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Kieran Gibson- Financial Planning Report

Projections:

The model provided by Kieran had fixed values to determine his annual portfolio growth, salary growth, earnings, and new investment. The fixed salary growth rate of 6% over the next 20 years would've grown Kieran's portfolio to $807,300, just shy of his goal. After pinpointing his estimated earnings after 20 years goal seek was used to determine that Kieran would need to have an annual salary growth rate of 9.62% in order to reach his goal of $1,000,000 by the time he is 60. This is assuming the other constant growth rates of 6% per new investment and a 10% portfolio growth annually. The table mapping out Kieran's estimated financial model is included below with all constant variables and an investment rate of 9.62%.

Year	Beginning Balance	Salary	New Investment	Earnings	Ending Balance	Age
1	55000	85150	8187.052062	5909	69096	41
2	69096	90259	5364	7178	81638	42
3	81638	95675	5633	8445	95717	43
4	95717	101415	5914	9867	111498	44
5	111498	107500	6210	11460	129168	45
6	129168	113950	10956	13465	153589	46
7	153589	120787	11613	15940	181142	47
8	181142	128034	12310	18730	212182	48
9	212182	135716	13049	21871	247102	49
10	247102	143859	13832	25402	286336	50
11	286336	152491	14662	29367	330364	51
12	330364	161640	15541	33813	379719	52
13	379719	171339	16474	38796	434988	53
14	434988	181619	17462	44372	496823	54
15	496823	192516	18510	50608	565941	55
16	565941	204067	19621	57575	643137	56
17	643137	216311	20798	65354	729288	57
18	729288	229290	22046	74031	825365	58
19	825365	243047	23369	83705	932439	59
20	932439	257630	24771	94482	1051692	60

Simulations:

To account for the variability amongst salary growth rates, portfolio growth rates, and varying investment strategies the accountant of Kieran's company determined a portfolio growth rate of 9.85% with a standard deviation of 4.9%. They also determined a salary growth rate range from 0 to 5.1% growth. After implementing variability 1000 simulations were run to determine the probability of Kieran reaching his financial goal. The simulations showed that there would be a between 56%-60% chance of Kieran not reaching his goal after 20 years. This means that after 1000 simulations the majority of cases showed final earnings that were less than $1,000,000. Included below is the simulation run for 25 years including the variability of salary growth rate and portfolio growth rate.

simulation	Ending Balance	Under $1000000: 577
1	796764	P(<10000000): 0.577
2	684435.6304	
3	496398.9327	

4	1908000.826	Over $1000000:	423
5	1113586.036	P(>1000000):	0.423
6	1205872.753		
7	592633.313		
8	1659817.235		
9	3376142.715		
10	1767955.892		
1000	823203.4443		

Recommendations:

The standard recommendation for anyone within Kieran's respective financial level would be to work a few years longer in their career. The simulation ran for the same respective growth variables over a span of 25 years showed an increase in the probability that they would reach their goal.

Simulation (25 years)	Ending Balance		
1	1327545	Under $1000000:	298
2	377531.6349	P(<10000000)	0.298
3	2057338.728		
4	924350.0298	Over $1000000	702
5	984107.6602	P(>1000000)	0.702
6	2245619.849		
7	952366.7591		
8	711366.6273		
9	840045.2231		
10	1431977.766		
1000	1621295.082		

From the simulation where retirement is postponed a few years the number of simulations ran where ending earnings were above Kieran's goal was much more significant. The range in this simulation was from 67% to 71% above or equal to the goal. Therefore, working for a few years longer would help financial stability by the time retirement comes around. This paired with increasing new investment percentages annually has more growth capital during the years where salary growth is at 0%.

Scalability:

Kieran's proposed model can indeed be used for any employee with similar financial circumstances and or a similar financial model. This can be done with both ranges for variable growth rates for simulation values, and by adjusting those variable growth values to be accurate to that specific model. The Model will then change depending on the inputs by the user. However, if the employee wanted to project past 25 years this model would then need to

be extended. If that employee would like to predict their earnings within that frame than they can enter the data specific to them and let the model run.