

# Investment principles for individual retirement accounts

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## Abstract

The phenomenal growth of individual retirement accounts in the US, and globally, challenges both individuals and their advisors to rationally manage these investments. The two essential differences between an individual retirement account and an institutional portfolio are the length of the investment horizon and the regularity of monthly contributions. The purpose of this paper is to contrast principles of institutional investing with the management of individual retirement accounts. Using monthly historical data from 1926 to 2005 we evaluate the suitability for managing individual retirement portfolios of seven principles employed in institutional investing. We discover that some of these guidelines can be beneficially applied to the investment management of individual retirement accounts while others need to be reconsidered.

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## 1. Introduction

Extensive academic research on risks and returns of various investment classes has been incorporated in investment primers, technical and statistical books and popular monographs. For example, the investment textbooks of Bodie et al. (2007), Reilly and Brown (2006) and Viceira and Campbell (2002), the classic financial econometrics book of Campbell et al. (1997) and the highly successful investment book of Siegel (2002), all collect, document and elucidate numerous stylized facts about asset returns, risks and long-term performance of stocks, bonds, cash and other classes of investments. From these findings certain investment guidelines have been proposed, statistically documented, and debated using very long time series of, mostly annual, returns of various aggregate indexes for capital markets. In this paper we select a few such standard stylized principles or guidelines for long-run institutional

investing and explore their relevance in managing individual retirement accounts.

## 2. Individual retirement accounts

The 2005 Publication 590 of the US Internal Revenue Service describes in detail the numerous individual retirement arrangements that are legally recognized. Such arrangements include the traditional Individual Retirement Account (IRA), the Roth IRA, the Savings Incentive Match Plan for Employees (SIMPLE) IRA, the Self-Employed IRA, the Self-Directed IRA, 401(K) Account, the Roth 401(K) and others. For our analysis we do not distinguish between these accounts because we are not addressing tax and withdrawal issues. Rather, we use the concept of an individual retirement account to refer to a plan that provides some tax advantages to an individual who saves regularly for retirement. The two main characteristics of an individual retirement account we wish to focus on are the relatively short investment horizon of such investment vehicles and the regularity of contributions. For example, a typical individual retirement account has an

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investment horizon of 30–40 years while the investment horizon of an institutional endowment fund could be very long or hypothetically infinite.

### 3. Importance of individual retirement accounts

Individual retirement accounts have recently experienced a phenomenal growth as corporations have moved away from defined benefit retirement plans to defined contribution retirement plans. Furthermore, the present concerns of population aging and the financing of its retirement needs have resulted in discussions about the resources needed to be put aside over a lifetime of work to finance the consumption of the retirees. Greenspan (2005) has emphasized that retirement is a relatively new phenomenon in human history. Hence, the financial issues associated with saving and managing retirement investments are essentially new.

About a century ago, the average American life expectancy was only 47 years and very few individuals had the opportunity to live long past their retirement. In contrast, today the average life expectancy for both sexes and for all races, according to the US Department of Health and Human Services (2006), is about 77.8 years and a significant percent of workers will live in retirement for about 20 years. Moreover, the average life expectancy for all races and both sexes for those having reached the age of 65 is another 18.7 years, or a total of 83.7 years.

Social Security in the US will face challenging financial issues because by design it is not a fully funded program but rather a pay-as-you go system. Such a system depends on an appropriate ratio of workers to retirees to keep the system financially sound. Garrett and Rhine (2005) report that while in 1950 there were about 16 workers for each retiree, by 2004 there were only 3.1 workers for each retiree and the projection for 2030 is for 2.17 workers for each retiree. Current and projected ratios are substantially low and imply future financial shortfalls. Although Kotlikoff (2006) appears to be pessimistic about long-term US public finances, it is reasonable to argue that the financing of future retirement expenditures is rapidly becoming a major concern for the labor force. The three developments of (a) the future uncertainty of Social Security benefits, (b) the dramatic decline in defined benefit retirement programs and (c) the demographic reality of large numbers of retiring baby boomers, are all contributing to the recent concerns about retirement financing as reported in Dwyer (2005).

Efforts by the Bush Administration to partially privatize Social Security by introducing personal retirement accounts have been met with enough opposition to temporarily abandon their implementation. Accordingly, today, individuals realize they need to both save more and invest wisely on their own while policy measures to address this national problem are debated. Individuals also recognize that risks associated with retirement portfolios once assumed by firms or the government will be, in the future, substantially borne by them. This phenomenon, often

described as the democratization of risk, induces individuals to manage these risks by seeking portfolio management advice from professionals.

### 4. Investment principles

We consider seven guidelines or principles for the financial management of a representative individual retirement account. Some of these principles are the same as the ones used in lump-sum investing, some are modified and some are new. We obtain these principles by asking certain questions or by proposing certain hypotheses. Then we do the analysis to confirm or reject these hypotheses. The principles proposed are not mathematical theorems because we do not prove them analytically. We simply give empirical evidence using a specific data set from Ibbotson Associates (2006) to support or reject the hypotheses.

Suppose that an individual saves \$1 per period, say every month, for a period of 20–40 years. This monthly contribution could be invested in an equity index such as the S&P 500 Index or in bonds or in cash or in various proportions among them. Both the individual and his/her advisor face several decisions that we formulate as hypotheses or questions.

First, using average returns (monthly or annually) from long series of data it is simple to calculate the growth of \$1 invested in a certain asset class. The first hypothesis translates this result to individual retirement accounts by stating that it is equally straightforward to calculate the accumulations of individual retirement accounts.

When \$1 is invested over a long horizon, its growth becomes phenomenal because of the power of compounding. The second hypothesis claims that individual retirement plans achieve accumulations that are similarly substantial, also because of the power of compounding.

The third hypothesis considers the investment risks associated with the length of the investment horizon. Siegel (2002, p. 11) calculates the standard deviation of annual stock market returns and finds a risk of 17.5% over the very long period of 1802–2001, that is for almost 200 years. This risk is very similar to 17.2% which is the risk during the much shorter period of 1966–1981. We likewise hypothesize that an individual investing in equities for a 40 year period faces similar risks to individuals with a shorter horizon of 30 years.

Fourth, recall that, for \$1 invested over 40 years, the final accumulation is the same when using the actual monthly returns or the sample average over 40 years. Do we get the same answer for an individual retirement account over 40 years by computing accumulations either by averages or by the actual term structure of returns? The fourth hypothesis says that the results are the same.

Fifth, we hypothesize that as in institutional investing with very long horizons, returns are stable over shorter periods that are typical for individual retirement accounts.

Sixth, for individual investment horizons, of 20–40 years that are much shorter than investment horizons of

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