

The accounting equation

Mr. Smith's manufacturing company: a story

Transaction 1

Asset	10.000	Capital	10.000
-------	--------	---------	--------

Transaction 2 (€ 500 monthly rent)

Asset	9.500	Capital	9.500
-------	-------	---------	-------

Transaction 3 (€ 2.000 equipment purchase)

Bank	9.500	Capital	9.500
Equipment	2.000	Liability	2.000

The accounting equation

Transaction 4 (€ 200 salary)

Bank	9.300	Capital	9.300
Equipment	2.000	Liability	2.000

Transaction 5 (€ 1.500 revenue; € 1.400 cash)

Bank	10.700	Capital	10.800
Equipment	2.000	Liability	2.000
Debtor	100		

Transaction 6 (Mr. Smith's personal withdraw €400)

Bank	10.300	Capital	10.400
Equipment	2.000	Liability	2.000
Debtor	100		

Making life easy

- Mr. Smith draws up a business balance after each transaction.....that's expensive!
1. How to calculate the effects of successive transactions in terms of the profit they have generated (In order to explain the increase in the capital prior to the withdrawal - from 10.000 to 10.800):

September <i>profit and loss account</i>			
REVENUE		€	1.500
rent	€	500	
salaries	€	200	
EXPENSES		€	<u>700</u>
NET PROFIT		€	800

Making life easy

2. How to portray the owner's investment (from 10.000 to 10.400):

30 September *capital account*

INVESTED CAPITAL (1 st Sept.)	€	10.000
NET PROFIT (Sept.)	€	800
DRAWINGS (Sept.)	€	400
BALANCE (30 th Sept.)	€	10.400

3. How to avoid drawing a balance sheet after each transaction: double-entry bookkeeping; an account is designed for each accounting item:

cash *TO* *capital* € 10.000

Mr. Smith's business recorded through double-entry bookkeeping

Transaction 1

Cash	TO	capital	€	10.000
------	----	---------	---	--------

Transaction 2

Rent account	TO	cash	€	500
--------------	----	------	---	-----

Transaction 3

Equipment	TO	suppliers	€	2.000
-----------	----	-----------	---	-------

Transaction 4

Wages	TO	cash	€	200
-------	----	------	---	-----

Transaction 5

Sales	TO		€	1.500
	cash	€	1.400	
	credit	€	100	

Transaction 6

Drawings	TO	cash	€	400
----------	----	------	---	-----

Bookkeeping as a closed system

1. The system is infinitely elastic in size: as many accounts are opened as necessary to record all the transactions;
2. All the accounting flows of money or money value take place between the various accounts in the system: "interlocking accounts";
3. The accounts represent "realities": persons or assets;
4. Firms' transactions are entirely described by the accounts system;
5. Since all the flows have both their source and their destination in the accounts to be found in the system, the total debts and the total credits remain equals at all times;

Balancing the accounts

Cash book

Capital	10.000
Sales	1.400

Rent	500
Wages	200
Drawings	400
Balance	10.300

Trial balance TO cash Balance 10.300

The ***trial balance*** is a list of balances extracted from all the accounts arranged in such a way that the debit balances are listed on one side and the credit balances on the other side.

Mr. Smith's trial balance as on 30th Sept.

	Debt balances	Credit balances
Capital account		10.000
Drawings	400	
Cash	10.300	
Rent	500	
Wages	200	
Equipment	2.000	
Sales		1.500
Debtors	100	
Creditors		2.000
	13.500	13.500

That's in order to check on the arithmetical accuracy of the bookkeeping process; it's a working paper in the course of preparing financial statements (ex.).

Periodic measurement

The accounts system is merely a repository of financial data about transactions. To be meaningful, this data must be extracted from the accounts system and organized in such a way that it is useful to those who need information for decision making (profit and loss account, balance sheet).

In order to respect the *matching concept* we need to identify:

1. The revenues attributable to transactions during the year;
2. The expenses related to those revenues.

Identifying the revenues and expenses

Debt balances

Credit balances

Capital		25.000
Motor vehicles	10.000	
Furniture	2.500	
Purchases	31.000	
Bank Balance	6.000	
Sales		70.000
Debtors	18.000	
Creditors		3.500
Rent	4.500	
Salaries	22.800	
Insurances	400	
Motor expenses	2.000	
Light and heat	1.000	
General expenses	300	
	98.500	98.500

First problem: which are the revenues of the year?

That is ***the flows of funds, that is money or rights to money, which have resulted from the trading activities of the business, as distinct from the funds (capital) invested by the owner or loans made by creditors or others.***

Identifying revenues and expenses

Revenues 70.000

The second problem is to identify expenses. That is ***the cost of running the business during the accounting period.***

OR

All those costs the benefit of which has been used up during the year.

In contrast, ***capital expenses*** are the costs incurred in acquiring fixed assets or adding to the profit-earning structure of the firm.

Non capital Expenses

Purchases	31.000
Rent	4.500
Salaries	22.800
Insurances	400
Motor expenses	2.000
Light and heat	1.000
General expenses	300

periodic profit = revenues – non capital expenses

So, how big should the plant be?

- Fixed costs are very risky,
- especially in a cyclical business;

but, if you are big, you have not just “**economy of scale**” (that is the spread of costs on volume);

but, also **experience or learning effect** allow us to produce more efficiently and more quickly

If you are ahead of the *learning curves* you have strategic opportunities: 1) dropping prices; 2) accept higher margins.

So, how big should the plant be?

- **Scale effect:** investment doesn't go up proportionately with capacity
- **Transportation costs** and bulk value matter
- "If something can go wrong it will....."
- Financial limits to growth

Financial limits to growth

1) A well run company maintains a fairly stable turnover ratio:

$$\text{Sales} / \text{assets} = \text{constant}$$

That is, the only way for sales to increase is assets to increase

2) Most company have or maintain a fairly stable

$$\text{Assets} / \text{Equity} = \text{constant}$$

That is, a company doesn't borrow money if it doesn't put additional money in equity

Financial limits to growth

1) and 2) imply that you can't grow any faster than your equity do

How can we increase equity? Two ways:

- a) sell more shares (and we might lose control);
- b) increase retained earnings (no dividends);

If we use b) and reinvest all the "profit after tax", then (profit after tax/equity) is the growth rate of equity $\Rightarrow$

$\Rightarrow$ No company can grow (in sales) any faster than its return on equity

$\Rightarrow$ financial limit to growth = ROE (1 - % of dividends pay out) - inflation

Financial limits to growth

But we also have a “financial leverage” and we know that when sales growth, profits may growth even faster and improve ROE.

What is important is that we don't decide to let out a higher percentage of dividends as pay out.

You can't have both big dividends and growth.

Cutting dividends is a dangerous business because markets like smooth and steady growth in dividends.

Growth, life cycle and learning curves

**Market
Growth
Rate**
(life cycle on
this dimension)



Relative market share
(learning curve on this dimension)