The 10 Essential Elements of Investing

Essential Element 5
Balance risk

Beaver Investing

The investment guide for Canadian foundations and charities
Third edition

Written: February 1, 2019
Updated: April 30, 2020

Institutions face a wide variety of investment risks, including the stock market, political climate, economic growth and interest rates. At the same time, Bay Street often defines risk in a narrow way as volatility – the extent to which returns vary from their average. Yet none of this relates in any clear way to purpose-driven investors like foundations and charities. Our preferred definition of risk is "The effect of uncertainty on objectives" (ISO 31000 standard on risk management). Relating risk to objectives highlights two major risks – short-term loss and long-term erosion. When we use the concept of balancing risk, we mean recognizing that both risks exist and balancing them to help the organization achieve its objectives.

Risk of short-term loss

When institutions experience a small loss, the gain they need to recover (or get back to where they started) is similar to the amount of the loss; but as their loss becomes larger and larger, so does the gain they need to recover. For example, if an institution has $1 million and loses 10%, then it has $900,000. In order to recover to $1 million, it needs a return of $100,000, which is a return of just over 11%. However, if an institution has $1 million and loses 50%, then it has $500,000. In order to recover to $1 million, it needs a return of $500,000, which is a return of 100%. Below we show losses and the returns needed to recover.

Table 1: Losses and returns needed to recover, in percent

Loss	Recovery
10%	11%
20%	25%
30%	43%
40%	67%
50%	100%
60%	150%
70%	233%

Large losses would not necessarily be a problem if institutions unwaveringly followed a sound investment plan, since stock market crashes are normally followed by recoveries, as was the case in 2008-09. The problem is usually not the loss but the investor's reaction to the loss. Even large institutions are not immune from abandoning their plan and selling indiscriminately. This can result in much greater losses than sitting tight. If short-term losses are significant, they can quickly have an impact on the organization's objectives, including abruptly reducing spending and scaling back major programs. This was the case for the University of Toronto, which after a heavy 30% loss in its endowment from 2008-09, cancelled all spending from the endowment and greatly reduced student aid programs. To avoid this problem before it occurs, institutions can design, manage and govern a system that has a low probability of incurring losses beyond a level established by the investment committee. Having an explicit loss level helps to reduce emotional decision-making when inevitable losses occur in financial markets.

Risk of long-term erosion

While the risk of short-term loss is more dramatic, the risk of long-term erosion is sometimes more deadly. Long-term erosion occurs when the institution's assets grow at a lower rate than

inflation. Below is an example of an institution with $10 million and how this value is eroded by inflation over the long term.

Table 2: Value of $10 million at different levels of inflation

Inflation	After 10 years	After 20 years	After 30 years
2%	$8.2 million	$6.7 million	$5.5 million
3%	$7.4 million	$5.4 million	$4.0 million
4%	$6.6 million	$4.4 million	$2.9 million

The risk of long-term erosion in many ways is harder to tackle than the risk of short-term loss. It involves visualizing the effect of small changes over long periods of time, an exercise in which human faculties are remarkably poor. There is seldom any immediate need to act, which can result in low-growth investments remaining in place for years or even decades. By the time the mistake is discovered, it can take a lot of time to get back on track, which, perversely enough, can serve as an excuse to defer action. Clearly, an organization with $10 million of purchasing power operates at a very different scale than an organization with $2.9 million of purchasing power. If an organization's assets dwindle in this manner, then it will be forced to downsize or even rethink its future.

Risk tolerance

Institutions need to thoughtfully balance the risks of short-term loss and long-term erosion when setting their risk tolerance. This is comprised of ability, willingness and need to take risk:

- Ability to take risk: Consider the institution's time horizon, proportion of total income derived from investments and proportion of long-term assets spent each year, among other factors (see Essential Element 1: Start with why). Enter a stock-bond mix and the possible annual loss, based on the organization's ability to take risk (see Table 3).
- Willingness to take risk: Consider the largest short-term loss that the institution is willing to accept without abandoning the investment plan. Enter a stock-bond mix and the possible annual loss, based on the organization's willingness to take risk (see Table 3).
- Need to take risk: Enter the required annual return or minimum acceptable annual return. This will normally be spending rate plus inflation and investment costs (see Essential Element 1: Start with why).

Institutions assess ability and willingness to take risk as a stock-bond mix, taking the lower of these two values. One hopes that the resulting value, when translated into an expected return, is higher than the institution's need to take risk – the minimum acceptable return required to meet long-term objectives.

Below we provide a rough sense of possible annual losses with different mixes of stocks and bonds. We provide the basis of calculation for this table in the appendix, together with a number of important considerations.

Table 3: Possible annual losses with different mixes of stocks and bonds, in percent

Asset mix	80/20	70/30	60/40	50/50	40/60	30/70	20/80
Possible loss	-25%	-20%	-15%	-10%	-7.5%	-5%	-2.5%

The asset mixes in the above table are identified with stocks first, then bonds (for example, 60/40 indicates 60% stocks and 40% bonds).

Typically, institutions overestimate their risk tolerance. This can occur by not recognizing how losses are actually experienced. An annual loss of 20% with a 70/30 portfolio might sound acceptable if the members of the investment committee were to fall into an enchanted sleep and wake up at the end of the year to see a loss of 20%. Yet the committee members will be all too alert. They will feel the ebbs and flows of the portfolio throughout the year. A 70/30 portfolio could conceivably see a peak loss of 30% within the year and subsequently recover to end the year with a loss of 20%. As losses extend to 30%, however, no one has a crystal ball to indicate that losses have reached their limit and the portfolio will recover. This intra-year loss is how risk is actually experienced. When investors say that they are willing to accept an annual loss of a given percentage level, they should consider whether they are willing to accept an intra-year loss of around 1.5 times that size.

The common practice of expressing losses in percentages can also obscure the feeling of how losses are experienced. Institutions can develop a more accurate sense of their risk tolerance by expressing the figures in dollars as well as percentages. Imagine an institution has $10 million. The investment committee believes it has the ability and willingness to accept an annual loss of 15%. The problem with percentages is that they are abstract. Dollars help to make the situation more vivid. Put this way, the investment committee might baulk at losing $1.5 million and find that they are only willing to lose $1 million. Studies show that risk appetite is usually lower in dollars than in percentages. By using dollars as well as percentages, institutions are likely to set a more realistic risk tolerance.

Conclusion

We have defined risk in relation to objectives and reviewed short-term loss and long-term erosion as two key risks to consider when setting a risk tolerance. If institutions are investing for the long term, why should they still be concerned about short-term losses? Large losses throw investors off their plan. When investors chop and change with their plan, it becomes much more difficult to meet long-term objectives. To reduce this risk, institutions can choose an investment program that aims to limit worst-year losses to an acceptable level, based on an appropriate asset mix. If implemented as part of a thoughtfully designed and governed investment program, then this form of risk management can decrease the likelihood of being thrown off the plan in the short term and increase the likelihood of achieving objectives over the long term – winning by not losing.

Appendix: Risk tolerance

Since risk tolerance should be carefully considered by long-term investors, we provide the basis of calculation for Table 3 in this paper, together with a number of important considerations.

Basis of calculation

Table 3 is based on total index returns in Canadian dollars, for the 29-year period from 1990 to 2018. For any given asset mix, stocks are divided equally between US, international and Canadian markets, while bonds are divided equally between Canadian bonds and Canadian short-term bonds. The indexes are as follows:

- US stocks: S&P 500.
- International stocks: MSCI EAFE.
- Canadian stocks: S&P TSX Capped Composite.
- Canadian bonds: FTSE Canada Universe Bond.
- Canadian short-term bonds: FTSE Canada Short Term Bond.

Index returns can be obtained from the following website:
http://www.ndir.com/cgi-bin/downside_adv.cgi

Below are the stylized annual losses presented in Table 3, followed by the actual annual losses.

Stylized annual losses

Asset mix	80/20	70/30	60/40	50/50	40/60	30/70	20/80
Possible loss	-25%	-20%	-15%	-10%	-7.5%	-5%	-2.5%

Actual annual losses

Asset mix	80/20	70/30	60/40	50/50	40/60	30/70	20/80
Possible loss	-21.3%	-17.7%	-14.1%	-10.5%	-6.9%	-3.3%	-0.7%

Considerations

Possible annual loss is only one aspect of risk. Other aspects of risk include intra-year losses that do not result in an annual loss, losses that are sustained for more than one year or losses that result in the long-term erosion of purchasing power.

Past risk does not predict future risk. Features of the past may be highly specific to the period (such as a bull market for bonds since the early 1980s) and may be very different in the future. Risk may vary by choosing a different period. The table shows different mixes of stocks and bonds. The worst year was 2008 (except for the 20/80 portfolio, whose worst year was 1994). If the analysis were to be conducted from 1990 to 2007, without knowledge of 2008, then this would suggest that risk is significantly lower.

Returns are total index returns and do not account for investment management fees, holding costs or transaction costs.

Index returns assume the immediate reinvestment of distributions.

Returns assume a passive buy-and-hold approach, where an investment manager does not change the portfolio in any way and where institutions hold the asset mix without any regard for market conditions.

Returns assume relatively broad diversification in stocks and bonds. Some institutions hold individual securities, which have greater risk.