

Project Portfolio Selection: the Efficient Frontier Approach

Efficient Frontier Analysis traces its origins to Nobel Prize winner Harry Markowitz and his work related to modern portfolio theory. According to this theory and common investment sense, there is a trade-off between portfolio risk and portfolio return: the more risk an investor is willing to accept, the higher the expected return of the investment. This is not only true in portfolios made up of securities and financial assets, but also in project portfolios. Therefore, for a given amount of risk, there is an “optimal” portfolio of projects that produces the highest possible return. If we were able to plot on a graph all possible portfolios, we would get something that looks like the graph in figure 1.

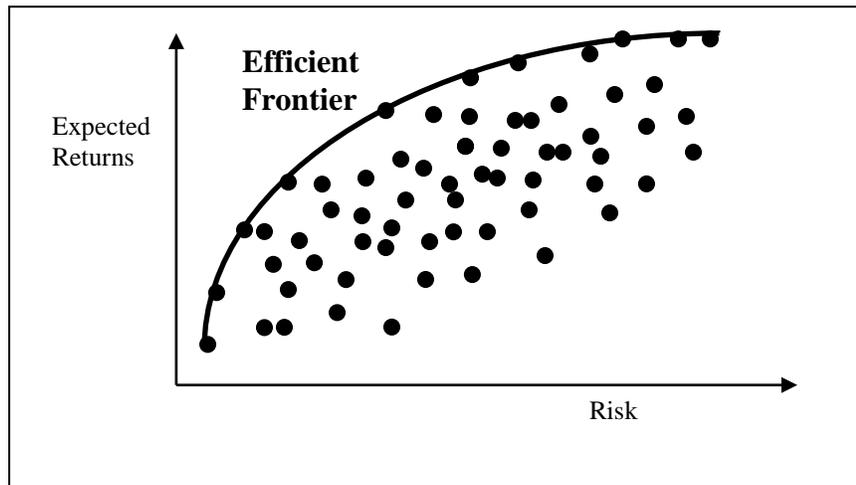


Figure 1: Risky Portfolios and the Efficient Frontier

The best possible project portfolios for a given amount of risk (i.e. variability of returns, capital investment cost, etc.) lie on the Efficient Frontier curve. These are also called the “optimal” project portfolios.

Figure 2 shows another type of Efficient Frontier: the tradeoff between value of the investment in a set of projects (defined by one or more performance measures) and the amount of capital required. Once again, the Efficient Frontier curve shows all of the optimal project portfolios, and the value that can be created with a given amount of available capital resources. The available budgets are on the horizontal axis, and the vertical value measures the value of the opportunity based on the impact and alignment with business drivers.

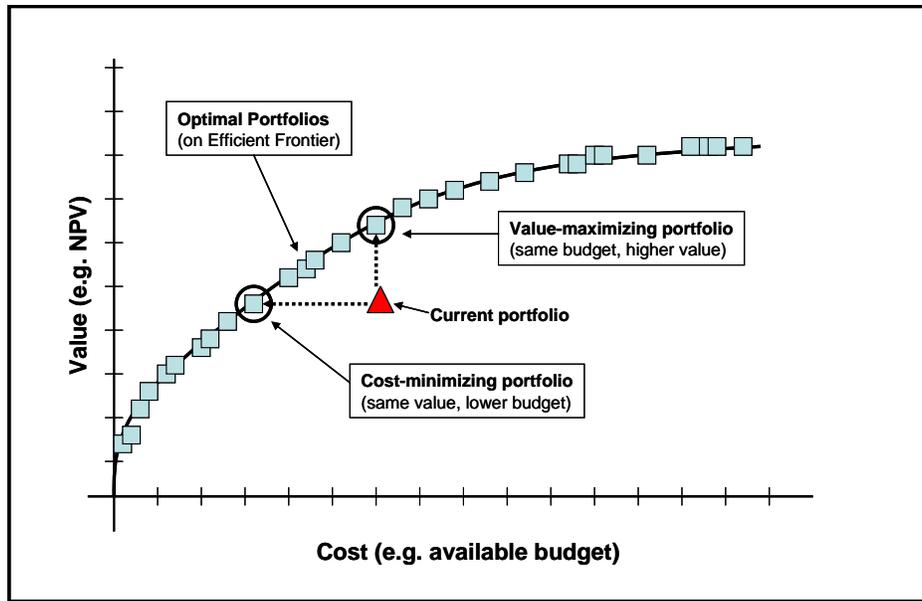


Figure 2: Value vs. Cost

Source: www.chiefprojectofficer.com

From the figure, we see that Efficient Frontier Analysis can help us answer several questions:

- Given our available budget, what is the set of projects that will produce the highest possible performance (i.e. what is the optimal portfolio of projects)?
- Given the potential returns expected from our current portfolio of projects, are we investing too much of our capital and other resources?
- What can we do to our current portfolio so that it moves toward the efficient frontier? Do we need to stop, delay or replace certain projects, or include some new projects in our portfolio?
- Given our current portfolio, is there the possibility that we can obtain a better return even with a lower budget?

With increasing pressure to justify investment in IT and other types of projects, CIOs and other executives must continuously address these questions.

Efficient Frontier Analysis helps portfolio managers and executives to understand the tradeoffs between portfolio value and cost. It also shows how companies manage its scarce resources, by understanding the effect of scarcity on potential returns.

Of course, this analysis is not possible unless the organization possesses the means to find the Efficient Frontier – a method for finding **optimal project portfolios**. Software products such as OptFolio® are especially designed to do this.