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## FINANCIAL EDUCATION MUST KEEP UP WITH THE TIMES

*By Andrew Davidson*

### But is it Good for the Customers?

As financial professionals, we spend much of our time evaluating financial products such as credit cards, mortgages, insurance, and investments to determine how to manage risk and grow net present value for our employers. We spend less time, perhaps, thinking about why these products exist at all and if they are providing benefit to our customers. Much of our financial and regulatory system is built on the idea that it is the duty of the customer to determine which products are right for them and what price to pay.

Over the years, friends and family have approached me and have likely approached you, for advice about financial decisions. The questions they usually ask run along the lines of: Are home prices in such and such neighborhood going up or down? What will interest rates be next year? Should I buy this stock that my friend recommends? What do you think of Bitcoin and Dogecoin?

While these are interesting questions, too few people—because they lack a framework built on fundamental principles of finance to lean on for evaluating their financial situation—ask the ones that are most important to consider. About ten years ago, I became interested in addressing the gap between what people needed to know and what they actually knew. When I looked closely, I learned that financial literacy, the current rubric for financial education in the US, is not providing people with the necessary framework.

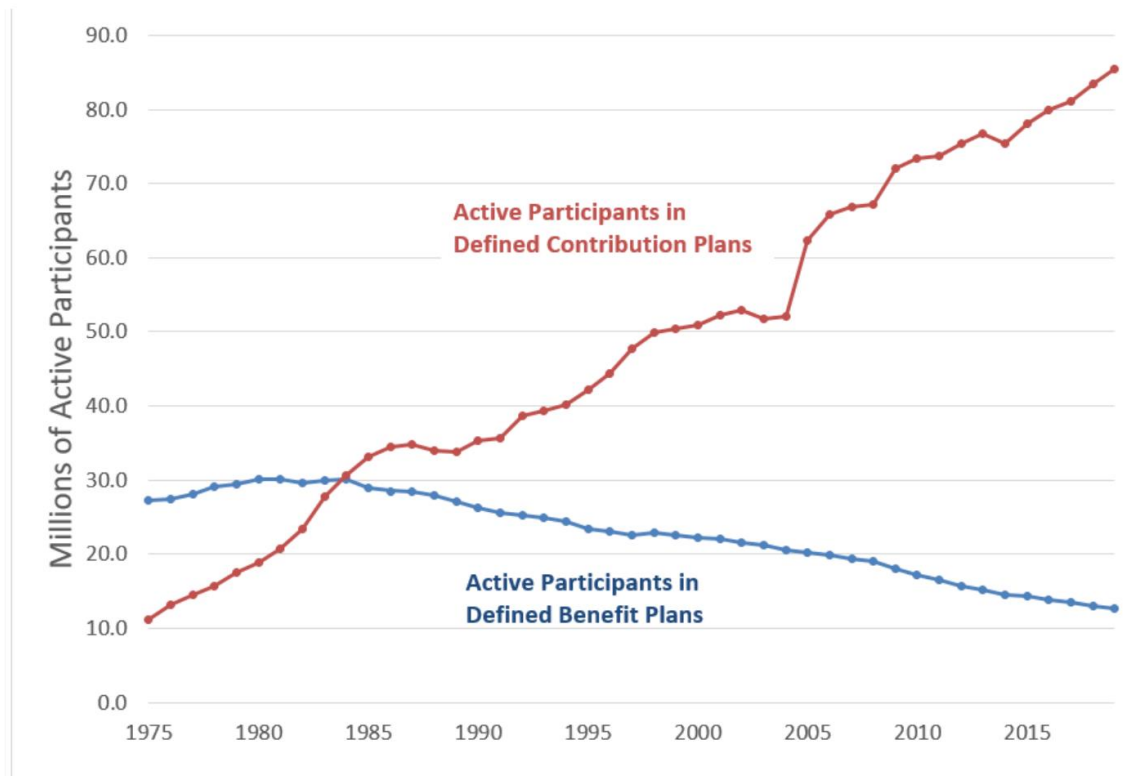
### The Changing Financial Landscape

When I started working in the 1980s, many people expected to work at the same firm for many years. Those firms provided stable income, health insurance and retirement annuities. Firms took on much of the financial risk of individuals. In 1983, my first job out of business school was in Exxon's Treasurer's Department, which included assessing the risks to Exxon's defined benefit pension program. We had a staff of people with advanced degrees in finance, direct access to the top money managers and actuarial firms to compute our pension liabilities. We even managed one of the largest S&P 500 index funds at the time. Exxon took on the investment risks to provide its employees with an inflation-adjusted retirement income and had a team of experts to manage the risks. And Exxon was not unusual, as defined benefit plans represented more than half of all retirement plans at the time.

With firms providing so much financial stability, financial management for people in this environment was mostly about budgeting and balancing your checkbook. As long as you didn't spend much more than what was coming

in each month, you had little financial risk. Many financial literacy programs are still addressing financial education in this context.

**Figure 1. Active Participants in Private-Sector Pension Plans (1975-2019)**



Roll forward to 2024. Few people expect to work at the same firm for most of their careers; health insurance now entails a complex set of choices and is only partially company funded; and almost 90% of retirement plans are now defined contribution rather than defined benefit. That is, you may receive money to invest while you are employed, but your employer does not provide you with a guaranteed income during retirement. In short, you are responsible for your own investment strategy.

On the other hand, there is no need to balance your checkbook today, as you have instant access to your current bank balances, and we rarely write checks anyway. While budgeting is still important, it no longer reflects your primary financial risk. Today, you need to be your own financial manager in order to evaluate and manage your wealth over your entire lifetime. It is now your job to perform the functions of the team of highly trained financial experts at Exxon. Bottom line: The financial environment has changed—and financial education must keep up.

## A New Approach to Financial Education

Ten years ago, I founded the Financial Life Cycle Education Corp (FiCycle), a not-for-profit organization, to address the gap between what is provided by financial literacy and what is truly needed for financial education. FiCycle’s work is based on the idea that people need to understand the fundamentals of finance and have the analytical capacity to make financial decisions in a relevant framework.

For the fundamentals of finance, we turned to Franco Modigliani’s Life Cycle Hypothesis, for which he received the Nobel Prize in 1985, and addressed the role of saving and borrowing in smoothing consumption across a person’s life. We were also inspired by work on expected utility, from as far back as Bernoulli in the 1700s to

Nobel Prize-winning work by Harry Markowitz, Merton Miller, and William Sharpe in 1990 to, of course, the work of Fischer Black, Myron Scholes, and Robert Merton (for which Scholes and Merton were awarded the Nobel in 1997).

Out of these concepts, we settled on the idea that finance was fundamentally about:

- Understanding wealth, which encompasses assets, liabilities, income and expense, and measures your capacity for consumption.
- Transferring wealth across time, which therefore is how to transfer consumption from one time in your life to another and includes borrowing and investing.
- Measuring and managing risk, which requires assessing the probability of a variety of outcomes and determining how much you should pay to reduce risk and how much you should be paid for taking on risk.

Finance defined this way moves away from descriptions of products and rules of thumb for savings to a conceptual framework. It also becomes clear that mathematics is needed to make financial decisions. In fact, much of the mathematics we learn in high school was originally developed to solve financial problems related to wealth, time, and risk. The first known use of negative numbers was in China in about 200 BCE, where the color black was used to represent expenses in a number rod system, and the first description of the mathematics of negative numbers took place around 620 CE in a book by Hindu mathematician Brahmagupta, where the negative numbers represented debts.

FiCycle recently released its framework as a standard for high school courses, reflecting our work in this area and stressing the importance of combining mathematics and financial education. You can find our proposal at <https://ficycle.org/ficycle-standards-for-personal-finance-and-mathematics/>.

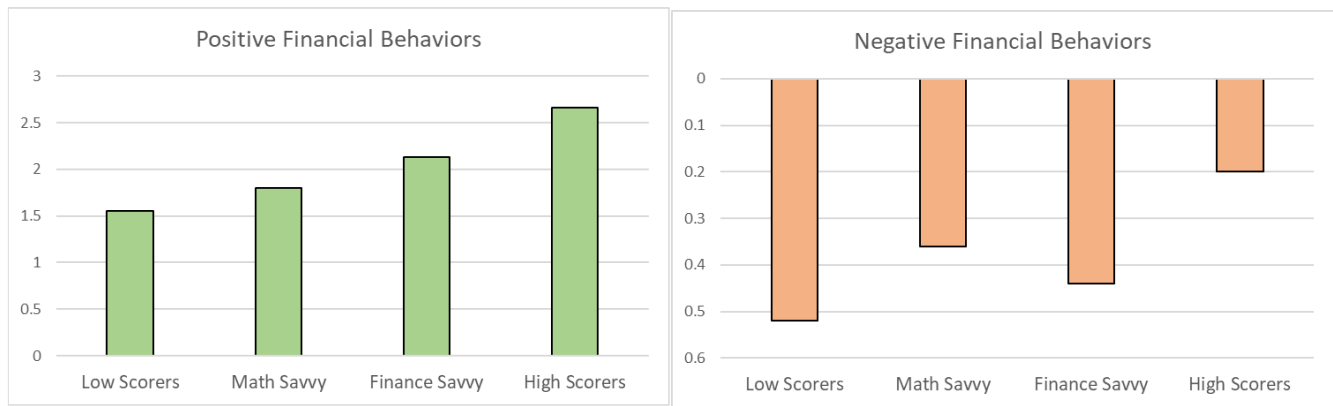
## Combining Financial Education with Mathematics Works

The importance of linking financial education and mathematics is further supported by joint research conducted by FiCycle, the FINRA Foundation, and NORC at the University of Chicago. Results are available via <https://www.finrafoundation.org/sites/finrafoundation/files/Combined-Math-and-Financial-Knowledge-Tied-to-Better-Financial-Outcomes.pdf>.

One of the goals of financial education is to provide people with familiarity with financial products so that they will engage in financial activities such as having banking accounts and saving for retirement. Increased engagement in the financial environment on its own is an incomplete goal, and without a framework and key math skills, it's a disservice. In a nutshell, our joint research shows that more financial actions are not necessarily better financial actions. While the attainment of some financial education increases people's confidence in making financial decisions, people are likely to take negative financial actions if that confidence is not accompanied by similar gains in financial skill. Adding math education and math knowledge tends to increase positive actions and decrease negative ones.

In the chart below, "High Scorers" show both financial and mathematics knowledge, and people with a combination of math and financial knowledge engage in more positive financial behaviors and fewer negative financial behaviors, showing the importance of linking math and personal finance.

**Figure 2. Association Between Knowledge and Total Financial Actions Taken**



We believe the time is now to move away from financial literacy focused on budgets and financial products and move toward financial education—combining a conceptual understanding of finance (wealth, time, and risk) with mathematics to provide people with the framework they deserve, so they can be the informed consumers we expect them to be.

## A Comment on Regulation

While we believe in increasing (and improving) consumer education, we do not believe that consumer education is an alternative to sound financial regulation. Financial firms will always have a knowledge and skill advantage over consumers. Moreover, as firms are motivated by profit rather than making sure that consumers have the most cost-effective access to financial tools, it is important that regulation provides consumers not just with the information that they need to evaluate those tools, but also limits the excessive profits that might turn an essential financial product into a predatory one.

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