Developing sound long-term portfolio strategy for churches and other religious organizations

Murray S. Anthony
East Tennessee State University

Gary D. Burkette
East Tennessee State University

Shelby G. Sparks
Viking Machinery Company

ABSTRACT

Churches and other religious organizations receive substantial sums of financial support from regular cash gifts and contributions. Much of this support arrives free of donor-imposed restrictions and funds day-to-day operations. However, these organizations typically receive substantial sums of donor-restricted support to fund special projects and activities, such as building construction, benevolence and missions programs. Other sources of financing for these projects and activities include bequests, charitable trust arrangements and endowments   Donor-restricted resources, along with administrative board set asides of unrestricted funds, often create substantial pools of assets for investment, and frequently for the long term.

This paper purposes to present and demonstrate a computer model to facilitate sound long-term portfolio strategy formulation. The model allows the user to "test run" different portfolio strategies over different investment market environments of the past and to evaluate outcomes in terms of portfolio risk/return trade-offs. The process aids planners in validating strategy choices by providing subjective probabilities of how competing alternatives may behave in the future. Carefully crafted portfolio strategy helps nonprofits avoid making hasty and often ill-advised portfolio decisions based on psychological biases, emotions and other irrational human impulses. Sound strategy will prove beneficial especially in today's uncertain and volatile investing environment.

Keywords: Investments, portfolio, model, back tests, churches

INTRODUCTION

Churches and other religious organizations[1] (hereinafter referred to as churches) receive substantial sums of financial support through regular cash gifts and contributions. Much of this support arrives from donors unrestricted and funds day-to-day operations. In many cases, however, these organizations solicit and receive substantial amounts of donor- restricted support to finance special projects and activities. Churches use these resources to finance new or expanded physical facilities, benevolence, scholarships for ministerial students and for a host of other purposes. Restricted support may also originate from bequests, charitable gift trusts and annuities,[2] grants and endowments. Finally, churches may set aside or designate unrestricted gifts and contributions for special projects or activities by church administrative board action. Considering all of the sources, these organizations often accumulate large sums of assets to invest and frequently for extended periods.

Typically, churches rely on outside professionals, not insiders, to manage their long-term investment portfolios on a day-to-day basis. To ensure compliance with church investing needs and constraints, however, the church's administrative board should establish formal, written investment goals, policies and strategies. Although practices vary, a board investment subcommittee often makes policy and strategy recommendations, oversees their implementation after approval, selects outside professional money managers and monitors the results. (Alternatively, an investment subcommittee with comparable duties may exist organizationally under the church's finance committee). In turn, the investment subcommittee periodically renders an accounting for investment activities and performance results to the full board,[3] church membership, donors and other parties with vested interests. Good stewardship and accountability[4] for churches' financial resources remain compelling in maintaining donor financial support and ultimately in meeting a church's mission in society.

The authors of this paper purpose to present and demonstrate a computerized planner--Income Projector Model (IPM)--to facilitate the formulation of effective long-term investment portfolio strategy for churches. The authors have applied adaptations of the model to retirement income planning and most recently to estate planning. For example, see Anthony et al., 2008 for a retirement funding application and Anthony and Sparks, 2011 for an estate planning example. We will briefly overview the model, explain how to input the data for a hypothetical church and how to read and interpret the results.

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[1] These may include associations, synods, assemblies, conventions, and other forms of organizations.

[2] Generally, these arrangements provide the donor with a charitable income tax deduction for asset contributions, yet provide the donor income from the assets over a lifetime, or shorter period. The church receives the remaining assets. In some cases, however, the reverse may occur where the church receives the income and trust beneficiaries receive the residual assets.

[3] Churches' boards of directors face legal liability in administering the church's investment activities under a broad concept called the "prudent investor rule." The rule requires boards to act in "good faith and with the care that an ordinarily prudent person in a like position would exercise under similar circumstances." This rule stems from the Uniform Prudent Management of Institutional Funds Act (UPMIFA), the main governing law. Moreover, UPMIFA supplies guidelines for investing and managing funds, spending funds, obtaining releases from donors on restricted funds and other investing and other fund administrative matters. The law applies to virtually all funds held by the church, but excludes trusts, except where the church serves as trustee.

[4] For example, see the Parable of the Talents (also known as Parable of the Minas or Pounds) in the canonical gospels, Matthew 25: 14-30 and Luke 19: 12-27 (New International Version).

MODEL OVERVIEW

Church investment planners will find the model useful in conducting trial runs, or "back tests" of different asset classes (types of investments) over different historical periods using different asset allocations (mixes). Such testing aids the planner in assessing returns and risk (volatility) for alternative portfolio strategies. "What if…?" concerns and questions invariably arise in formulating portfolio strategy decisions in view of potential political and economic upheavals, financial market booms and bursts, recessions and depressions, and international incidents.

While no one can accurately predict the future, one can gain valuable insights into plausible, best and worst case future portfolio returns and risk by conducting IPM trial runs over different market environments of the past. Back testing hypothetical portfolios helps validate strategy choices by providing subjective probability distributions, or impressions, of how competing alternatives may behave in the future. As a result, church portfolio planners can formulate and apply long-term portfolio strategy on a reasoned and definitive basis. Otherwise, the risk rises of making hasty and unwise portfolio decisions driven by psychological considerations, such as greed, fear, overconfidence, doubt and local bias (e.g., investing in familiar U. S. stocks to the exclusion of all foreign). For a detailed discussion of the biases and other psychological constraints which may adversely impact investment decisions of even the most sophisticated investors, see Nofsinger, 2011 and Shefrin, 2002.

The model uses actual, yearly historical returns for its calculations to permit planners to simulate real-life investing experiences over the past 85 years and thus to develop insights about different investment strategies. Users may "test run" different portfolio strategies—asset classes and mixes, annual asset savings or accumulation rates, desired payout dates and target incomes—to determine outcomes that would have actually resulted over various historical periods. Multiple trial runs permit church financial planners to better craft a portfolio which meets the church's needs while managing investment risk.

Compared to many available income projector models, IPM offers at least three advantages. First, it uses actual (not average), yearly historical returns to better aid users in formulating church investment strategies. Averages (arithmetic or geometric means) over generalize and thus obscure the realities of short-term portfolio fluctuations in today's highly volatile investment markets. Second, other projector models which use actual historical returns, such as OPAL, remain costly (a copy of the IPM remains available free of charge from the authors).[5] For an overall description of Opal, see Ortec Finance, 2011.

Third, the IPM incorporates historical asset returns (85 years) to accommodate portfolio back testing opportunities over many and varied investment market conditions. Some projector models, such as ETF Replay, 2011 use actual returns of exchange traded funds (ETFs). (These innovative investment vehicles track stocks, bonds, real estate or other asset classes like a traditional index mutual fund, but trade like a stock on an exchange.) As relatively new investment vehicles, however, ETFs' returns data remain confined to a limited historical period. In fact, meaningful portfolio back testing remains limited to no more than eight to ten years even

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[5] For a copy of the program, contact Dr. Gary Burkette (burkette@etsu.edu) at the Department of Accountancy, College of Business and Technology, East Tennessee State University, Johnson City, TN 37614.

across major asset classes. Such a short period prohibits the capture of many critical political and economic events which have impacted portfolio behaviors of the past.

The authors constructed the IPM from Microsoft Excel spreadsheet software. Using selected spreadsheet functions and formulas, the IPM accumulates actual (not average) asset returns for each year which a church's portfolio would have provided. Then, the program calculates systematic yearly withdrawals of amounts of accumulated assets during distribution to supplement other sources of income to meet the organization's target income needs. The remaining assets continue to grow the portfolio returns for each year in the distribution period. The program provides up to 20 years of asset accumulations and up to 20 years of distributions.

The model generates real (inflation-adjusted), annual investment returns, adjusts returns for portfolio management fees and subtracts income taxes, if applicable. Under IRC 501 (c) (3), however, church portfolio returns do not normally incur federal income taxes. Because of the approach used to remove inflation effects, the model expresses results in today's dollar value of purchasing power. This negates the need for a user to think in terms of past and future inflated amounts, thus adding convenience and simplicity to the portfolio planning process.

The model's historical returns for the individual asset classes run from 1926 through 2010 and reside in the tabs at the bottom of the spreadsheet. Returns on U.S. stocks (both large and small companies), bonds (20-year U.S. Treasuries), and money (3-month U.S. Treasury bills), come from Ibbotson Associates, 2011. The authors likewise obtained the Consumer Price Index—All Urban Consumers from Ibbotson. Real estate returns originate from the National Association of Real Estate Investment Trusts (equity category) data (FTSE NAREIT U.S. Real Estate Index, 2011) from 1972 through 2010. The authors used general references from the finance literature to estimate earlier returns. Global Financial Data, 2009 supplied returns on gold bullion through 2008. Foreign stock returns (World-ex U.S.) through 2008 likewise come from Global Financial Data and measure performance corresponding to developed foreign country markets. The authors obtained returns for 2009 and 2010 for both gold bullion and developed foreign market stocks from Internet financial sites.

MODEL APPLICATION EXAMPLE

To demonstrate the model, the authors assume a hypothetical organization, Hope Church, which recently received a cash bequest from one of its prominent, deceased members to help finance a new recreation center. Church long-range planners expect the present recreation facility will require replacement within approximately two decades because of wear and tear, obsolescence and insufficient physical capacity to accommodate demand. In addition to the $625,000 bequest, other estimated financing for the project will come from donor-restricted gifts and contributions of $7,500 per year. The church plans to invest these funds over the next 20 years and then pay for the center in three annual construction period installments, for a total 23-year planning period. They plan to use the portfolio principal and returns and the expected continued support from donor-restricted gifts and contributions to make these installment payments. The estimated cost of the recreation center today (2012) equals approximately $2,250,000 (three annual installment payments of $750,000 each).

In evaluating portfolio strategy for Hope's administrative board consideration, the board's investment sub-committee considered several options. Initially, they intended to recommend investing the available funds in a moderately conservative way, with bonds dominating the portfolio. Later, however, they also entertained the option of investing in a

moderately aggressive stock-dominated portfolio in the hope of producing better potential long-term returns. In either event, they plan to invest in low-cost index mutual funds and apply a buy-and-hold investment strategy as implied by modern portfolio theory,[6] except for annual portfolio rebalancing. Moreover, they value sound investing principles of broad portfolio diversification, risk control and stability and minimization of investing costs. A member of the investment sub-committee, Jim, a friend, accountant and fellow church member of one of the authors of this article asked for advice and was offered the IPM to back test different portfolios and evaluate their risk/return profiles.

The authors assume that Hope Church engages outside professionals to manage their long-term investment portfolios on a day-to-day basis. In those instances where volunteer expertise, time and willingness exist, churches may perform this function internally. In either event, the church should formulate and implement sound, formal, written portfolio strategy to improve chances for investing success. For example, undertaking the exercise of merely formulating official portfolio strategy enhances understanding of the investment process among church officials. Moreover, official, written strategy statements serve to improve the quality of communication of church investing guidelines to outside portfolio managers and establish official benchmarks for monitoring money manager performance and compliance. Finally, the existence of sound, formal strategy helps blunt human emotional and whimsical impulses which may lead to hasty and often unwise portfolio strategy changes.

MODEL INPUT

To apply the model, the user, "Jim", must engage the church planning mode by entering the Number "2" ("1" engages the retirement planning mode) in the upper part of the "INPUT-OUTPUT" worksheet tab, reproduced here in part as Table 1. Most of the other input remains self-explanatory. To clarify a few of the input components, Jim enters the amount of the cash bequest, $625,000 (top of Table 1), assumed deposited at the beginning of this 23-year trial period to back test the competing portfolios under consideration. Next, the model averages in the estimated donor-restricted gifts and contributions of $7,500 expected over each year during the accumulation period in today's dollars of purchasing power. (Place Table 1, here.)

Jim then enters a "1" to signify the start of the assumed accumulation period and "21" to mark the end. Portfolio income distributions (payouts), will begin at the start of year 21, the assumed date the building program will begin, and run for each of "3" years of building construction. The user likewise enters the $7,500 per year of donor-restricted gifts and contributions as "Other Income" since Hope expects this support to continue throughout the distribution period to supplement portfolio income. Additional sources of potential income for additions to principal and/or for supplemental income during the portfolio distribution period may emerge from church bazaar sales, fund raising dinners and raffles.

To estimate the future annual cost of the new recreation center in today's dollars of purchasing power, Jim applies the embedded construction cost calculator (middle of Table 1). The model automatically calculates the future, real (inflation-adjusted), annual cost of the new

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[6]Modern portfolio theory was first proposed more than fifty years ago to develop investment portfolios. It emphasizes portfolio diversification, utilizing statistical techniques, to achieve the best risk/return trade-offs. Early works on the theory include Markowitz, 1952 and Sharp, 1964. Also see basic investment textbooks for more information.

recreation center at $1,032,954 for each of the three years of construction. To calculate this number, Jim enters the estimated cost today of $750,000 for each of three years by an estimated real, annual construction cost increase of 1.5 percent. As mentioned earlier, since the church, a 501(c) (3) organization, owns these investments the input cell for the tax rate normally requires no entry.

Jim arbitrarily chooses the "start" date of 1983 to begin the first of many 23-year trial runs for the portfolios that he initially plans to evaluate. This means that the accumulation period will end in 2002 and the three-year distribution period will begin at the start of 2003 and end in 2005. Then, Jim enters the competing bond-dominated (Conservative) and stock-dominated (Aggressive) portfolios (bottom of Table 1) with their respective asset mixes he purposes to test, along with estimated investing fees and expenses. Jim may now back test these competing portfolios to assess their recreation center funding potential and their relative risk profiles over the market environment from 1983 to 2005.

In addition to the processing of marketable investment portfolios, as illustrated in this paper, the model also possesses limited capability of evaluating non-marketable alternatives. For example, the model accommodates investments in fixed annuities[7] as a means of financing church projects and activities in the future. Moreover, the model features limited capability to evaluate non-marketable physical assets contributed or given to the church, and their incomes for future use. For example, the model accommodates real estate (such as a personal residence or farmland), antiques, artworks, and similar assets that a church may receive from donors to finance future projects and activities.

MODEL OUTPUT

Table 2, "MODEL-OUTPUT," provides the results of Jim's first test run (1983-2005) in today's dollars of purchasing power using the assumed input data of Table 1. To highlight some of the results (bottom of Table 2), note that the Aggressive (stock-dominated) portfolio handily outperformed the Conservative (bond-dominated) alternative. Its average annual returns excelled by over 1.3 percent (8.18 percent vs. 6.86 percent). Moreover, average annual income (funding provided) by the securities portfolios favored the Aggressive alternative (middle of Table 2) by an amount exceeding $237,000 ($1,133,489 versus $896,100 for the Conservative portfolio). At the construction start date, beginning of 2003 in this trial, the Aggressive portfolio's accumulated assets exceeded the Conservative alternative's (bottom of Table 2) by almost $432,000 ($2,860,199 vs. $2,428,561). (Place Table 2, here.)
.   To obtain the superior performance of the Aggressive portfolio entailed additional volatility, and thus risk. The standard deviation of the Aggressive portfolio income (middle of Table 2) greatly exceeded that of the Conservative portfolio ($398,432 vs. $59,325). Moreover, a comparable directional disparity emerged in the standard deviation of average annual returns. Nevertheless, the count of "up" versus "down" years numbered the same for each portfolio, albeit with a greater magnitude for the Aggressive portfolio results.

In short, the sum of the Aggressive portfolio's income and the donor-restricted gifts and contributions slightly exceeded the amount needed to fully fund Hope Church's new recreation center for this trial run. For this period --1983-2005--the total income provided (middle of Table

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[7] Fixed annuities constitute investment contracts sold by insurance companies that pay out a fixed number of dollars to the investor over a future period of time.

2) surpassed the annual target of $1,032,954 by $108,035. Meanwhile, the total income provided under the Conservative portfolio fell short of the target by around $129,354 annually. The decisively better performance of the Aggressive portfolio over this planning period stems primarily from the superior returns stocks experienced for the four-year period of 1996-1999. Not even the protracted stock bear market of early 2000 to late 2002 could deny the Aggressive portfolio's superior performance. (This abysmal period for stocks emerged amid the burst of the "Dot-com" bubble, the 9/11 terrorist attack and an economic recession.) In spite of the superior performances of the Conservative portfolio during 2000 through 2002, the stock market surged in 2003 and produced gains over the remainder of the distribution period to maintain its superiority. Once again, the admonition to invest in stocks for the long run, (Siegel, 2008), proved valid at least over Jim's initial 23-year trial run.

In addition to the tabular data presented in Table 2, the IPM provides three charts of portfolio outcomes for the user to better visualize and understand essential portfolio differences. Figure 1 depicts the amounts of real (after-inflation), annual income generated by each portfolio during the distribution or recreation building construction period of 2003-2005. The chart highlights the superiority of the Aggressive portfolio over the Conservative alternative in terms of three-year total income production. As illustrated in this trial run for Hope Church, however, inherently more volatile portfolios can comparably impact the behavior of annual income distributions. The IPM captures this volatility as it tempers portfolio income calculations for any given year by prior year portfolio returns. For example, the Aggressive portfolio's income distributed at the beginning of 2003 limped in at an amount slightly below that of the Conservative alternative's because of the former's relatively abysmal returns during 2002. During 2004, however, the Aggressive portfolio's income catapulted that of the Conservative's in response to the resumption of the stock bull market and resulting excellent returns stocks experienced in 2003. (Place Figure 1, here.)

Figure 2 shows the respective Conservative and Aggressive portfolio asset values for each year over both the accumulation and distribution periods, or for the total planning period. Note that the values of the competing portfolios tracked each other reasonably well before 1996, but afterwards the Aggressive portfolio began to rapidly outgrow the Conservative alternative. This trend continued until the stock bear market began in early 2000. Meanwhile, the Conservative portfolio basically maintained its all-time peak value reached in 1999, until distributions began in 2003. In the final analysis, however, the Aggressive portfolio still maintained a consistently larger value from 1996 until final liquidation in 2005. Notably, Black Monday (October 19, 1987 investor panic) did not substantially impact either portfolio's asset values as plotted annually on the chart. Likewise, the economic problems of the early 1990s (oil price shocks, excessive debt and a brief and shallow recession) failed to jolt either portfolios' asset values. (Place Figure 2 here.)

Finally, Figure 3 depicts the real (inflation-adjusted), annual returns of the respective portfolios over the entire 23-year planning period to give the user a more sensitive indicator of relative portfolio performances and volatility. During this period, both portfolios produced many large annual returns and roughly in lock step. For example, during 1985, 1986 and 1995 both portfolios generated returns of 20 to 25 percent during powerful bull markets in both stocks and bonds. Neither portfolio experienced severe negative performances as losses did not exceed 9 percent, not even for the Aggressive portfolio during the protracted stock bear market of 2000 to late 2002. Notably, both Black Monday of 1987 and the anemic economy of the early 1990s caused major, year-over-year dips in returns for both portfolios, with the steeper drop occurring

in 1990 during that weak economic period. Another significant, adverse impact on returns of both portfolios occurred in 1994 when the Federal Reserve Board began a series of interest rate hikes to control future inflation threats. (Place Figure 3 here.)

MULTIPLE TRIAL RUNS

To get a more representative sense of competing portfolio performances and risks, church investment strategists should conduct trial runs of different portfolios over different historical periods of up and down markets. These multiple trials enable the user to better understand the dynamics of portfolio risk/return trade-offs. Only after conducting many and varied trial runs can Hope's administrative board investment subcommittee develop faith and confidence in a given portfolio's future behavior--best, worst and plausible outcomes. In turn, church officials will less likely succumb to destructive psychological investing influences, such as biases, mood swings and emotional greed and fear.

To expand trial runs, Jim and other members of the investment subcommittee first conducted tests for the Conservative and Aggressive portfolios over all rolling 23-year periods that the model accommodates, the first spanning the period 1927-1949 and the last, 1988-2010. They found that both portfolios' performances over the 1983-2005 period (Table 1 above) came in toward the top end of the range in terms of returns and project funding potential. In fact, the string of eight 23-year trial periods beginning with 1978-2000 and ending with 1985-2007, produced the best and longest span of superior performances of all periods tested for both portfolios. These excellent results remain attributable primarily to the powerful secular stock and bond bull markets[8] of the 1980s and 1990s. Factors fueling this investing boom period for financial assets include increased capital inflows from foreign countries, long-term downtrends in interest and inflation rates, labor productivity increases and business profit growth. For an expanded analysis of the causes of this long and fruitful investing period, see Shiller, 2005, pp. 1-10; Siegel, 2008, pp. 111-129 and Kotz, 2003.

Comparable 23-year trials starting with 1953-1975 and running through 1968-1990 generally resulted in the worst and longest concurrent periods of sub-performances for both portfolios and thus under funding for the church recreation center. Both portfolios experienced their lowest average, real (inflation-adjusted), annual returns during the trial covering the period 1959-1981. That run produced slightly negative returns for the Conservative portfolio (.01 percent) and a meager positive return (1.9 percent) for the Aggressive portfolio, both attributable in no small part to the high inflation and general economic malaise of the 1970s. Across the range of all rolling trial runs (1927-1949 through 1988-2010) the Conservative portfolio volatility averaged about 27 percent less than that of the Aggressive portfolio as measured by the standard deviations of their annual returns.

Interestingly, trial runs of both portfolios ending during the troubling economic turmoil of the late 2000s performed relatively well, due in large part to the benefits of long-term investing and broad portfolio diversification. In fact, in none of the 23-year trial runs ending during the so-called Great Recession, November 2007-June 2009, did either portfolios' returns or

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[8] Secular market trends span long periods of time typically covering multiple shorter term cyclical bull and bear markets. Market observers often use the early 1980s to date the beginning of the last secular bull markets in both stocks and bonds. The stock secular bull market arguably ended as the Dot-com bubble burst during the stock bear market of 2000-2002 dragging the Nasdaq Composit Index down around 78 percent. On the other hand, the bond secular bull market persists even today.

income distributions fall below their long-term trends, calculated over the years 1926-2010. In the midst of the financial shocks (mortgage crises, credit crunches and business failures) and major bear markets in most asset classes, the Aggressive portfolio produced negligible returns in 2007, lost 19 percent in 2008, and gained 11 percent during 2009. Notably, the Aggressive portfolio's decline of 19 percent during 2008 roughly paralleled those experienced during the worst years of the Great Depression of the 1930s and the inflation-ridden 1970s. Meanwhile, the more stable Conservative portfolio experienced a 2 percent gain in 2007 as well as in 2008, but lost 3 percent during 2009.

In short, based on all of the 23-year rolling trial runs, neither the Conservative nor the Aggressive portfolios will likely provide full funding for Hope Church's recreation center under the assumptions outlined in Table 1. In none of the 23-year trials of the Conservative portfolio did it provide full funding for the church recreation center. Moreover, the Aggressive portfolio provided full funding in only six of the 23-year rolling periods. In view of these findings, the investment subcommittee should next back test other portfolios with different asset classes and asset allocations (mixes) over different time periods. With these additional tests, the investment subcommittee may find that a greater allocation of stocks will reasonably provide funding for the building project. Inclusions of small company and emerging country foreign stocks (data input presently not included for IPM trial runs) can produce superior returns over long periods of time. Even so, will the church administrative board accept the additional volatility of more concentrated stock portfolios, including small company and emerging market stocks, especially in light of the high volatility in stock markets of today?

In the event the church cannot resolve a prospective funding shortfall through acceptable alternative portfolio strategies, it must consider other options. First, the church may invest additional time and effort to raise more funds, for example, by soliciting additional restricted gifts and contributions, holding bazaar sales, organizing church fund raising dinners and conducting raffles. Second, the church may consider reducing construction costs--downsizing the project, simplifying its design or using less expensive building materials. Third, the church may plan to take the risk of borrowing any prospective financing shortfall which may arise during the recreation center construction period. Finally, the church may consider deferring the construction start date for a while in the hopes of eventually accumulating sufficient funds.

SUMMARY AND CONCLUSION

Investing for the long-term to finance future projects and activities for churches and other religious organizations requires a carefully crafted investment strategy. In this paper, the authors have demonstrated a computerized Income Projector Model (IPM) to aid churches and other religious organizations in crafting sound, long-term portfolio strategy. We applied the model to a hypothetical church seeking to accumulate sufficient funds to finance the construction of a new recreation center and explained the model output.

In developing a portfolio strategy, the IPM permits trial runs of different portfolios over different historical periods, thus offering valuable insights into plausible, worst and best case outcomes for church investment portfolio planners. The IPM permits test runs of different portfolio strategies—assets classes and mixes, annual asset savings or accumulation rates, desired payout dates and target incomes—to determine outcomes that would have actually resulted over various historical periods. Users can validate portfolio strategy choices by establishing subjective probabilities, or impressions, of how competing alternatives may behave

in the future. As a result, church portfolio planners can establish and apply portfolio strategy on a reasoned and definitive basis. Carefully crafted strategy reduces the risk of allowing human psychological biases, the emotions of greed and fear and other irrational investing behaviors to adversely impact investment decisions.

Planners with basic EXCEL skills and investment knowledge, such as members of an investment subcommittee of the church administrative board or finance committee, the church treasurer or business administrator, can realistically understand and apply the model. Moreover, church users can adapt the program to applications beyond building projects, such as portfolio strategy development for funding church employee retirement programs, scholarships for ministerial students and benevolence programs.

Refinements to the model would make it more versatile and user friendly. The model needs more asset classes such as foreign bonds, emerging market stocks, foreign real estate and more metals and other commodities. Moreover, inclusion of earlier periods of unique market history (prior to 1926) would increase the reliability of model output and thus the potential for improved portfolio strategy formulation. Quality data, however, remain difficult to find and expensive. Finally, reprogramming the model to permit changes in asset allocations during trial runs would appeal to some investors in spite of the widely held admonition to buy and hold a diversified portfolio over the long run. Nevertheless, the model remains a reasonably effective tool for avoiding many of the costly pitfalls of church investing for the long term.

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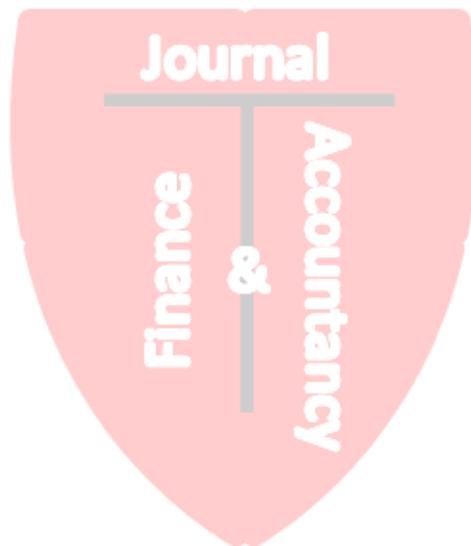
Table 1 - *User Inputs--General*

This projector model allows the user to run different investment portfolios over different historical time periods to see what actual pre-tax income (payouts) would result in today's dollars with their current purchasing power.	
General Model Application	
Enter "1" for Retirement Planning or "2" for Church Planning	2
Enter input data below (yellow cells=required; orange cells=optional; green cells=output cells	
Name of individual or entity for whom you are conducting trial run	Hope Church
Present fair value of individual's or entity's financial assets of all types	$625,000
Amount individual or entity plans to contribute each year in today's dollars before payouts begin	$7,500
Beginning year of the accumulation period (Note: Model handles 1 to 20 years before payouts begin.)	1
Year individual or entity expects first income or payout	21
Years individual or entity expects income or payouts (Note: Model handles 1 to 20 year payout periods.)	3
Other income expected during payout period: (1) Expected income/yr. in today's	
e.g., Social Security, gifts and contributions dollars	$7,500
. (2) Expected real change/yr. in dollar purchasing power	0%
Individual's or entity's total, before tax, projected income or payouts needed in today's dollars:	

Annual needs now	$750,000	At expected real yearly growth rate of	1.5%	Equals	$1,032,954

(Note that this equals a real purchasing power income (payouts) into the future given inflation-adjusted investment returns.)	
Individual's or entity's expected marginal tax rate	0%
Start year for trial run (Note: User can start in 1927 or later; but, if a trial period exceeds 2010, the program uses average 1927-2010 returns for the years past 2010	1983

Table 1 (continued)

Asset Classes or Types (use decimals)	Taxable Conservative (%)	Non-taxable Conservative (%)	Taxable Aggressive (%)	Non-taxable Aggressive (%)	Fees (%)
Money (3 mos. U.S. Treas. Bill)	0	5	0	5	.25
Long-term bonds (20 yr. U.S. Treas. Bond)	0	60	0	25	.50
Real estate (NAREIT US Equity)	0	10	0	10	.75
Large cap stocks (S&P 500 Index)	0	15	0	50	.65
Foreign stocks (Developed World-ex U.S.)	0	5	0	5	.85
Gold bullion	0	5	0	5	.75
Small cap stocks (Currently DFA U.S. Microcaps	0	0	0	0	.70
Column totals should equal 100%	0	100	0	100	
How would you categorize your portfolio mix or emphasis?		Bonds		Stocks	

Table 2 - Model Outputs—Church Recreation Center Funding

Note: If your trial period runs beyond 2010, the program will apply average returns from 1927-2010 for years beyond 2010.							
Entity	Hope Church	Trial starts	1983	Trial ends	2005	Target income needs	$1,032,954
Portfolio strategy			Conservative	Aggressive	Difference	Initial financial assets	$625,000
			Bonds	Stocks		Planned annual savings	$7,500
Portfolio income data							
Average annual pre-tax portfolio income			$896,100	$1,133,489	$237,389		
Standard deviation of portfolio income			$59,325	$398,432	$339,107		
Annual supplemental income (e.g., Restricted gifts and contributions)			$7,500	$7,500	$0		
Total annual funding provided			$903,600	$1,140,989	$237,389		
Total annual funding needs			$1,032,954	$1,032,954	$0		
Annual excess (deficiency)			-$129,354	$108,035	$237,389		
Securities portfolio data							
Securities portfolio value at start of payout date			$2,428,561	$2,860,199	$431,638		
Average annual real returns (%)			6.86	8.18	1.32		
Standard deviation of returns (%)			8.97	10.55	1.57		
Number of up years			17.00	17.00	0		
Number of down years			6.00	6.00	0		

Figure 1: Income (Payout) from Portfolios
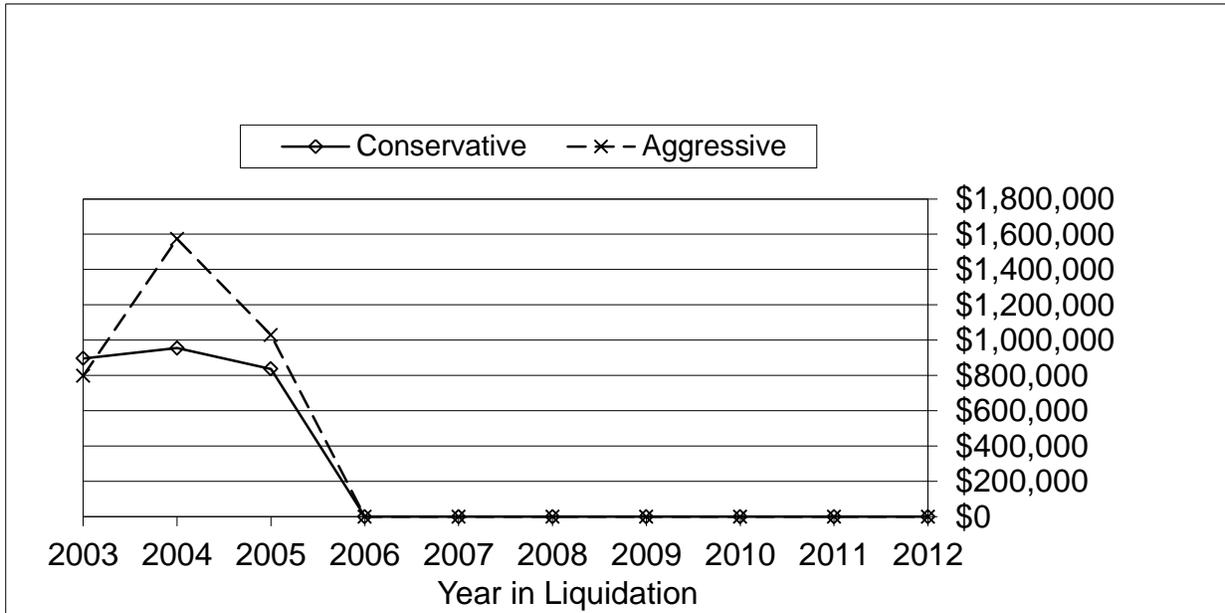
Figure 2: Asset Values of Portfolios over Entire Planning Period
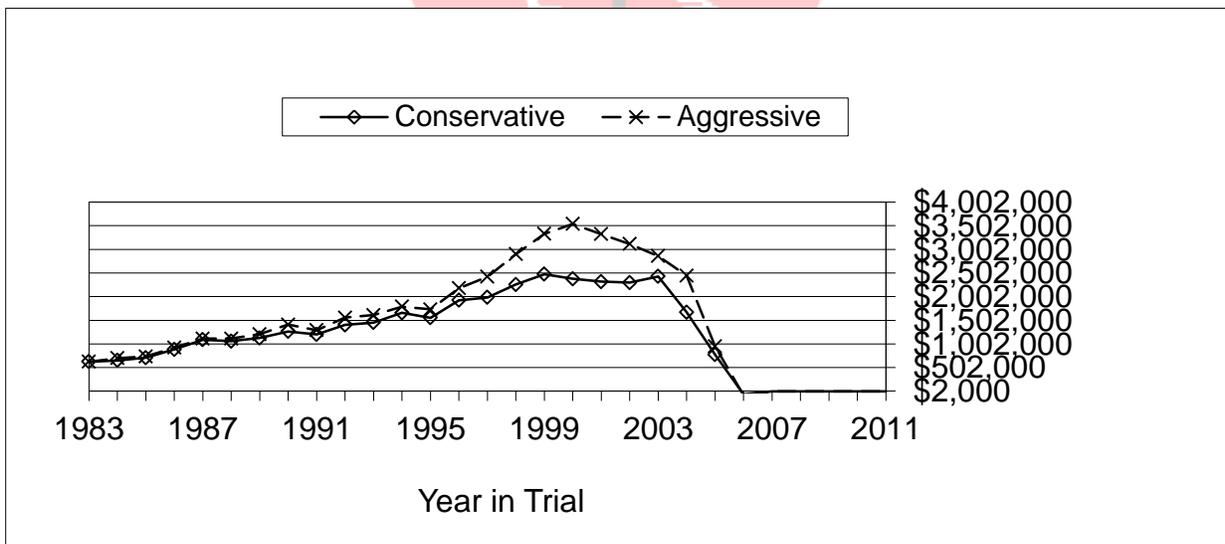
Figure 3: Security Portfolio Annual Returns over Entire Planning Period