



In 1990, William Sharpe shared the Nobel Prize in Economics with Harry Markowitz and Merton Miller. They received the prize for their work on capital asset pricing model (CAPM) and portfolio theory, which introduced the notions of systematic and specific risk.

CAPM decomposes a portfolio's risk into systematic and specific risk. Systematic risk is the risk of holding the market portfolio, ie, a portfolio composed of all available traded stocks and assets. Specific risk is the risk that is unique to an individual asset. According to CAPM, the marketplace compensates investors for taking systematic risk but not for taking specific risk. This is because specific risk can be diversified away. When an investor holds the market portfolio, each individual asset in that portfolio entails specific risk, but through diversification, the investor's net exposure is just the systematic risk of the market portfolio.

In dental school we were taught that dentistry is about science and art. Since the concept of evidence-based dentistry was embraced, most educators claimed the science as the compass for the profession. Trying to understand how the art and the science are reflected in dentistry, I separately performed a Google search on "dentistry and art" and "dentistry and science." The first search generated 771,000 results, whereas the second resulted in over 3 million hits. Should we consider that the science is 4 times more important than the art in the profession? Or maybe, obviously, from a medicolegal point of view, it is easier to defend the science based on published peer-reviewed evidence than to defend the art that has been involved in the treatment.

There is wide agreement that interventions in clinical situations should be based on the best evidence available. The evidence is under constant change; materials and methods that were considered the gold standard just a decade ago are already obsolete and some even considered inappropriate for any use in dentistry. To keep pace with the accelerated rhythm of changes and new developments, the practitioner has tools that allow the constant need for update. Providing clinical intervention and predicting an outcome according to the best available evidence is without doubt the first fundamental axis of diagnosis, treatment planning, and clinical intervention.

One can argue that the same clinical situation, treated in the same way in 2 different patients, may result in completely different outcomes. Parameters such as esthetics are influenced by geographical and cultural factors that may not be obvious. Psychosocial factors, personal perception, and willingness to understand the limitations of the treatment may have a significant influence on the perceived success of the treatment outcome.

It is clear, therefore, that the clinician providing dental treatment also faces the 2 types of risk described in the CAPM. The "systematic risk" is the risk inherently contained in the evidence-based data; for example, the risk for implant failure over a period of time is a factor that cannot be lowered under a certain threshold as long as the technology does not improve. The "specific risk" incorporates the myriad of factors that are associated with the individual patient; systemic health, oral health, habits, age, and psychosocial factors are but a few. Therefore, the second fundamental axis is how to assess the specific risk and predict the outcome of the intervention for a given individual.

In the stock market the specific risk is diversified by holding multiple assets. Obviously in dentistry we cannot mitigate this risk by treating more patients. While enriching our diagnostic and treatment capabilities, treatment of individuals still requires in-depth understanding of patient-related factors that often are difficult to identify or to predict how they will affect the final outcome. This risk assessment depends not only on the clinician's knowledge of the latest professional publications, but also on his or her capability to communicate, gather information, and understand patients' priorities and expectations.

Risk assessment is an art both in the stock market and in dentistry. And while we can complement our armamentarium with some newly evolved risk-assessment tools, as clinicians our challenge continues to be the "hidden axis" of specific risk estimation.

Sorin Teich, DMD, MBA
 Director of Clinical Operations
 Department of Comprehensive Care
 Case Western Reserve University
 School of Dental Medicine
 Sorin.Teich@case.edu

