Corporate Finance Progress Test
Week 4

1) You estimate the following cash flows from buying, maintaining and selling two different old cars. Which one is the better choice if bank interest rates are 10%?

Cash flow ($)		
Time	Toyota Camry	Holden Commodore
0	-1800	-3500
1	-500	-400
2	-500	-400
3	-500	-400
4	-500	-400
5	+50	-400
6		-400
7		+1500

Answer:
NPV(toyota cashflows) = -1800 – 500/0.1 * (1 – 1/((1+0.1)^4)) + 50/((1+0.1)^5)
= -3353.90
NPV(holden cashflows) = -3500 – 400/0.1 * (1 – 1/((1+0.1)^6)) + 1500/((1+0.1)^7)
= -4472.40
To find the equivalent annual cost,
For the Toyota:
-3353.90 = C / 0.1 * (1-1/((1+0.1)^5))
C_{Toyota} = -884.75

For the Holden:
-4472.40 = C / 0.1 * (1-1/((1+0.1)^7))
C_{Holden} = -918.65

Therefore the Toyota has the lowest equivalent annual cost, so buy it.

2) A poor student of corporate finance has $100 in the bank and wants to consume twice as much now as he does in one year's time, with no money left over. The bank offers an interest rate of 10% p.a.. How much can the poor (but clever) student consume at each time?

Answer:
Let c_0 be consumption at t = 0, and c_1 at t=1;
$(100 – c_0)*(1+0.1)^1 = c_1$
$c_0 = 2c_1$
$(100 – 2c_1)*(1+0.1)^1 = c_1$
$3.2*c_1 = 110$
$c_1 = 34.375$
$c_0 = 2*34.375$
= 68.75