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Annual Cost of Ownership

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Article citation:
[Gaffney, Mason]. "Annual Cost of Ownership." N.d. Study guide.

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Annual Cost of Ownership

$a = [P-RI^{-n}]\cdot IPF = P\cdot IPF - R\cdot SFF$

$a/P = IPF - [R/P]\cdot SFF$

Table 1: Values of a/P for i = .06

n	R/P=	0.0	.2	.4	.6	1.0	2.0	4.0
4		.289	.243	.198	.152	.06	-.168	-.625
8		.161	.141	.121	.100	.06	-.041	-.243
16		.099	.091	.083	.076	.06	.021	-.057
32		.071	.069	.067	.064	.06	.049	.027

Major points from Table 1:
1. When R=0, a/P = IPF
2. When R=P, a/P = i
3. For high n, a/P not very sensitive to R;
   for low n, a/P is very sensitive to R.
4. For high R, a/P even becomes negative, except for highest n.
5. Table lacks values for negative R; Tables 2&3 remedy this.

Let's try another value of i, and note the difference it makes.

Table 2: Values of a/P for i=.03

n	R/P=	-2.0	-1.0	0.0	.4	1.0	2.0
4		.747	.508	.269	.173	.03	-.209
8		.367	.254	.142	.097	.03	-.083
16		.179	.130	.080	.060	.03	-.019
32		.087	.068	.049	.041	.03	.011

Major new points comparing Table 2 with Table 1:
1. a/P is insensitive to i when n=4 and R is low.
2. a/P is very sensitive to i when n=32 and R is high. For example, when R/P = 2.0, a/P falls from .049 to .011. .011 is just 22% of .049.

Now let us compare values over a wider range of interest rates.

Table 3: Values of a/P for n=32

i	R/P=	-2.0	-1.0	0.0	.4	1.0	2.0
.03		.087	.068	.049	.041	.03	.011
.06		.093	.082	.071	.067	.06	.049
.12		.130	.126	.123	.122	.120	.116
.18		.183	.182	.181	.181	.18	.179

1. For i=.18, and R/P=2, a is 16 times higher than for i=.03. Advantage of having funds at lower i is overwhelming.
2. For i=.18, R/P doesn't matter; for i=.03, it means a lot.