Taxes

Goals

- Simplified Introduction to taxes
- How taxes interact with how a firm is organized, e.g., sole proprietorship vs C-Corp, etc.
- Depreciation recapture when assets are sold for other than book value.
- Effects of taxes on incentives to replace assets.
- Effects of taxes on incentives to borrow money.

Taxes are a specialist area

- The statutes (US Code) http://uscode.house.gov/browse/prelim@title26&edition=prelim
- The regulations (US CFRs) https://www.ecfr.gov/cgi-bin/text-idx?SID=53e8b2eb097e4352766122db08d0c572&mc=true&tpl=/ecfrbrowse/Title26/26tab_02.tpl
- There is also a mass of case law on taxes.

We take a simplified approach that is appropriate for first pass estimate of cash flow. In real life, that one box takes as much effort as revenue and cost estimates.

The Legal Structure

You have a few basic choices for how to legally organize a business:

- Sole Proprietorship
  - Simple to do
  - A few bucks to get a fictitious name.
- Partnership
  - Can be handshake
  - Should not be a handshake
- Corporation
  - Two main types
    - C Corp
    - S Corp
  - Lots of paperwork
- LLC/LLP – Both are crosses between Corporation and Partnership
  - Less paperwork than corp
  - About the same as well organized partnership.

Tax Treatment

Most of these pass through income to be taxed at the individual rate of the person who earned the money.

Corporations have a separate income tax that must be paid. Dividends granted to shareholder are then taxed again as the shareholders income.

- $1000 in taxable earnings
- -$300 in corporate tax
- $700 distributed as dividends
- $700 in dividend earning
- -$245 in personal tax
- Net to individual $455

Just a Few Warnings

- I will try to stay out of the politics.
- Economists give lots of "second-best" solutions since the best is politically impossible.

New Tax Law

Gives a 20% discount to pass through income, i.e., income not taxed at business level but passed through to you at the personal level.

There are some limitations based on:

- Business salaries
- Business investments

Set the Federal corporate tax rate to 21%

This Reform Was . . . odd

- The last major tax reform was 1986.
  - That reform passed in the Senate 97-3
    - Truly bipartisan
    - Revenue neutral simplification
    - Reduction in rates.
- This was a party line vote.
- Without support from both major parties, it creates uncertainty about future rates.
  - More likely that there will be changes if either house flips.
  - May actually stifle the positive effects.
  - Makes it hard to round support for fixes.

Some Principles of Taxation

- Higher taxes on what you don't want and lower taxes, or subsidies, on what you don't want.
  - So treat labor income and capital income the same or you will see gaming to reduce taxes.
  - Treat foreign and domestic earnings the same or, again, gaming to reduce rates.
- Discourage gaming of where you book income.

The new rules violate principles

- Lower rate on capital earnings than labor.
- Lower rate on foreign business earnings than domestic.
- Fun things with pass through income will encourage some creative accounting.
  - Lawyers generally don't get the reduction in pass through.
  - If, the form a law group and an intellectual property group.
  - The law group gets no pass through reduction but if they pay the intellectual property group, almost, all those gains for using the intellectual property – they can.

Why you want to be "double taxed"?

If you don't intend to take money out of the business (Grow it).

- Corporate taxes tend to be lower than individual taxes
- If you don't issue dividends the money only faces the corporate tax and not the individual tax.

This is very similar to how there is a tax reducing way to give money to your children when you have a business.

- Give the money through the most tax friendly channel.
- For the child case:
  - Don't give the money directly, after you paid high taxes.
  - Give it as pay, taxed at the child's lower rate.

Growing a Small Business

- Sole Proprietorship
  - 1000 taxable income
  - Less 350 personal tax
  - 650 to grow the business
- Corporation
  - 1000 taxable income
  - Less 210 corporate tax (The Federal rate)
  - 790 to grow the business

Protection of Personal Assets

- SP and Partnerships mingle personal and business assets.
  - (SP) If you do something stupid, they take your house.
  - (Partnership) If your *partner* does something stupid, they take *your* house.
- Corporations, LLCs, provide the most protection
  - But there are ways to "pierce the corporate veil" to go after officers assets.
  - Strength of these laws depends on the state.

More protection often comes with more paperwork and in the case of C-Corps, a new level of taxes. LLC/LLP are often subject to taxes that Partnerships and SP are not.

Small Business Consideration

Benefits: insurance, retirement, medical

- Very specialized area that changes from year-to-year.
- Some are only SP and LLC some only Partnerships and C-Corps
- There is a whole industry developed around being experts in these rules and providing services, Heath and Benefits Brokerages.

Don’t Feel Trapped

You can change forms of organization from time to time.

In this class

We will treat taxes as a simple percent.

- Clearly, we are hiding a lot of complexity.
- What we are doing is the equivalent of making "rough cash flow estimate".
  - Semi-rough and Detailed are much more work.
  - For those, the economists, engineers and MBA types will work separately in specialist areas and then assemble at the end.

In this class:

- You will be given a rate, e.g., 30%. Like asking accounting what assumed rate to use.
- Use a rule of thumb rate, i.e, 40%. Covers most income correlated taxes.

Tax Incentives to Replace Assets

- Only business have depreciation expenses
- Only business see decreases in taxes because they buy assets.
- They have greater financial incentives to replace existing assets than households do.

Recall the Depreciation of a Car we did before

Table 1:

Year	Personal	Depreciation
1	-10, 000	2, 000
2	0	3, 200
3	0	1, 920
4	0	1, 152
5	0	1, 152
6	0	576

Add Taxes

Depreciation is an expense, which reduces taxable income and taxes. Assume a 40% combined tax rate.

Table 2:

Year	Personal	Depreciation	TaxSave	AfterTax
1	-10,000	2,000	800	-9,200
2	0	3,200	1,280	1,280
3	0	1,920	768	768
4	0	1,152	461	461
5	0	1,152	461	461
6	0	576	230	230

Businesses have lower negative cash flow at purchase and positive thereafter.

Interpretation

Suppose you were deciding to replace an existing car with a new one that had the same, maintenance, fuel and other costs.

- From a personal finance point of view, you would need to find \$10,000 in non-financial benefits, e.g., a sunroof, to justify replacing it.
- From a business point of view you only need, $PW(AfterTax|MARR = 10\%) = \$6,597.65$

This is why you often have newer equipment on the job site than at home.

Tax Incentives to Borrow

- With a few exceptions, i.e., mortgage and student loans, only business reduce taxable income with interest expenses.
- They have greater financial incentives to borrow money than households do.

Consider the Following Loan

Table 3:

Time	Payment	Interest	Principal	Balance
0	0	0	0	10,000
1	2,638	1,000	1,638	8,362
2	2,638	836	1,802	6,560
3	2,638	656	1,982	4,578
4	2,638	458	2,180	2,398
5	2,638	240	2,398	0

A household would look at the PW of the payments to evaluate if it was a good loan for them.

Business Point of View

Table 4:

Time	Payment	Interest	TaxSavings	AfterTax
0	0	0	0	0
1	2,638	1,000	400	2,238
2	2,638	836	334	2,303
3	2,638	656	262	2,376
4	2,638	458	183	2,455
5	2,638	240	96	2,542

See the advantage?

Businesses will Borrow When Individuals would not

The tax advantages mean that businesses will often borrow at a higher rate than MARR.

- MARR can be thought of as an after tax interest rate.
- Interest on loans is pre-tax for businesses.
- Quick rule of thumb if $\mathit{Loan\ Rate}(1 - c) < \mathit{MARR}$, take the loan
  - Approximation only works with moderate interest rates
  - Longish loan periods.

Summary of Incentives

Because businesses have ways of reducing taxable income that households do not, they do things differently than households.

- Asset replacement
  - Households have a bigger leap to warrant replacement.
  - Because households can't take depreciation expenses off of taxable income.
- Loans
  - Households tolerate lower interest rates on loans
  - Because households can't take interest expense off taxable income.

Back to How Depreciation Works

- Remember we never addressed what happens when you sell an asset for something other than book value?
- There is a process of truing up called, "depreciation recapture" that results in a gains tax.

Warnings:

- There is a different treatment for different kinds of gains in personal taxes
  - Ordinary Gains – Selling asset for more than book value but less than cost basis.
  - Capital Gains – Selling asset for more than cost basis.
  - Long-term Capital – Selling asset for more than cost basis but after more than a year.
- We only handle corporate taxes here, where the rates are all the same. Consult a financial planner for personal.

Business Income Taxes

Business taxes tend to be "trued up" over time.

- If you run a loss one year, you can get some of the taxes you paid in previous years back.
- If you run a big enough loss, you can get all the taxes back for the last few years and use the rest to reduce future taxes. Rules are detailed.
- Ordinary and Capital losses are treated differently. There are differences on what losses can be applied to and for how long.

Similar truing up is done with assets sold for something other than book value.

- Treated as ordinary gains and is taxed.
- Warning, technical area.
- I show basics for beginners.

Return of the Car

Same as before with 40% tax rate.

Table 5:

Year	Personal	Depreciation	TaxSave	AfterTax
1	-10, 000	2, 000	800	-9, 200
2	0	3, 200	1, 280	1, 280
3	0	1, 920	768	768
4	0	1, 152	461	461
5	0	1, 152	461	461
6	0	576	230	230

Book value is zero in time 7. We are going to sell it for $1,000 in time 7.

Sell it for $1,000 in period 7

Book Value was zero so $1,000 is more than the zero book value and you must pay 40% tax on the gain.

Table 6:

Year	Personal	AfterTax	GainsTax	NetCash
1	-10,000	-9,200	0	-9,200
2	0	1,280	0	1,280
3	0	768	0	768
4	0	461	0	461
5	0	461	0	461
6	0	230	0	230
7	1,000	0	400	600

Try Selling for Other than Book Value in time 4

Table 7:

Year	MACRS	Depreciation	BookValue
1	0.200	2,000	8,000
2	0.320	3,200	4,800
3	0.192	1,920	2,880
4	0.058	576	2,304

Aim for for sale for more than book value, $5,000, and less than book value, $1,000.

Sell for $5,000, i.e., more than book

Table 8:

Year	Depreciation	BookValue	PreTax
1	$2,000$	$8,000$	-$10,000$
2	$3,200$	$4,800$	0
3	$1,920$	$2,880$	0
4	576	$2,304$	$5,000$

$$Gains\ \ Tax = (Salvage - Book\ \ Value)Tax\ \ Rate$$

Net Cash Flow With Gains Tax

Table 9:

Year	PreTax	AfterTax	GainsTax	NetCash
1	-10,000	-9,200	0	-9,200
2	0	1,280	0	1,280
3	0	768	0	768
4	5,000	5,230.400	1,078.400	4,152

You pay tax when you sell for more than book value.

Sell for $1,000, i.e., less than book

Table 10:

Year	Depreciation	BookValue	PreTax
1	2,000	8,000	-10,000
2	3,200	4,800	0
3	1,920	2,880	0
4	576	2,304	1,000

$$Gains\ Tax = (Salvage - Book\ Value)Tax\ Rate$$

Net Cash Flow With Gains Tax

Table 11:

Year	PreTax	AfterTax	GainsTax	NetCash
1	-10,000	-9,200	0	-9,200
2	0	1,280	0	1,280
3	0	768	0	768
4	1,000	1,230.400	-521.600	1,752

You get money back when you sell for less than book value.

A View on Gains Tax

- You will have an undiscounted sum of tax savings equal to the the difference between the cost basis and actual salvage value.
- Understatement of depreciation, almost always the case, give business a zero interest loan from the government.
- Overstatement, give the government a zero interest loan from the business.

Extreme Depreciation

Section 179 Depreciation (26 U.S.C. §179)

- Allows you to expense some kinds of property, i.e., fully depreciate it when you buy it.
- Dollar and type limitations.
- Explains the "Hummer Plague" of the early 2000s.

The Hummer Plague

- Starting in about 2004 Hummers were showing up everywhere.
- Why?
  - They were heavy, which eliminated the limitation on depreciation of cars.
  - This is why the cars are always cheap in this class, there is limited depreciation (26 U.S. Code §280F)
  - 2003 Congress increased the limits on Section 179 a lot.

Businesses saw a “luxury” vehicle they could expense in one year.

The Hummer Plague Start

Table 12:

Year	Personal	Depreciation	TaxSave	AfterTax
1	-104, 000	104, 000	41, 600	-62, 400
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0

Looks like a Hummer for, roughly, half price at 40% tax rate.

But Hummers Are Impractical

- 6 MPG
- Can't park downtown
- People key your car and pop your tires
- Gas prices

So, they sold them

Table 13:

Year	Depreciation	BookValue	PreTax
1	$104,000$	0	-$104,000$
2	0	0	0
3	0	0	0
4	0	0	$40,000$

And took a massive tax hit

The hit was because the book value was zero after the first year.

Table 14:

Year	PreTax	AfterTax	GainsTax	NetCash
1	-104,000	-62,400	0	-62,400
2	0	0	0	0
3	0	0	0	0
4	40,000	40,000	16,000	24,000

And then they vanished

- Poof, just like that.
- My wife reported that she saw a lot of them in Bakersfield, if you want to see one in the wild.

Summary

- Very simple treatment of tax effects
- Expert area but you know enough for a rough cash flow projection.
- Effects:
  - More likely to replace
  - More likely to borrow
- Next we will put all this information into a form that others can read and understand, Income/Cash Flow form.