Principles of Business Value

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Abstract

This article presents key principles for evaluating virtually any business across all asset classes, geographies, and markets. It begins with a basic review of the most relevant financial statements, following the US Generally Accepted Accounting Principles (US GAAP). Subsequent sections will assess Risk, Return, Liquidity, and other principles that add value to businesses.While the scope of this work is ambitious, the approach aims to explain the most important concepts in business value to non-subject matter experts.

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1 Introduction

Ramón Bastida November 2023

The primary aim of this paper is to outline fundamental principles that enable the identification of good businesses. This material is recommended for those seeking an understanding of how to evaluate and compare different businesses. It is intended to serve a broad audience, including students, employees, investors, managers, entrepreneurs, lenders, lawyers, and portfolio managers.

This document is also designed to provide financial education for individuals at any level of financial proficiency. Initially, I will cover the basics of the main Financial Statements, as they form the language for evaluating businesses. As you progress through the material, you'll find that there are rarely definitive answers. However, I will provide as much context as possible to help you understand the preferred choices for successful business decisions.

Business is a science. While many approach business valuation as an art, I firmly believe that it is a science. Like any other science, access to accurate data, tools, discipline, and methodology can make all the difference. This data-driven approach invariably enhances the quality of any decision. Furthermore, business operates like math. We may not know the transfer function[1], but there are very few aspects of business that have no impact—they either help or they don't.

This paper will be approached through a series of principles that have demonstrated a correlation with good business valuation over time. These principles have been observed across multiple industries and geographies during my experience working at multinationals,

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[1]A transfer function is a mathematical function that models the relationship between the input and output of a system.

start-ups, and private equity firms in sectors including Financials, Industrial Manufacturing, Software, Control and Automation, Automotive, Aerospace, Hydraulics, and Electrical.

At a high level, business managers have a threefold task: controlling the company's **Risk** through assets and liabilities, earning sufficient **Return** through Net Income, and providing enough **Liquidity** via Free Cash Flow. Earning profit alone does not guarantee survival and good cash flow. In fact, making a profit can temporarily drain cash rather than provide it. The problem with Financial Statement Reporting is that it doesn't clearly show how making a profit drives the financial condition and cash flow of a business.

The vital interplay between the income statement and the balance sheet can be overlooked because each statement is presented as a standalone document. However, interconnections between these financial statements exist. Throughout this paper, I will aim to equip you with enough knowledge to think independently about how to decide which choices can increase your chances of success.

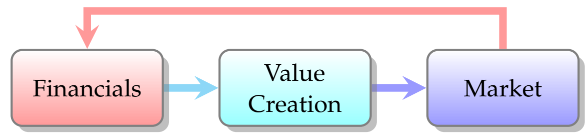
Enjoy the reading.

2 Why this paper

Let's begin by clarifying what this paper does not aim to do. If you're hoping that this article will provide insights into good investment strategies, there are some disappointing facts to consider. While this document may be helpful, it will not be sufficient on its own; you will need additional information and insights. Here's why: In any investment, there is a crucial parameter that perhaps most significantly determines the success of the investment, **Expensiveness**.

Although we will discuss this later, there is a personal aspect embedded in the price of a business that is influenced by multiple reference points and biases of sellers and buyers, which are extremely difficult to calibrate. Consider any business you might love to acquire and start adding zeros to the purchase price; very soon, you'll see how unattractive the venture becomes.

Figure 1: *Evaluating Businesses*



Having clarified what this report is not about, I can now explain that the objective of this essay is to illustrate the most important principles that provide value (not price) to a business. It may seem inconvenient, but the fact that price doesn't always reflect value is great news for investors. Price is not something you can do much about, so let's focus on what you can really understand and act upon: Business Value. What businesses become depends on certain principles of business value, which I will evaluate and study with examples throughout this review.

Any finance professional may recommend literature and readings that require thousands of hours of training and practice. In fact, I also include a list of books to read at the end of the document. However, the raison d'être of this article is to provide enough material for non-financial folks to become independent thinkers, while avoiding a lot of unnecessary initial information, which you can always acquire on a needed basis following the references provided. Fig.1 explains in a simple way that Evaluating Businesses is a continuous improvement process.

To become proficient at business valuation, we just need to understand some critical finance and business principles that help us ask the right questions in order to identify great businesses. The overwhelming amount of information and data can make us all feel lost. This paper is **a quick guide to understanding what we should not miss when it comes to evaluating a business**.

3 Principles of Business Value

The aim of this section is to familiarize the reader with various Business Principles, along with their corresponding tools and methodologies. Some of these principles are quite technical, but there are no shortcuts; we must understand the language of business to comprehend its workings. Financial Statements and financial terms provide the lexicon of business, and if you wish to make an appropriate assessment of any business, you need to continuously acquire knowledge on financial literacy.

As mentioned earlier, we will follow US GAAP[2] Accounting Standards.

We will also study principles unrelated to finance, such as marketing or law, but these need to be equally understood if your aspirational goal is business excellence. Here are the **Principles of Business Value** that we will cover:

1. **Risk**, evaluated by its **Balance Sheet**.
2. **Return**, evaluated by its **Income Statement**.
3. **Liquidity**, evaluated by its **Cash Flow Statement**.
4. **Volatility**, evaluated by the **Maximum Drawdown**.
5. **Expensiveness**, evaluated by its **Price / Earnings**.
6. **Comfortability**, evaluated by the **User Experience**.
7. **Innovation Capacity**, evaluated by the **Competitive Technology**.
8. **Comprehensiveness**, evaluated by **The Business Model**.
9. **Economic Boundary Conditions**, evaluated by the **Macroeconomics at the Residence of the Assets**.
10. **Geopolitics**, evaluated by the **Trackrecord on Governments Interventions**.
11. **Regulation**, evaluated by the **Authorities capability to alter business**.
12. **Legislation**, evaluated by the **cycle time required to Resolve Conflicts**.
13. **Dealing Risk**, evaluated by the **Counterparty Risk**.
14. **Growth Potential**, evaluated by the **Economics of the Industry**.
15. **Productivity Potential**, evaluated by the **Demonstrated Reduction by Volume Productivity**.
16. **Distribution Power**, evaluated by the **Difficulty of Competition Entry**.
17. **Culture**, evaluated by **Employee Turnover**.
18. **Management**, evaluated by **Return on Management**.

3.1 Risk - The Balance Sheet

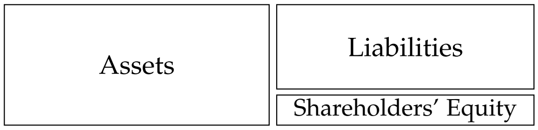
The simplest way to measure risk in a business is by analyzing its most recent Balance Sheet, also known as the Statement of Financial Condition. Equation 1, the most crucial equation in business valuation, will help you understand why the Balance Sheet provides an opportunity to identify what is beneficial to have (Assets) and what is not (Liabilities). Any difference must be complemented by the business owner

[2] The preference for US GAAP over international standards lies in how they assess the accounting processes. Under US GAAP, the accounting process is prescribed highly specific rules and procedures, leaving little room for interpretation. These measures are devised as a way of preventing opportunistic entities from creating exceptions to maximize their profits.

Another reason why I believe US GAAP is more accurate lies in the way revenue is recognized. The guiding principle is that revenue is not recognized until the exchange of a good or a service has been completed. Once a good has been exchanged and the transaction recognized and recorded, the accountant must then consider the specific rules of the industry in which the business operates.

Other standards use the percentage of cost as a way to recognize revenue, which has led in the past to the unhealthy practice of booking cost to boost short-term unrealistic profits.

Figure 2: *Balance Sheet*



Equation 1: *Balance Sheet Equation*

$$Assets = Liabilities + Shareholders_{Equity} \quad (1)$$

in the form of Equity, which represents the value of an investor's stake in the business.

At a very high level, the greater the value of the assets and the lower the value of liabilities, the better the business. A business whose Equity value (Assets - Liabilities) continues to grow over time is generally considered superior to a business whose Equity remains flat or decreases. The process of increasing Equity value may require periods of increased Liabilities (assuming Risk) and Assets (increasing Resources).

As can be inferred from equation 1 and Fig.2, the higher the Shareholders' Equity, the richer a business is. In other words, the lower the liabilities, the better for the owner. All assets must equal the sum of liabilities and Equity. This may mean that the Shareholder has to balance the equation in the form of Equity if liabilities are higher than assets. It also means that a business with more assets than liabilities has a positive Equity value, which is good.

Consider the simple example of a bakery. Once the bakery has demonstrated that it can buy 0.7 kg of flour (a liability) to produce 1 kg of bread (an asset) and can transform it into cash (an asset), creating some income after deducting all costs, we can feel comfortable buying more flour to produce more bread. In other words, good businesses expand their balance sheet based on a track record of positive shareholder's equity.

Once a business has demonstrated its proficiency in utilizing its assets, understanding the implications of liabilities, and generating earnings that will fill the shareholder's equity, we are in the virtuous circle of business. However, hurdles such as too much inventory, a decline in sales, a market change, or a sudden increase in cost can disrupt this path.

When the business is increasing its Equity value, the question arises: should we increase the amount of assets and corresponding liabilities to eventually accelerate the equity piece? This happens in many businesses and affects financial professionals. It requires several discussions and confuses many people because there seem to be two conflicting instructions. On one hand, we know that having a lot of Equity is good[3], yet we may also say that a lot of Equity remaining flat over time is showing that the business is not running at its full potential.

This conundrum is similar to having money in the bank: is it good or bad? In general, it's good, but like any other resource, a dollar in the bank gathering dust is like an employee on the payroll who does not have enough work to do. Besides, if you are considering a good business, why is this business not using the potential of equity to do more of what they seem to be doing well? Money has to be invested, just like planes have to be in the air.

A good way to evaluate these types of conflicting numbers is to review the track record or evolution of those financial metrics over time. Businesses that are in markets that have demonstrated a good conversion from Equity to Assets with the adequate balance of Liabilities will have more chances to repeat this cycle.

The easiest way to evaluate this is to follow the trend of a metric, look for deviations, understand why they occur, and then make a judgement based on the variation of the data. Equally important as the snapshot of the equation at a particular moment in time is the evolution of these terms over time, such as the year-on-year or quarter-to-quarter trend.

The most common reason not to deploy resources, assets, or cash is waiting for the right timing or opportunity. Perhaps the price of the

[3]Sometimes businesses prefer to have dry gun powder, an expression used by Steve Jobs when confronted with the same issue.

acquisition is too high, maybe the cost of the raw material is excessive, the capital expense is inadequate, or perhaps there is just a lack of resource availability at the moment. The comfort of a balance sheet or a successful business year to date spares us from taking additional risk. In all these cases, rather than looking at the cost, it makes more sense to evaluate the opportunity cost[4]. Let's find out how to measure that opportunity cost.

The approach to this well-known problem has a very pragmatic answer. You could follow the Kelly criterion[5], by which you should only risk a proportional part of the historical level of success of your business. To apply this to business, we need to know what our probability of winning or losing is. You may use your lead generation conversion to sales for this, or you may use the historical rate of conversion from equity into earnings.

Financial statements are the X-ray of a business. Assuming the integrity of the data is correct, Financial Statements are the most accurate way to read a business. So, let's evaluate the basics of the financial reports, starting with the Balance Sheet.

3.1.1 Balance Sheet Definitions:

1. **Cash and Short Term Investments**: These are investments that are relatively liquid and have maturities of less than one year.

2. **Total Assets**: This is the total amount of assets owned by a company.

3. **Total Liabilities**: This is the sum of the combined debts a company owes.

[4] Opportunity cost is a fundamental concept in economics that refers to the potential benefits or value that is given up when choosing one alternative over another. In other words, it's the loss of potential gain from other alternatives when one option is chosen.

[5] In probability theory, the Kelly criterion is a formula for sizing a bet. The Kelly bet size is found by maximizing the expected value of the logarithm of wealth, which is equivalent to maximizing the expected geometric growth rate. It assumes that the expected returns are known and is optimal for a bettor who values their wealth logarithmically. As an example, if a gamble has a 55% chance of winning, the gambler should bet 10% of the bankroll at each opportunity.

Table 1: *Apple Balance Sheet in USD Billion*

		Y. 2022
1	Cash and Short Term Investments	48.3
2	Total Assets	353
3	Total Liabilities	302
4	Total Equity	51
5	Shares Outstanding	16
6	Price to book	54
7	Return on Assets	21%
8	Return on Capital	39%

4. **Total Equity**: This is the value obtained by subtracting the total liabilities from the total assets.

5. **Shares Outstanding**: This is the total number of common shares outstanding as of the latest date disclosed in a financial filing.

6. **Price to Book**: This is a ratio used to determine if a company's market value is in line with the value of its assets less liabilities and preferred stock.

7. **Return on Assets**: This is a financial ratio that shows a company's profitability compared to its assets.

8. **Return on Capital**: This is the company's return above the average cost it pays for its debt and equity capital.

When approaching the Balance Sheet, try to find consistencies and inconsistencies. For example, try to follow as many pieces of evidence that confirm each line item in the reading. Understand why this is happening and find evidence for all the information that you can get hold of to verify that this is true. A good practice for the growth of a business is to expand the Balance Sheet while maintaining a good equilibrium between the ratio of Assets and Liability.

A good indicator to allow Balance Sheet expansion is looking at prior periods and supervising the Cash generation, for which we need the Cash Flow Statement, i.e., Liquidity. For example, if you read that the balance sheet is showing an increase in Cash, does it correspond to prior years' income statement lines? Additionally, if the assets have increased, do we have evidence that either PP&E[6], investments, or acquisitions have been made?

Assets are resources that a business has, such as cash, future receivables, debt to be collected from others that will bring cash into the business.

Start from top to bottom; the higher the line item, the more liquidity it has. So while cash is good, a company that has all its assets in cash does not believe much in the conversion of assets into cash, or maybe it's just temporary and if so, for how long? Or maybe there is so much cash being generated that you cannot deploy all of it. Or perhaps the company is waiting for a huge acquisition. Try to find it out.

For example, is Apple waiting to deploy USD 48.3 billion of cash in the bank to buy a network of satellites that could bypass any telecommunications company when their self-fulfilling technology is ripe enough to stab their biggest customers? Or is the innovation pipeline of the company focused on products and services that do not require the intensity of the cash it generates? Will it revert that cash in terms of dividends to the shareholders or keep it for future dire years?

There will be thousands of questions that you could prompt to slice and dice a balance sheet, but what is fascinating is how difficult it would be for a business to make up the numbers in the balance sheet with stories that are not true. In other words, as you learn about the balance sheet, you will be learning about the truth behind a business.

When you understand how the business is operating and generating cash, you will truly be in a position to evaluate a business. This thought goes for public and private companies, for big and small companies, for tiny or huge businesses. A Balance Sheet is like a blood test; it will not tell you if you are eating bread, drinking alcohol, or sitting on the sofa too much, but it will tell if you are doing too much of the three of them when all is added up.

Another critical look to evaluate a Balance Sheet is by looking at the liabilities. **Liabilities** are the bad guys of any business, and any future failure of the company will be hidden or outlined in the liabilities lines. Liabilities are commitments that are good enough as long as your Equity or Assets support it, so the question to ask at each liability line is, "How did we get there?" Liabilities are things like future payments, commitments, or debt that will require cash coming out of the business.

For each line item, we should be able to understand what decisions the company took that resulted in such a liability. The second-order level question is, was it worth it? If not, did the company learn from it? On very few occasions will you have a chance to ask management directly, but let the numbers and actions of the different years explain if this behavior is consistent, isolated, and meaningful.

The third component in the Balance Sheet is **Shareholders' Equity**. This is the part in which the owners complement the difference between Assets and Liabilities. As per the previous paragraph, the higher the Equity, the better. The evolution of Equity gives a good perspective as to how much value has been generated over time.

It also shows how other investors are willing to support the company because equity that does not shrink means that someone somewhere is eager to put their money where there is certain risk, and that is generally good.

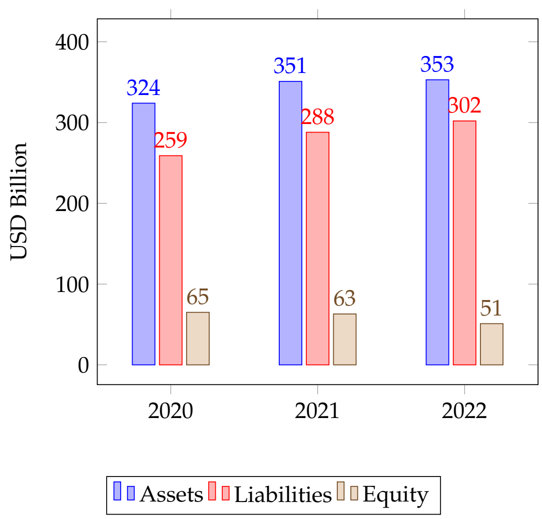
You may find yourself in situations where the owners have no other option than to sustain the current level of equity to maintain the financial reputation of the company. The accounting behavior is the same when the company is in future trouble as when it is not. The difference is that the owner might be willing to sell their stake in the company or overall participation

[6]Property, Plant, and Equipment (PP&E) are long-term assets that are vital to business operations and the long-term financial health of a company. They are also known as fixed or tangible assets, meaning they are physical items that a company cannot easily liquidate. Examples of PP&E include machinery, equipment, vehicles, buildings, land, office equipment, and furnishings.

in the company.

Do not trust a company where the owner doesn't want to keep a substantial participation in the company they used to own. The owners, or equity holders in a business, have a secondary claim on the assets - after its liabilities are satisfied.

Figure 3: *Apple Inc. Balance Sheet Trend Chart*



3.2 Return - Income Statement

The Income Statement, also known as the Profit & Loss (P&L) statement, is crucial in providing information about the profitability of a business. While it may not offer much insight into the liquidity or risk, it is a key factor in deciding whether or not to invest in a business. Let's start with the main lines in the Income Statement.

Table 2: *Apple Income Statement in USD Billion*

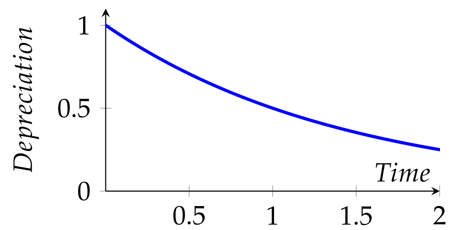
		Year 2022
1	Revenue	394
2	Operating Expense	51
3	Net Income	100
4	Net Profit Margin	25.31%
5	Earnings per Share (EPS)	$5.92
6	EBITDA	131
7	Effective Tax Rate	16.2%

3.2.1 Income Statement Definitions:

1. **Revenue**: The total amount of income generated by the sale of goods or services.
2. **Operating Expense**:Represents the total incurred expenses through normal operations.
3. **Net Income**:Company's earnings for a period net of operating costs, taxes, and interest.
4. **Net Profit Margin**:Measures how much net income or profit is generated as a percentage of revenue.
5. **Earnings Per Share**:Represents the company's profit divided by the outstanding shares of its common stock.
6. **EBITDA**:Earnings before interest, taxes, depreciation, and amortization, is a measure of a company's overall financial performance and is used as an alternative to net income in some circumstances.
7. **Depreciation Expenses**: The portion of a fixed asset's cost that is being used up during the accounting period. It is a non-cash expense. It allows businesses to spread the cost of physical assets (such as machinery or equipment) over a period of years for accounting and tax purposes. Depreciation is allowed to match the cost of the asset to the revenue it generates over its useful life.

   Depreciation is not linear and is calculated accelerating the depreciation value of the fixed assets over time as they require more maintenance the older they get as you can appreciate in Fig. 4.
8. **Amortization Expenses**:Amortization expense is the write-off of an intangible asset over its expected period of use, which reflects the consumption of the asset. This write-off results in the residual asset balance declining over time. Amortization is almost always calculated on a straight-line basis. Examples of Amortization Expenses

Figure 4: *Depreciation of booking value over time*



Equation 2: *Income Statement Equation*

$$Revenue = Costs + Expenses + Taxes + Net_{Income} \tag{2}$$

are patents, trademarks, franchise agreements or copyrights.

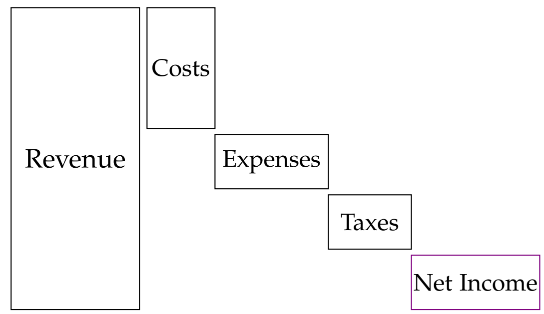
9. **Effective Tax Rate**:The percent of the income that a corporation pays in taxes. Computed by dividing total tax expenses by the company's earnings before taxes.

The most important line item in the Income Statement is Net Income, as one can deduce from Fig.5. If Net Income is negative, we have a Loss; if it is positive, we have Profit. The term Profit is rarely used in financial statements as it is often perceived as greedy. Once we know Net Income is positive and expanding over time, it is wise to understand why. This might be higher because of higher Revenue, which can be through Pricing or Volume, or because of smaller Operating Expense.

Great companies are able to maintain the Operating Expense or Cost flat as they grow, or at least grow expenses at a lower level than revenue, which results in a continuous growth in net income. Do not pay special attention to EBITDA, despite it being a well-used number in Finance, banking or mergers & acquisitions, as it dilutes the Earnings value with the company's debt and amortizations. EBITDA also allows hiding costs in the Amortization (such as Real Estate investments gone sour) and Depreciation (for example, Technology that became obsolete).

The 'I' in EBITDA refers to Interest, and it might hide debt accumulated over the years. A business that is doing well because of debt is not really an ideal business. This goes for any organization, even a country. Note how politicians often talk about growth, ignoring the interest the region pays on debt they previously accumulated. As always, we need to understand the reasons behind. Sometimes a well-planned debt allows expansion and growth at a higher acceleration than what we are paying for the financing of the business.

Figure 5: *Income Statement*



You will need to understand how Revenue is generated, what is the value proposition of the company, the distinct value that customers are willing to pay to keep coming to your business that will make the revenue line grow over time. What markets are they serving and what are the dynamics of those markets, demographics, regulations, and other factors outside of the business. We'll talk more in detail below about these items.

Operating Cost is a financial metric that will tell you about the discipline of a company. If a company is not able to control cost when it is growing, it does not have the appropriate processes or management. This is a big red flag because if they don't control such a critical factor, other things even more relevant, such as ethics, culture, and respect for the law might be exposed too. Let alone if the company has a bad cycle, and all companies have a bad cycle, which might mean the end of the company.

Tax optimization is a matter of localization of the legal entities and part of the management. It might sound cruel but it is true that a company in Andorra has better chances to be successful than a company in Spain. All other things being equal, the shareholder in the Pyrenees country can deliver 3 times more net income than its Iberian counterpart. Sometimes people forget that a company can be moved with a few signatures in a notary document in process that takes days. I have personally seen companies I worked for move to Amsterdam, Geneva, Ireland and Budapest with the sole purpose of reducing taxes. While these moves may be irritating to employees, if done well, they definitely create value for the shareholder.

Figure 6: *Apple Inc. Income Statement Chart*

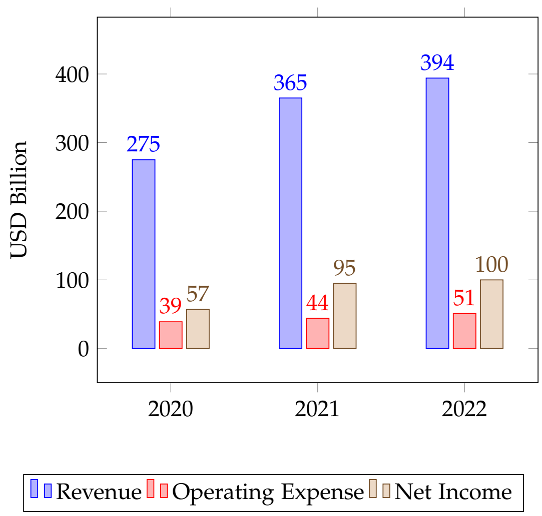
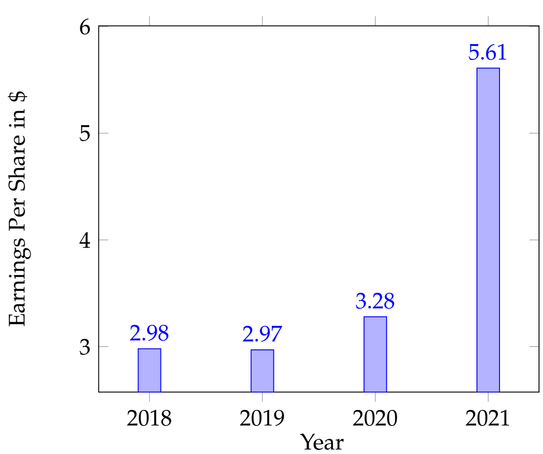


Figure 7: *Apple Inc. Earnings Per Share*



3.3 Liquidity - Cash Flow Statement

The Cash Flow Statement does not provide the full story of the business when it comes to Financial Condition or Profit, which is why we needed the previously discussed statements: the Balance Sheet and Income Statement. Nevertheless, the Cash Flow Statement offers a perspective that other statements cannot show. Let's start with some definitions.

3.3.1 Cash Flow Definitions:

1. **Net Income**: Company's earnings for a period net of operations costs, taxes, and interest.
2. **Cash from Operations**: Net cash used or generated for core business activities.
3. **Cash from Investing**:Net cash used or generated in investing activities such as purchasing assets.
4. **Cash from Financing**:Net cash used or generated in financing activities such as dividend payments and loans.
5. **Net Change in Cash**: The amount by which a company's cash balance increases or decreases in an account period.
6. **Free Cash Flow**: Amount of cash a business has after it has met its financial obligations such as debt and outstanding payments

Cash that comes into a business and cash that goes out of a business is probably the easiest and fastest way to evaluate how good a business runs. Cash has another component of reality that other financial terms don't have. The willingness to pay with cash transformed into a real cash transaction is the final confirmation that your business partner has fulfilled the agreed terms of your contracts and negotiations. This reality check makes the Cash Flow Statement one of the most down-to-earth documents to review in a business.

As with the other statements, we should read from top to bottom. Let's use Table 3 as an example. You will find positive and negative line items. Positive means cash coming into the business, negative means cash going out of the business. The first line refers to the Net Income that came from the Income Statement; it will have to be consistent with the previous period.

Table 3: *Cash Flow Statement in USD Billion*

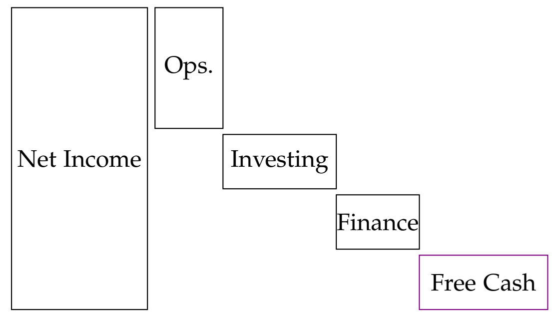
		Year 2022
1	Net Income	99
2	Cash from Operations	122
3	Cash from Investing	-22
4	Cash from Financing	-111
5	Net Change in Cash	-11
6	Free Cash Flow	90

This is one of the many points of interactions between the three Financial Statements. If the Net Income from the prior period was real, you will have to see it in Cash the following period. Once again, how these items evolve over time will tell how good or bad the business is behaving. An easy way to audit a cash flow statement is to request bank statements, provided by the bank and authorized by the owner of the account. The more sources you use to contrast the same information, the more difficult it will be to miss a Ponzi scheme like the one Madoff created with fake account statements, which lasted for 20 years and ended up in losses of more than USD 65 Billion.

The most important item to follow in this statement is Cash from Operations and how it evolves over time. Cash from Operations will not include other transactions such as credits or financial activities. Net Cash Flow will let us know to what level the business is managing the balance between inflows and outflows of cash, so the more positive this number is and higher the rate of change over time, the better.

For the future of the business, you should see Free Cash Flow (see Fig.8) because it excludes the part we needed for Capital Expenditures and we don't really need for the future of the business. We still may want to use that cash for investing further in the business but management has the ability to deploy to shareholders

Figure 8: *Cash Flow Statement*



Equation 3: *Cash Flow Statement Equation*

$$Net_{Income} = Ops_{\$} + Investing_{\$} + Finance_{\$} + Free_{\$} \quad (3)$$

or other businesses.

A business might try to fool its investors by artificially deploying too much free cash flow by stopping capital expenditures needed for the future of the business. Once more, understanding variations of these types can help us identify good or bad intentions in the company. Find out if the business is generating cash at a consistent rate to what we see in Net Income from the Income Statement.

The Cash Flow Statement can serve as a lie detector to an analyst, or at least sort out how serious management is about their initiatives. For example, a company might say they're committed to investing in the Research & Development of the company, but if you don't see this in Cash deployed from the Cash Flow Statement, this might not be as true as they claim.

What is really difficult to do is to find out what big buckets of budget include. For example, a company may dilute its costs on Development within some Application Engineering budget, which belongs to some Customer Marketing bigger category. Eventually, management will have the ability to disguise and invent as many layers as they want to, and only through a detailed review or inside information will you be able to find out. Inside information is perceived as a fully illegal matter, but there are multiple ways to do it in a legal and accurate way: Subpoena for courts, compel filing of reports, and inspection. The specific legislation of each geography will determine the access possibilities to each one of them.

Sometimes, "hiding" information or mixing it up in larger categories might be intentional to keep competitors away from hints on where they're working or the success they're having. For example, Honeywell didn't disclose the numbers of its Turbo Technologies division, and they were always embedded in its Aerospace division until the divestiture in October 2018. Other times, avoiding detailed disclosure of financials might just be a pragmatic solution or some air cushion for management to have some freedom to report aggregated numbers at different levels of the company.

The reason Cash is so critical is because regardless of the accounting system, the management contracts, or the jurisdiction in which the company operates, customers have a very clear way to say they want more business; they pay their invoices. There is a subtle difference between wanting your business and actually confirming that they are committed to it, and the difference is in the cash wire transfer from a customer.

The faster that cash is generated from the date in which the service or the product is provided, the better the business will be. The slower we get to pay our suppliers, also the better it is for your cash flow. Dell Inc. was a pioneer in e-business when they managed to agree with suppliers to be paid in 60 days, while customers would pay immediately with their credit card at their website. Apple ships their new iPhones by plane because the sooner they arrive the sooner they get rid of inventory and fulfill customer promised delivery date, a difference strong enough to justify the air freight.

Companies use a metric called Cash Conversion Cycle (CCC) to measure how fast they can convert cash on hand into even more cash on hand. This metric looks at the amount of time needed to sell inventory, the amount of time needed to collect receivables, and the length of time the company is afforded to pay its bills without incurring penalties. A lower CCC value indicates that a company is converting its investments into cash more quickly, which is a good sign. See some examples in Table 4.

Figure 9: *Interactions between Financial Statements*

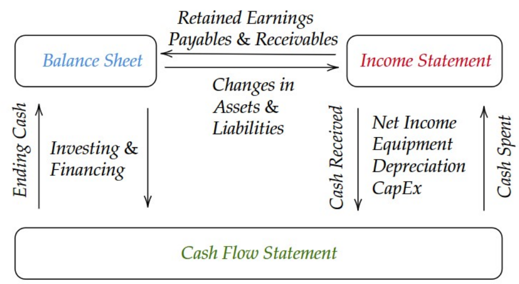


Table 4: *Cash Conversion Cycle (CCC) for Google, Apple, and Amazon in 2020, 2021, and 2022*

Company	Year	CCC
Google	2020	33
	2021	31
	2022	29
Apple	2020	-33
	2021	-31
	2022	-40
Amazon	2020	-1
	2021	-3
	2022	-2
Dell	2020	-39
	2021	-51
	2022	-54

In summary, the three independent Financial Statements need to be reviewed together and with their respective evolution over time. Fig.9 visually explains how all these elements interact with each other and the key role that management must play to ensure the appropriate functioning of the business machine.

Many companies separate the accountability of Cash Flow Statements and Balance Sheet into the role of the Chief Financial Officer (CFO), leaving the Income Statement to the

General Manager or CEO. This is an additional protection mechanism to guarantee nobody is cooking the books or artificially altering the numbers. While some flexibility is allowed in the way numbers are reported, in the long run, the three financial statements have to work in harmony.

You may wonder if it is possible to have a decent Income Statement and a beautiful Balance Sheet, and yet a Cash Flow Statement that eventually makes a company file for bankruptcy. The answer is yes, it is possible and it happens every day somewhere in the world. Imagine a business that would have a large proportion of its assets in inventory[7] or an industrial manufacturing company that spends a disproportionate amount of money in Capital Expenditures (CapEx) that cannot afford. In any of these cases, Cash Flow might not print black ink (positive numbers) as the inventory did not ship and couldn't convert inventory into sales.

One example of a company that had a good income statement and balance sheet but faced cash flow problems is Netflix. Despite having a strong income statement with growing revenues and a solid balance sheet, Netflix has often faced cash flow issues as you can appreciate in Fig.10. This is largely due to their business model which requires significant upfront investment in content creation and acquisition.

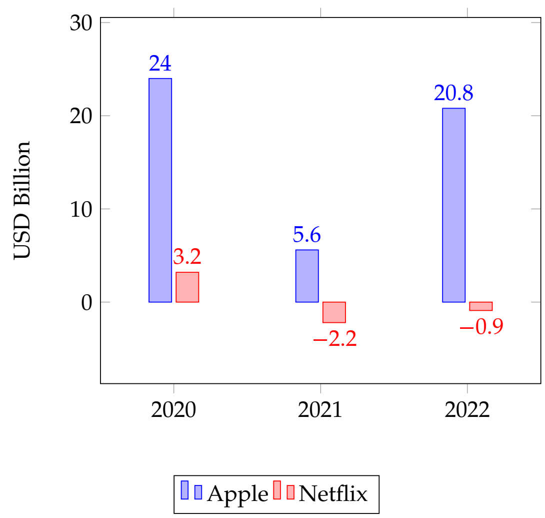
These investments are capitalized and amortized over several years, which can lead to a situation where Netflix is profitable on an income statement basis (which is accrual-based), but still has negative cash flow because the cash outlay for content occurs upfront. This is a common issue for companies in the media and entertainment industry, and it's why analyzing the cash flow statement in addition to the income statement and balance sheet is so important.

[7]We mentioned at the beginning of the article that we follow the US GAAP. There are 110 other countries different than the US where the accounting practice is the International Financial Reporting Standards (IFRS).

One of the key differences between these two accounting standards is the accounting method for inventory costs. Under IFRS, the LIFO (Last in First out) method of calculating inventory is not allowed. Under the GAAP, either the LIFO or FIFO (First in First out) method can be used to estimate inventory.

The reason for not using LIFO under the IFRS accounting standard is that it does not show an accurate inventory flow and may portray lower levels of income than is the actual case.

Figure 10: *Net Change in Cash for Apple and Netflix*



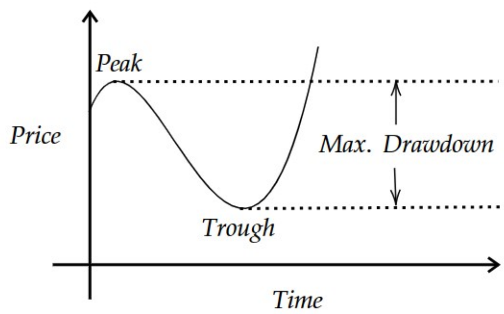
3.4 Volatility - Maximum Drawdown

Past fluctuations in the price of an asset, business, or portfolio are beneficial for any evaluation. Historical measurements will give us an idea of the type of risk we may run into. Although past pricing cannot be a proxy for future valuation, the historical price of an asset is a factual way of identifying potential turbulent markets. The easiest way to measure volatility is with Maximum Drawdown, which is the maximum observed loss from a peak to a trough of an investment, before a new peak is attained. It is expressed in percentage terms.

For example (See in Fig.11), if the Peak was USD 100 and the Trough was USD 70, the Maximum Drawdown obtained in that period of time would be 30%. The longer the historical period, the higher the Max. Drawdown will be, as it is a very sensitive metric that should detect the worst moment (no matter how short in time, maybe seconds) of the pricing registered for that asset.

In summary, this simple yet powerful mea-

Figure 11: *Maximum Drawdown Definition*



surement will let us know, for any given period, what was the worst of volatility and anticipate, if history repeats, what level of stress our investment or asset could go through. My recommendation is to assume that the Max. Drawdown will increase in the future, so assume an additional increase in the level of Max. Drawdown before you program your Stop Loss[8].

3.5 Expensiveness - Price/Earnings Ratio

Expensiveness provides an indication of when to start/enter or when to end/exit a business if we ever want to do so. If the ratio Price/Earnings (P/E) is high, it might be your chance to sell; otherwise, it might be the moment to enter. High or low are relative terms, so we will need to compare the P/E Ratio to the same business in a prior year/quarter/month, or to a cluster of peer businesses, segments, index of companies, or even an industry group. And here is when it gets psychologically complicated. Is it riskier to invest in a cheap or an expensive business? The same dilemma arises when you decide to acquire real estate or buy a new computer.

Some experts give as much importance to the trend of that value or the momentum[9] as to where the relative position is. They also distinguish between the intrinsic value of an asset (alpha) and the overall valuation of its market (beta). You may have a high price of an asset simply because the stock market overall has been very bullish (good beta). Equally, you may have a bad valuation and still the fundamentals remain very strong (good alpha). That is the reason why evaluating a single business outside of the context or market where it belongs may still make you lose money, no matter how good the business is.

We may have in front of us the most beautiful business in the world, but if it is extremely expensive, we should think twice before investing. The ultimate answer is always accurate valuation. You won't be able to predict the future price of any business, but you can do your homework right; the valuation. The best way to evaluate a business's Expensiveness is by looking at different ratios, by which the most obvious divides the Price of the company (Typically stock price if the company is public, otherwise you can ask the owner) by the earnings. That gives us the P/E Ratio.

That multiple can be used to observe different perspectives, including the evolution of its price over time. This ratio normalizes and facilitates comparisons on how expensive a business is relative to its previous years, its peers, or whatever other cluster you want to consider. You can compare the P/E of the same business over time and try to understand any trends. You can also plot multiple P/E's from different businesses in different industries or competitors to understand what are the underlying reasons behind the different valuations (See Fig.5).

Many investors consider the time it will take for them to recoup their initial investment. In Private Equity[10], a period of 5 years, or an av-

[8] A Stop Loss is a type of order that investors or traders use to limit their potential losses in the stock market. It works by automatically selling a security when its price reaches a certain level, known as the stop price. This helps traders avoid larger losses if the price of the security continues to drop.

[9] In finance, momentum refers to the empirically observed tendency for rising asset prices or securities return to rise further, and falling prices to keep falling. It is the rate of acceleration of a security's price—that is, the speed at which the price is changing.

[10] Private equity is a type of alternative investment that involves buying and managing companies before selling them for a profit. Private equity firms operate these investment funds on behalf of institutional and accredited

Table 5: *P/E Ratios Trend per Company*

Year	Apple	Google	Amazon
2018	18.2	38.5	76.3
2019	22.6	28.3	76.3
2020	35.3	29.9	75.8
2021	29.1	27.2	50.6
2022	21.9	17.1	74.4

erage return of 20%, is considered the industry standard.

3.6 Comfortability - User Experience

It is always recommended to be a customer of a company you're thinking of investing in. Evaluate objectively what type of experience you're having and what other customers might have. If you don't understand the business, start asking the end users about their customer experience. What makes that product or service easy, fast, profitable, or value-adding? Try to articulate why you would recommend to family and friends to use their products or services and why.

The Net Promoter Score (NPS)[11], when done accurately, can give us a good measurement of the overall user experience.

Unfortunately, every company says that their users love them, so the best is to listen to the judgment of people who can independently give you more than one data point when we cannot be customers ourselves. Do not confuse high pricing or punctual bad service due to excess demand with the overall performance of a company. Try to look for added value and excellence compared to the competitors.

NPS measures the output of the user experience. Another approach, as an In-Process metric[12], is to evaluate the visible processes of a business, for example how easy it is to order. Count the amount of interactions needed with the business towards the good is delivered or the service provided. Counting the amount of touch-points needed to perform an operation is an objective way to measure the efficiency and productivity of a business. A business that cares for the outward productivity of their customers is a business that cares about the internal productivity, and that increases the probability of future profits.

The case of a pilot completing a landing procedure is different depending on the aircraft manufacturer they operate with. The design of an aircraft cockpit might be either derived from a pure engineering mindset or taking into account the end user (pilot) comfortability. Again, the smoother, easiest, with the lowest amount of steps needed, the better. Some Original Equipment Manufacturers (OEM's) pay more attention to the user interface to obtain end user satisfaction, which ultimately enhances the brand and results in leaner and safer operations and ultimately more sales. A well-known difference in the avionics industry is the Boeing approach by which pilots follow more intuitive procedures with control instruments are highlighted and located in sequential intuitive locations (See Fig.12).

3.7 Innovation - Competitive Technology

Innovation can be measured by Research and Development Costs[13] relative to the Sales of a

investors. Private equity funds may acquire private companies or public ones in their entirety, or invest in such buyouts as part of a consortium. They typically do not hold stakes in companies that remain listed on a stock exchange.

[11]NPS is a metric used to measure customer loyalty, satisfaction, and enthusiasm with a company. It is calculated by asking customers one question: "On a scale from 0 to 10, how likely are you to recommend this product/company to a friend or colleague?". Customers are then categorized into three groups based on their response: promoters (score of 9 or 10), passives (score of 7 or 8), and detractors (score of 0 to 6). The NPS is calculated by subtracting the percentage of detractors from the percentage of promoters.

[12]An In-Process metric provides information about how the process is working before it has become an output, which gives us a chance to regulate or correct other variables towards the desired target before the output has been concluded.

[13]The treatment of developing intangible assets through research and development is also different between IFRS vs US GAAP standards. Under IFRS, costs in the research phase are expensed as incurred. Costs in the development

Figure 12: *Boeing 737NG Avionics User Interface*

business. Even better is to understand what percentage of the current business is driven by truly new products and innovation. The higher the ratio, the better the Innovation. Unfortunately, this metric can be easily deceived. For example, by changing the color of a box, one may claim to have a new product.

We will need true knowledge from customers that differentiated value was generated in those new products. As it always happens, the easiest way to find out if a customer really appreciates the improvement is by looking at the variation in price. If the new product has additional benefits, the willingness to pay by the customer will be real. Some industries claim that competition is so hard, that the most they can do with new products is to maintain current prices.

I do not believe that would be true innovation, but if you can demonstrate to management that every competitor is lowering prices with real quotes, perhaps the issue is industry-wide and as an investor, that might be a sign to leave that industry if cost can't be lowered and margins can't be expanded from the top-line[14].

Because Innovation is also associated with the improvement of Supply Chain expenses and as we just saw, a customer that perceives

Figure 13: *Gross Profit Margin for Apple, Inditex & Microsoft*

Year	Apple	Inditex	Microsoft
2020	38.2%	57.6%	68.3%
2021	41.8%	57.1%	68.9%
2022	43.3%	57.0%	68.4%

Innovation will be more likely to pay a higher price for it, a good metric that will reflect both concepts is margin expansion. Studying the evolution of margins over time will give us an idea of how much Innovation a business is truly realizing in its respective markets. Fig.13 provides a few examples of gross margin[15] expansions.

3.8 Comprehensiveness - Business Model

Do you really understand how the business you are assessing makes money? Another way to ask the same question is if you would be able to describe it with enough detail to replicate it. While obviously, you will not be able to recreate everything, the closer your description gets to reality, the closer you will know how the business makes money. Follow an order, follow the money flow, and evaluate the probabilities of being replaced or outsmarted by other competitors. Find out how difficult it is to enter that market. Try to follow the physical process from order to delivery. Understand what type of problem the business is solving for its customers. Try to quantify the amount of money, time, or headaches that the business spares from its customers. Write down the decisions that need to be made along the way. All these steps will help you understand the business model.

Our recommendation is never to invest in a business that you don't truly understand. Do not trust what you read or hear, form your own independent opinion based on things that you

phase may be capitalized based on certain factors. On the other hand, US GAAP generally requires immediate expensing of both research and development expenditures, although some exceptions exist.

[14]Top-Line refers to Sales as it is the Revenue line the top one in the Income Statement. Bottom-line is referred to Net Income.

[15]Gross margin is a profitability measure that looks at a company's gross profit compared to its revenue or sales. It is expressed as a percentage and calculated by dividing gross profit by revenue and multiplying by 100.

Figure 14: *Business Model*

Table 6: *Yearly Revenue for ASML*

Year	Revenue in USD billion
2023	28.7
2022	22.3
2021	22.0
2020	16.0
2019	13.0

can verify. Once you understand the transactional part of the order from order to fulfillment, follow what exactly is done from raw materials to finished products, services, or solutions, what players, markets, and circumstances are needed. Don't limit yourself to the supply chain decisions but make an effort to contextualize value. Try to understand what is the truly differentiated added value of the offering your business provides.

How easily can that business model be replicated? If you can do it, typically that's a big warning of easy-to-do, no matter who you are. If not one single person in the world knows how to do it completely, such as the iPhone, it's a good sign that complexity and the different added value in each step has a powerful business model behind. ASML, a toolmaker for the semiconductor industry, produces some of the most complex machines in the world, and despite the cyclical nature of the chip industry, its sales did not slow down as you can see in Table 6.

Additionally, one should ask how sticky a business model is, in other words, what will make customers come back again and again to this business. Ask yourself how contagious the eagerness to hire your services or buy your products is. Is it part of an ecosystem where the added value of the different components makes the system much better?

While the System approach is typically a good sign, beware of companies that become the system provider having a single big customer in a highly competitive environment. This results in price pressure with a highly specialized product that makes the supplier prisoner of the customer. This is what happened to Delphi, an Automotive supplier that filed for bankruptcy on October 8, 2005. Despite being the largest US auto parts maker and after several warnings to its biggest customer General Motors, and their United Auto Workers representatives, the company couldn't get out of their market dependency and uncontested cost structure. Several other parts makers also filed for bankruptcy protection in the following years for similar reasons.

Finally, evaluate every interaction between the different elements of your business model Fig.14. Find out how financially intensive this business is and what would need to happen to bankrupt the business. In order to evaluate the resilience of a business, calculate the survival number of days, i.e., at the current level of spending, how many days can the business continue to ship products or provide services without collecting additional revenue.

3.9 Economic Boundary Conditions - Macroeconomics at the Residence of the Assets

We may have a great business opportunity in all of the above-mentioned factors but if this occurs in a geography with high inflation, an unstable political system, an area of bad access to financing, a high rate of unemployment, legal uncertainty, or low access to qualified labor or machines, the prospects of a successful business will be hindered. Let's start by studying the local macroeconomic conditions in tables like Fig.7 to understand the current status and the evolution in the last couple of years.

Table 7: *Macroeconomic indicators*

	2018	2019	2020
GDP growth	2.9%	2.2%	-3.5%
Inflation	2.4%	2.3%	1.2%
Unemployment rate	3.9%	3.7%	8.9%

A good way to anticipate the future status of an economy is to track the balance of the financial budget by the local authorities. Budgets are a zero-sum game[16], in which if your expenses (public spending) are higher than your collected income (taxes), i.e., if your budget is not balanced (deficit), this creates a negative number that needs to be patched somewhere. It will be balanced whether governments hide it or ignore it. If it is not balanced through an increase in taxes, it will need to be balanced through debt.

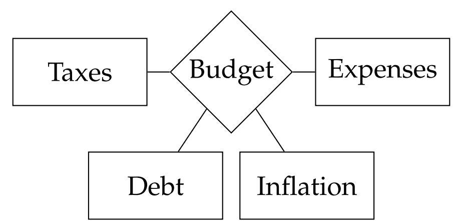
Once the debt is there, some governments prefer to find private creditors to match that debt (As Japan does it with mostly national investors and institutions). Other governments have weaker reputation with private creditors and investors and they need to call their respective central banks to buy their debt. As central banks are not allowed to reduce government spending, they typically print money to buy that debt[17], which eventually ends up in Inflation. This mechanism is summarized in Fig.15.

All in all, the financial statements of countries should not be analyzed differently from those of businesses. Some investors tend to tolerate higher levels of debt for countries. However, as has been repeatedly demonstrated throughout history (see Ref.[4]), excessive debt ultimately leads to financial crises for countries,

Table 8: *Defaults per country since the XVIII Century*

Country	# of Defaults
Spain	13
Argentina	9
Brazil	9
Italy	9
France	8
Greece	5
United States	3
Germany	2
United Kingdom	0
The Netherlands	0
Luxembourg	0
Switzerland	0

Figure 15: *Budget balanced by Inflation and Debt*



including capital losses for those investors who believed they could profit from it. See Table 8.

3.10 Geopolitics - Track record of Government Interventions

Governments make trade rules hoping to defend different interests. When they apply trade tariffs or exemplary sanctions, whether inappropriately, fairly or not, they will affect your

Table 9: *Increasing stake of ECB in European Debt*

Year	Spain	France	Italy
2016	20%	10%	12.5%
2017	22%	10%	15.5%
2018	22%	20%	17.5%
2019	22%	20%	20.3%
2020	34%	20%	23%
2021	34%	20%	25%
2022	34%	20%	25%

[16] The addition of all the components are zero. In other words, some parts will be positive, others negative, but the overall addition will be zero.

[17] Start worrying when you see the debt of a country being bought by the central bank (See table 9).

industry or business without you having any control over it. As an example, you can read how a highly subsidized semiconductor industry brought the manufacturing of memory chips from the US to Asia at the end of the 20th century. You can read all about it in the Reference [12].

The frequency of these Government interventions, such as Sanctions or Subsidies, is a bellwether of the likelihood of future interventions. Interventions can also be done to currency with severe damage to your business. In 2015, the Swiss Central Bank (BNS) released the intervention of the Swiss Franc (CHF) that had been held artificially at the level of 1.20 (Euro/CHF) in an attempt to keep the competitiveness of Swiss companies in the European Union for many years. The day the announcement to stop the intervention was done, the Swiss Franc appreciated 20% moving to 1 (Euro/CHF) in seconds and thousands of businesses lost billions. Several people committed suicide and multiple brokers and businesses filed for bankruptcy in the aftermath. The BNS resumed interventions short after anyway. The Swiss Franc is today 0.96 (Euro/CHF).

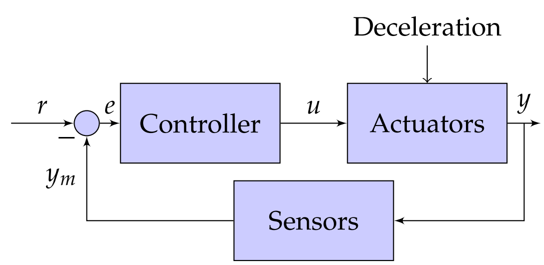
Every now and then, governments use their right to expropriate as a political tool, as it was the case of Argentina last decade when decided to re-nationalize YPF SA, an oil and gas company that had been previously bought by Repsol SA in 1999. A recent ruling from the US District in Manhattan concluded that Argentina should pay $ 16 Billion in damages. This penalty represents 38% of the current cash reserves of Argentina. While this expropriation is per se probably the worst deal Argentina ever made, it also deteriorates further the reputational brand of Argentina respecting foreign investments, and scares other multinationals to invest in the country for fear of having their purchased assets nationalized.

3.11 Regulation - Track record of Authorities altering Business

Regulation should be a tool for standardization but is often used as a protectionism mechanism. As a way to defend or counter-defend businesses and industries. Powerful lobbies develop with their respective authorities new laws to abide or change the normal course of business, and other than further expensive counter litigation there is not much one can do.

As an example of regulation affecting a business. In the 1970's Eaton developed the best technology on Airbag car safety for Ford in the "Auto-Ceptor" crash-restraint cited in [14], but sometimes, no matter the level of innovation you may have accomplished, until the regulatory body does not make it mandatory by regulation your business will not experience the level of growth that you were hoping to achieve. Airbag technology is now mandatory by regulation in every new car around the world.

Figure 16: *Regulated Airbag control system*



Understanding regulation also requires perfect timing on patents, as some inventions may be approved or regulated long after your intellectual property has expired. Alternatively, you can also be in a situation where a foreign authority decides to forbid your technology to favor local industries and businesses, even utilizing some of the marketing and development efforts you had previously invested in.

The most meaningful way to assess this risk is to study how frequently the responsible authority has implemented these types of actions in the past and with what consequences. GE's attempt to acquire Honeywell at the beginning of the century was frustrated by the European Commission on the grounds of Bundle Effect Competition. The fear was that European manufacturers of jet engines might not be able to compete on a bundle of GE-Honeywell avionics and jet engines. GE was also at the time the second biggest buyer of Airplanes in the world with GE Capital Aviation Services, so the EU Commissioner Mario Monti thought this might have created an exacerbated demand for GE-Honeywell aircrafts. I worked for General Electric during the negotiations and at Honeywell International in Brussels after the acquisition was stopped.

3.12 Legislation - Time Required to Resolve Conflicts

The ability of a state or region to resolve legal conflicts is a determining factor when attracting new businesses or expanding existing ones. Likewise, judicial impartiality and independence is a very positive sign for establishing new ventures. The definitive measure of how efficient a judicial system is the time it takes from the filing of a lawsuit to the ruling. This is the list (Table 10) of the most Efficient Legal systems in the world According to [10].

Table 10: *Countries with Efficient Legal Systems*

Rank	Country
1	Denmark
2	Norway
3	Finland
4	Sweden
5	Netherlands
6	Germany
7	New Zealand
8	Austria

The laws may be the fairest on the planet, but if the judicial system is not agile enough to resolve litigation, companies do not consider it as a useful system. Business uses litigation as a vehicle for negotiation or defense of intangible and tangible assets, such as intellectual property, contracts, or property claims. The time it takes for the offender to stop the illicit intention is often translated into monetary terms as the action may persist as long as there is no legal resolution or some type of motion has been initiated.

Pay special attention to past legislation, court cases, investors journals, and see how they were treating similar businesses in the same space. Treatment by the authorities on intellectual property is a key interest point here.

3.13 Dealing Risk - Counterpart Risk

A risk that typically is overseen is that of the intermediaries. We should be aware of what risk we are exposed to when dealing with a bank, broker, or institution that is handling our transactions. We may have all great prospects of acquiring a company, but if the bank that holds our investments fails, we may lose part or all of our capital. Credit rating agencies do a moderate evaluation of this type of risk, and you should be aware of the credit rating for any institution that your funds go through.

Table 11: *Credit Ratings Summary per Agency*

Level of Risk	Moody's	S&P and Fitch
Lowest	Aaa	AAA
Very Low	Aa1,Aa2,Aa3	AA+,AA,AA-
Low	A1,A2,A3	A+,A,A-
Normal	Baa1,Baa2, Baa3,Baa4	BBB+,BBB, BBB-
High	Ba1,Ba2,Ba3	BB+,BB,BB-
Very High	B1,B2,B3	B+,B,B-
In Default	Caa1,Caa2, Caa3,Ca	CCC,CC, C,D

A few examples of Counterpart Risk that didn't go well:

1. **Lehman Brothers:** The bankruptcy of Lehman Brothers in 2008 is a prime example of counterparty risk. When Lehman Brothers declared bankruptcy, it defaulted on many of its obligations, causing significant losses for its counterparties.

2. **AIG:** American International Group (AIG), a global insurance corporation, had to be bailed out by the U.S. government in 2008 due to its exposure to counterparty risk. AIG had sold credit default swaps (a type

of derivative) on mortgage-backed securities without adequately hedging its risk. When the housing market collapsed, AIG was unable to meet its obligations, posing a significant counterparty risk to the financial institutions that had bought the swaps.

3. **MF Global:** MF Global, a major global financial derivatives broker, filed for bankruptcy in 2011. The firm had made significant bets on European sovereign debt through repurchase agreements. When these bets went bad, MF Global could not meet its obligations, resulting in significant losses for its counterparties.

3.14 Growth Potential - Economics of the Industry

A good business is better in a great industry. If the industry is overall growing, or the prospects are strengthened by tailwind factors, any business in that industry will benefit. We still need to understand how those factors are going to favor the industry and our business in particular, but the metaphor of swimming against or following the stream is very accurate. Do not trust the media when they report anecdotal or non-representative cases, remember that the media is a business in itself that wants humans to read the story, they do not care about your business valuation. For every story you read, consider what percentage of the business or the industry it represents. Conduct your own independent market intelligence and non-biased thinking. Answer the following questionnaire to understand the Growth Potential of a business.

Growth Potential Questionnaire

1. What evidence do you have that this business will provide more or fewer products/services in the next 10 years?
2. What are the facts that support a mega trend that the industry will further adopt the current technology/process/solution provided by this business?
3. How easy will it be for others to participate in the same market or copy the current technology/process/solution?
4. How likely are the threats of external regulation or legislation to shrink the current prospect of growth in this business?

3.15 Productivity Potential - Demonstrated Reduction in Volume Productivity

In this section, we aim to evaluate whether a business can generate more revenue and net income with fewer or the same assets and flat or smaller liabilities over time. This is equivalent to producing the same output with a continuous reduction of resources, or at least not increasing the cost. Resources include energy, space, time, and unfortunately, also people. Automation and digitization of processes also play a key role in this principle. However, do not trust digitization per se; a broken process, when digitized, brings no productivity to a business. Encourage anyone willing to digitize a process to first streamline it and only then digitize it. The ultimate way of measuring productivity is to evaluate the cost per unit over time.

Tracking that productivity as a function of the volume of units sold is a smart way to avoid the business falling into the complacency of higher revenue. Follow this questionnaire to assess how important productivity is at the business you're evaluating.

Productivity Potential Questionnaire

1. What evidence do you have that there will be more or fewer costs associated with the products/services provided by this business in the next 10 years?
2. What are the facts that support a mega trend that the industry will increase productivity by the current tech-

nology/process/solution incorporated in this business?

3. How easy will it be for others to participate in the same productivity trends or copy the current productive processes?

4. How likely are the threats of external regulation or legislation to shrink the current prospects of productivity in this business?

3.16 Distribution Power - Difficulty for New Competitors

How many competitors have entered your market in the last 5 years? How have they increased or reduced their market share in the last 5 years? Evaluating market share pie charts like the one in Fig.17 can provide a percentage of variation from new competitors, which gives us an idea of how protected or secure the current market is. Take into account that shifts in market share occur slowly and the data generally provided is delayed. The pie chart might be done by geography or product line for better accuracy. Depending on where you are currently and your business ambitions, your strategy will be different. For example, McDonald's has a market share of 19% while Burger King has 5%. As a result, McDonald's tries to open franchises in new strategic places not explored before and Burger King opens restaurants as close as possible to McDonald's.

3.17 Culture - Employee Turnover

While a very comfortable and soft culture might not demand the best you can from your employees, a very harsh environment with a toxic ambiance is not the best area to go to work every day. No matter how we look at it, a performance culture needs some level of stress and some level of freedom for creativity and development. Different departments may be subject to different types of dynamics. The right equilibrium for this range can be found in one metric.

On my quest to find metrics that define best how to gauge any principle, I concluded that

Figure 17: *Market Share per Business*

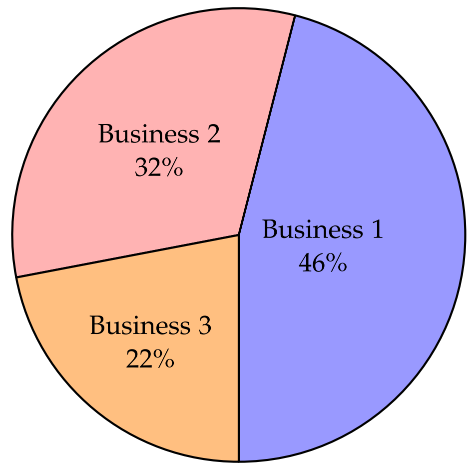
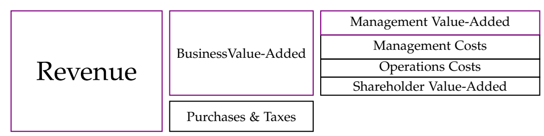


Figure 18: *Definition of Management Value-Added*



there is no better way to assess if a culture is appropriate than measuring the amount of people that leave the company, that is, Turnover. High Turnover is the result of a bad culture and environment and it will eventually hurt the long-term performance and risks of the business. Turnover includes employee morale, ethics, integrity, and productivity which play a big role in the ultimate net income goal. Good people want to work for great companies, and if the culture is right, they don't leave. If the culture is not right, you see it in the turnover.

3.18 Management - Return on Management

The quality of Management is something that can be measured by clear metrics. We suggest the use of the metric Return On Management as explained in the book [15] recommended by Steve Jobs.

To explain it, let's use the graph recreated in Fig.18 where we can deduce that Management Value-Added can be calculated from the Revenue value subtracting Purchases & Taxes, Shareholder Value-Added, Operations Costs, and Management Costs. Shareholder Value-Added can be obtained by looking at the change in Shareholder Equity from the last period.

Equation 4: *Business Value Added (BVA) Equation*

$$BVA = Revenue - Purchases\&Taxes \quad (4)$$

In conclusion, the best way to evaluate management is by measuring their output on what they are accountable for, which is eliminating mathematically any other bucket where they have limited control. To be able to compare Management from different organizations, the ratio ROM in Eq.6 divides the Management Value Added by their cost. Doing this exercise will let you understand if Management truly adds value and how much.

4 Evaluating Multiple Investments

It is recommended to demonstrate that the fundamentals are solid first before you create a pool of candidate businesses to compare, and only after completing those tasks should we proceed to the next phase of comparing peers. It is pointless to assess whether the P/E ratio is optimal if we have not confirmed that our business is healthy through a balance sheet review. For that matter, we need to identify what is important for the business owner or investor, which might be you or someone you work for.

Before entering any business venture, I always recommend establishing what are the limits of risk you are willing to accept. The levels of return you hope to achieve, the risk in terms of volatility and balance sheet liabilities, and the level of free cash flow that you'll need every day. Return, Risk, and Liquidity provide a good framework to evaluate multiple business opportunities. I use a chart that we call the Singularity Investment Matrix which we use to help our clients compare any type of asset class and investment. See in Fig. 19 a sneak peek where multiple assets are plotted against Return, Risk, and Liquidity. Further information is provided through our website SingularityPartners.ch.

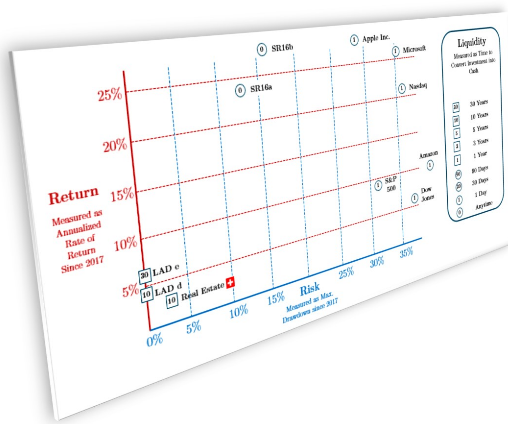
Equation 5: *Management Value Added (MVA) Equation*

$$MVA = BVA - M.Costs - O.Cost - Shareh.VA \quad (5)$$

Equation 6: *Return On Management (ROM) Equation*

$$ROM = \frac{ManagementValueAdded}{ManagementCost} \quad (6)$$

Figure 19: *Singularity Investment Matrix*



When the chart starts getting too crowded, one may use the Ultimate Ratio to independently evaluate different risks and their respective returns. The higher the Ultimate Ratio, the more it should deserve our attention. The Ultimate Ratio is defined in equation 7.

The Ultimate Ratio is a financial metric that measures the risk-adjusted return of an investment. It is calculated as the ratio of the Yearly Return to the Maximum Drawdown. The Yearly Return is the average return that an investment provides over a year, expressed as a

Equation 7: *Ultimate Ratio Equation*

$$UltimateRatio = \frac{YearlyReturn}{MaximumDrawdown} \quad (7)$$

time-weighted annual percentage. Investment funds use a similar metric called the Calmar Ratio[18].

5 Conclusions and Exercise Scorecard

Before we conclude, we would like to invite you to practice each learned principle through the following scorecard. Select a business you are interested in and follow the criteria explained above. Now try to give a score following the tool below. Assessing one business requires multiple principles of business value. Assessing each one of them will let us know what areas of opportunities you have and eventually help make important decisions such as buying, investing, acquiring, selling, or divesting a business. To keep track of a rigorous evaluation, we created the scorecard in Table 12 where you can keep track of the different Principles and how they score. In this exercise, the objective is to find things that nobody saw before with a high level of accuracy in your assessment. With strong dedication, it will lead you towards the screening of great businesses.

In order to score those Principles please apply the following score critieria:

- **0** when you perceive or measure the worst performance you ever saw in that industry.
- **5** when you perceive or measure an average performance in that principle for that industry.
- **10** When you perceive or measure the best performance you ever saw in that industry.
- **Leave blank** when you cannot measure or have no way to perceive the performance.

[18]The Calmar Ratio is a measure of the performance of an investment fund compared to its risk. It is calculated by dividing the average annual rate of return by the maximum drawdown over a specified period, typically the previous three years.

6 Acknowledgements

I trust you enjoyed the reading. Thank you for your interest and for taking the time to read and learn. I also thank those who pushed me to put all this together. Namely, José Manuel and Angelina. Thanks to the years of help from my Father. Thanks to the rest of my family and friends for letting me know they're always there. To my business partners Mario, Gabriel and Piero.

Thanks to those who inspired me through their books, articles, and interviews. The work of some of them deserve a second or third reading and I mention those below in the References section:

On Economics by [3], Economics History by [4], Macroeconomics by [5] and [18], Financial Trading from [13], Start-ups and Venture Capitalism from [7] and Financial definitions from [8] & [17]. Business practice from my previous CEO [2], business model from [6] and the ability to understand the interaction between financial statements in [9], [16] and [1]. Thanks also to the master classes in business productivity available at [15]. Some of the figures were produced with [11]. Article written with Microsoft Windows® software MiKTeX v.0.6.8 and TexWorks for LaTeX.

7 Updates on This Work

Further revisions and updates on this document will be available at SingularityPartners.ch/Files Please feel free to provide feedback via the contact section of the same web site.

Nr.	Principle	Measured as	SCORE	WHEIGHT	WEIGHTED SCORE
1.	Risk	Balance Sheet		10	
2.	Return	Income Statement		10	
3.	Liquidity	Cash Flow		10	
4.	Volatility	Max. Drawdown		10	
5.	Expensiveness	Price/Earnings		10	
6.	Comfortability	User Experience		5	
7.	Innovation Capacity	Competitive Technology		6	
8.	Comprehensiveness	Business Model		5	
9.	Economic Conditions	Macroeconomics at Residence		5	
10.	Geopolitics	Interventions		3	
11.	Regulation	Authorities Altering Busines		3	
12.	Legislation	Time to Resolve Conflicts		3	
13.	Dealing Risk	Counterparty Risk		2	
14.	Growth Potential	Economics of the Industry		2	
15.	Productivity Potential	Volume Productivity		2	
16.	Distribution Power	Difficulty of Competition		1	
17.	Culture	Employee Turnover		5	
18.	Management	Return on Management		7	
				Total:	

Table 12: *Principles of Business Value - Scorecard*

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