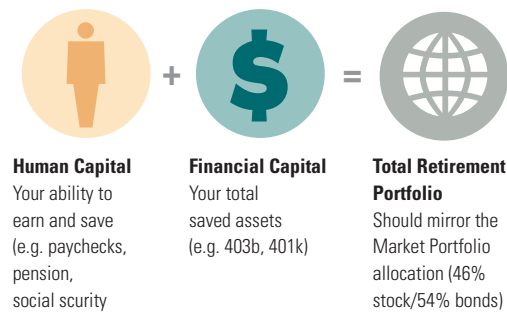


# Considering Your Total Retirement Portfolio

When making asset allocation decisions most people only consider financial assets such as stocks, bonds, mutual funds, real estate, and retirement savings accounts, otherwise known as your financial capital. This traditional definition of wealth, however, is incomplete since it does not consider your human capital. Human capital represents your ability to earn and save throughout your lifetime (e.g. paychecks, social security and pension benefits) and for many investors it can be their largest asset.



According to Modern Portfolio Theory, there is an all inclusive market portfolio that contains all the financial capital (including both investable and non-investable assets) and human capital in the world. This portfolio has the best risk and return characteristics for an investor. Ibbotson attempts to manage your financial capital so that when combined with your human capital it brings you closest to the market portfolio represented as an allocation of stocks and bonds.

## Determining Your Financial Capital Allocation

Ibbotson combines human capital and financial capital in an innovative 3 step process to get you to the market portfolio allocation:

### 1. Estimate the Market Portfolio

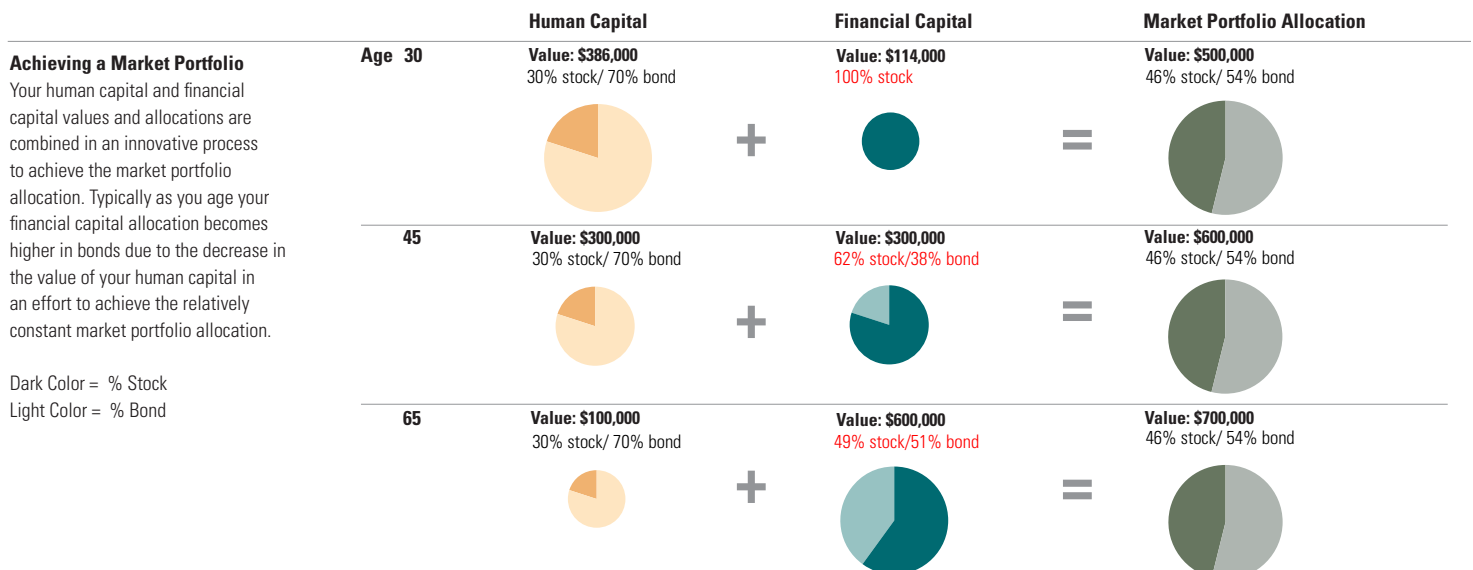
Ibbotson estimates this portfolio to be 54% bonds and 46% stocks. The market portfolio allocation remains relatively constant throughout an investors lifetime while the financial capital allocation adjusts as their human capital and financial capital values change.

### 2. Calculate Your Human Capital

Ibbotson models the investment-like characteristics of human capital as 30% stock and 70% bond since human capital behaves much like a bond investment. This allocation is weighted by assigning a value to your human capital. Ibbotson calculates your human capital value by considering the following factors: age, gender, income, savings rate, pension, and social security. In the graphic below this is illustrated with the orange pie charts. As the human capital value decreases the pie charts weight or size decreases. Note how this directly effects the financial capital allocations.

### 3. Solve for Your Financial Capital Allocation

Now that we know the allocation you have in human capital and its weighting we need to figure out how this can be combined with your financial capital to reach the market portfolio allocation. Your financial capital allocation will vary throughout your lifetime since it needs to be adjusted when human capital and financial capital values change.



## Considering Your Total Retirement Portfolio

### Aggressive Financial Allocation Near Retirement

There are a number of reasons why you might be assigned to a more aggressive portfolio even though your retirement age may be less than 10 years away:

- ▶ High pension benefit
- ▶ Social Security covers most of your retirement income
- ▶ Your outside wealth is invested in mainly fixed income
- ▶ You have large savings and other contributions

Some of these factors may result in your human capital value being high. Since Ibbotson considers human capital to be mainly bonds this often results in a higher stock allocation for your financial capital to offset this high bond allocation.

### Investor A vs Investor B

To help illustrate how a high human capital value later in life can result in a more aggressive portfolio consider the following example:

#### Investor A

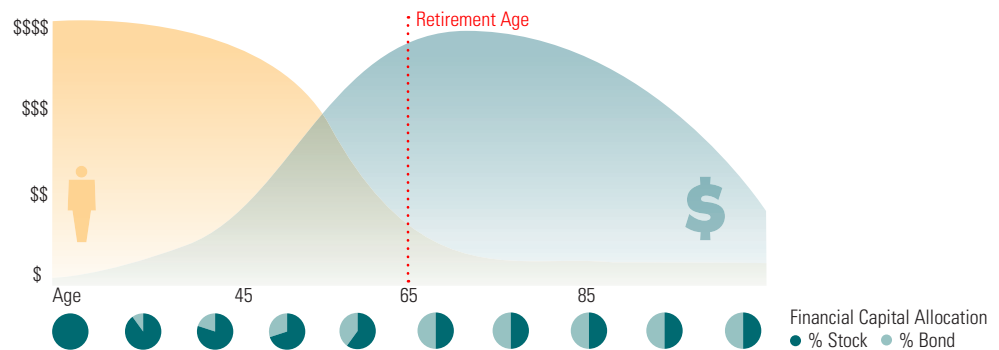
This represents a scenerio of how an investor's human capital and financial capital values change over time. As an investor ages his human capital decreases since his ability to earn and save decreases. At the same time his financial capital typically grows since his saved assets should be increasing as he gets older. The green pie charts show the effect on his financial capital allocation. Note how the bond allocation increases as he gets older to make up for the decrease in his human capital value.

#### Investor B

This is a less typical scenerio but is quite common when the previously mentioned factors are present. As this investor ages his human capital value stays fairly high possibly due to a high pension. At the same time his financial capital value is not as large relative to his human capital. The green pie charts show the effect on his financial capital allocation. Note how the stock allocation remains high due to his large human capital value.

#### Investor A

This investor's retirement income is funded mainly by financial capital.



#### Investor B

This investor's retirement income is funded mainly by human capital (e.g. pension, social security) and some financial capital.

