

Test yourself. How much can you lose and you still sleep at night?

Investment risk is a possibility that your diversified portfolio declines in value because of economic developments or other events that affect the entire market.

Let's say you invested \$5,000 in a portfolio consisting of a global equity ETF and a 5-year GIC (guaranteed investment certificate). We cannot predict future performance of your portfolio. But we can look many years back and using some math (statistics) establish reasonable expectations.

Our table shows the worst-case loss. The worst case would be if you were careless and unlucky, invested all \$5,000 in one day, and then global equities had the worst-ever time. How to use it?

Let's say you need the money in 5 years (row "5 years") and you chose an aggressive 90% equity portfolio (column "90%"). If things go bad immediately after you made the investment,

- Your loss in year 1 is \$1,470 (intersection of row "1 years" and column "90%"). Your portfolio is now worth \$ 3,530 (5000 minus 1470). Are you still sleeping at night?
- After 5 years your portfolio is a bit better, \$3,946 (a loss of \$1,054 in our table at the intersection of row "5-years" and column "90%"). You needed the money after 5 years - how much did you have to change your plans now that you have less?
- You may have to wait it out for 14 years before you stop seeing losses (orange row), and for 18 years before your portfolio makes more money than if you kept rolling GICs (green row).

If you don't want to risk any losses between now and then, you could consider a portfolio of 40% equity and 60% GIC (column "40%"). In the worst case you would still make some money at 5 years (\$53 in our table at the intersection of row "5 year" and column "40%"). Does that sound better?

Get familiar with this table. It's one way to get used to the concept of investment risk.

	Only GICs					Equity portion in your asset mix						Only equity ETF
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
6 months	\$55	-\$114	-\$284	-\$453	-\$623	-\$792	-\$962	-\$1,131	-\$1,301	-\$1,470	-\$1,640	
1 year	\$140	-\$36	-\$212	-\$388	-\$563	-\$739	-\$915	-\$1,091	-\$1,267	-\$1,443	-\$1,618	
2 years	\$315	\$74	-\$166	-\$406	-\$647	-\$887	-\$1,127	-\$1,368	-\$1,608	-\$1,848	-\$2,089	
3 years	\$504	\$231	-\$41	-\$313	-\$585	-\$857	-\$1,129	-\$1,401	-\$1,673	-\$1,945	-\$2,217	
4 years	\$693	\$455	\$217	-\$22	-\$260	-\$499	-\$737	-\$976	-\$1,214	-\$1,453	-\$1,691	
5 years	\$938	\$717	\$496	\$274	\$53	-\$168	-\$390	-\$611	-\$832	-\$1,054	-\$1,275	
6 years	\$1,146	\$942	\$739	\$535	\$331	\$127	-\$77	-\$281	-\$485	-\$689	-\$892	
7 years	\$1,361	\$1,103	\$844	\$586	\$328	\$69	-\$189	-\$448	-\$706	-\$965	-\$1,223	
8 years	\$1,584	\$1,268	\$951	\$635	\$319	\$2	-\$314	-\$630	-\$947	-\$1,263	-\$1,579	
9 years	\$1,814	\$1,441	\$1,067	\$693	\$319	-\$55	-\$429	-\$803	-\$1,177	-\$1,550	-\$1,924	
10 years	\$2,053	\$1,705	\$1,358	\$1,010	\$663	\$315	-\$32	-\$380	-\$727	-\$1,075	-\$1,422	
11 years	\$2,300	\$1,972	\$1,644	\$1,316	\$988	\$660	\$333	\$5	-\$323	-\$651	-\$979	
12 years	\$2,555	\$2,205	\$1,856	\$1,506	\$1,156	\$806	\$456	\$106	-\$244	-\$594	-\$944	
13 years	\$2,820	\$2,502	\$2,184	\$1,866	\$1,548	\$1,230	\$912	\$594	\$276	-\$42	-\$360	
14 years	\$3,093	\$2,837	\$2,580	\$2,323	\$2,067	\$1,810	\$1,553	\$1,296	\$1,040	\$783	\$526	
15 years	\$3,377	\$3,197	\$3,016	\$2,836	\$2,656	\$2,476	\$2,296	\$2,116	\$1,936	\$1,756	\$1,575	
16 years	\$3,670	\$3,559	\$3,447	\$3,336	\$3,224	\$3,113	\$3,002	\$2,890	\$2,779	\$2,667	\$2,556	
17 years	\$3,973	\$3,937	\$3,901	\$3,864	\$3,828	\$3,792	\$3,755	\$3,719	\$3,683	\$3,647	\$3,610	
18 years	\$4,287	\$4,359	\$4,431	\$4,502	\$4,574	\$4,646	\$4,717	\$4,789	\$4,861	\$4,932	\$5,004	
19 years	\$4,613	\$4,827	\$5,042	\$5,256	\$5,471	\$5,685	\$5,900	\$6,114	\$6,329	\$6,544	\$6,758	
20 years	\$4,949	\$5,175	\$5,400	\$5,626	\$5,852	\$6,077	\$6,303	\$6,529	\$6,754	\$6,980	\$7,206	

Just to be clear. You would not invest if you expected to lose money. Under normal circumstances, your \$5,000 portfolio should perform like our second table.

- The 40% portfolio after 5 years is expected to make \$1,640 (intersection of row “5 years” and column “40%). Your account balance should be \$6,640 (the original \$5,000 plus \$1,640).

	Only GICs				Equity portion in your asset mix								Only equity ETF
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%		
6 months	\$55	\$78	\$100	\$123	\$145	\$168	\$190	\$212	\$235	\$257	\$280		
1 year	\$140	\$181	\$222	\$263	\$304	\$345	\$387	\$428	\$469	\$510	\$551		
2 years	\$315	\$392	\$469	\$546	\$623	\$700	\$777	\$854	\$932	\$1,009	\$1,086		
3 years	\$504	\$631	\$759	\$886	\$1,014	\$1,142	\$1,269	\$1,397	\$1,525	\$1,652	\$1,780		
4 years	\$693	\$869	\$1,046	\$1,222	\$1,398	\$1,574	\$1,750	\$1,926	\$2,102	\$2,278	\$2,454		
5 years	\$938	\$1,114	\$1,289	\$1,464	\$1,640	\$1,815	\$1,990	\$2,166	\$2,341	\$2,516	\$2,691		
6 years	\$1,146	\$1,300	\$1,453	\$1,606	\$1,759	\$1,912	\$2,066	\$2,219	\$2,372	\$2,525	\$2,679		
7 years	\$1,361	\$1,417	\$1,473	\$1,529	\$1,585	\$1,641	\$1,696	\$1,752	\$1,808	\$1,864	\$1,920		
8 years	\$1,584	\$1,687	\$1,790	\$1,893	\$1,997	\$2,100	\$2,203	\$2,306	\$2,409	\$2,512	\$2,615		
9 years	\$1,814	\$1,955	\$2,096	\$2,236	\$2,377	\$2,518	\$2,658	\$2,799	\$2,939	\$3,080	\$3,221		
10 years	\$2,053	\$2,265	\$2,478	\$2,690	\$2,903	\$3,115	\$3,328	\$3,540	\$3,753	\$3,965	\$4,178		
11 years	\$2,300	\$2,589	\$2,878	\$3,166	\$3,455	\$3,744	\$4,033	\$4,322	\$4,611	\$4,900	\$5,188		
12 years	\$2,555	\$2,936	\$3,316	\$3,696	\$4,077	\$4,457	\$4,838	\$5,218	\$5,598	\$5,979	\$6,359		
13 years	\$2,820	\$3,264	\$3,708	\$4,153	\$4,597	\$5,041	\$5,485	\$5,930	\$6,374	\$6,818	\$7,263		
14 years	\$3,093	\$3,462	\$3,830	\$4,198	\$4,566	\$4,935	\$5,303	\$5,671	\$6,039	\$6,407	\$6,776		
15 years	\$3,377	\$3,549	\$3,721	\$3,894	\$4,066	\$4,238	\$4,411	\$4,583	\$4,755	\$4,928	\$5,100		
16 years	\$3,670	\$3,859	\$4,048	\$4,237	\$4,427	\$4,616	\$4,805	\$4,994	\$5,183	\$5,373	\$5,562		
17 years	\$3,973	\$4,212	\$4,451	\$4,689	\$4,928	\$5,167	\$5,405	\$5,644	\$5,883	\$6,121	\$6,360		
18 years	\$4,287	\$4,679	\$5,071	\$5,462	\$5,854	\$6,245	\$6,637	\$7,028	\$7,420	\$7,811	\$8,203		
19 years	\$4,613	\$5,166	\$5,719	\$6,272	\$6,826	\$7,379	\$7,932	\$8,486	\$9,039	\$9,592	\$10,145		
20 years	\$4,949	\$5,601	\$6,253	\$6,905	\$7,556	\$8,208	\$8,860	\$9,512	\$10,164	\$10,816	\$11,467		

How did we calculate these numbers? If you really want to know...

For GICs, we researched current rates. On July 28, 2018 we found a 6-month GIC offering a 2.25% rate, 2.80% for a 1-year GIC, etc. A 5-year GIC rate was 3.50%. After that, we assumed you’d roll 5-year GICs at the same rate (if interest rates rise, the rate will be higher, and if they fall, lower).

- We use GICs rather than a bond ETF because with GICs you know exactly how much money you’ll get back when it matures. Not so with bond ETFs that need to be sold in the market - at whatever price they trade. In addition, when we prepared the table, 5-year GIC rates were higher than the yield on Canadian bond ETFs.

For equities, you don’t know in advance what the result will be. To deal with this problem, people look at past performance and estimate what the future might look like - but you need to consider a really long history to avoid misleading estimates.

- The MSCI ACWI index, used by many global equity ETFs, has 30 years of history - so that’s what we used. The index is in US dollars so we found 30 years of exchange rate data and translated US dollars into Canadian dollars. Historical data for the index is publicly available on Yahoo Finance, and for the currency exchange rate on the Bank of Canada website.
- We used the 30 years of data to calculate returns on the index for each 6-month period, 1-year period, 2-year period, etc. Then we found the worst and average result (specifically, the median, which means that it’s right in the middle) for each time horizon.