

RATIO ANALYSIS: A PRIMER FOR OWNER MANAGERS

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For most owner managers learning to read financial statements is on the job training. While it does not take long for most of us to learn to read profit and loss statements and balance sheets, the real power in financial statements comes from “ratio analysis”. The insight that comes from integrating two separate numbers from your financial statements can be truly enlightening, especially when trended over time. Many owner managers never learn to use ratio analysis. The purpose of this paper is to introduce some common “ratios” to owner managers in a way that encourages them to develop management reporting tools that go beyond income statements and balance sheets.

Note: All references are to annualized figures, unless otherwise noted.

Broadly speaking all businesses fail for the same reason: they run out of cash at the same time as they lose the ability to raise more cash through borrowing or investment. Almost all ratios provide insight into these two issues by assessing a company’s ability to generate positive cash flow and its capability of raising cash through liquidation of assets, borrowing or investment.

For the purposes of this article I have organized the ratios I present into five broad categories:

- Profitability
- Cost Structure
- Liquidity
- Capitalization
- Other

PROFITABILITY

Positive cash flow is essential to provide funding for capital investment and other business improvements, reserves against future losses, bonuses to key employees, owner compensation and return on investment. Profits are the basis of positive cash flow. These ratios give insight into whether or not your company is profitable. These ratios are particularly useful when trended over time.

<u>Gross Margin</u>	$\frac{\text{Gross Margin}}{\text{Net Sales}}$	<ul style="list-style-type: none"> • indicates the markup on your variable costs • the greater the gross margin, the more money there is available to pay fixed costs and to provide profits • also indicates how well you are doing in managing your variable costs, including raw materials, inventory and labour • Improving your variable expense utilization will improve your profits
<u>Normalized Pre-Tax Profits</u>	$\frac{(\text{Earnings Before Taxes} + \text{all Owner Compensation} - \text{FMV of Cost of Professional Manager})}{\text{Net Sales}}$	<ul style="list-style-type: none"> • adjusts the profits of an owner-managed business reflecting a “real” cost of management • indicates how much profit the business would make for you as an owner if you hired someone else to run the company for you • also helps you investigate whether you are inhibiting the company by taking too much out for personal lifestyle
<u>EBITDA</u>	$\frac{(\text{Earnings Before Interest Expense, Taxes, Depreciation and Amortization})}{\text{Net Sales}}$	<ul style="list-style-type: none"> • indicates how much cash your company produces for its owner to fund the cost of borrowing, tax planning and equipment financing costs • most useful when the company is professionally managed; not as useful when the company is owner managed • knowing company equipment replacement requirements is critical to assessing the results of this calculation • increasing sales without increasing expenses, or reducing expenses without losing sales, will improve your results • frequently used in mergers and acquisitions
<u>Normalized EBITDA</u>	$\frac{(\text{Earnings Before Interest Expense, Taxes and Depreciation} + \text{all Owner Compensation} - \text{FMV of Cost of Professional Manager})}{\text{Net Sales}}$	<ul style="list-style-type: none"> • indicates how much cash the company produces for an owner, before taking into account financing and tax planning issues, and equipment replacement costs, and after adjusting owner’s actual compensation and perks to what an arm’s length manager would really cost • makes EBITDA more applicable to owner managed companies • useful for calculating the real value of your company to an arm’s length third party

COST STRUCTURE

Vigilant cost management is an essential element in sustainable, long term profitability. These ratios help tell you how well you and your managers are managing costs over time.

<u>Operating Costs</u>	$\frac{\text{Fixed Expenses}}{\text{Net Sales}}$	<ul style="list-style-type: none">• indicates how well you are managing your fixed expenses, including real estate, marketing and promotion, interest expenses and administration• lowering your fixed expenses at the same sales level, or increasing sales without increasing fixed expenses, will improve your results
<u>Annual Break Even</u>	$\frac{\text{Fixed Expenses}}{(\text{Gross Profit} \div \text{Net Sales})}$	<ul style="list-style-type: none">• tells you how much your annual sales have to be to break even at your current running rate of fixed and variable expenses• the higher the gross margin and the lower the fixed expenses the better this will be
<u>Monthly Break Even</u>	$\frac{\text{Fixed Expenses}}{(\text{Gross Profit} \div \text{Net Sales}) \div 12}$	<ul style="list-style-type: none">• tells you how much your monthly sales have to be in order to break even over the course of a year at your current running rates
<u>Break Even in Months</u>	$\frac{\text{Fixed Expenses}}{(\text{Gross Profit} \div \text{Net Sales}) \div \text{Net Sales} \times 12}$	<ul style="list-style-type: none">• indicates how many months it will take before you starting turning a profit at your current running rate of variable and fixed expenses and net sales• if the number is greater than twelve, you are losing money• improving expense management, or levering more or more profitable sales on the same expense structure, will improve your results

Margin of Safety
(Percentage Form)

$$\frac{(\text{Net Sales} - \text{Annual Break Even})}{\text{Net Sales}} \times 100$$

Note: Annual Break Even =
$$\frac{\text{Fixed Expenses}}{(\text{Gross Profit} \div \text{Net Sales})}$$

- indicates how susceptible your company is to a change in sales
- it is built around how much your sales running rate exceeds your break even running rate
- a low percentage means that your company profits would be significantly affected by a drop in sales
- a high percentage means your company profits are resilient to a drop in sales
- improving your margin of safety requires leveraging more sales off the same fixed expenses, or reducing your fixed expenses without reducing sales

Operating Leverage

(Net Sales – Variable
Costs) ÷
Pre-Tax Profits

i.e.:

$(\text{Fixed Costs} + \text{Pre-tax Profits}) \div \text{Pre-Tax Profits}$

- indicates the relationship between Fixed Cost structure, change in sales and profits
- measures the impact of a percentage change in sales upon your profits:
- $\text{Operating Leverage} \times \% \text{ Change in Sales} = \% \text{ Change in Profits}$
- high Operating Leverage means the company has invested heavily in fixed assets and fixed costs, has internalized things that it could outsource, will benefit more from an increase in sales, but also suffer more from a decrease in sales (e.g. General Motors)
- low Operating Leverage means the company has not invested as heavily in fixed assets or fixed cost, has outsourced more things that it could do for itself, will suffer less from a decrease in sales, but will also benefit less from an increase in sales (e.g. Chrysler)
- the closer your company is to break-even, the more dramatic the impact; the further away your company is from break-even, the lesser the impact
- provides insight into management's balancing of fixed asset investment versus variable costs i.e. insourcing versus outsourcing
- to achieve a higher Operating Leverage increase your investment in Fixed Assets and Fixed Expenses (i.e. internalize more)
- to decrease your Operating Leverage decrease your investment in Fixed Assets and Fixed Expenses (i.e. outsource more)
- choosing one structure over the other depends on whether you expect sales to increase or decrease in the foreseeable future, or must hedge against one or the other

LIQUIDITY

Liquidity ratios reveal your company's ability to meet short term cash requirements. They also indicate how quickly your company assets can be turned into cash if needed. Liquidity ratios

indicate whether you have enough cash resources to sustain your business in the near future, or whether you are running out of cash. On a projected basis, you can use these ratios to assess how different strategies will impact liquidity and how much capital must be raised to meet certain scenarios. Finally, liquidity ratios can tell you how well your company is managing your current assets: work in process, inventory and accounts receivable.

<u>Working Capital</u>	Current Assets – Current Liabilities	<ul style="list-style-type: none"> • indicates how much money you would have left over if you paid off all your current liabilities • should be greater than zero • if your company is stable, it indicates how much immediate cash resource you have available for reserves, investment or distribution to owners
<u>Current Ratio</u>	Current Assets ÷ Current Liabilities	<ul style="list-style-type: none"> • indicates how well you are managing your Current Assets and Current Liabilities • Should be greater than 1.0 • If it is under 1.0, you have a liquidity problem that can only be fixed by getting some immediate and profitable sales, or by raising money through selling assets, increasing long term debt or making an equity injection • If it is too high it means you are accumulating cash resources in the company that could probably be put to better use elsewhere
<u>Quick Ratio (Acid Test)</u>	(Current Assets – Overdue Accounts Receivable – Old Inventory – Old Work in Process) ÷ Current Liabilities	<ul style="list-style-type: none"> • indicates your ability to meet current liabilities in a crisis or if you were in liquidation mode • comparing it to your Current Ratio indicates your dependence on overdue receivables or older inventory or work in process • should be significantly higher than 1.0

Current Asset
Breakdown

$$\frac{\text{Cash}}{\text{Current Assets}} \times 100$$

$$\frac{\text{Accounts Receivable}}{\text{Current Assets}} \times 100$$

$$\frac{\text{Inventory}}{\text{Current Assets}} \times 100$$

$$\frac{\text{Work in Process}}{\text{Current Assets}} \times 100$$

Inventory Turnover

$$\frac{\text{Cost of Goods Sold}}{((\text{Opening Inventory} + \text{Closing Inventory}) \div 2)}$$

Age of Inventory

$$\frac{\text{Closing Inventory}}{(\text{Cost of Goods Sold} \div \text{\# of Months})}$$

Age of Accounts
Receivable

$$\frac{\text{Accounts Receivable}}{(\text{Net Sales} \div \text{\# of Months})}$$

- indicates the extent your liquidity is reliant on the various components of Current Assets
- any inconsistencies over time should be carefully monitored

- indicates how often inventory turns over during the period in question
- the higher the ratio, the more profitable the company will be
- a slowing down of inventory turnover over time is an indication of a problem
- very useful when compared to industry averages

- indicates the age of inventory in months
- a high number indicates a significant investment in inventory and a reduction in profitability
- a low number may mean a problem meeting demand, and lost sales
- the right number will depend on the industry and the company
- can be an important indicator if changes occur over time

- indicates how long it is taking for accounts receivable to be paid, and how well you are managing credit you grant your customers
- anything over 3.0 is a serious problem as it means you are significantly financing your customers and may have a significant credit risk in that regard
- can be an important indicator if changes occur over time

Age of Work In Process

$$\frac{\text{Work In Process} \div ((\text{Opening Work in Process} + \text{Closing Work in Process}) \div 2)}{\div \# \text{ of Months}}$$

- indicates the age of your work in process, in months
- the shorter the number, the better you are at turning raw materials into inventory

Age of Accounts Payable

$$\frac{\text{Accounts Payable} \div (\text{Purchases} \div \# \text{ of Months})}{\div \# \text{ of Months}}$$

- indicates how quickly you are paying your suppliers
- if the number is too low, you are a good customer but might be able to improve your cash flow by taking advantage of credit terms
- if the number is too high it indicates you have some liquidity problems and may be straining your relationships with your suppliers

Conversion Rate

$$\frac{\text{Age of Work In Process} + \text{Age of Inventory} + \text{Age of Receivables}}{\div \# \text{ of Months}}$$

- indicates how long it takes you to convert your labours into cash in the bank
- the shorter the number the faster the cash flow

(all in months)

CAPITALIZATION

These ratios address a company's need to raise cash, and its capability of doing so. Some of these ratios address whether your company is effectively capitalized to operate in the long run. Others address whether your company can raise debt or equity if needed.

If your company is undercapitalized, then you know it is on the path to running out of cash. You should ask yourself where the money is coming from to reverse the problem. It can only come from increased sales and profits from operations, selling assets, or raising debt or equity.

If your company is overcapitalized, you have left too much cash in the business, are reducing your return on investment, and should take the surplus cash out to invest in places where you can get a better return on investment.

<u>Debt to Equity Ratio</u>	Total Debt ÷ Total Equity	<ul style="list-style-type: none"> • indicates the proportion of borrowed money to shareholder investment and accumulated profits • in most owner managed companies, shareholder loans would be treated as equity so that owner funds can be separated from third party debt • 1.0 to 2.0 is considered a good balance • significantly greater than 1.0 indicates that the company has limited means to borrow money and the owners will have to fund any increases in funding the company requires • significantly less than 1.0 suggests the company could be making greater use of third party money to finance its activities
<u>Interest Coverage</u>	(Pre-Tax Profits + Interest Expense) ÷ Interest Expense	<ul style="list-style-type: none"> • indicates how well the company can handle its interest payments on borrowed monies • less than 1.0 means the company can not earn enough profits to cover its interest expenses • significantly greater than 1.0 suggests the company has the capacity to borrow more money, which could free up shareholders' equity for other uses
<u>Bank Coverage</u>	Outstanding Bank Debt ÷ Maximum Bank Debt Company Could Utilize Based Upon Current Bank Margin Requirements	<ul style="list-style-type: none"> • indicates the extent the company is using its available bank facilities • greater than 1.0 means the company has exceeded its bank limits • less than 1.0 means the company is within its bank limits, and has the capacity to borrow more money
<u>Normalized Return on Assets</u>	(Pre-Tax Profits + Owner Compensation – the FMV cost of professional management) ÷ Total Assets	<ul style="list-style-type: none"> • indicates the pre-tax return on all funds invested or left in the company by the company's creditors, lenders and owners • the higher the return, the better utilization the company is getting on its invested funds • to improve returns, increase sales or profits on the same asset base or reduce assets and maintain the same sales and profit level • in owner managed companies, Pre-Tax Profits are normally adjusted for owner compensation issues

Return on Owner Equity

(Pre-Tax Profits + Owner Compensation – the FMV cost of professional management) ÷ Owner Equity

- indicates the pre-tax returns on all owner invested funds
- in owner managed companies all shareholder loans, retained earnings and shareholder capital is included in Owner Equity
- the higher the return, the more valuable the company
- in owner managed companies, Pre-Tax Profits are normally adjusted for owner compensation issues
- rate of return can be compared to other investments the owners could be making with their money

Return on Investment

(Pre-Tax Profits + Interest Expense + Owner Compensation – the FMV cost of professional management) ÷ Operating Assets

- indicates the company's return on investment before interest expense and extraordinary owner compensation
- good for comparing performance of owner managed companies against other types of investments
- must be enough to cover the cost of borrowing plus a reasonable return on owner investment
- Operating Assets would be limited to those assets actually used in the business, and would exclude extraordinary investments made by the owner which would not be made by an arm's length management team (e.g. private air plane, real estate assets)
- in owner managed companies, Pre-Tax Profits are normally adjusted for owner compensation issues
- to improve performance, increase sales or profits or decrease assets

Residual Income

(Pre-Tax Profits + Owner Compensation – the FMV cost of professional management) – (Operating Assets X minimum required rate of return)

- measures profits generated over and above minimal expected rates of return
- useful for comparing management teams or divisions in a privately owned company that is utilizing professional managers
- encourages managers to pursue any opportunity that generates profits over a pre-set standard, and not just those opportunities that represent the highest possible rates of return

OTHER

This section of the article illustrate how to track growth in your key indicators. It also introduces the idea of industry standards, which are rules of thumb that all good managers in your industry monitor on a regular basis, which are of unique application to your industry, and which can be used to compare performance between competitors within the industry.

<u>Sales Growth</u>	$(\text{This Year's Sales} - \text{Last Year's Sales}) \div \text{Last Year's Sales}$	<ul style="list-style-type: none">• indicates change in sales from year to year, whether your sales are growing or shrinking, and how quickly
<u>Change in Pre-Tax Profit</u>	$(\text{This Year's Pre-Tax Profit} - \text{Last Year's Pre-Tax}) \div \text{Last Year's Sales}$	<ul style="list-style-type: none">• indicates change in Pre-Tax profits from year to year, whether your profits are growing or shrinking, and how quickly
<u>Industry Perspectives</u>		<ul style="list-style-type: none">• every industry has its rules of thumb• for example, the retail industry tracks Sales Per Square Foot, the hospitality industry tracks Annual Sales per Door, the restaurant tries to keep Food Costs between 30% and 32% of net sales, and the legal business uses Billings per Lawyer• find out what industry rules of thumb apply to your industry from your industry association, trade publications or your accountant

CLOSING THOUGHTS

Computers and accounting software provide accurate, real time profit and loss and balance sheet information. Spreadsheet software makes it easy to prepare all kinds of management reports. Using these tools there is no reason why your company can not have timely, insightful and practical management reports.

On the other hand, be careful you do not get blurred by the numbers themselves. If you calculate and monitor everything your risk seeing nothing at all. Real judgment is still required in choosing what to monitor and when to do it.

It is also easy to become satisfied with knowing the reports are complete and accurate, and forget to actually analyze or act upon them. Management reporting is not about getting the right numbers into the right boxes, making the totals add up, and putting the reports in your files. Management reporting is about measuring the vital signs of your business and the quality of your management, challenging your own complacency, teaching your subordinates how to improve the business for everyone's sake, and continuing to learn and re-learn what it takes to build and maintain a sustainable and profitable business.

If you count nothing else, count on the fact that your competitors are using these tools to improve how they compete with you on a daily basis, and that you will fall behind over time if you do not do the same.