itself well to analysis.

Of all financial training reviewed for this paper, Naval training is the most detailed and ambitious—yet it still falls short of covering all the essential elements. Navy personnel learn to prepare and live on a budget, manage debt, and create an emergency fund.[81] The training also discusses compound interest and the importance of investing early. They use specific examples which show notional individuals who begin investing at different times in their lives.[82] The training covers dollar cost averaging, the importance of diversification, and the difference between saving and investing.[83] It goes on to explain stocks, bonds, mutual funds, and other types of investment vehicles, and discusses, in depth, TSP funds, contribution limits, and mechanics.[84] Furthermore, trainees learn the difference between traditional and Roth options and how to determine which is the best option for them.[85] Finally, the training reviews sources of retirement income and briefly mentions that retirees, based on their lifestyle, require vastly different monthly incomes.[86]

As comprehensive as Navy financial training is, close inspection reveals gaps between what it provides and the essential elements of investor training. First, while the training does outline the relative riskiness of different TSP funds, it fails to expound on the major risks of investing or discuss how an individual can assess risk tolerance and manage risk. The training also does not address the importance of low fees or explain sufficiently the significant impact of inflation on the future value of a portfolio and an individual's retirement income needs. Sailors attending training learn about the various funds available to them, but not about the differences between index and actively managed funds or how to combine funds into an asset allocation that matches their risk tolerance and generates the growth necessary to achieve their financial goals.

Furthermore, sailors do not learn to estimate the cash flow their portfolio will need to generate during retirement, or the rate at which they may safely withdraw retirement funds. Also, the training does not address the importance of buying and holding funds to avoid underperforming the market. Finally, the Navy only provides standardized, mandatory training to enlisted personnel. Even that training, despite its many positive characteristics, does not contain the essential elements to adequately prepare individuals to make the numerous investment decisions necessary under the BRS.

Status of Army Investor Training

Army financial training is governed by Army Regulation 608-1. Like the Air Force and Navy, the Army employs trained financial counselors to provide Army personnel and their families financial counseling and teach financial education classes.[87] Financial training is mandatory for all soldiers within three months of arrival at their first duty station, E-4 and below scheduled for their first permanent change of station, and soldiers who misuse check-cashing privileges.[88] The regulation defines general topics for trainers to incorporate in classes. The ones pertinent to this discussion include: budget development, emergency funds, credit management, and retirement planning.[89] Mandatory training is unscripted and varies widely—some trainers develop their own material, while others use training material from other services.[90] Thus, while all Army soldiers receive financial and investment training, it is not possible to assess the overall sufficiency of that training. The Army does, however, provide its soldiers two voluntary, computer-based training courses relevant to this analysis: the first covers saving and investing and the second teaches soldiers how to financially plan for retirement. By reviewing the content of these two *voluntary* courses, it is possible to gain a limited sense of Army investor training sufficiency. Analysis of these courses, however, reveals that they are not sufficient to prepare soldiers to prudently invest for retirement.

The first thing to note about the training is that it covers a wide variety of topics, but with coarse detail—combined, the two courses contain only sixty-seven slides. The courses do a good job outlining the effects of compound returns, and the importance of paying off debt, and creating an emergency fund.[91] Additionally, the training defines dollar-cost-averaging, discusses differences between saving and investing, and briefly describe a variety of investment types.[92] The highlight of the training is the emphasis for soldiers to identify their "investment personality," essentially their risk tolerance, and a discussion on adjusting investments to match the risk tolerance.[93] Sadly, there is very little information on how to actually assess risk tolerance. Another high point of the training is the worksheet it provides to help soldiers project their retirement needs and the explanation on how to estimate one's social security benefits.[94]

The Army training provides only a cursory description of the TSP that does not even include the individual funds available, though it does provide a link to the TSP website.[95] As with the other services' training, it does not teach the differences between index and actively managed funds or the importance of choosing low-cost investments and buying and holding. There is also no discussion about the impact of inflation. While the training mentions the risk of investing losses, it provides no specifics on how to manage risk by choosing an appropriate asset allocation. The courses mention the tax advantages of IRA investing, but do not discuss the difference between Roth and traditional options or how to choose between the two.[96] Finally, while the training does discuss estimating retirement income needs, it does not teach individuals about safe withdrawal rates or how to build a portfolio that meets those needs. Thus, the standardized training available to soldiers is only voluntary, and too vague to adequately train them to invest.

Across the services, the evidence is clear: despite the DoD Family Readiness Policy's mandate, current training programs do not sufficiently prepare military personnel to meet their retirement goals. Consequently, it is no surprise that 84% of surveyed military personnel stated there should be an increased emphasis on military financial training.[97] To be fair, services developed the current financial training prior to the creation of the Blended Retirement System and the subsequent Title 10 changes that redefine and expand military financial literacy training. It is possible, therefore, that these changes will drive services to provide more robust training to a larger percentage of the force. Indeed, interviews with Pentagon personnel indicate they are working hard to refine financial training to meet Congress' intent. The language of Title 10, however, is simply too vague to ensure military investor training will improve sufficiently. Due to the changes in military retirement, however, better training is necessary, or military personnel will not be prepared to invest to make up for the defined benefit decrease.

Section Four: Recommendations

Military investor training is currently insufficient and should improve. Because services are currently working to update DoD financial literacy training, now is an opportune time to offer recommendations on an ideal investor training program. To create a program that prepares military personnel to make the prudent investment decisions necessary under the BRS, DoD should create a standardized training program that includes the essential elements identified in this thesis, provide that training to *all* military personnel shortly after arrival at their first duty station, and refresh the training at prescribed points throughout the member's career.

Currently DoD allows each service to develop its own financial literacy training programs. Analysis of the Air Force, Navy, and Army's training programs (See Section Three and Appendix C) shows that this policy resulted in a wide variety of programs, both in terms of content and audience. This diversity in education programs is counterproductive. There are substantial differences between the services, but, from a financial perspective, military personnel are essentially the same. Members in each service are under the same pay system, earn the same benefits, and receive the same retirement package. Therefore, servicemembers across the services have the same training needs, and there is no need to develop separate training programs for each service. Separate programs are inefficient, since they require a team of personnel from each service to develop and maintain training materials. Additionally, separate programs make it more challenging to ensure all military personnel receive adequate training. Thus, DoD should increase efficiency and effectiveness by requiring the services pool resources to develop a standardized investor training program which meets the needs of all military personnel.

To develop this training, financial experts from all the services should work together to determine how to best train military investors. The essential elements identified in this thesis can assist in that process. Once the essential teaching points for the training are identified, DoD should create a detailed script to ensure all members receive the same quality education. The script should be able to stand alone as an investor training program, but should allow for service customization and augmentation. That script flexibility allows individual services to provide service-specific examples of training points and add content they deem critical, while providing all servicemembers a minimum threshold of training. Additionally, DoD should create student guides with training materials and worksheets for military members to use during training. Trainees should keep these guides to serve as references and reminders of the lessons. Student guides should also include resources for individuals who seek more information—recommended investing books, links to investor training, additional investing classes offered by the service, and links to financial tools and calculators. The teacher and student guides used by the Navy for LifeSkills training are an excellent example of what the scripts might look like.

After developing standardized training, services should have their financial counselors teach it to all members—enlisted and officer. A classroom setting, in contrast to computer-based training, is ideal for initial investor training, since it provides servicemembers the ability to ask questions of, and interact with, the financial counselors. This approach will both aid in their learning and make them more comfortable contacting the counselor later for advice. Each service should determine the opportune time to teach the training. While Title 10 requires some financial literacy training during "initial entry training," services should not teach the full investor training during that course, as the stressful nature of that program makes it unlikely individuals will retain the information.[98] Ideally, services will teach investor training shortly after military members arrive at their first duty station. This approach allows individuals to focus in a lower-stress environment where they do not yet have substantial responsibilities to distract them. Additionally, training at the first duty station would introduce personnel to their home base financial counselor. Services should refresh this initial training at the specific points prescribed by Title 10.[99] As there are eleven prescribed training points, it will be necessary for DoD to determine what level of training is appropriate at each point.

By creating a standardized investor training program for all services, DoD will eliminate the inefficiency and lack of standardization inherent in disparate training programs. Any DoD investor training program should include the essential elements of investor training to ensure military personnel are thoroughly equipped to make the variety of investment decisions necessary under the BRS. Finally, services should teach investor training to all military personnel shortly after arrival at their first duty station, and refresh that training at prescribed points throughout servicemembers' careers to solidify their investing ability as they face additional financial choices.

Conclusion

The military retirement system has changed significantly since the days of the Revolutionary War. The recent shift from a purely DB system to the mixed DB and DC structure of the BRS, however, constitutes the most significant modification in more than seventy years. This change requires military personnel to make prudent investments to prepare for retirement. Therefore, DoD must reevaluate the investor training provided to military members. Fortunately, investment literature provides broad agreement on the essential elements of investor training to aid this evaluation. Analysis shows current military investor training fails to adequately teach servicemember to invest since it is not furnished to all military personnel and does not contain the essential investor training elements. DoD can resolve this training shortfall by developing investor training that is standardized across the services, provided to all military members, and reinforced throughout a member's career. The author John Kabat-Zinn famously stated, "You can't stop the waves, but you can learn to surf."[100] Ultimately, standardized DoD investor training that includes the essential investor training elements will teach servicemembers to ride the waves of market uncertainty to achieve their retirement goals.

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APPENDIX A: Sample Investor Risk Tolerance Assessment Questionnaire

PERSONAL INVESTORS

Vanguard

Investor Questionnaire

1. I plan to begin taking money from my investments in . . .

- ◯ 1 year or less
- ◯ 1 – 2 years
- ◯ 3 – 5 years
- ◯ 6 – 10 years
- ◯ 11 – 15 years
- ◯ More than 15 years

2. As I withdraw money from these investments, I plan to spend it over a period of . . .

- ◯ 2 years or less
- ◯ 3 – 5 years
- ◯ 6 – 10 years
- ◯ 11 – 15 years
- ◯ More than 15 years

3. When making a long-term investment, I plan to keep the money invested for . . .

- ◯ 1 – 2 years
- ◯ 3 – 4 years
- ◯ 5 – 6 years
- ◯ 7 – 8 years
- ◯ More than 8 years

4. From September 2008 through November 2008, stocks lost over 31%. If I owned a stock investment that lost about 31% in 3 months, I would: (If you owned stocks during this period, select the answer that corresponds to your actual behavior.)

- ◯ Sell all of the remaining investment.
- ◯ Sell a portion of the remaining investment.
- ◯ Hold onto the investment and sell nothing.
- ◯ Buy more of the investment.

5. Generally, I prefer investments with little or no fluctuation in value, and I'm willing to accept the lower return associated with these investments.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Somewhat agree
- ◯ Agree
- ◯ Strongly agree

6. During market declines, I tend to sell portions of my riskier assets and invest the money in safer assets.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Somewhat agree
- ◯ Agree
- ◯ Strongly agree

7. I would invest in a mutual fund based solely on a brief conversation with a friend, co-worker, or relative.

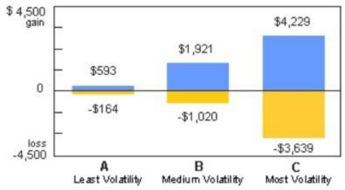
- ◯ Strongly disagree
- ◯ Disagree
- ◯ Somewhat agree
- ◯ Agree
- ◯ Strongly agree

8. From September 2008 through October 2008, bonds lost nearly 4%. If I owned a bond investment that lost almost 4% in 2 months, I would: (If you owned bonds during this period, select the answer that corresponds to your actual behavior.)

- ◯ Sell all of the remaining investment.
- ◯ Sell a portion of the remaining investment.
- ◯ Hold onto the investment and sell nothing.
- ◯ Buy more of the investment.

9. The chart below shows the greatest 1-year loss and the highest 1-year gain on 3 different hypothetical investments of $10,000.* Given the potential gain or loss in any 1 year, I would invest my money in:

- ◯ **A** (loss of $164, gain of $593)
- ◯ **B** (loss of $1,020, gain of $1,921)
- ◯ **C** (loss of $3,639, gain of $4,229)



*The maximum gain or loss on an investment is impossible to predict. The ranges shown in the chart are hypothetical and are designed solely to gauge an investor's risk tolerance.

10. My current and future income sources (for example, salary, Social Security, pension) are:

- ◯ Very unstable
- ◯ Unstable
- ◯ Somewhat stable
- ◯ Stable
- ◯ Very stable

11. When it comes to investing in stock or bond mutual funds (or individual stocks or bonds), I would describe myself as . . .

- ◯ Very inexperienced
- ◯ Somewhat inexperienced
- ◯ Somewhat experienced
- ◯ Experienced
- ◯ Very experienced

Your current asset allocation

Enter the current allocation in whole numbers for the savings used to answer question 10. Your percentages must total 100%. If you don't enter any data, the questionnaire will assume 100% of your assets are in short-term reserves.

Short-term reserves	100.0	%
Bonds	0.0	%
Stocks	0.0	%

Cancel Back Get Results

Source: https://personal.vanguard.com/us/FundsInvQuestionnaire

APPENDIX B: Sample Asset Allocation Variability and Return Table

Fine Tuning Table - Using S&P 500 Fund

(No Management Fee subtracted. ***S&P fund expense ratio of 0.1% assumed*** .)

Year	100% Bonds	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% Stock	S&P 500
1970	14.8%	13.8%	12.8%	11.8%	10.7%	9.6%	8.5%	7.4%	6.3%	5.1%	3.9%	4.0%
1971	7.7%	8.4%	9.1%	9.8%	10.5%	11.2%	11.8%	12.4%	13.0%	13.6%	14.2%	14.3%
1972	4.8%	6.1%	7.5%	8.9%	10.3%	11.7%	13.1%	14.5%	15.9%	17.4%	18.9%	19.0%
1973	4.5%	2.5%	0.5%	-1.5%	-3.4%	-5.3%	-7.3%	-9.2%	-11.0%	-12.9%	-14.8%	-14.7%
1974	7.5%	3.8%	0.2%	-3.4%	-6.9%	-10.4%	-13.8%	-17.1%	-20.3%	-23.5%	-26.5%	-26.5%
1975	7.7%	10.5%	13.3%	16.2%	19.1%	22.0%	25.0%	27.9%	31.0%	34.0%	37.1%	37.2%
1976	9.7%	11.1%	12.6%	14.0%	15.4%	16.8%	18.2%	19.6%	21.0%	22.3%	23.7%	23.8%
1977	3.1%	2.1%	1.0%	0.0%	-1.1%	-2.1%	-3.2%	-4.2%	-5.2%	-6.3%	-7.3%	-7.2%
1978	2.6%	3.1%	3.6%	4.0%	4.4%	4.8%	5.2%	5.5%	5.9%	6.2%	6.5%	6.6%
1979	7.1%	8.2%	9.3%	10.5%	11.6%	12.7%	13.8%	15.0%	16.1%	17.2%	18.3%	18.4%
1980	7.5%	9.9%	12.4%	14.9%	17.4%	19.9%	22.4%	24.9%	27.4%	29.8%	32.3%	32.4%
1981	10.8%	9.1%	7.5%	5.9%	4.3%	2.7%	1.1%	-0.4%	-2.0%	-3.5%	-5.0%	-4.9%
1982	23.7%	23.6%	23.5%	23.3%	23.1%	22.9%	22.6%	22.3%	22.0%	21.7%	21.3%	21.4%
1983	8.2%	9.6%	10.9%	12.3%	13.8%	15.2%	16.6%	18.0%	19.5%	20.9%	22.4%	22.5%
1984	14.0%	13.3%	12.5%	11.8%	11.0%	10.2%	9.4%	8.6%	7.8%	7.0%	6.2%	6.3%
1985	16.5%	18.0%	19.6%	21.1%	22.7%	24.2%	25.8%	27.3%	28.9%	30.5%	32.0%	32.2%
1986	12.1%	12.8%	13.5%	14.2%	14.9%	15.5%	16.2%	16.7%	17.3%	17.8%	18.4%	18.5%
1987	4.1%	4.7%	5.2%	5.5%	5.8%	6.0%	6.1%	6.0%	5.8%	5.5%	5.1%	5.2%
1988	6.1%	7.2%	8.2%	9.3%	10.3%	11.4%	12.4%	13.5%	14.6%	15.6%	16.7%	16.8%
1989	12.0%	13.9%	15.8%	17.7%	19.6%	21.5%	23.5%	25.4%	27.4%	29.4%	31.4%	31.5%
1990	10.6%	9.3%	7.9%	6.6%	5.2%	3.8%	2.4%	1.0%	-0.4%	-1.8%	-3.2%	-3.1%
1991	15.3%	16.8%	18.3%	19.8%	21.3%	22.8%	24.3%	25.7%	27.2%	28.7%	30.1%	30.5%
1992	7.2%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.6%
1993	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.6%	9.6%	10.1%
1994	-3.2%	-2.7%	-2.3%	-1.8%	-1.4%	-0.9%	-0.5%	0.0%	0.4%	0.9%	1.3%	1.3%
1995	16.6%	18.5%	20.4%	22.4%	24.4%	26.5%	28.5%	30.6%	32.7%	34.9%	37.1%	37.6%
1996	3.1%	5.0%	6.9%	8.8%	10.7%	12.6%	14.6%	16.6%	18.6%	20.6%	22.6%	23.0%
1997	7.0%	9.4%	12.0%	14.5%	17.1%	19.7%	22.3%	24.9%	27.6%	30.3%	33.1%	33.4%
1998	8.1%	10.2%	12.4%	14.5%	16.6%	18.7%	20.8%	22.8%	24.8%	26.8%	28.7%	28.6%
1999	-0.5%	1.5%	3.6%	5.7%	7.8%	9.9%	12.0%	14.2%	16.4%	18.6%	20.8%	21.0%
2000	11.7%	9.6%	7.4%	5.3%	3.2%	1.1%	-1.0%	-3.1%	-5.1%	-7.1%	-9.2%	-9.1%
2001	8.1%	6.2%	4.2%	2.2%	0.2%	-1.9%	-3.9%	-5.9%	-8.0%	-10.0%	-12.1%	-11.9%
2002	12.4%	8.7%	5.0%	1.4%	-2.2%	-5.7%	-9.1%	-12.5%	-15.8%	-19.1%	-22.2%	-22.1%
2003	3.5%	5.8%	8.2%	10.7%	13.1%	15.6%	18.1%	20.7%	23.3%	25.9%	28.5%	28.7%
2004	4.0%	4.7%	5.4%	6.1%	6.8%	7.4%	8.1%	8.8%	9.4%	10.1%	10.8%	10.9%
2005	1.8%	2.2%	2.5%	2.9%	3.2%	3.5%	3.8%	4.1%	4.4%	4.7%	5.0%	4.9%
2006	3.0%	4.2%	5.5%	6.7%	8.0%	9.2%	10.5%	11.8%	13.1%	14.4%	15.7%	15.8%
2007	9.3%	9.0%	8.6%	8.3%	7.9%	7.6%	7.2%	6.8%	6.4%	6.0%	5.5%	5.5%
2008	8.1%	2.8%	-2.4%	-7.3%	-12.0%	-16.6%	-21.0%	-25.2%	-29.2%	-33.1%	-36.8%	-37.0%
2009	2.0%	4.4%	6.9%	9.3%	11.8%	14.3%	16.7%	19.2%	21.7%	24.2%	26.6%	26.5%
2010	5.5%	6.6%	7.7%	8.7%	9.7%	10.7%	11.7%	12.5%	13.4%	14.2%	15.0%	15.1%
2011	8.0%	7.5%	7.0%	6.5%	5.9%	5.3%	4.7%	4.1%	3.5%	2.8%	2.1%	2.1%
2012	3.4%	4.7%	5.9%	7.2%	8.4%	9.6%	10.9%	12.1%	13.4%	14.6%	15.8%	16.0%
2013	-3.6%	-0.4%	2.8%	6.2%	9.6%	13.2%	16.8%	20.5%	24.3%	28.3%	32.3%	32.4%
2014	3.4%	4.4%	5.4%	6.4%	7.4%	8.4%	9.5%	10.5%	11.5%	12.5%	13.5%	13.7%
2015	0.8%	0.9%	1.1%	1.2%	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%

Annualized Return	7.3%	7.7%	8.0%	8.4%	8.7%	9.0%	9.3%	9.6%	9.8%	10.0%	10.2%	10.3%
Standard Deviation	4.1%	4.2%	4.7%	5.7%	6.8%	8.1%	9.5%	10.9%	12.3%	13.8%	15.3%	15.3%

Worst 3 Months	-4.6%	-4.7%	-6.2%	-9.2%	-12.3%	-15.3%	-18.3%	-21.1%	-24.0%	-26.7%	-29.6%	-29.6%
Worst 6 Months	-4.1%	-4.7%	-8.1%	-12.9%	-17.6%	-22.1%	-26.3%	-30.4%	-34.3%	-38.0%	-41.6%	-41.8%
Worst 12 Months	-3.6%	-3.3%	-8.5%	-13.5%	-18.4%	-23.0%	-27.4%	-31.6%	-35.6%	-39.4%	-43.0%	-43.3%
Worst 36 Months Annualized	0.2%	1.6%	1.8%	-0.3%	-2.5%	-4.6%	-6.7%	-8.8%	-11.1%	-13.7%	-16.2%	-16.1%
Worst 60 Months Annualized	2.0%	3.3%	2.3%	1.2%	0.2%	-0.9%	-2.0%	-3.1%	-4.3%	-5.4%	-6.6%	-6.6%
Worst Drawdown	-4.7%	-5.5%	-8.8%	-14.1%	-19.6%	-25.7%	-31.4%	-36.7%	-41.7%	-46.4%	-50.7%	-50.9%

UBH-FT-RD Tables Update for 2016 (RX).xlsx / Fine Tuning Table (S&P)

Source: http://paulmerriman.com/wp-content/uploads/2016/02/Fine-Tuning-Table-2016-UBH-SP-500-Comparison_Page_2.j

Appendix C: Overview of Services' Standardized, Mandatory Investor Training

	Essential Investor Training	Air Force		Army		Navy	
	Element	**Enlisted**	**Officer***	**Enlisted**	**Officer**	**Enlisted**	**Officer***
When to invest	Compound Returns	☑ (M)	☐	☑ (V)	☑ (V)	☑ (M)	☐
	Prerequisite - Eliminate Debt	☑ (M)	☐	☑ (V)	☑ (V)	☑ (M)	☐
	Prerequisite - Emergency Fund	☑ (M)	☐	☑ (V)	☑ (V)	☑ (M)	☐
	Prerequisite - Budget	☑ (M)	☐	☒ (V)	☒ (V)	☑ (M)	☐
	Dollar Cost Averaging	☐	☐	☑ (V)	☑ (V)	☑ (M)	☐
Where to invest	Investing Risk - Market	☒ (M)	☐	☒ (V)	☒ (V)	☒ (M)	☐
	Investing Risk - Interest Rate	☐	☐	☐	☐	☒ (M)	☐
	Investing Risk - Credit	☐	☐	☐	☐	☐	☐
	Investing Risk - Inflation	☐	☐	☐	☐	☒ (M)	☐
	Risk Tolerance	☐	☐	☒ (V)	☒ (V)	☒ (M)	☐
	Managing Risk - Diversify	☒ (M)	☐	☒ (V)	☒ (V)	☑ (M)	☐
	Managing Risk - Buy and Hold	☐	☐	☐	☐	☐	☐
	Managing Risk - Minimize Costs	☒ (M)	☐	☒ (V)	☒ (V)	☐	☐
	Thrift Savings Plan	☑ (M)	☐	☒ (V)	☒ (V)	☑ (M)	☐
	Tax Shelter Selection	☑ (M)	☐	☒ (V)	☒ (V)	☑ (M)	☐
	Index vs. Actively Managed Funds	☐	☐	☐	☐	☐	☐
	Asset Classes	☒ (M)	☐	☒ (V)	☒ (V)	☒ (M)	☐
	Asset Allocation	☐	☐	☒ (V)	☒ (V)	☒ (M)	☐
	Do-it-yourself vs. All-in-one Fund	☒ (M)	☐	☒ (V)	☒ (V)	☒ (M)	☐
How Much to invest	Specific Retirement Goals	☐	☐	☒ (V)	☒ (V)	☑ (M)	☐
	Required Savings Rate	☒ (M)	☐	☒ (V)	☒ (V)	☒ (M)	☐
	Safe Withdrawal Rate	☐	☐	☐	☐	☐	☐

* Officers receive some investment training but, since it is not standardized, it cannot be analyzed.

M	Mandatory
V	Voluntary
☑	Full Coverage
☒	Insufficient Coverage
☐	No Coverage