

# MARKET MONITOR OCTOBER 1, 2009

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If you're saving and investing for retirement, you know that the goal is to accumulate a nest egg that will provide an adequate income later on in life. But how big should that nest egg be? And, years in advance, how can you effectively gauge whether or not you are "on track" for retirement?

In this Market Monitor, we explore a simple measure, called the *Asset-Salary Ratio*, that can be used for just this purpose.

- What is the Asset-Salary Ratio, and how can it be used to gauge where an individual is in relation to a retirement goal?
- Among TIAA-CREF participants, what are the main factors that determine the size of the Asset-Salary Ratio?

## THE CURRENT AND TARGET ASRS

Anyone can quickly calculate their own *current* Asset-Salary Ratio, or ASR. At any point in time, it is simply your total retirement-related assets or long-term savings divided by your current annual income. This produces a single number, which for most people ranges from zero to about 10.

The next step is to figure out what your current ASR says about your long-term financial security. For that, you need to know whether your *current* ASR is above, below, or at the *required* or *target* ASR needed to achieve your retirement goals.

For example, let's say that you would like to build up a nest egg that will provide a retirement income sufficient to replace about 70% of your preretirement income (i.e., 70% of the annual income you will enjoy just before retirement). For a person making about \$120,000 at retirement, it is estimated that Social Security will replace about 20% of that amount (it will replace a higher percentage for lower incomes and a lower percentage for higher incomes), so a defined contribution pension would need to replace an additional 50% of pre-retirement income.<sup>1</sup>

<sup>1</sup> Reno, Virginia P. and Joni Lavery (2007). 'Social Security and Retirement Income Adequacy,' *Social Security Brief* No. 25, National Academy of Social Insurance.

In order to arrive at an amount of assets needed to meet this 50% income goal, we built a little model that assumes that you would need enough assets to fund a 25-year guaranteed income (a hypothetical annuity) beginning at age 65. Then, we worked backwards to estimate how much retirement wealth (assets) you'd need today in order to be in a position to meet your goal through future savings and investments. To do that we assumed an average savings or contribution rate of 10% per year, an average investment return of 6% per year, and an average salary growth rate of 4% per year.<sup>2</sup>

In slightly more technical terms, if we know your desired retirement income replacement rate and how many years you have until retirement, and if we can estimate your annual retirement savings contribution rate (as a percentage of your income), your overall investment return, and what your average salary increase will be each year, then we can gauge whether your *current* ASR is above, below, or the required or *target* ASR needed to be on track for achieving your desired retirement income.

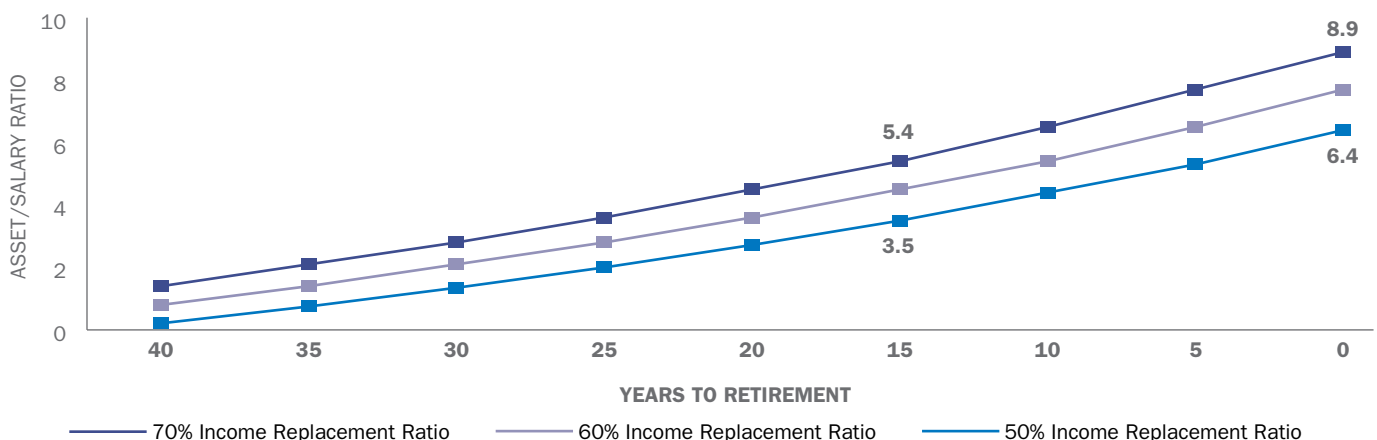
To illustrate this, Exhibit 1 shows hypothetical target ASRs by years to retirement. Each curve represents a different income replacement ratio goal ranging from 50% to 70%.

The points along each curve are the hypothetical target ASRs at various years prior to retirement. For example, if you are 15 years from retirement and want to achieve an income replacement goal of 50% (recall that if you add in Social Security, the total would equal 70%), the exhibit says you would need assets equal to or greater than about 3.5 times your annual income (i.e., ASR equals 3.5). At the date of retirement, the hypothetical required ASR is about 6.5 times annual income. For the 70% income replacement ASR curve, you would need about 5.5 times income 15 years before retirement and nearly 9 times income at your retirement date.

Interestingly, at the opposite end of the curve, you can see that ASRs for someone more than 35 years from retirement range from zero to less than 1.5 times annual salary. For many younger people just starting out, the asset size associated with the target ASR is very low in dollar terms, mainly because the power of compounding associated with starting saving early in life. The good news is that, early on, it is possible to have a relatively small amount of savings and still be on track for retirement.

### EXHIBIT 1 THE ASSET SALARY RATIO (ASR)

Assumes a 25-year Payout Annuity and 4% Nominal Salary Growth, 6% Asset Returns, 10% contribution Rate (all annualized)



<sup>2</sup> In the latter case, salaries in higher education have increased about 2% plus inflation over the last several decades.

**CUSTOMIZING THE ASR**

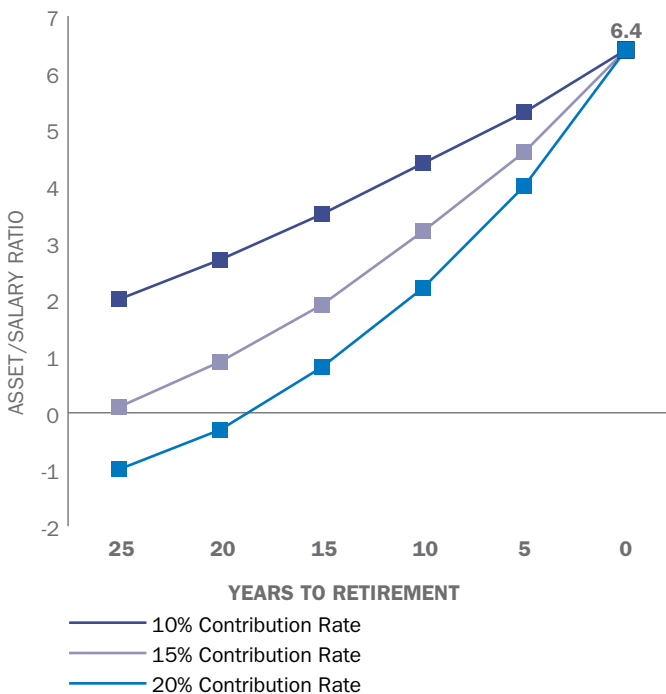
Of course, your own salary increases, contributions, and investment returns are likely to vary from this hypothetical illustration. They may be higher or lower than the numbers used in this simple model, and they are likely to change from year to year. For example, Exhibit 2 shows, the effect of different contribution rates on target ASRs, all other things being equal.

The higher curve is the same 50% income replacement ratio target ASR curve we saw in Exhibit 1, which is based on a contribution rate of 10%. The lower curves use contribution rates of 15% and 20%, respectively. Note that a higher contribution rate is associated with a number of positive outcomes. First, higher contribution rates make it easier for a person with a lower current ASR and still be on track for a secure retirement. Second, higher contribution rates make it easier to take investment risk out of the portfolio because a person does not have to “chase

**EXHIBIT 2 ASSET SALARY RATIO WITH VARYING CONTRIBUTION RATES**

10%, 15%, 20% Contribution Rates w/50% Income Replacement Ratio Target

Assumes a 25-year Annuity, 4% Nominal Salary Growth, 6% Investment Return



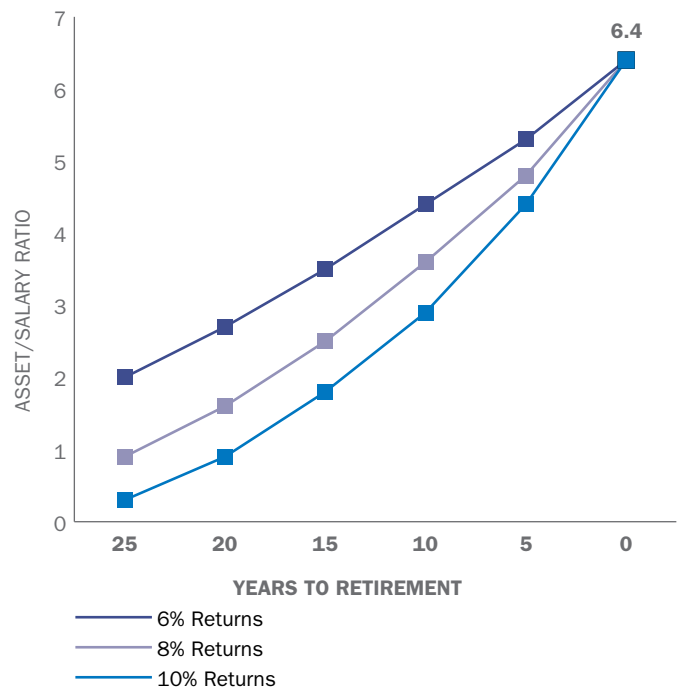
returns” to hit the target ASR. Third, higher contribution rates can lower the ASR because the additional savings reduces the amount of income needed in retirement to maintain the same lifestyle.

Exhibit 3 once again shows the 50% income replacement ratio target ASR curve based on a 10% contribution rate, but this time the other two ASR curves show the result of varying investment returns with a constant contribution rate of 10%. As with higher contribution rates, higher investment returns mean that a person can have a lower ASR and still be on track for retirement.

**EXHIBIT 3 ASSET SALARY RATIO WITH DIFFERENT INVESTMENT RETURNS**

6%, 8%, 10% Asset Returns w/50% Income Replacement Ratio Targets

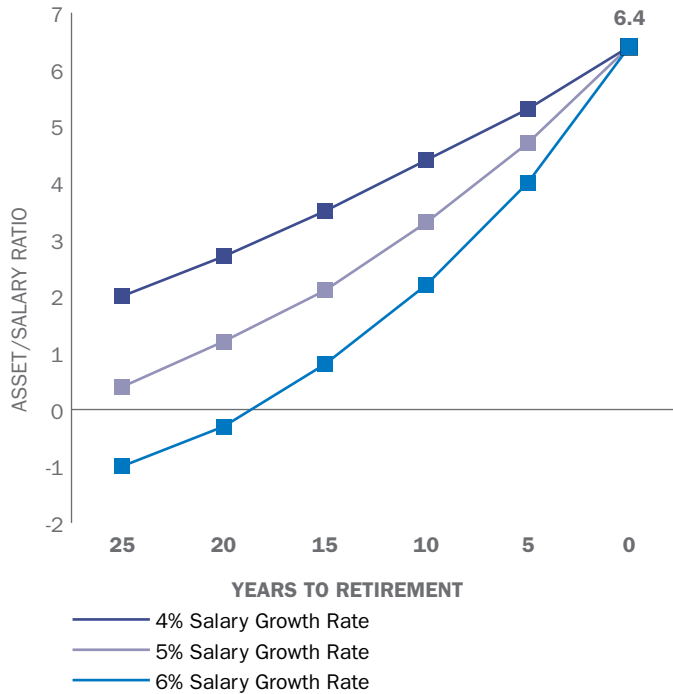
Assumes a 25-year Annuity, 4% Nominal Salary Growth, 10% Contribution Rate



**EXHIBIT 4 ASSET SALARY RATIOS WITH VARYING SALARY GROWTH RATES**

4%, 5%, 6% Salary Growth Rates w/50% Income Replacement Ratio Target

Assumes a 25-year Annuity, 10% Contribution Rate, 6% Investment Return

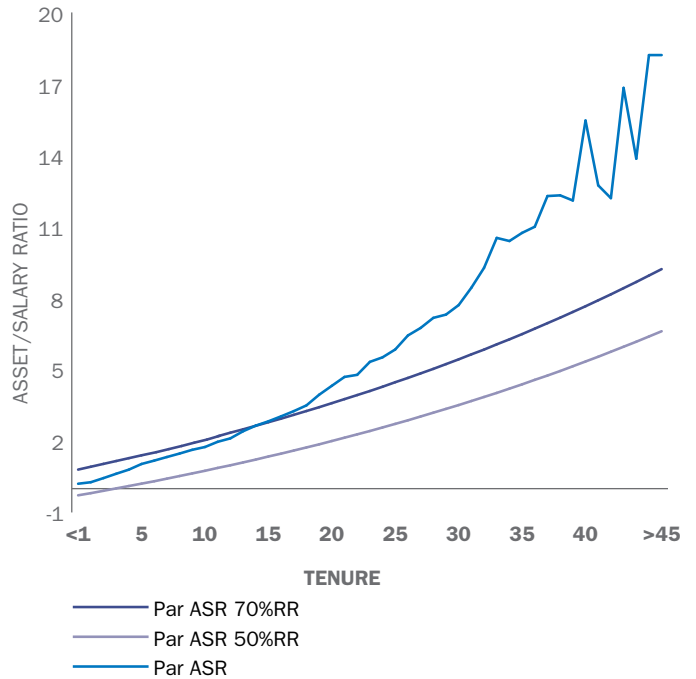


Finally, Exhibit 4 shows what happens if the contribution rate and investment returns remain constant, but the salary growth rate varies. As in the other exhibits, the higher the salary growth rate, the lower the current ASR can be and still reach the target ASR at the point of retirement.

**ACTUAL ASR EXPERIENCE**

On average, what are the Asset-Salary Ratios of TIAA-CREF participants? Exhibit 5 shows current average ASRs by age for a sample of over 70,000 TIAA-CREF participants at the end of 2007 along with the 50% and 70% target ASR curves (which with Social Security provide a 70% to 90% total income replacement rate). At that time, current ASRs were, on average, above the threshold needed to be “on track” for achieving a 50% income replacement ratio. The current ASRs were below the 70% curve, except for older participants, who were at or above the 70% target curve.<sup>3</sup>

**EXHIBIT 5 AVERAGE ASSET SALARY RATIO BY TENURE 2007**



<sup>3</sup> This latter finding may reflect the extraordinary performance of asset markets during the 1980s and 1990s, when both stock and bond returns were, in many years, above long-term averages

In an analysis of the sample ASRs, we found that two key factors explain why, on average, our participants are on target for a secure retirement. First, participants tend to have: adequate contribution rates, with an average total (employer and employee) contribution rate of 17%. Second, early participation and long tenure in the retirement system. Having a portfolio weighted more to equities throughout the years prior to retirement tended to increase the ASR but to a far lesser extent than increasing the contribution rate. In other words, a sound retirement savings program should focus on adequate savings rates and early participation. These features are, if anything, more important and less risky than a program that encourages participants to chase investment returns.

Keep in mind that the ASR is a general measure and not meant to substitute for a careful review of your circumstances and needs, something you can obtain by contacting a TIAA-CREF representative. Nevertheless, the ASR can be used as a rough guide or rule of thumb to see whether you are in the ballpark for achieving an adequate retirement income.

TIAA-CREF is a national financial services organization and the leading provider of retirement services in the academic, research, medical and cultural fields with \$402 billion in combined assets under management (as of September 30, 2009). Further information can be found at [ttaa-cref.org](http://ttaa-cref.org).

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