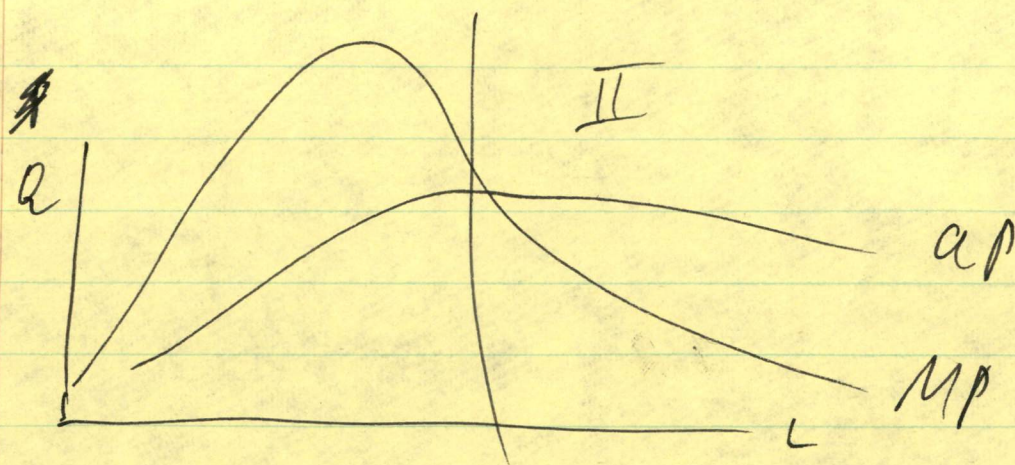


Ec. 162, misc.



In St. II, an $X\%$ ΔL yields less than
 $X\%$ ΔQ .

This is evident from the input logic;
 thus leads to ϵ of prodn.

Mgmt. Ecs. e.g.

Varshitt on Robots, p. 74

~~78~~

~~4~~

~~52~~

$$K_0 = \$50,000$$

$$n = 8 \text{ yrs.}$$

$$16 \text{ hrs/day} \times 365 \times 8 = 46,720 \text{ hrs.}$$

Not clear how he gets to \$5/hr.

$$\text{Wrong way wd. be } 50,000 / 46,720 = \$1.07/\text{hr.}$$

cf. w. right way.

a. Rt. way to find cost/hr -- it will vary over life. (but can be levelized)

b. Life-cycle comparisons. Must use DCF, or level cost, if approp.

a. Annual cost is Int + Deprec.

$$\text{c.r.f.} = \frac{i}{1 - 1.0i^{-n}}$$

$$\text{w/o } i, \text{ annual cost} = K \cdot \frac{1}{n} = 12\frac{1}{2}\% K$$

$$\text{w. } i = .12, \text{ c.r.f.} = 20.1\%, \text{ or } 61\% \text{ higher.}$$

If deprec. is s.l., then cost is higher in 1st yr.
 $.12 + .125 = 24.5\%$

Many e.g. for students here. Cost/units e.g.

2

Cost of ownership $\approx K(\frac{1}{n} + i)$, yr. 1. an easy form for intro. exposition.

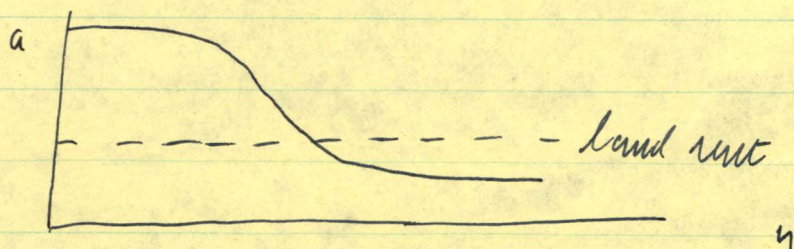
But unrecovered K drops. So another easy step is to take its mean value at $\frac{1}{2} K$. Then, levelized cost is $= K(\frac{1}{n} + \frac{i}{2})$

This gives too low a value, esp. for $n = 100$, etc. Another good exercise.

What is cost of o'ship when you recover K and asset still has ec. life?

Deprec. & decay

Actual decay rates probably look so:



a. The tail is due to land.
Subtract rent from a , leverage the curve.
Brodz.

b. Math approx.

1st half of curve is $a_n = \frac{a_0}{k} \frac{1 - 1.0i^{-(l-n)}}{i}$

$$k = \frac{1 - 1.0i^{-l}}{i}$$

$$\text{But } \frac{\frac{1 - 1.0i^{-(l-n)}}{i}}{\frac{1 - 1.0i^{-l}}{i}} = \frac{1 - 1.0i^{-(l-n)}}{1 - 1.0i^{-l}}$$

$$\therefore a_n = \frac{1 - 1.0i^{-(l-n)}}{1 - 1.0i^{-l}}$$

Brodz.

Idea.

If we depend on SL basis, $\sum d = C_0$
But $\sum [d_n (1+i)^{n-n}] > C_0$, it enough to replace
at higher price level.

Ec. 162

1. 2d mortgage credit lines now available.
Flexible, unlike traditional mortgage.

say you can pay 1500/mo. ~~can~~ Must amortize
over 5 yrs., can borrow 59k. If can borrow w/o
amortizing, can borrow 100,000. P/E. 10/15/83, C-1 + C-2.

2. New tax law, 15 yr. write-off, ~~it~~ applies to
resold v.e. as well.

Problem: how much more wd. you bid for
v.e. due to 15-yr. write-off. (say it was
previously 35 yrs.)

$$PV = B \frac{1}{n} \frac{1 - 1.0r^{-n}}{r}$$

TAX BENEFITS 1980 AVOCADO GROVES

20-Acre grove, 2200 trees '74

Price \$330,000, down \$120,000.

Add'l. Cash credit '80, \$55,000

Investment tax credit '80, \$70,000.

Add'l. tax deductions '80, \$70,000.

Principals only 714/728-5055

The Roger Peterson Co., Fallbrook

DO YOU PASS UP 7 1/2%

investors have been waiting
for. Ideal for individuals or
pension/profit sharing
plans. Available to
California residents only.
or call for

Leveraged buyouts generate big depreciation writeoffs

BY RANDALL SMITH
Wall Street Journal

To the unsophisticated investor, the leveraged buyout might seem to be just jargon for minting money. By purchasing an operating company with loans secured by the company's own assets, a buyer puts up little cash of his own and stands to profit handsomely.

Former Treasury Secretary William E. Simon and his partners showed how it's done early last year when they bought Gibson Greeting Cards Inc. from RCA Corp. for \$80 million. The Simon group put up only \$1 million of its own money; Gibson has since been valued at \$290 million.

So it's hardly surprising that leveraged buyouts are on the rise. Nobody keeps precise statistics on their occurrence, but W.T. Grimm & Co., the Chicago merger consultant, says that 97 units of public companies were sold to management in the first eight months this year, compared with 115 for all of 1982 and 47 in 1980. And public companies that went private totaled 23 through August, compared with 33 in all of 1982 and 13 in 1980. Most of these transactions were leveraged buyouts, Grimm says.

The idea of buying something of value with little cash down has its obvious appeal. But also contributing to the attractiveness of leveraged buyouts is the opportunity

to generate big tax writeoffs.

When a company, or part of one, changes hands, the book value of its assets typically increases to reflect the purchase price. The higher book value in turn increases the depreciation tax deductions that can be taken to account for the cost of the assets. (With the passage of the 1981 tax act, depreciation rates roughly doubled, further fattening the deductions for new owners.)

"If you were to look at all the leveraged buyouts in the last few years, you'd find that there were significant tax advantages created by the step-up in basis and increase in depreciation. I think it's an important factor in most of them," says Enrique Senior, a partner at Allen & Co., an investment banking firm which has engineered numerous buyouts.

As an example, take a factory built in 1970 at a cost of \$5 million. If its useful life was 30 years under the old tax law, its cost could have been deducted from the owner's taxes at the rate of \$166,667 a year. By 1983, its book value would have been written down to \$3 million.

Now suppose that the company owning the factory is sold in a leveraged buyout at a price that values the factory at \$15 million. The new owner can ordinarily deduct the \$15 million "cost" of the factory under the new, faster 15-

year depreciation schedule. The annual deduction in this example: \$1 million, or six times the old deduction.

The new owner can either take the deduction himself or sell it to a tax-shelter partnership through a sale-leaseback with the partnership leasing the factory back to the owner.

That way, the tax shelter gets the depreciation-tax deduction but the seller retains the use of the factory. In the Gibson deal, for example, the Simon group borrowed \$46 million of the \$80 million purchase price against Gibson's equipment, inventory and receivables. It raised the remaining \$33 million it needed with a sale-leaseback of Gibson's three factory-warehouses to W.P. Carey & Co., a tax-shelter company.

Before the buyout, notes George F. Stoddard, Carey's finance committee chairman, the Gibson property had a book value of about \$18.7 million. Under a 50-year depreciation schedule, it was generating annual tax deductions of about \$500,000. After the buyout, the same property's book value rose to about \$35 million, and under the new 15-year depreciation schedule of the 1981 tax act, its annual deduction soared to about \$2.3 million.

Wallner & Co., La Jolla, has used the leveraged buyout to ac-

quire 10 companies, including the \$62.5 million acquisition last year of Foremost Dairies from Foremost-McKesson Inc. Operating

partner Terry Greve says the book value of the Foremost Dairies real estate was increased to \$28 million from \$11 million.

Greve says that Wallner doesn't plan an acquisition around the tax benefits, but it makes every effort to take advantage of them.

Mason Gaffney
3040 Tyler Street
Riverside, CA 92503

August 6, 1984

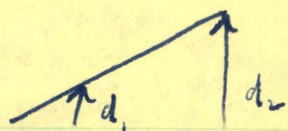
President Peter Meincke
University of P.E.I.
Charlottetown, P.E.I.

Dear President Meincke:

Through Mrs. Bel Nemetz I learned of your address to the Vancouver Institute, "Small is Profitable." The title is transparently tendentious, which is why I am writing to request a copy, since that is my tendency also. I would hope to make use of this in my fall course in Managerial Economics, where I devote some time to searching for (and generally failing to find) the causes of economies of scale.

Sincerely,

cc: Bel Nemetz



$$d_1 F_1 = d_2 F_2$$

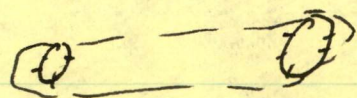
$$F_1 = F_2 \frac{d_2}{d_1}$$

$$\frac{d_2}{d_1} = \frac{x_2}{x_1}$$

$$Vel. = \frac{d}{s}$$

$$\frac{V_2}{V_1} = \frac{d_2/s}{d_1/s} = \frac{d_2}{d_1}$$

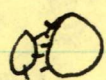
1.



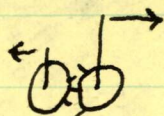
Bike chain + leverage.

2.

Any gear + leverage

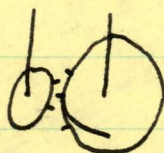


a. 2 gears of same size



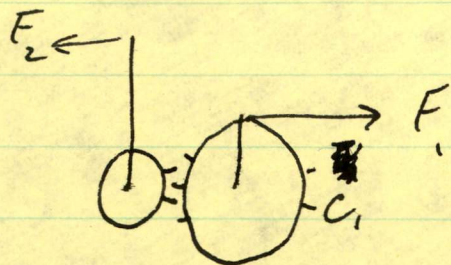
The gear mesh reverses the direction. ~~#~~
Leverage depends on the arms.

b. Arms of same length; gears different



Leverage depends on diameter, which is
part of the arm.

c. Arms + gears both different



$C_1 = \text{Circ. of } 1$

$C_1 = \text{distance moved by } F_1, \text{ the work-effort}$

$$d_2 = 4 \cdot C_2 \cdot R_2$$

$R_2 = \text{rotations of } G_2$

$$R_2 = 2 R_1$$

$$d_2 = 4 \cdot C_2 \cdot 2 R_1 = 4 \cdot \frac{1}{2} C_1 \cdot 2 R_2 = 2 C_1 \cdot 2 R_2$$

$$= 4 C_1 R_2 = 4 C_1 \text{ when } R_2 = 1$$

Now generalize,

Eqs. for ecs. trade-offs, etc.

1. Dynamics (kinematics)

2. Thermodynamics

a. Kinetic-molecular theory of gases

$$PV = kT$$

where

P = Pressure

V = Volume

T = absolute Temp.

b. Gas laws

Boyle's

Charles's

Gay-Lussac's

3. Electrodynamics

Ref. Words

Mechanics

Force

Motion $d = vt$; $d = v_0 t + \frac{1}{2} a t^2$; $F = Ma$

Acceleration

Momentum = Mass · Veloc. = MV

Energy

Hydraulics

Thermodynamics

Electrodynamics

Newton's laws

Ohm

Ampere

Voltage

Venturi

Leverage

x Conservation ^{Laws} ~~of Energy~~. $M_1 V_1 = M_2 V_2$

Gravitation

Lever

1. Static, principle of moments

$$D_1 F_1 = D_2 F_2 \quad \text{in equilibrium}$$

D = moment-arm (~~effort-arm, lever-arm~~)

F = Force (e.g. weight)

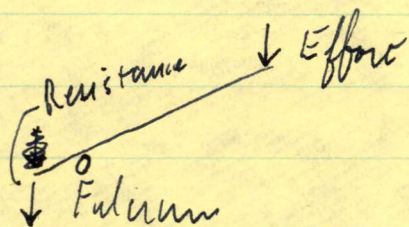
$$D_i F_i \equiv \text{Moment of } F_i$$

The moment-arm from ~~axis~~ operator's hands to the fulcrum is the effort-arm (or lever-arm).

The moment-arm from fulcrum to the resistance is the resistance-arm.

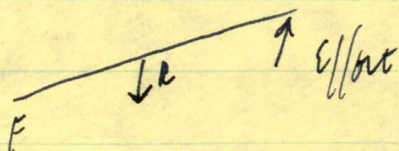
Lever Class

First:



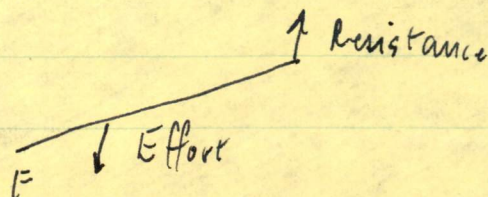
Crowbar

2nd:



Wheel barrow

3rd:



Tongs; fly swatter; fishing rod

Mgrd Ecs.

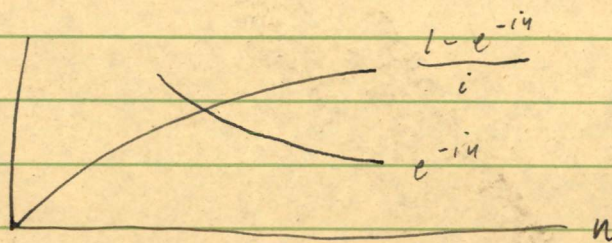
Investment (dear, 3/16/80)

1. Short term is still $>$ long term.
So, invest short. I don't expect rates to fall.
But 6 mos. rate slightly $>$ 3 mos. rate.

2. a) 2% on Fed Trust 2 yr. maturity.
Rancho B. Inv. Group, 714-485-9290
But the broker gets "8 points" or more!

- b) The 2% is "14% Disc. + 12% int."
Due 2 yrs.

3.
$$PV = c \frac{1 - e^{-in}}{i} + e^{-in} \times P \quad \text{where } P = \text{Par}$$



The lower the coupon rate, $\frac{c}{P}$, the greater the discount, & the more yr. inc. ~~it~~ consists of deferred cap. gain.

If $c/P = 0$, all is cap. gain.

So, my
$$PV = c(1-\tau) \frac{1 - e^{-in}}{i} + P e^{-in} (1 - .4\tau)$$

Published IRR or YTM do not generally show this effect. Work out usable table.

4 2090 6 mo. notes Trust Seeds 213-641-0840,
Ste. Anna.

5 Moss.
Rancho Props. Aial 714-960-6200

6 3/4 a. indh. sites, Ont. Aigto. 955-1010