INTELLIGENT INVESTING

THE #1 WEALTH BUILDING STRATEGY

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Any views expressed in the below are the personal views of the author and should not form the basis for making investment decisions, nor be construed as a recommendation or advice to engage in investment transactions.

THREE SIMPLE RULES OF INVESTING SUCCESS

Warren Buffett's success is based on three simple rules:

1. Invest based on the intrinsic value of a company.

2. Be prepared to hold your position in a company forever if necessary.

3. Never invest in a company with a business you don't understand.

When it comes to investing, this is excellent advice. It is general enough to apply to all of us. We can't just imitate Buffet and expect the same results, but we can take direction and apply it in our personal way to the ever-evolving and changing stock markets and equity investing.

Investing is the practice of evaluating opportunities and putting money to work for you. The smarter you do it, the better your returns will be.

This book will give you the tools to evaluate opportunities in the stock market and invest smarter. Let's get going!

CHAPTER 1
A BRIEF INTRODUCTION TO STOCK MARKETS

A BRIEF INTRODUCTION TO STOCK **Markets**

Finance has undergone a remarkable digital transformation with the rise of the information age.

As real estate and other markets become increasingly difficult for new investors, stock markets have seen the opposite effect. In addition, with the advent of digital tools and trading apps, the web has made investing in the stock market much more accessible.

As someone who has experience learning to invest in the stock market during the digital age (and continues to do so), here's a summary of my key takeaways.

Companies, Accounting, and Finance

• Corporations benefit from limited liability and reduced tax rates in exchange for increased regulation.

• Corporations are managed by a board of directors representing shareholders' interests. In addition, the board appoints the Chief Executive Officer (CEO).

• The primary objective of a company is growing. Corporations grow by investing money in projects such as developing new products, entering new markets, acquiring other businesses, etc.

• To invest in new projects and grow, companies need to raise capital. Companies can achieve this in several ways, including bank loans, reinvesting profit, private investors, issuing bonds, or going public and selling stock.

The stock market as a tool for raising money

• Going public allows a company to raise capital by selling shares on a public exchange. These shares represent ownership in the company. For example, if a company issues 100 shares, then one share = 1% ownership.

• Once a company lists on a public exchange, investors can buy and sell those shares at a price determined by buyers and sellers, like an auction. The law of supply and demand determines the share price and, by extension, the company's value.

• The value of a company is equal to the share price * the total number of shares issued. This number is called the market value of the company.

• Publicly listed companies can choose to sell additional shares on the market at any time to raise money. However, increasing the number of shares in circulation too quickly can devalue existing shares.

• In practice, companies balance using the stock market to raise money with other methods (debt instruments like

bonds, bank loans, etc.). This financing mix is the primary responsibility of the Chief Financial Officer (CFO), who works closely with the CEO.

Regulation and Financial Statements

• Most public stock exchanges are heavily regulated by authorities to protect investors. The regulator in the U.S. is the Securities and Exchange Commission (SEC). Publicly listed companies must adhere to these rules and regulations or face strict penalties.

• One such regulation is the format and public release of financial statements. Companies must make their financial statements and other significant announcements publicly available on the exchange. The annual report a company must file with the SEC is called a **10K**.

• Enforcing the public release of these financial statements and announcements allows investors to do their research and make informed decisions.

• Financial statements will always include a profit and loss statement and are typically accompanied by annual or quarterly reports detailing critical business updates. A company's website and annual reports are usually a good place to start when doing research.

Brokerages and investing apps

• To buy and sell shares on a public exchange, investors must trade via a brokerage firm. In addition to traditional brokerages like Schwab and E*trade, several fintech startups and

tech companies that act as a brokerage have emerged in recent years, like Robinhood.

• Signing up for a brokerage account requires personal information and, depending on the jurisdiction, personal tax details.

• Not all brokerages provide access to all financial markets; most are region-dependent. The most common brokerage in Australia is CommSec, a subsidiary of Commonwealth Bank.

• Once signed up to a brokerage, investors can buy and sell shares in individual companies or ETFs. Brokerages usually charge a commission for every trade. But in the past few years, many have gone to commissionless transactions.

ETFs and the S&P 500

• In addition to buying shares in individual companies, investors can purchase and sell Exchange-Traded Funds (ETFs). These are investment funds that you can buy into via the stock market.

• ETFs may contain a combination of assets such as stocks, currencies, or commodities. The most popular is the S&P 500, which tracks the 500 largest companies in the United States.

• Investing in ETFs such as the S&P 500 can be a valuable tool for investors to reduce risk by providing a **diversified portfolio**. This risk mitigation is because the probability of all 500 companies dropping in value is lower than that of a single company.

Investor Confidence and market cycles

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• A company's stock price is determined by supply and demand and, therefore, by extension, the choices of individual investors.

• When confident, investors are more likely to buy into the market, increasing its value. Conversely, investors are likelier to sell off the market, pushing its value down when they lack confidence.

• Investors and the market more broadly can be affected by external factors such as election cycles, geopolitics, **macroeconomics**, and other global or domestic issues.

• The combination of these external factors and investor confidence leads to market cycles (e.g., bull and bear markets) and market crashes.

Personal strategy and research

• A **balanced and diverse portfolio** is the accepted approach for reducing personal risk. This diversification may include a combination of individual stocks and exchange-traded funds across various industries or asset classes.

• An investor's stock portfolio may represent only a portion of their total investment portfolio, which investors can spread across asset classes such as cash, stocks, bonds, property, commodities, etc.

• It's up to each investor to decide how they manage their stock portfolio.

• I have adopted a strategy combining targeted investments in companies focusing on researching and developing emerging technologies and the S&P 500.

Summary

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While this list is not extensive, I hope it is a helpful reference for others learning to invest during the digital age. I've also focused here on the underlying theory.

CHAPTER 2
READING AND UNDERSTANDING FINANCIAL STATEMENTS

ACCOUNTING AND BOOKKEEPING

BOOKKEEPING and Accounting produce Financial Statements, the cornerstone of Investing and Finance. Therefore, understanding how business transactions aggregate to make financial statements is critical to a foundational understanding of value investing and finance.

FINANCIAL STATEMENTS OVERVIEW

Intro to Financial Statements

- What are financial statements?
- The 3 Financial Statements:
- Income Statement
- Balance Sheet
- Cash Flow

Understanding Financial Statements

When you have completed this section of MBA ASAP, you will have a solid understanding of Financial Statements and

you will be able to draw meaningful conclusions from their contents. This knowledge can greatly impact the quality of your career, job prospects, and life.

Financial Statements are the basic language of money and business. Everyone should have a basic understanding of Financial Statements: what they are and what information they provide. It's a competency that can open up opportunities and vistas that are closed off otherwise.

Executives like the CEO, COO, and CFO routinely share and discuss financial data with marketing, operations, and other direct reports and personnel within an organization. They also compile and share financial information with stakeholders outside the firm, such as bankers, investors, and the media.

But how much do you really understand about finance and the numbers? A recent investigation into this question concluded even most managers and employees need to understand more to be useful.

Three Main Financial Statements

There are three financial statements linked together to provide a picture of an enterprise's financial position and health. They represent the end product of accounting, meaning they are the reports generated by accounting covering all of the transactions of a company.

The three primary financial statements are the

• **Balance Sheet**: which shows the firm's assets, liabilities, and net worth on a stated date

• **Income Statement**: also called profit & loss statement or simply the P&L: which shows how the net income of the firm is arrived at over a stated period, and

• **The Cash Flow Statement** shows the inflows and outflows of cash due to the firm's activities during a stated period.

Knowing how to read and understand financial statements is a business skill you must pay attention to. It can help to work your way up the corporate ladder by communicating with others in your company and understanding the big picture. It is also a useful skill in order to understand where your efforts and work can make the most impact.

When thinking about possibly changing jobs and working for a company, you can check their financials and make sure they are a healthy organization. If you are considering starting your own company, you will need to have financials prepared by your accountant to talk to investors, bankers, and vendors.

Suppose you want to invest wisely in the stock market, analyze the competition or benchmark your performance. In that case, you can look up the financials of any publicly traded company at the Securities and Exchange Commission website's EDGAR filings and get an idea of how they are doing. First, check out any public company's most recent 10K filings there. A 10K is the Annual Report of the company and its most important business and financial disclosure document.

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Next, we will review each financial statement individually and how they are interrelated.

THE INCOME STATEMENT OVERVIEW

The Income Statement

The basic structure and components of the Income Statement are reviewed in this section. The Income Statement is sometimes called the Profit and Loss Statement, or P&L for short.

The components of the Income Statement are:

- Revenue
- Expenses
- Net Income
- Profit
- Earnings

The Income Statement

The daily operations of a business are measured in the money that comes in as revenues, the money that goes out as expenses, the money that is retained as profit, the money that is invested in operational assets, and the money that is owed. So it's all about the money. Financial statements follow the money.

The report that measures these daily operations of money in and money out over a period of time is the **Income Statement**.

Revenues minus Expenses equals Net Income.

The Income Statement can be summarized as Revenues less Expenses equals Net Income. Net Income simply means

Income (Revenues) ***net*** (less) of Expenses. Net Income is also called Profit or Earnings.

The terms "profits," "earnings" and "net income" all mean the same thing and are used interchangeably. They are synonyms for the bottom line number on the Income Statement. Revenues are often called Sales and are represented on the top line.

You understand the dynamics of this concept intuitively. We always strive to sell things for more than they cost us to make or buy. For example, when you buy a house, you hope it will appreciate in value so you can sell it in the future for more than you paid.

It's also the rule for stocks: buy low, sell high.

The same logic applies to having a sustainable business model in the long run. You can't sell things for less than they cost to make and stay in business for long. So if you own and run a sandwich shop, you had better make sure that you are selling the sandwiches for more than they cost you to make.

Think of the Income Statement in relation to your monthly personal finances. You have your monthly revenues: in most cases the salary from your job. You apply that monthly income to your monthly expenses: rent or mortgage, car loan, food, gas, utilities, clothes, phone, entertainment, etc. Our goal is to have our expenses be less than our income.

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There is an old adage: "If you outflow is more than your income, your upkeep is your downfall."

Over time, and with experience, we become better managers of our personal finances and begin to realize that we shouldn't spend more than we make. Instead, we strive to have some money left over at the end of the month that we can set aside and save. In business, what is set aside and saved is called **Retained Earnings**.

We may invest some of what we set aside with an eye toward future benefits. We may invest in stocks, bonds, mutual funds, or education to expand our future earnings and career prospects. This is the same type of money management discipline that is applied in business. It's just a matter of scale. In business, we buy assets that help the enterprise expand or perform more efficiently. There are a few additional zeros after the numbers on a large company's Income Statement, but the idea is the same.

This concept applies to all businesses. **Revenues** are usually from Sales of products or services. **Expenses** are what you spend to support those sales in terms of the operations: Salaries, raw materials, manufacturing processes and equipment, offices and factories, consultants, lawyers, advertising, shipping, utilities etc. What is left over is the Net Income or Profit.

Again: Revenues – Expenses = Net Income.

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Net Income is either saved to smooth out future operations and deal with unforeseen events (save for a rainy day); or invested in new facilities, equipment, and technology. Or part of the profits can be paid out to the company owners, called shareholders or stockholders, as a **dividend**.

The Income Statement is also known as the "profit and loss statement." Business people sometimes use the shorthand term "**P&L**," which stands for profit and loss statement. A manager is said to have "P&L responsibilities" if they run an autonomous division where they make marketing, sales, staffing, products, expenses, and strategy decisions.

P & L responsibility is one of the most critical responsibilities of any executive position. It involves monitoring the net income after expenses for a department or entire organization, with direct influence on how company resources are allocated and responsibility for performance.

Google the term "income statement," and you will see many examples of formats and presentations. Again, you will see there is variety depending on the industry and nature of the business, but they all follow these basic principles.

Remember: Income (revenue or sales) – Expenses = Net Income or profit.

THE INCOME STATEMENT: REVENUE

Revenue = profit per unit sold X number of units sold

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Pricing power. Charge more.

Silicon Valley legend Marc Andreessen was asked what he would put on a billboard. Marc said two words: "**Raise Prices."**

"The number one thing – just the theme, and we see it everywhere – the number one theme that our companies have when they get really struggling is they are not charging enough for their product. It has become absolutely conventional wisdom in Silicon Valley that the way to succeed is to price your product as low as possible under the theory that if it's low-priced everybody can buy it and that's how you get the volume. And we just see over and over and over again people failing with that because they get in the problem we call *too hungry to eat*. They don't charge enough for their product to be able to afford the sales and marketing required to actually get anybody to buy it. And so, they can't afford to hire the sales rep to go sell the product. They can't afford to buy the TV commercial, whatever it is. They cannot afford to go acquire the customers."

THE INCOME STATEMENT: EXPENSES

Expenses

Salaries are usually a company's most significant Expense.

Opex vs. Capex.

Opex is short for Operating Expense, and Capex is short for Capital Expense. For example, salaries are an operating expense, and automation or robotics is a capital expense that offsets salaries by reducing the number of employees necessary to run a business.

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Capital expenses appear as an asset on the balance sheet and are depreciated in the Income Statement.

COGS cost of goods sold.

Cost of goods sold (COGS) is **the direct cost of making a company's products**. It is an important line on your income statement that can tell you a lot about your financial performance, efficiency, and profitability.

SG&A

SG&A is an initialism used in accounting to refer to Selling, General, and Administrative Expenses, which is a significant non-production cost presented in an income statement.

Fixed costs

A fixed cost is an expense a firm incurs that remains the same regardless of how many goods and services are produced or sold. Fixed costs are frequently associated with ongoing expenditures like rent, interest payments, and insurance that are not directly tied to production.

Variable costs

A variable cost is an expense for the firm that varies according to how much is produced or sold. Depending on a company's production or sales volume, variable costs grow or fall. They climb as output rises and reduce as production declines.

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A manufacturing company's raw material and packaging costs, credit card transaction fees, or shipping charges, which increase or decrease with sales, are examples of variable costs.

Fixed costs and variable costs can be compared and analyzed.

Break even with revenue.

When determining when you will break even financially, a break-even analysis compares the expenses of a new business, service, or product against the unit sale price. In other words, it indicates when you will have generated enough revenue to pay for all your expenses, both fixed and variable.

Non-cash expenses: AP, depreciation, and amortization

The second most significant Expense in business is usually Taxes.

THE INCOME STATEMENT: NET INCOME, PROFIT, EARNING

Net Income, Profit, and Earnings are all synonyms. They refer to the same bottom line number: Revenue minus Expenses.

Net income is **calculated by taking sales revenue and subtracting COGS, SG&A, depreciation, amortization, and other expenses**. As a result, net income is the bottom line item on the income statement.

THE BALANCE SHEET

Balance Sheet Basics

The Balance Sheet is a condensed statement that shows the financial position of an entity on a specified date, usually the last day of an accounting period.

Among other items of information, a balance sheet states

- What Assets does the entity own,
- How it paid for them,
- What it owes (its Liabilities), and
- What is the amount left after satisfying the liabilities (its Equity)

Balance sheet data is based on what is known as the

Accounting Equation: Assets = Liabilities + Owners' Equity.

Think of a Balance Sheet in terms related to everyday life. For example, homeownership is represented as a balance sheet when you have a mortgage. Your home ownership has the three components of Asset, Liability, and Equity.

The Asset is the value of the house. An appraisal determines this. An appraisal considers recent sales of homes in the area and compensates for differences like the number of baths or bedrooms, the size of the lot, etc.

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The Liability is the mortgage. This debt is how much you owe against the house.

Equity is the difference between the Asset's value and the Liability amount. So, for example, if your home is worth $200,000 and you have a remaining mortgage balance of $150,000, then you have $50,000 in Equity. We sometimes call this homeowner's Equity.

If your mortgage balance is more than the home's value, then you are considered "upside down" or "underwater." The same principle applies to a business: if the value of its Liabilities is more than the value of the Assets, then the enterprise is insolvent and probably headed for bankruptcy.

A Balance Sheet is organized under subheadings such as current assets, fixed assets, current liabilities, Long-term Liabilities, and Equity.

The Balance Sheet and the income and cash flow statements comprise the financial statements, a set of documents indispensable for running a business.

What does the Balance Sheet balance?

The balance sheet is structured to show the amount and type of assets an enterprise owns and how those assets are funded. One side of the balance sheet shows what you have (assets),

and the other side shows how you paid for it (Debt and Equity).

Assets can be purchased and paid for in two ways: with debt or with Equity (or a combination of the two). What a company *owes*, the obligations or loans, are called Liabilities; what a company *owns* is the Equity or Stock.

The Liabilities and Equity are equal to the Assets. Therefore, they are two sides of the same coin and must **balance,** hence the term Balance Sheet.

This balancing is a fundamental principle of Accounting called the Accounting Equation. Assets = Liabilities + Equity.

Balance Sheet Format

A Balance Sheet is typically organized in two columns: Assets on the left and Liabilities and Equity on the right. It is divided into subcategories, with the most current types on top and the more long-term varieties towards the bottom.

Current Assets are ones like cash that can be used on short notice, and Long term Assets are things like factories that would take longer to convert to cash—current means short-term, stuff that needs to be addressed within one year. Long-term means stuff longer than the next year.

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Bills that need to be paid within the month are considered Current Liabilities, and loans that are paid back over years are regarded as Long term Liabilities.

Equity is what the owners actually own. Equity is basically Assets less Liabilities and is shown as accounts below the Liabilities on the left-hand side. Equity is shown below the Liabilities because debt has senior claims on the assets.

In the event of liquidation like bankruptcy, the debt holders get paid from the sale of assets first, and then anything left over goes to the equity holders.

Here is an example Balance Sheet to understand the format; notice that the Total Assets equals the Total Liabilities plus Equity.

WHAT IS AN ASSET?

The fundamental bet of a new business is that a founder can use the capital from investors to purchase various assets, uniquely combine those assets, and create more value than those assets could produce on their own.

Return on Invested Capital (ROIC) measures the success of this effort and strategy.

Let's say I wanted to raise money for a crypto company: I am still determining how it will work, but considerations will involve stuff like ownership, community, and software. I first

need to raise capital from investors. My investors hope I will use this capital to build the business, and I will use the money to buy assets of some sort.

If you asked a startup founder what excited them about their new venture, none would say "responsible stewardship of assets." It's all about building products! Building teams! Few people get into entrepreneurship to carefully manage spreadsheets.

However, understanding how to communicate in assets allows technology leaders to relate with their management team; it means founders no longer glaze over when their accountant speaks; it means understanding investors' incentives.

Knowing finance is power.

The most fundamental atomic unit of business is the asset. Understanding what an asset is, why it matters, and what excites investors is critical to career success. This explanation is the way I wish I had been taught finance!

What is An Asset, and Why Do They Matter

Assets are a concept where the outline is clear, but the details are blurry. When you use the word "asset" at a meeting, everyone will vigorously nod their heads in accord while also conjuring up completely different definitions. A wise

company builder can only realistically resolve this conundrum by comprehending what asset implies in relation to other factors.

On the outline level, an asset is any resource with an economic value. That's it! However, a big difference exists between your boss calling you an asset and your accounting team deciding what number to put next to "assets" on the balance sheet.

In a company, assets produce income. They are called income-producing assets. An asset can increase sales and revenue or help reduce costs. Both ways add to improving the bottom line (net income).

Let's step back and ask why we need to keep track of this stuff. First, the point of GAAP (generally accepted accounting practices) is to enforce a standard quantifiable version of a story that a business tells about itself. This standard is critical so that investors can look at the company's information and have reasonable trust that it corresponds to something specific in the real world.

So, if standard transparent information for owners (or potential owners) is generally the reason for accounting classifications, what is the need for an "asset" specifically? It's to give you some idea of the value of a company.

In business, assets break down into **four broad categories**. They are:

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Current Assets

Current Assets are easy to liquidate; Cash and one step removed from cash assets. These are what a company uses when it needs Cash quickly. When things get tight, you want current assets readily available. Interestingly, there is no universal rule on what level of disclosure is required, so you'll often see different companies emphasize different things depending on their type of business.

The second thing an asset can be is:

Fixed Assets

Assets lasting longer than a year are called fixed assets. These are also called Tangible Assets. You will hear it called "PP&E" in corporate meetings: property, plants, and equipment. Financial judgments are made in calculating and depreciating the asset for an expense. Depending on which country a company is headquartered in and what accounting standard they adhere to, depreciation can occur over the "useful life" of the asset or on a more accelerated timeline.

Treating your assets and claiming depreciation expenses can result in huge swings in valuations.

Financial investments

Say you are a successful company like Apple. Making lots of Cash is one of the best parts about being a great company. A company can, and probably should, return it to shareholders, but sometimes they choose to keep it. But when inflation strikes, you only want some of that in a bank account. You want it out in the market, making a return or keeping up with

inflation. Cash management is where you'll see some companies deploy their excess Cash in various ways.

Microstrategy put their excess Cash in Bitcoin. It worked incredibly well until it didn't. Tesla also took a position with its Cash in Bitcoin, but then Elon thought better of it and decided to sell that position and be safer. Most companies put their Cash in marketable securities. Marketable Securities is the Asset line on the Balance sheet just below Cash for most companies.

Intangible assets

The last type of thing an asset can be is intangible. Intangible assets are the best example to highlight the difference between accounting and finance. Finance is about long-term power: it deals with the strategic use and investment of capital. Accounting is tracking the day-to-day flows of value and is concerned with painting a hyper-accurate current picture of reality.

For intangible assets, there is often strong disagreement between the two functions. For example, when trying to value a brand or a patent, accountants have to use the principle of conservatism.

This point is significant because most technology companies' competitive advantages are intangible assets. Ask yourself this: what value would you ascribe to the network effects of LinkedIn? How valuable is the data housed therein? When Microsoft bought them for $26.2B in 2016, the company had a book value of assets worth roughly $7B. The $19.2B difference comprised future expectations of cash flows AND the other assets that hadn't been valued up to the point of acquisition.

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The difference between finance and accounting is minute compared to the difference between executives and accounting. Perhaps the most crucial assets of all, a talented workforce and productive culture, aren't considered assets by accountants. They're an expense. There is a vast difference between how financial statements portray the world and reality.

How To Think About Technology Companies in the Pursuit of Assets

Many of the most successful companies have as few assets as possible. They can wring more economic value out of the minimal amount of assets. The more assets required to make your economic engine work, the more capital you must raise, and the lower the return on invested capital. Asset-light companies have a better return on assets.

There are notable exceptions, with some of the most highly valued companies today (Walmart and Tesla) taking an asset-heavy approach, but they are the exception. Vertical integration is a risky strategy. Hard tech, like building factories and producing complicated things like computer chips or batteries, can act as moats and barriers to entry—this approach limits threats of competition.

It's simple. The more a company can offload its unprofitable assets onto suppliers, the better return it can generate.

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An investment round into a project is about purchasing returns-driving assets. Sometimes asset means the accountant definition, sometimes the CEO one. The game of finance is knowing when and how to appeal to the right audience.

THE CASH FLOW STATEMENT

Cash Flow is King

What is free cash flow yield, and why is it important?

In running a business, nothing beats real cash on hand.

In the investment world, cash flow, especially free cash flow, is essential to understand a company's stability and capital strength.

The Power of Free Cash Flow

Free cash flow is the money left after a company pays its expenses, taxes, interests, and capital expenditures. In addition, dividends, debt payments, stock buyback, and growth investments come from free cash flow.

When a company earns a positive free cash flow, it generates more cash than it needs to operate its business and can invest in growth.

Free cash flow (FCF) = Operating cash flow minus capital expenditure.

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Operating cash flow and capital expenditure items are found in a company's cash flow statement.

Free cash flow is not net income because net income does not measure a company's actual cash position. For example, if a company increases revenue in the form of accounts receivable to be collected next year, the company has yet to receive the cash. So, an increase in accounts receivables will reduce cash flow even though the revenue is reported in the net income number.

Therefore, free cash flow (FCF) is a better number than net income to measure a company's performance and how much cash is available to distribute to shareholders and invest for future growth.

Companies can manipulate their Net Income number but cannot mess around with free cash flow.

What is Free Cash Flow Yield?

The Free Cash Flow Yield is calculated by comparing a company's free cash flow per share to its stock price per share.

Free cash flow yield (FCFY) = Free Cash Flow per Share/Price per Share

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The higher the free cash flow yield, the more valuable the company is because of its stronger ability to pay off debt, distribute cash to shareholders, and invest for its benefit and growth.

Warren Buffett likes to look at cash flow rather than earnings multiples to determine if an investment is a value or not.

"I wouldn't look for a single metric like relative P/Es to determine what — how — to invest money. You really want to look for things you understand, and where you think you can see out for a good many years, in a general way, as to the cash that can be generated from the business. And then, if you can buy it at a cheap enough price compared to that cash, it doesn't make any difference what the name attached to the cash is. "

Warren Buffett

What to Look For When Screening Investments

You have probably heard of "value" and "growth" stocks and wondered how to tell them apart and the benefits of one versus the other. Unfortunately, the two terms are arbitrary to a degree.

We want a screening tool that is less vague and subjective and more quantitative and objective.

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Rather than looking for a value or growth stock, a better way to screen investments is to look at the free cash flow yield to understand the company's business strength compared to its market value.

In a risk-off environment, investors care for quality and cash flow.

A persistent negative free cash flow may signify a company is becoming illiquid and cannot sustain its operations.

A negative free cash flow yield is not always bad. Suppose the company is investing for the future and is expecting a higher investment return than the cash paid, like in a high-growth company. In that case, the temporary negative free cash flow yield needs to be investigated against the company's business needs and potential.

When measuring investment options, cash is King.

PUTTING IT ALL TOGETHER: FINANCIAL STATEMENT INTERCONNECTIONS AND FLOW

The Big Picture of Financial Statements

The three Financial Statements: Balance Sheet, Income Statement, and Cash Flow Statement, are interconnected, and the accounting numbers flow through them. They are the measure of a company's performance and health.

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The basic interconnection starts with a Balance Sheet showing the financial position at the beginning of the period (usually a year); next, you have the Income Statement that shows the operations during the year, and then a balance Sheet at the end of the year.

The Cash Flow is necessary to reconcile the cash position starting from the Net Income number at the bottom of the Income Statement. The cash number calculated from the Cash Flow Statement is added to the cash reported on the beginning Balance Sheet. This number needs to match the actual money in the bank at the end of the period and is used as the Cash account balance at the top right (Asset column) of the end-of-year (EOY) Balance Sheet.

The Net Income number from the Income Statement is then added to the Retained Earnings number in the Equity section (lower left-hand side) of the end-of-year (EOY) Balance Sheet.

Changes in non-cash accounts like Accounts Receivable and Accounts Payable and Depreciation and Amortization will make up the difference between the Cash Flow number added on the right side of the Balance Sheet and the Net Income number added on the left-hand side.

When this is done correctly, all the numbers should reconcile. The Assets will equal the Liabilities and Equity (remember the Accounting Equation A = L + E) of the EOY Balance Sheet.

Financial Statement Interconnections and Flow

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Think of it as a system of two Balance Sheets acting as bookends for the Income Statement. And the Cash Flow Statement is used to reconcile the Net Income (or Loss) at the bottom of the Income Statement with the amount of cash in the bank.

This process accounts for every penny that has come in, gone through, and gone out of a company during the period.

Understanding these three financial statements and how they knit together will allow you to assess any company's financial health, viability, and prospects and help you make rational, fact-based investment decisions. This is how Warren Buffett does it.

This section ties together the functionality of the financial statements. I hope this might be an "aha" moment for you. It was for me when I finally realized how this all fit and worked together. This understanding of financial statements is the basis of Financial Literacy and Capitalism. Understanding this big conceptual accounting picture will provide a context to keep you from getting lost in the details.

CHAPTER 3
READ AND UNDERSTAND A 10K ANNUAL REPORT

HOW TO READ A 10-K LIKE A PROFESSIONAL INVESTOR

IF YOU WANT to be a great investor, you should like engaging with one of the essential tools in the trade: the 10-K. Warren Buffett has stated that he enjoys curling up with annual reports. Buffett said he reads 500 pages daily when asked how he became smarter. That's how, like compound interest, knowledge grows.

Indeed, savvy fund managers regard 10-Ks as riddles or treasure hunts, relishing the opportunity to pore over even the tiniest footnotes.

Individual investors may have a different experience than a fund manager reviewing hundreds of these documents yearly. This book is intended to assist individual investors in determining what to look for when selecting companies for their portfolios and analyzing the outlook for their present stock holdings.

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Finally, if you don't appreciate the type of in-depth research discussed here, reconsider whether investing in individual stocks is the best use of your time. You will only be a great investor if you enjoy reading 10-Ks.

We all love it. It's a passion we have. After reading this book, you may feel the same!

10K COMPONENTS

A 10K is divided into sections. Let's get familiar with them.

WHAT COMPONENTS OF THE 10-K ARE MOST REVEALING?

IN THE MANAGEMENT Discussion and Analysis, or **MD&A**, the organization discusses various topics like financial requirements and risk exposures. In the MD&A section, you begin to piece together how the business operates.

An excellent place to start is with the CEO or chair- man's letter. Reading them over a period of time provides you with a unique perspective. Read at least ten years' worth of 10-K's and look for these trends:

Are those strategies being carried out and implemented by management?

Did they come up short?

When you find a management team willing to tell you the whole truth, it gives you a decent notion of how open they are.

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Become an expert on **footnotes**. The corporation will describe its debt in detail in the footnotes, including the term, structure, and various debt components. Off-balance sheet liabilities, operating leases, legal liabilities, and prospective M&A earn-outs—future payments guaranteed to previous owners of acquired enterprises based on sales targets—are also included.

One of the most potentially valuable portions of the 10-K is the "risk factors" section, highlighting areas many investors may be unaware of. Most of the risk factors listed are typical boilerplate risk language. However, discussions about client concentration or dependence on a specific product may be less well-known, and uncovering these risks will help you assess a company's prospects.

IN A 10-K, WHERE ELSE SHOULD YOU GO HUNTING?

The ground truth is in the cash flow statement. Companies can record enormous revenue growth, but if you look at cash ow after investing, you might find they're losing money. If the cash ow from operations is less than the net income, you should inquire about what the corporation is injecting through investing to create that cash flow.

You can't keep borrowing money and grow forever. You eventually run out of money, but you can look amazing for a while.

The "properties" line of the balance sheet might help discover hidden assets whose current value is not recorded. And the "legal proceedings" section is significant since the possibility of any pending lawsuits is downplayed in public but is addressed more directly in the 10K regulatory ling. Thor-

oughly investigate anything listed as having a 'material' impact.

Examine the risk factors section and look for changes in risk factor ranking over time. For example, a change in the priority of a risk factor could signal a problem.

Remember to factor in market risks as well. The "quantitative and qualitative disclosures about market risk" section might be helpful in analysis, especially for a company susceptible to commodities prices. It may, for example, offer you an idea of how a change in fuel prices might affect an airline's earnings.

WHAT ARE SOME RED FLAGS THAT GET UNCOVERED IN A 10K?

It's never a great indicator when a company's message shifts from year to year. For example, new risk factors are a red flag. That's why it's important to read several years of 10Ks to get the company's evolution over time. For example, let's say a large industrial corporation adds an environmental issue, such as asbestos liability. It could also be a patent lawsuit. Companies are hesitant to divulge negative news therefore any changes are due to the attorneys or accountants telling them they must include it.

You should be suspicious whenever you see a shift in accounting practices. A significant warning ag is more aggressive revenue recognition. An impairment charge, for example, or a substantial reduction in reserves should make you think, 'They spent way too much for that.' And it'll make you question that management team.

Keep an eye on any changes in accounting standards as

well. Companies routinely disclose adjusted results in today's economy. Earnings are re-reported and adjusted in the 10-K. Earnings are altered for various reasons that may or may not correspond to reality. For example, the corporation will make an educated guess regarding the tax rate at the end of the year. Those "assumptions" are always in the company's financial best interests and could be a stretch. You may need to update those reported adjusted numbers based on actual happenings at the end of the year.

A change in auditors is a clear and significant warning flag. When a corporation changes auditors, it can be because they had a disagreement with their previous auditors regarding reporting and went on the hunt for someone who would "agree" with their figures.

PROXY STATEMENT

A proxy statement is a document that a company must submit when collecting shareholder votes. Shareholders vote on the directors at the annual meeting, and this statement must be led before the annual meeting. In addition, the company must file a proxy statement with the Securities and Exchange Commission, which you may obtain along with the 10Ks on the SEC website at www.sec.gov.

You will receive the proxy statement by email or mail each year when you are a shareholder.

Proxy statements document the company's voting procedure, nominated candidates for the board of directors, and compensation of directors and executives.

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The compensation of executives and directors must be disclosed in the proxy statement, including wages, bonuses, equity awards, and any deferred compensation.

SKIN IN THE GAME

The amount that executives have personally put into the company, rather than their salaries, is telling and crucial.

Senior executives' stock ownership reveals whether their interests are aligned with those of shareholders. Is top management willing to put their money where their mouth is?

By reading the proxy statement, you can learn many interesting things that can influence your investment decisions.

You'll be given a set of performance metrics that the corporation wants to attain, and you get what you incentivize. So please pay attention to what they're measuring. What gets measured gets managed, so make sure they measure the things you think are essential.

For example, a growth-oriented company might say, 'We want to increase sales by 25 percent.' Value investors are attracted to companies with managers focused on cash flow, return on invested capital and operating profit.

Executives love perks. The 'other' category helps spot the misappropriation of company assets such as planes, private cars, and real estate. Companies did not disclose this information thoroughly in the past, but it is now much better. The "certain relationships" section can also help reveal potential conflicts of interest. For example, a corporation that uses a CEO's sister as a significant supplier.

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Examine the management team's resumes for hints about the company's management culture.

You can get a sense of whether the company is being managed effectively by researching the directors and their backgrounds.

HOW TO READ AN ANNUAL REPORT

AN ANNUAL REPORT is a glossy version of the 10K. It has photos and more investor relations-type language than the 10K, a regulatory document containing more detailed financials and risks.

Investors should read them in tandem to better under- stand their mission, direction, and performance.

WHAT IS AN ANNUAL REPORT?

Consider the Annual Report as an investor relations document of a company for Shareholders and Investors. Shareholders own stock in the Company and are the ultimate owners of the corporation. Investors invest in companies and examine a particular company to see if it might meet their criteria to become shareholders. A shareholder is invested in the Company. An investor is interested in the Company and can become a shareholder if they purchase shares.

Whatever a company did in the past year is included in the Annual Report. An Annual Report contains information

similar to the 10K but has less detail, boilerplate regulatory information, and more glossy pictures of management, facilities, and products.

An annual report has a marketing role in selling the Company, its management, and its strategic plan to current shareholders and potential investors.

Annual Report tells three essential things about a company:

- The Past: The Company describes how it performed this year compared to the previous year.
- The Present: Highlights of the Company's Annual Performance from the financial statements: Income Statement, Balance Sheet, and Cash Flow Statement.
- The Future: The Company relates its strategic plan to the vision and mission for the next year and the next 5- year time horizon. They also discuss upcoming products and services.

It is crucial to note that a Company cannot hide any material information or misrepresent Numbers and Facts in the Annual Report. A material misrepresentation or omission is illegal.

WHY IS THE ANNUAL REPORT IMPORTANT?

An annual report helps investors decide whether to invest by analyzing Corporate Information, Company management, Financial Information, Corporate Governance, and more.

The year is generally a fiscal year that starts January 1 and ends December 31.

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You can get the Annual Report of any Company from the Company's Website on the Investor Relations page.

HOW TO READ AN ANNUAL REPORT

The Annual Report differs from the 10K in that a Company uses attractive pictures, stylish fonts, branding, and marketing in the first few pages to attract and retain investors.

Investors must concentrate only on three areas:

- Past: for Proof
- Future: for vision
- Present: to Track performance

CONTENTS OF AN AN ANNUAL REPORT

VISION AND MISSION STATEMENTS

The Vision and Mission statement of the Company describes what the Company intends to achieve in the short-run and the long-run.

It's at the beginning of the annual Report.

This segment tells us about the prospects for the Company.

CORPORATE INFORMATION

Corporate information gives details of

- Board of directors,
- Audit committee,
- Risk Management Committee,

- Management,
- Bankers,
- Auditors
- Company Secretary,
- Secretarial Auditor,
- Registered and corporate office.

Less qualitative and more quantitative information is provided in the 10K corporate information. It is more factual.

FINANCIAL HIGHLIGHTS

Financial Highlights of five to ten years in annual reports are critical to evaluating the Company's past performance.

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Analyze the trends of Revenue, EBITDA, Profit After Tax, Fixed assets, Long term debt, etc. In addition, this information is a great place to start calculating and performing ratio analysis.

From past information, you can predict, by extrapolation, future earnings. But remember that past performance is not a certain predictor of future performance.

The Company will also discuss industry segment performance.

The Company also calculates essential ratios.

DIRECTOR'S REPORT

The Director's Report or Board's Report represents the Company's spin on the financials and performance.

The Director's Report provides a detailed explanation of the Company's financial results and critical developments.

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Look for information on the operations of the Company, such as the capital expenditures and investment in R&D.

Small and specific information such as occupancy rates, average Revenue per employee, and average Revenue per shareholder is also described.

Read the past five years to see whether management has achieved the set revenue target over the years, whether strategies adopted were favorable for the Company, and how management performed during a challenging economy.

Also, examine the director's report tone while reading the annual Report. It should sound positive in good years and negative in bad years of the company's performance.

MANAGEMENT DISCUSSION AND ANALYSIS (MD&A)

In this section, the Company's management tells us how the Company has performed in the current year, its strength, weakness, opportunities, and competition.

Carefully read its Risk Management section. Here you get insight into the Company's problems.

Also, look for how the Company plans to improve its Market Share.

Things to analyze:

- Understand the industry of the Company.
- Compare results with the industry performance. Who is the industry leader, and by what percentage?
- Review the previous annual reports to compare the

Company's performance from the past five years.

• Examine the Company's trends in light of various economic conditions.

CORPORATE GOVERNANCE

Review the details of the Directors:

• Their backgrounds and resumes. Is their expertise relevant to the Company's performance?

• Remuneration of directors: Compare the compensation paid to Directors with profits earned by the Company. See if they are overpaying themselves or if it is reasonable.

• Composition of BoD: is there balanced and relevant experience and skills?

• Number of meetings of the Board

• Attendance record of directors. Are the Directors serious about the Company's work and engaged in its future? Look at the number of meetings attended by each director.

• Directorships held by directors in other listed companies

• Their Tenures

• Is there any criminal cases against them or the Company? If yes, drop your investing idea in the Company.

How has the Company conducted its internal business: • Dividend distribution policy

• Details of Subsidiary companies

• Audit Committee findings

Analyze independent directors' skills and experience with the requirement of the Company as per sector of a company.

Check if there have been Whistleblower incidents and how they reflect on the Company and its operations.

Information on shares and equity of the Company It provides information on

• Share price's past performance.

- Where Shares of the Company are listed
- Shareholding to see significant shareholders.
- If the Company had split of shares
- Any Bonus Shares distributed
- Dividend declared and if dividends have grown

AUDITOR'S REPORT

Here, the Auditors of the company report on the Company's financial condition.

You want to see an auditor's letter without qualifications or outstanding issues.

Look for information on the change in accounting policy, Procedures, Methods, Risks, Plans, and Controls.

FINANCIAL STATEMENTS

Financial statements provide information on the Company's financial health. It includes

- Income Statement
- Balance Sheet
- Cash Flow statement • Schedules and Notes

The Company's profitability for the year is revealed in the Income Statement. You may compare how much it earns in the current year to how much it made the prior year.

You'll learn about the Company's Revenue, expenses, net profit, tax and depreciation costs, and the profits per share number.

- Revenue from operations is the primary source of Revenue for the Company.
- Total Revenue is also called the Topline of the Company.
- Net Income is also called the bottom line. Net Income is Revenue minus Expenses.

• Expenses are how much it costs the Company to generate Revenue.

• Depreciation and amortization are spreading the cost of an asset over its useful life.

• Earnings Per Share reflects the earning capacity of a company on a per-share basis.

The Balance Sheet shows the Company's assets, liabilities, and equity. In addition, it details what the Company owns (assets) and how it finances its assets with debt (liabilities) and equity.

The balance sheet format is: Assets on one side and Liabilities and Owner's Equity on another side. The two sides of the balance sheet must be equal (i.e., balance).

• The Assets side displays all the Company's assets.

• There are two types of Assets: Non-Current and Current.

• Non-current Assets are the ones that can't be converted into Cash within a year. For example, Buildings and Factories.

• Current Assets can be turned into Cash within a year. Such as marketable securities, accounts payable, and inventory.

• Liabilities are what the Company owes.

• Non-current liabilities are those the Company cannot write o in a Year.

• Current liabilities are those that the Company can eliminate within a year.

• Dividends are paid out of Net Income.

• Equity is the claim owners have on the assets of the Company. Equity is the leftover value of assets that remain after deducting the liabilities. Equity = Assets minus Liabilities.

The Cash Flow Statement provides details of the Company's actual cash position. It is divided into three categories:

- Operating activities.
- Investing activities.
- Financing activities.

It is essential to note Operating Activities because this is the Company's core business.

NOTES TO ACCOUNTS

This section discusses detailed information on all financial statements mentioned in a company's Income Statement, Balance Sheet, and Cash Flow Statement.

Investors should be aware of the importance of this section. The details matter.

The accounts are only complete with the notes to accounts.

You will get information on the following:

- accounting policy
- depreciation method
- forex losses/gains
- segmental reporting • inventories
- liabilities
- leases
- subsidiaries' financial information

CONCLUSION

It is essential to read the Annual Report of the Company, but what is more important is how we evaluate and analyze what we read.

And if you can come up with a sensible story defining its past, present, and future, then you can make a sound investment decision.

WARREN BUFFETT'S TIPS TO SPEED-READ 10KS

Analyze a 10K in an hour or less by looking for numbers that matter for earnings.

Warren Buffett can read an annual report in 45 minutes.

How can mere mortals like us do the same?

Here's Buffett's famous owner earnings formula:

owner earnings = reported earnings + depreciation, amortization +/- other non-cash charges — average annual maintenance capex +/- changes in working capital.

I'll explain how this formula can improve your annual report reading.

Search the annual report in this order: financial statements, footnotes, accounting policy, and management discussion and analysis (MD&A).

This method is a shortcut, and there is a lot more information in the report, but this is a great way to start so you can make effective investment decisions quickly.

Reading a 10K from top to bottom will take a week to finish, and it is a tiring chore.

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When reading the financial statements, start by flipping between the footnotes and management analysis.

Try reading the report in this order:

- Financial statements
- Footnotes
- Accounting policy
- Management analysis

It is so you can get the complete picture of the company's performance.

You're moving from a high-level overview to the details before moving on to the analysis.

READ THE REVENUES AND OPERATING SEGMENTS

I used to skip reading the revenues section in the footnotes because it took time to understand the revenue accounting policy.

But, after reading many 10Ks, I understood their importance. I learned you must be cautious about what companies report because only some things you read are true.

Since we calculate Earnings as revenues minus expenses, it makes sense to analyze revenues first.

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The first key is understanding the revenue recognition policy. The fastest way to know if a company is juicing its earning is to understand how it accounts for its revenues. The matching principle in accrual accounting is designed to match a revenue event, like a sale, with the expenses associated with achieving that sale.

The two usually don't happen simultaneously, so one or the other is accrued as accounts payable or accounts receivable. The matching principle intends to make things more clear as to how revenues are achieved and how much they cost.

There have been many accounting scandals around companies that booked revenues too soon, like on a letter of intent or less, to make quarterly targets. All too often, these revenues never materialize. So dig into the numbers and associated notes in the financial statements and ensure the company reports solid revenue, expenses, and net income.

The more confusing it is, the more likely management doesn't want you to understand. So this attempted obfuscation is a giant red flag.

The second tip is to read the operating segments carefully because it reveals where and how a company makes cash.

Usually, companies provide numbers to help calculate the operating profit of each business segment, which is more accurate than relying on the parent company's operating

profit. However, sometimes, companies don't provide you with any segment data — my tip is to avoid these companies.

Here's an example of why operating segment analysis is essential. Amazon's retail (online and store) runs at 2% operating margins while their Web services, AWS, run at 34%. This difference shows that Amazon retail competes in a tight market with skinny margins. But it can still be a worthwhile investment considering its cloud performance. You can calculate a blended rate by pro-rating the size of each segment.

Read the expenses

Analyzing a company's expenses is more demanding than studying revenues because costs are usually displayed as jumbled.

Expenses can be rolled up into line items like Research and Development, Marketing, Sales, and General Administration.

Or, you get one long list of company expenses.

I prefer to see company expenses separated by operating segments to understand why some areas are more profitable than others.

You will only get this sometimes; too much information can impair analysis.

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So, even if expenses aren't clear in the footnotes, see if the management discussion and analysis (MD & A) has anything to say or even if there is anything to say.

READ PLANT, PROPERTY, AND EQUIPMENT

Even though it might seem inconsequential, I've learned to analyze this financial section in the 10K. It's a small section of the footnotes, but it plays a large part in the company.

You can forecast the growth and demise of a company depending on how much stuff it has.

If a company has too many buildings and pieces of equipment and needs more return on investment coupled with increased debt, then you can expect a negative future for the company.

Depreciation and Amortization are found on the cash flow statement in the operations section.

What you're getting out of the plant, property, and equipment section is whether or not the company's depreciation and amortization policies make sense with the depreciation and Amortization reported.

Depreciation and Amortization should at least roughly equal new investments in the company, or the company is dwindling.

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If the investment figure is higher than Depreciation and Amortization, then the company is on net investing more, indicating that it is growing.

If you have a tech company with a high depreciation rate, does it make sense to you?

Accounting knowledge will tell you that tech companies tend to have higher Amortization of their software than the depreciation of equipment, especially if we're talking about a software company.

Combining industry and accounting knowledge will help you understand if what you're reading is true or garbage.

FIGURE OUT THE STRATEGY TO GUESS CAPITAL EXPENDITURE.

According to Buffett, capital expenditure should match depreciation and Amortization at least dollar-for-dollar for a company to maintain its competitive advantage.

I always needed clarification on what this meant.

But, thinking about it more made me realize that companies that do not match their capital expenditure with their depreciation and Amortization have either slowed down or have no money.

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Companies don't need to match capital expenditure and depreciation and amortization dollar for dollar, but it's a sign something will come — either in the form of new mergers or divestments.

You can find the capital expenditures in the cash flow section, but it won't necessarily give you an idea of the company's true capital expenditure.

The reason is that capital expenditures are investments now that will produce profits in the future.

While operating expenses are seen as expenses just to run the business for the financial year.

Calculating the 5-year average capital expenditure is an indicator of future performance.

A better way is to understand how a company plans to maintain its competitive advantage.

For instance, if the company has changed its strategy from building more manufacturing plants to business acquisitions, then you take an educated guess that future years' capital expenditures will significantly increase.

Reading the management discussion and analysis section of the 10K will help you determine where future capital invest-

ments will go and give you an idea of how much capital expenditure will be needed.

FILL IN THE GAPS

Once you have a working understanding of the company, all you need to do now is review the other sections to help fill in the gaps in your knowledge.

For instance, if an oil company has made a loss for the year, find the impairment figure to see if it makes sense.

If a company is making massive acquisitions, check how much debt was acquired and investigate if issuing shares would significantly dilute your returns.

On the other hand, if you're looking at a product company, check its inventory and calculate whether or not the merchandise is moving fast enough for your liking.

This sequence is a great way to read an annual report or 10K.

CHAPTER 4
SECRETS OF FUNDAMENTAL ANALYSIS

UNDERSTANDING FUNDAMENTAL ANALYSIS

IN THIS SECTION, I will introduce some aspects of Fundamental Stock analysis, which will help you become a better investor.

Fundamental Analysis is an approach used by investors to determine the fair value of a stock by examining various qualitative and quantitative indicators. This value is then measured against the stock's current price to see if a company is overvalued or undervalued.

While Technical Analysis aims to forecast the future price of a stock through historical indicators and trends such as price & volume, Fundamental Analysis is independent of the market price.

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Fundamental Analysis involves Macroeconomic Factors such as central bank interest rates, GDP growth & inflation, and Company-specific factors such as revenues, growth, profits, assets, and liabilities.

Let's explore the various Qualitative and Quantitative factors used by analysts to understand the value of a business.

QUALITATIVE ANALYSIS

Qualitative Factors that determine a company's long-term prospects include:

- The business model.
- Competitive advantages.
- Corporate governance policies.
- Market share.
- Size & growth of the overall industry regulation.
- The composition of the customer base.

Companies that drive shareholder value creation over the long term capture market share quickly, create products/services that are hard to replicate and acquire competitors that pose a competitive risk. These factors are called Barriers to Entry, or as Warren Buffet calls them: Moats.

Qualitative Factors can also tie into the various macroeconomic factors that drive the market. For instance, equities that improved the experience for customers staying at home, such as Fitness Company Peloton, Video Communications Company Zoom, and Entertainment Company Netflix, all benefitted from the pandemic.

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Two years later, with the pandemic receding, these stocks are reverting in price as their growth prospects are perceived to be hitting headwinds.

QUANTITATIVE ANALYSIS

As Investors, we understand the quantitative factors that impact a company's fair value by looking at the information displayed in the financial statements.

The key financial statements that help assess a company's operational performance are the Income Statement, the Balance Sheet, and the Cash Flow Statement.

The Income Statement paints a picture of the performance of a business over a year and includes details about the company's revenues, expenses, and profitability.

The balance sheet helps investors understand the resources that a business owns at any point, including materials, buildings, cash & inventory (Assets), the debt that it owes to outside creditors (Liabilities), and the profits it has retained over the years (Equity).

The cash flow statement is the final piece of the puzzle as it records all the cash transactions conducted in a year from operating, investing, and financing activities. In addition, the cash flow statement reconciles the income statement and the balance sheet by adjusting for accrual accounting non-cash accounts like Accounts Receivable, Accounts Payable, and depreciation.

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You can see more details about how to read Earning Reports in the section on reading and understanding financial statements.

Using the information from the Income Statement, Balance Sheet & Statement of Cash Flows, investors can derive the intrinsic value for stock through various valuation techniques. These include Relative and Absolute Valuation Methods.

RELATIVE VALUATION METHODS

Relative Valuation Technique is a technique whereby investors compare the financials of a stock against its competitors, other companies in the industry or sector, and its historical performance to determine if it is overvalued or undervalued.

Investors use many different ratios to compute relative valuation, including EV/EBITDA, Price/Sales, Price/Earnings, and so on.

Price/Earnings: The Price/Earnings or PE Ratio is the most common valuation technique used by investors to gauge the value of a company.

The PE Ratio is estimated as follows:

For example, Microsoft Stock currently trades at $285 per

share, with earnings per share of $7.47 per share in the last year. Based on this, the company is trading at a P/E of 38.32.

As a rule of thumb, a company with a lower P/E than its competitors is generally considered undervalued. However, the average P/E can vary based on the type of industry.

Price/Sales: The Price/Sales ratio measures the price of a company's stock against its annual sales. The P/S measure is a reliable estimate when looking at a high-growth stock without having any earnings.

For example, Tesla trades at a high P/E multiple of 330x but is more reasonable at 24x sales.

ABSOLUTE VALUATION METHODS

Absolute Value, popularly known as Intrinsic Value, is a technique that helps investors determine the financial worth of a company based on its projected cash flows/dividend payments.

Unlike relative valuation methods that rely on the market to estimate the fair value, absolute valuation methods use the company's financials to calculate value. The most popular absolute valuation methods are **Dividend Discount Model** and **Discounted Free Cash Flow Model**.

DIVIDEND DISCOUNT MODEL

The dividend discount model is a quantitative method for predicting the company's stock price by estimating the sum of

all future dividend payments that are discounted back to the present value.

The Dividend Discount Model is most effective for companies with predictable dividend payment growth, such as financial/utility companies.

To understand how the DDM works, let's look at the example of XYZ company. The stock trades at $43, with an annual dividend payment of $0.78 per share. If we assume that the cost of equity for XYZ is 6% and that dividends will grow at 4% annually, the intrinsic value for XYZ can be estimated as follows:

Price Per Share = 0.87/(0.06–0.04) = $43.5

This valuation implies that the stock has a fair value of $43.5 and is undervalued at any price below this.

DISCOUNTED FREE CASH FLOW

The Discounted Free Cash Flow method estimates the intrinsic value of a stock as the present value of all future cash flows. The DCF method is best suited for companies that aren't yet profitable or don't currently pay dividends. For example, the free cash flows of a firm are estimated using the following method:

Where:

FCF = Free Cash Flow
EBIT = the Operating Profit
T = the Tax Rate

Dep = the Depreciation Expense
CapEx = the Capital Expenditure
NWC = the Change in the Net Working Capital

You can think of free cash flow as Net Income with adjustments from the Operations and Investment sections of the Cash Flow Statement.

The Intrinsic Value of a firm is the sum of the present value of all future cash flows, so it can be estimated as follows, assuming we are looking forward for five years:

Where,
FCF = Free Cash Flow
D = Discount Rate
TV = Terminal Value

Where:
G = Long-Term Growth Rate

Investors usually use the **Weighted Average Cost of Capital** method to estimate the discount rate. The weighted average cost of capital is the average cost of sourcing funds for all companies, including equity and debt. The WACC is calculated as follows:

Where:
E = Equity
D = Debt

Ce = Cost of Equity
Cd = Cost of Debt
T = Tax Rate

Let's work out an example of a theoretical company ABC stock.

Example

First, we estimate the cost of equity as 10.58% and the cost of debt as 5%. The company's balance sheet shows ABC has a market value of equity of $133.69 Billion and a Market Value of Debt of $700 million. ABC's tax rate is 21%. Using the inputs, the WACC of the firm is estimated to be 10.72%.

We can find the inputs from the company's financial statements to estimate the free cash flow. ABC's Operating Profit is estimated at $3.047 Billion. The tax rate is 21%, Depreciation is $430 million, Change in Net Working Capital is -$459 million, and Capital Expenditure is -$289 million.

Based on this, the FCF is calculated as follows:
= 3.969 *(1–0.21) + 0.43–0.289–0.459
= $2.817 Billion

If we assume the firm's free cash flows grow at a steady rate of 8% per year, the terminal value of the firm can be calculated as follows:
= 2.817 * (1+ 0.08)/(0.1072–0.08)

= 3.042/0.0272
= $111.871 Billion

Thus, the enterprise value of ABC is calculated as $111.87 Billion. To find the Equity value of the firm, we need to apply the following formula

Equity Value = Enterprise Value + Cash — Debt
= 111.87 + 3.61–0.7
= $114.78 Billion

On 13th January 2022, ABC had 1.21 Billion shares outstanding. Based on this, the fair value per share is estimated to be $94.85 per share. ABC Stock is currently trading at $116 at the last close, implying that the stock is overvalued.

As you can imagine, many investors find this method complicated and partially subjective because of the many approximations and assumptions one shall make. But it provides a method of valuation where all the assumptions can be reviewed and analyzed.

CHAPTER 5
FINANCIAL STATEMENT ANALYSIS

RATIO ANALYSIS

TWO FUNDAMENTAL FINANCIAL analysis and valuation techniques are used in Corporate Finance.

One is the ratio analysis of financial statements, and the other is calculating the present value of future cash flows.

Bankers, investors, financiers, CFOs, and entrepreneurs use these tools and techniques to value assets and make decisions.

This section will look at using financial ratios as a capital budgeting, analysis, and allocation tool. There are lots of different accounting ratios that get used inside a firm.

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By ratio analysis, I mean taking two numbers from financial statements and dividing one by the other. So we are taking two pieces of accounting data, putting one over the other, forming a ratio.

We are taking two pieces of data and creating a performance metric. Ratios are presented as a percentage or a number depending on whether the usual case is bigger or less than one.

Ratios are a performance analysis tool. Ratios allow us to compare different companies or a company over time.

Ratios are great tools for this comparison because they enable us to "normalize" the numbers. A ratio eliminates size differences and allows for pure comparison to compare apples to apples.

Financial ratios are derived from accounting information and rely on understanding financial statements.

FINANCIAL STATEMENT ANALYSIS AND RATIOS

The fields of Accounting and Finance overlap in the area of financial statement and ratio analysis.

The launching place for Corporate Finance is the ability to read and understand Financial Statements. The analysis of financial statements and subsequent assumptions and projections based on that analysis is the next step.

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Financial Statement Analysis is the process of analyzing a company's financial statements and comparing the analysis across companies and industries to make better operating and investing decisions.

This analysis method involves specific techniques for evaluating and quantifying risk, performance, financial health, and the future prospects of an enterprise.

For example, we can look at the performance of a particular company over time, such as year-to-year results. This type is called **Horizontal Analysis**.

And we can look at various performance characteristics within a single time period. This type is called **Vertical Analysis**.

We can create metrics across an industry segment as an average value to compare our company against. This process is called **Benchmarking**. We can also aggregate different industry groups and see how they perform relative to each other.

This type of analysis can help gauge where to allocate investment dollars in a portfolio. It can also be used to see how a management team is performing relative to its competition.

LIQUIDITY AND SOLVENCY

Horizontal and Vertical Analysis

Horizontal analysis compares financial information over time, typically from past financial statements such as the income statement. When comparing this past information, we look for variations of particular line items such as higher or lower earnings, sales revenues, or particular expenses. Horizontal analysis is used to look for trends that can be extrapolated to predict future performance.

Vertical analysis is a proportional analysis performed on financial statements. It is a ratio analysis. Line items of interest on the financial statement are listed as a percentage of another line item. For example, on an income statement, each line item will be listed as a percentage of Sales.

Financial Ratios

Financial ratios are powerful tools for assessing a company's upside, downside, and risk. There are four main categories of ratios: liquidity, profitability, activity, and leverage. These are typically analyzed over time and across competitors in an industry. Using ratios "normalizes" the numbers to compare companies in apples-to-apples terms.

Liquidity and Solvency

Solvency and liquidity both refer to a company's financial health and viability. Solvency refers to an enterprise's capacity to meet its long-term financial commitments. Liquidity refers to an enterprise's ability to pay short-term obligations.

Liquidity also measures how quickly assets can be sold to raise cash.

A solvent company owns more than it owes. It has a positive net worth and carries a manageable debt load. A company with adequate liquidity may have enough cash to pay its bills but may still be heading for financial disaster. In this case, a company meets liquidity standards but is not solvent. Healthy companies are both solvent and possess adequate liquidity.

Liquidity ratios are used to determine whether a company has enough current asset capacity to pay its bills and meet its obligations in the foreseeable future (current liabilities).

Solvency ratios measure how quickly a company can turn its assets into cash if it experiences financial difficulties or is threatened with bankruptcy. Both measure different aspects of if and how long a company can pay its bills and remain in business.

The current ratio and the quick ratio are two common liquidity ratios.

The **current ratio** is current assets/current liabilities and measures how much liquidity (cash) is available to address current liabilities (bills and other obligations).

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The **quick ratio** is (current assets – inventories) / current liabilities. The quick ratio measures a company's ability to meet its short-term obligations based on its most liquid assets and excludes inventories from its current assets. It is also known as the "**acid-test ratio**."

The **solvency ratio** is used to examine the ability of a business to meet its long-term obligations. Lenders and bankers commonly use the solvency ratio because they are most concerned about their ability to get paid back any money they lend. The ratio compares cash flows to liabilities. The solvency ratio calculation involves the following steps:

All non-cash expenses are added back to after-tax net income. This measure approximates the amount of cash flow generated by the business. You can find the numbers to add back in the Operations section of the Cash Flow Statement.

Add together all short-term and long-term obligations. This is the Total Liabilities number on the Balance Sheet. Then divide the estimated cash flow figure by the liabilities total.

The formula for the ratio is:

(Net after-tax income + Non-cash expenses)/(Short-term liabilities + Long-term liabilities)

A higher percentage indicates an increased ability to support the liabilities of a business over the long-term. Acceptable solvency ratios vary from industry to industry, but as a general rule of thumb, a solvency ratio of greater than 20% is considered financially healthy.

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Remember that estimations made over a long term are inherently inaccurate. Many variables can impact the ability to pay over the long term. Therefore, using any ratio to estimate solvency must be taken with a grain of salt.

CHAPTER 6
THE POWER OF COMPOUNDING

THE MAGICAL POWER OF COMPOUND INTEREST

COMPOUNDING IS rate of return to the power of time. Time is the exponent.

Charlie Munger says, “The first rule of compounding: Never interrupt it unnecessarily.”

Legend has it that Albert Einstein stated, "Compound interest is the eighth wonder of the world. He who understands it, earns it; he who doesn't, pays it".

The impact of compound interest is undeniable, despite some people questioning whether Einstein ever spoke the remark.

The mathematical process of compounding increases your return on investment over time by ensuring that you

receive interest on both your initial investment and any previous interest earnings.

To earn compound interest, begin by investing and letting your money accumulate interest. With time, you'll earn interest not only on your investment but also on the interest it has earned. For example, if you invest $1,000 at an annual interest rate of 5%, your investment will be worth $1,276.28 in five years.

What is the 72 compound rule?

Do you know the Rule of 72? It's an easy way to calculate how long your money will take to double. Take the number 72 and divide it by the interest rate you expect to earn. Then, use that figure to get an idea of how many years it will take for your investment to double.

For example, let's imagine you have an investment balance of $50,000, and you want to know how long it will take to get it to $100,000 without adding any more funds. With an estimated annual return of 8%, you'd divide 72 by 8 to see that your investment will double every nine years.

Average returns sustained over an above-average period of time yield extraordinary results. Buy and hold.

RETURNS COME FROM COMPOUND INTEREST IN ITERATED GAMES.

Here is an interview with Naval Ravikant, the famous Angel Investor and company builder, that expands on the idea of

compound interest. I have found his ideas very enlightening and I hope you do also.

Play Long-term Games with Long-term People

All returns in life come from compound interest in long-term games.

Nivi: Talk a little bit about what industries you should think about working in. What kind of job you should have? And who you might want to work with? So, you said, "One should pick an industry where you can play long-term games with long-term people." Why?

Naval: Yeah, this is an insight into what makes Silicon Valley work, and what makes high trust societies work. Essentially, all the benefits in life come from compound interests. Whether it's in relationships, or making money, or in learning.

So, compound interest is a marvelous force, where if you start out with 1x what you have, and then if you increase 20% a year for 30 years, it's not that you got 30 years times 20% added on. It was compounding, so it just grew, and grew, and grew until you suddenly got a massive amount of whatever it is. Whether it's goodwill, or love, or relationships, or money. So, I think compound interest is a very important force.

You have to be able to play a long-term game. And long-term games are good not just for compound interest, they're also good for trust. If you look at prisoner's dilemma type games, a solution to prisoner's dilemma is tit-for-tat, which is I'm just going do to you what you did last time to me, with some forgiveness in case there was a mistake made. But that only works in an iterated prisoner's dilemma, in other words if we play a game multiple times.

So, if you're in a situation, like for example you're in Silicon Valley, where people are doing business with each other, and they know each other, they trust each other. Then

they do right by each other because they know this person will be around for the next game.

Now of course that doesn't always work because you can make so much money in one move in Silicon Valley, sometimes people betray each other because they're just like, "I'm going to get rich enough off this that I don't care." So, there can be exceptions to all these circumstances.

But essentially if you want to be successful, you have to work with other people. And you have to figure out who can you trust, and who can you trust over a long, long period of time, that you can just keep playing the game with them, so that compound interest, and high trust will make it easier to play the game, and will let you collect the major rewards, which are usually at the end of the cycle.

So, for example, Warren Buffett has done really well as an investor in the U.S. stock market, but the biggest reason he could do that was because the U.S. stock market has been stable, and around, and didn't get for example seized by the government during a bad administration. Or the U.S. didn't plunge into some war. The underlying platform didn't get destroyed. So, in his case, he was playing a long-term game. And the trust came from the U.S. stock market's stability.

When you switch industries, you're starting over from scratch.

In Silicon Valley, the trust comes from the network of people in the small geographic area, that you figure out over time who you can work with, and who you can't.

If you keep switching locations, you keep switching groups… let's say you started out in the woodworking industry, and you built up a network there. And you're working hard, you're trying to build a product in the woodworking industry. And then suddenly another industry comes along that's adjacent but different, but you don't really know anybody in it, and you want to dive in, and make money there.

If you keep hopping from industry to … "No, actually I need to open a line of electric car stations for electric car refueling." That might make sense. That might be the best opportunity. But every time you reset, every time you wander out of where you built your network, you're going to be starting from scratch. You're not going to know who to trust. They're not going to know to trust you.

There are also industries in which people are transient by definition. They're always coming in and going out. Politics is an example of that, right? In politics new people are being elected. You see in politics that when you have a lot of old-timers, like the Senate, people who have been around for a long time, and they've been career politicians.

There's a lot of downsides to career politicians like corruption. But an upside is they actually get deals done with each other because they know the other person is going to be in the same position ten years from now, and they're going to have to keep dealing with them, so they might as well learn how to cooperate.

Whereas every time you get a new incoming freshman class in the House of Representatives, which turns over every two years with a big wave election. Nothing gets done because of a lot fighting. "Because I just got here, I don't know you, I don't know if you're going to be around, why should I work with you rather than just try to do whatever I think is right?"

So, it's important to pick an industry where you can play long-term games, and with long-term people. So, those people have to signal that they're going to be around for a long time. That they're ethical. And their ethics are visible through their actions.

Long-term players make each other rich.

Nivi: In a long-term game, it seems that everybody is making each other rich. And in a short-term game, it seems like everybody is making themselves rich.

Naval: I think that is a brilliant formulation. In a long-term game, it's positive sum. We're all baking the pie together. We're trying to make it as big as possible. And in a short-term game, we're cutting up the pie.

Now this is not to excuse the socialists, right? The socialists are the people who are not involved in baking the pie, who show up at the end, and say, "I want a slice, or I want the whole pie." They show up with the guns.

But I think a good leader doesn't take credit. A good leader basically tries to inspire people, so the team gets the job done. And then things get divided up according to fairness, and who contributed how much, or as close to it as possible, and took a risk, as opposed to just whoever has the longest knife… the sharpest knife at the end.

Returns come from compound interest in iterated games.

Nivi: So, these next two tweets are, "Play iterated games. All returns in life, whether in wealth, relationships, or knowledge come from compound interest."

Naval: When you have been doing business with somebody, you've been friends with somebody for ten years, twenty years, thirty years, it just gets better and better because you trust them so easily. The friction goes down, you can do bigger, and bigger things together.

For example, the simplest one is getting married to someone, and having kids, and raising children. That's compound interest, right? Investing in those relationships. Those relationships end up being invaluable compared to more casual relationships.

It's true in health and fitness. You know, the fitter you are, the easier it is to stay fit. Whereas the more you deteriorate your body, the harder it is to come back, and claw your way back to a baseline. It requires heroic acts.

Nivi: Regarding compound interest, I think I saw retweet something a while back. Maybe it was from Ed Latimore. It went something along the lines of, "Get some traction. Get

purchase, and don't lose it". So, the idea was to gain some initial traction, and never fall back, just keep ratcheting up, and up.

Naval: I don't remember it exactly. But I think that was right. Yes, it was like, "Get traction, and don't let go." It was a good one, yes.

CHAPTER 7
WHEN TO BUY WHEN TO SELL

SIX THINGS TO CONSIDER BEFORE BUYING A STOCK

NO ONE CAN IDENTIFY a stock market bottom or peak except in hindsight. Therefore, anyone claiming they can time the market consistently is lying.

If you follow basic rules, the best time to buy stocks is any time. Use these rules to judge the appropriateness of any security you consider buying or selling.

1. Suitability

Before you buy a stock, you must have a strategic plan. What is your investment objective, and how much risk are you prepared to take to achieve it? There is no point in buying stocks that don't fit your plan. For example, if you're investing for income, non-dividend stocks are not appropriate. If you're looking for growth, avoid sectors like utilities.

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2. Profitability

After subtracting expenses from revenue, what's the bottom line? If a company is making money, explore it further. If it's not, be skeptical.

Other measures also focus on viability and offer valuable insights into a company's financial performance. EBITDA is one. Funds from operations (FFO) is another. My preference is to see it proved on the net earnings line.

3. Affordability

A company may be profitable, but is it priced reasonably? In other words, affordable? Many good and profitable companies are less than optimal investments because their P/E valuations have become too high.

4. Dividends

Trends come and go. Try to look beyond them and focus on what it all means to your net worth. Cash flow to the investor is one measure, especially if you're income oriented. How much money do you receive in dividends from a stock, and how sustainable are those dividends?

Some companies have a long history of steadily raising their dividend payouts. Some utilities have been doing so for

almost 50 consecutive years. Telecoms have a good track record. Energy companies are more of a gamble; dividends tend to be tied to volatile oil prices.

Dividend history should be high on your checklist when evaluating a company.

5. Beta

Most individual investors are vulnerable to their emotions. When markets rise, that's usually not an issue unless it leads to dangerous moves like leveraging. In down markets, it's another story. Watching your portfolio shrink month after month can increase anxiety, leading to poor investing decisions. If you're prone to this affliction, avoid high-beta stocks with a history of more significant price swings than the broad market. Of course, low-beta stocks can lose value in a declining market. But the damage, and the resulting shock, will be much less than if your portfolio is full of shares whose chart resembles a mountain range.

6. Balance sheet

Most people overlook the balance sheet when researching a company. The reason is simple: you must take my Corporate Finance Course to understand them. Then, if you do nothing else, look at the long-term debt line. How much does the company owe?

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Investopedia says the debt/equity ratio (D/E) is one of the essential corporate valuation metrics because it highlights a company's dependence on borrowed funds and ability to meet its financial obligations. The less dependent a company is on debt, the less risk of bankruptcy. Investopedia says the ideal D/E ratio should not exceed 2.0, which means two-thirds of a company's capital is financed from debt and a third from equity.

Occasionally you'll come across a company that is debt free. That's not necessarily good because it means the firm is not leveraging its borrowing power to expand the business. But it certainly means less risk.

That's the list. Few stocks will check all the boxes – for example, utilities and REITs have high D/E ratios because they are capital-intensive. That's one reason they lose ground in a rising rate environment. Understanding the reason behind potential problems will better equip you to deal with them and make informed decisions.

DIVIDEND STOCKS

Like any investment, not all dividend stocks are alike. For example, some of the highly-paid dividend stocks are called dividend aristocrats.

Aristocrats' stocks are known for being safe, reliable investments. Many are top-value companies and form a list of companies that have increased their dividend annually over the past 25 years.

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So, high-paying dividend stocks can be a great investment option for long-term wealth creation. Let's take a look at some compelling reasons why you should consider investing in them:

• They tend not to lose much value even in the event of a decline, a crash, or a sell-off.

• They combat inflation. Growing dividend yields can help protect your portfolio from the rise in the inflation rate and nullify it.

• They allow you to reinvest the dividends. Using the dividend payouts to purchase more of the same company's shares again, you can accelerate the RoI (return on your investment), thanks to the concept of dividend compounding.

• They are relatively stable during market volatility. A simple "buy and hold" approach is all that's needed to start investing in high-yielding dividend stocks.

• They can be a great source of passive income. They distribute their profits to their shareholders periodically and consistently.

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I would encourage you to think about the company business itself first. Usually, a dividend is a reasonable percentage of earnings.

You want the highest return possible while giving you enough personal "safety" to sleep at night.

If you get huge dividends, but the business is doing poorly, the dividend, the share price, and the valuation will be cut or eliminated.

WHEN TO BUY WHEN TO SELL: HOW TO ANALYZE OVERVALUED AND UNDERVALUED STOCKS

It can be challenging to determine when a stock is overvalued or undervalued.

" Long ago, Ben Graham taught me that price is what you pay; value is what you get. Whether we are talking about socks or stocks, I like buying quality merchandise when it is marked down." – Warren Buffett.

This decision is made after taking into account a number of variables, such as the company's present financial state, general market circumstances, and investor sentiments.

Whether you're a short-term trader or a long-term investor, this information is essential.

We'll go over various techniques you may use to evaluate stocks and decide when to purchase and sell them with intelligence.

When a stock is considered overvalued

Overvalued means the current market price is higher than the stock's actual worth.

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This discrepancy can be due to several factors, including irrational investor behavior, a lack of suitable investment options in the market, or inflated expectations about the company's prospects.

Suppose a stock or company is popular among your friends, the internet, institutions, etc. The stock's chances of losing its margin of safety are very high and overvalued. In this scenario, you can only make money by being more patient than others. Patience is a crucial attribute to cultivate in the investor's mindset.

When a stock is considered undervalued

When a stock is undervalued, the current market price is lower than the stock's actual worth.

This discrepancy can be due to several factors, including a good investment opportunity in the market, irrational investor behavior, or pessimistic expectations about the company's future performance.

Tools to find undervalued and overvalued stocks

Investors can use a few essential tools and methods to determine whether a stock is overvalued or undervalued.

The P/E Ratio

One popular tool is the price-to-earnings ratio or P/E ratio.

This ratio measures how much investors pay for each dollar of earnings a company generates.

A high P/E ratio means that investors are paying a lot for each dollar of earnings and that the stock may be overvalued. Conversely, a low P/E ratio means that investors are not paying as much for each dollar of profits and that the stock may be undervalued.

Earnings on a company's balance sheet are a company's net profit after taking out all the costs and taxes associated with running the business.

The P/B Ratio

Another popular tool is the **price-to-book value** ratio or P/B ratio.

This ratio measures how much investors pay for each dollar of a company's book value.

Like the P/E ratio, a high P/B ratio means that investors pay a lot for each dollar of book value. This situation indicates that the stock may be overvalued. Conversely, a low P/B ratio shows that investors are not paying as much for each dollar of book value. This scenario typically means that the stock may be undervalued.

The book value on a company's balance sheet means the net asset value of a company.

Net assets are things like cash, investments, and property.

Both the P/E ratio and the P/B ratio help investors decide when to buy or sell a stock.

If a stock has a high P/E ratio or a high P/B ratio, it may be overvalued, and investors may want to consider selling it. Conversely, a stock with a low P/E ratio or a low P/B ratio may be undervalued, and investors may want to consider buying it.

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There are other factors to consider when approaching an overvalued or undervalued stock.

For example, an overvalued stock may still be a good investment if the company has a strong outlook and is expected to grow earnings rapidly. Conversely, an undervalued stock may not be a good investment if the company has a weak outlook and is expected to decline in earnings.

Investors should always do their own research before deciding whether to buy or sell a stock. Unfortunately, there is no one-size-fits-all answer regarding overvalued and undervalued stocks.

The best decision for each investor will depend on their individual investment goals and risk tolerance.

How to calculate the value of stock

There are several methods that you can use to analyze stocks and determine the value of the business. Here are a few common and effective ways to calculate the value of a stock:

The dividend discount model (DDM)

The DDM is a valuation model that calculates the present value of a company's future dividends.

This model considers the company's current dividend yield, its expected growth rate in dividends, and the required rate of return from investors.

The discounted cash flow (DCF) analysis

The DCF analysis is a valuation model that calculates the present value of a company's future cash flows.

This model considers the company's expected growth rate

in cash flows, the required rate of return from investors, and the time value of money.

These two models are helpful for stock market investors.

They allow you to estimate a company's fair value and decide whether to invest in the stock.

While making financial decisions, it's crucial to keep in mind that these models are not flawless and should only be used as one of several tools.

It's time to start making money trading stocks now that you understand how to determine a stock's worth and have the resources to uncover both cheap and overpriced stocks.

HOW TO TRADE OVERVALUED STOCKS

If you believe that a stock is overvalued, there are a few things that you can do:

Short sell the stock.

Shorting is when you borrow shares of the stock from somebody else and sell them immediately.

If the price falls, you buy back the shares at a lower price and give them back to the person who lent them to you.

This strategy profits from the decline in the stock's price.

Short selling a stock is the best way to trade an overvalued stock because it allows you to take advantage of its price decline. Therefore, it should be a profitable trade if your analysis is correct.

How to short a stock

Shorting a stock is risky. It is a strategy to know about, but I advise against shorting stocks.

Shorting a stock is relatively easy. You need a margin account and access to the stock's price information.

A margin account is a brokerage account that allows you to borrow money from the broker to buy stocks. This account requires you to put up collateral to cover the risk of transactions.

What if the stock is overvalued, but you still want to invest in the industry?

If you believe a company's stock is overvalued, you can invest in other related companies.

For example, if you believe that Apple (AAPL) is overvalued, you could invest in Google (GOOGL) or Microsoft (MSFT). These companies are in the same industry as Apple but may be undervalued compared to Apple. But, again, this is just an example, not a factual statement, and please do your own research.

Wait for The Stock to Fall

This strategy is a more conservative approach but can be more profitable in the long run. For example, if you believe a stock is overvalued, you can wait for the price to fall and then buy the stock at a lower price.

This strategy profits from gaining a position in a strong company at a fair price when there is fear in the markets—and then waiting for the price to recover over time.

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This strategy takes patience. As Warren Buffett said, "The stock market is a device to transfer money from the impatient to the patient." Ultimately, how your investments behave is much less important than how you act.

HOW TO TRADE UNDERVALUED STOCK

If you believe that a stock is undervalued, there are two simple steps to follow:

Invest in the stock

In contrast to shorting a stock, investing in a stock is referred to as going "long" the stock. Going long is the most obvious investment strategy, and it can be the most profitable.

If you believe a stock is undervalued, you should invest in it because its price will eventually increase to its fair value.

This approach is less risky than trading overvalued stocks because you are investing in a company that the market has incorrectly priced. If your analysis is correct, you will profit from the investment.

Wait for the stock price to increase.

If you believe a stock is undervalued, you can wait for the price to rise and then sell the stock at a higher price. This strategy profits from the increase in the stock's value over time.

This approach is more conservative because you are investing in the long term. However, you can take short-term

profits if you are a trader. Just be aware of any capital gains taxes and brokerage fees you might have to pay.

CONCLUSION ABOUT OVERPRICED AND UNDERVALUED STOCKS

There are several strategies to choose from when it comes to investing.

Value investors can want to just purchase inexpensive stocks and hold onto their investments for years or even decades before selling them after the price has increased.

Some investors seek rapid gains, therefore they choose to exchange equities quickly as they rise.

And other people won't think twice about shorting equities if they are overpriced in the market. Of course, this more sophisticated strategy can backfire, but if the analysis is accurate, it can be rewarding.

Do your homework and make wise trading choices whether you want to invest in overpriced or undervalued stocks. Both approaches have the potential to be rewarding, and mastering them will help you perform well in any stock market situation.

CHAPTER 8
TIME VALUE OF MONEY AND DISCOUNTING CASH FLOWS

TIME VALUE OF MONEY (TVM)

WE USE two sets of data in corporate finance: retrospective and prospective. Retrospective data is compiled in financial statements. These represent the historical performance of an enterprise and can be analyzed, compared, and extrapolated. Ratios are the tools of financial statement analysis, and we just discussed them.

Prospective data is compiled in financial projections. These represent management's forecast of how the enterprise will perform in the future. These projections can be analyzed, risk-adjusted, and a present value of those future cash flows can be calculated. We will now get into the forward-looking aspects of finance with the concept of the **Time Value of Money** (TVM).

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Time is money, literally. Therefore, if there is a prospect of receiving a certain sum, the sooner you receive it, the more it is worth.

Interest rates describe the relationship between present value and future value. This relationship is the fundamental concept of finance.

We will explore this relationship between the present and future value from different angles, and I will phrase it in different ways to let it sink in.

TVM represents the conceptual basis of valuation in finance and investing. This concept is the underlying principle of how banks function, how stocks and bonds are priced, how assets and companies are valued, how projects are analyzed, and how you should think about the nature and function of money.

HISTORY LESSON

The concept of the time value of money dates back to the 1500s. Martín de Azpilcueta of the School of Salamanca (December 13, 1491 – June 1, 1586), also known as Doctor Navarrus, was an important Basque theologian, an early economist, and the first person to develop monetarist theory. He invented the mathematical concept of the time value of money. So it's an idea that's about 500 years old.

THE PRESENT VALUE OF THE FUTURE CASH FLOWS

The core of corporate finance is calculating the present value of future cash flows. This concept is based on the time value of money. A company is an entity that generates cash flows each year into the future. The trick is estimating those future cash flows, how much they might grow or shrink, and the risks to realizing (i.e., receiving) them.

It's difficult to peer into the fog of the future. This process is where you have to polish your crystal ball and deeply analyze the business, its markets, and competitors. All this information is compiled in a spreadsheet of financial projections, and the bottom line represents the future cash flows in each year.

These are discounted back to the present value at a discount rate that considers what similar investments, which are just streams of expected cash flows, are priced at in the market and any risks specific to the particular enterprise or asset we are contemplating buying or selling.

This thinking is the basic concept of Valuation. Valuation is an estimate of something's worth. Something's worth can be set at an auction where people bid, and the highest bidder wins. But how do bidders know how much to bid and how much is too much? For income-producing assets, like stocks, it's the present value of the future cash flows.

FREE CASH FLOWS

The following method is used to estimate a firm's free cash flows:

FCF = EBIT * (1 - T) + Dep - CapEx +/- NWC

Where:

FCF = Free Cash Flow

EBIT = the Operating Profit (Earnings Before Interest and Taxes)

T = Tax Rate

Dep = Depreciation Expense

CapEx = Capital Expenditure

NWC = Change in the Net Working Capital

Free Cash Flow is Net Income with adjustments from the Operations and Investment sections of the Cash Flow Statement. These adjustments are made for non-cash expenses and revenues.

The difference between a company's current assets, such as cash, accounts receivable/unpaid invoices from customers, and inventories of raw materials and completed items, and its current liabilities, such as accounts payable and loans, is known as **Net Working Capital** (NWC).

CHAPTER 9
P/E AND PEG

PRICE/EARNINGS RATIO

THE PRICE/EARNINGS ratio also called the P/E ratio, **tells investors how much a company is worth**. The P/E ratio is the stock price divided by the company's earnings per share for a designated period, like the past 12 months. The price/earnings ratio conveys how much investors will pay per share for $1 of earnings.

Price to Earnings Ratio

P/E. The most common valuation metric or measurement

We use Ratios to compare companies

You can't compare companies on stock price alone.

Present value calculation is complicated.

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P/E is a simple number that captures an estimate of value. Easy to compare companies. But like all reductive estimates, it leaves out lots of information.

Low P/E = better stock value

All things being equal, it is a better value

Economists call all things equal by the Latin phrase, "ceterus paribus," but all things are never equal. For example, companies differ in products, tech, markets, capital structure, IP, etc.

Things that vary and need to be considered:

Growth rate. Growth opportunities

Growth Stocks

Losses. No p/e. Price divided by zero or negative number

Earnings. High p/e

Dividend Stocks. Low P/E and limited growth potential

Value stocks

More stable revenues and earnings

Look at the dividend yield. How much the dividend represents of the stock price

P/E captures the present value of future earnings or prospects

- Growth
- Risk

. . .

Earnings affect PE

Companies increase profits in two ways:

- Increase sales and revenues
- Decrease expenses

Income statement. Earnings

Earnings per share. EPS

EPS = Earnings/Outstanding number of shares.

Price. Stock market trading price

Market cap:

Market capitalization is price * number of outstanding shares

PRICE/EARNINGS-TO-GROWTH (PEG) RATIO

Screen stocks for growth at a reasonable price

There's a technique to find growth stocks that trade at relatively reasonable prices.

The method involves the PEG ratio, the ratio of the price/earnings multiple divided by the expected earnings growth rate.

What Is the Price/Earnings-to-Growth (PEG) Ratio?

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The PEG is basically the P/E ratio normalized for growth. As a result, it provides a better understanding of a stock's value by comparing varying P/Es and considering a company's growth prospects.

The PEG ratio determines a stock's value while factoring in the Company's expected earnings growth. As a result, it provides a more nuanced picture than the more standard P/E ratio.

How to Calculate the PEG Ratio

PEG Ratio=(Price/EPS)/EPS Growth
where: EPS = Earnings Per Share

To calculate the PEG ratio, you need to look up or calculate the P/E ratio of the stock you are analyzing. The P/E is readily available on lots of websites or trading apps. The P/E ratio is the Company's price per share divided by the earnings per share (EPS).

Once the P/E has been determined, use analyst estimates on financial websites that track the Company to determine the anticipated growth rate for the stock in question. After that, enter the data into the formula and find the PEG ratio.

Accuracy

The PEG ratio's correctness is based on the inputs utilized, just like any other ratio. Consequently, it's critical to know

which growth rate was applied when analyzing a company's PEG ratio from a public source. For instance, the PEG ratio is determined using a P/E ratio based on current-year data and a five-year anticipated growth rate in an article from Morgan Stanley Financial Management.

If future growth rates are anticipated to differ from a company's previous growth, using historical growth rates might result in an erroneous PEG ratio. For example, the ratio can be calculated using one-year, three-year, or five-year expected growth rates.

The terms "forward PEG" and "trailing PEG" distinguish future and historical growth calculation methods.

What Does the PEG Ratio Tell You?

While a low P/E ratio may suggest that a stock is an intelligent investment, the PEG ratio, which considers the Company's growth rate, may provide a different picture. Given its future earnings expectations, The stock may be undervalued to a greater degree the lower the PEG ratio. Conversely, adding a company's expected growth into the ratio helps adjust the result for companies with a high growth rate and high P/E ratio. PEG helps normalize stocks with varying P/E ratios to compare apples-to-apples better.

Depending on the industry and kind of firm, a PEG ratio may imply an over or underpriced stock. Therefore, some

investors believe a PEG ratio of less than one is preferable as a general rule.

A business's P/E and projected growth should be equal, according to well-known investor Peter Lynch, which indicates a reasonably priced company and supports a PEG ratio of 1.0. A firm is thought to be overpriced if its PEG is more than 1.0, whereas a stock with a PEG below 1.0 is thought to be undervalued.

Example of How to Calculate the PEG Ratio

PEG gives valuable information to compare companies and see which stock might fit an investor's needs. Let's make an example comparison.

Assume the following information for two hypothetical companies, Company A and Company B:

Company A:

- Price per share = $77
- EPS this year = $2.35
- EPS last year = $1.74

Company B

- Price per share = $111
- EPS this year = $5.89
- EPS last year = $5.44

. . .

With this information, you can calculate the data for each Company:

Company A

- P/E ratio = $77 / $2.35 = 33
- Earnings growth rate = ($2.35 / $1.74) - 1 = 35%
- PEG ratio = 33/ 35 = 0.9

Company B

- P/E ratio = $111 / $5.89 = 19
- Earnings growth rate = ($5.89 / $5.44) - 1 = 8%
- PEG ratio = 19 / 8 = 2.3

Many investors may look at Company B and consider it to be more appealing because it has a lower P/E ratio than Company A. Still, compared to Company A, its growth rate needs to be higher to support its P/E ratio. Investors buying Company A pay less per unit of earnings growth because it trades at a relative discount to its growth rate. Based on its lower PEG, Company A may be the relatively better investment.

What Is a Good PEG Ratio?

An attractive PEG ratio often has a value of less than 1.0. Conversely, PEG ratios higher than 1.0 are often viewed as less favorable and imply an overpriced stock.

PEG ratios less than 1.0 are preferable since they show that a company is generally inexpensive.

All else being equal, lower PEGs are better.

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What Does a Negative PEG Mean?

Either negative profits (losses) or a negative anticipated growth rate could result in a negative PEG. Such scenarios imply that a business could be in peril.

The Bottom Line

While investors use the P/E ratio more commonly, the PEG ratio improves upon the P/E by incorporating earnings growth estimates. As a result, PEG ratios provide a more accurate picture of a company's relative value in the market.

However, having accurate estimates is critical because PEG relies on earnings estimates. Unreliable PEG ratios can be produced by making poor forecasts or assumptions or by carelessly extrapolating previous growth rates into the future.

Utilize projected yearly profit growth for the coming three to five years to find companies growing more sustainably than those with high expected profit growth for just one year.

So we take the P/E and divide it by this expected earnings growth estimate. For instance, a PEG ratio of 2 times means paying 20 times earnings for a stock expected to grow earnings per share at a 10% annual pace for the next three to five years. Investors are thus paying two points for every

percentage point of profit increase. Investors would rather invest at a 1.5 times PEG ratio if they can get it.

A clever tactic is to look for "growth at a reasonable price." Use the PEG ratio as a screening tool to find stocks with growth at a reasonable price.

Where to screen?

For starters, the Nasdaq index is a fine place to look. Given that its combined EPS is predicted to increase by around 17% annually over the next three years, its high P/E ratio could be justified. The PEG ratio is approximately 1.5 times. Pretty Good.

Also, check out individual stocks trading on the Nasdaq platform, as these are mostly tech and high-growth stocks.

If you are benchmarking against the S&P 500 index, screening for companies with higher earnings growth than the index but with a PEG ratio below 2 is a good start.

Microsoft (MSFT) is an example. Its EPS is expected to grow at 14%, while it's just under 28 times multiple, leaving a PEG of about 1.9. It's barely a sub-2 PEG but worth considering.

KEY TAKEAWAYS

• The PEG ratio improves on the P/E ratio by factoring in anticipated profit growth.

• The PEG ratio measures a stock's actual worth; like the P/E ratio, a lower PEG may point to an undervalued stock.

• Variations will depend on the growth estimate used in the calculation and how the PEG for a specific firm varies depending on which reporting source estimates the Company's prospects for profit growth.

• The ideal PEG number is less than 1.0, indicating that a firm is comparatively cheap.

Why Accounting for Growth is Crucial

Over the long term, a stock will earn a return directly related to the business which underlies it earns.

Remember, in the long run, the value of a stock comes from the quality (growth and profitability) of the underlying business.

That's why it's essential to only invest in high-quality businesses with solid **growth**, high-profit margins, a simple business model, competitive advantages, and barriers to entry or moat.

Invest because it's a solid, profitable, high-quality business. Not because it's trendy.

Bank on growth:

As Charlie Munger famously said, "The big money is not

in the buying and selling… but in the waiting." Waiting and patience are crucial for the growth rate to work magic.

And patience:

As Munger said, "Someone will always be getting richer faster than you. This is not a tragedy."

AN EXAMPLE COMPARING TWO STOCK MARKET INDEXES USING P/E AND PEG.

This example analysis is from the end of the first quarter of 2023, so depending on when you read this, things will have changed, but this narrative lays out the process, and you can find the current numbers and update the comparison.

According to FactSet, the Nasdaq's forward **price/earnings ratio** is approximately **25.4** times, about 44% above the S&P 500's **17.6** times. The Nasdaq index usually trades at a premium, but this is a vast valuation gap.

This big gap can be compared to the peak of the pandemic-era rally in August 2020, when the Nasdaq index traded at a 48% premium to the S&P 500. By comparison, the Nasdaq has occasionally traded at a premium of less than 20% during the previous ten years.

The PEG ratio for Nasdaq, which divides the price/earnings multiple by the rate of earnings growth so that the valuation may consider the pace of profit growth, is relatively attractive. The PEG comes out to around 1.5 times with a price/earnings

ratio of 25.4 times and aggregate per-share profits anticipated to rise at 17% yearly for the following three years.

That's relatively low, considering the S&P 500 trades at a **PEG ratio** of slightly **over 2**. So at current levels, investors are paying less for the earnings growth the Nasdaq index will deliver than for the expected profit growth for the S&P 500.

A counterargument is that Nasdaq's PEG is relatively low if the earnings growth is as high as Wall Street expects. The comparison is only as good as the estimates used as inputs. Part of the strong anticipated growth for Nasdaq comes from a 20% increase in **EPS** for 2024. After that, it is expected to decline to 15% by 2025.

PEG QUIZ

How to Calculate the PEG Ratio

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Work this problem out and then check the answers in the next section.

QUIZ ANSWER: EXAMPLE OF HOW TO CALCULATE THE PEG RATIO

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CHAPTER 10
HOW TO BUILD A DIVERSIFIED PORTFOLIO

MODERN PORTFOLIO THEORY MPT

IF YOU UNDERSTAND Modern Portfolio Theory, You Can Become Wealthy

The markets will treat you so much better using this method.

Occasionally, a little luck and a helping hand can make all the difference.

My mother was a skillful investor.

Throughout her lifetime, she kept her investments a secret.

She managed her finances with care and foresight, shared her financial wisdom with me, and planted the seeds of curiosity and ambition.

. . .

Her meticulous approach to managing money left a lasting impression. I admired her financial skill and would later adopt a similar investment philosophy.

Modern Portfolio Theory

American economist **Harry Markowitz** developed Modern Portfolio Theory (MPT) in 1952.

The main idea is to spread your money across different investments (diversification) so that if one investment doesn't do well, others might still perform well, reducing your overall risk.

In simple terms, MPT is like not putting all your eggs in one basket, so you can better manage the ups and downs of the financial market.

Markowitz realized that you, as an investor, should focus on more than just the potential returns of individual investments. Instead, it would help if you also considered how these investments work together in your portfolio.

Through his research, he found that you could create a more competent portfolio by mixing different investments with various levels of risk and return.

This portfolio would either maximize returns for a certain level of risk or minimize risk for a certain level of returns.

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The breakthrough idea laid the groundwork for Modern Portfolio Theory and led to Markowitz winning a Nobel Prize in Economics in 1990.

99% of Wealth Funds Use This Approach.

You should adopt the same stance as 99% of Sovereign Wealth Funds, embracing the Modern Portfolio Theory regarding your investments.

Most investments are either high-risk and high-return or low-risk and low-return.

Investors can achieve their best results by choosing an optimal mix of the two.

MPT helps risk-averse investors construct diversified portfolios and is a practical way of selecting investments to maximize overall returns within your risk tolerance.

I use this method for my stock investments, and when it comes to your portfolio, you should treat your investment the same.

- Invest at most 20% in one sector.
- Never Invest more than 5% in a single stock or bond (or Crypto)

I learned a major lesson from my mother, that has worked for me over the years. She had a basic portfolio theory of diversification.

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In her day, there were only ten sectors in the S&P; today, there are 11, including the new one — real estate.

So, you only put up to 20% in any sector and never more than 5% in any stock.

That forces you to get diversified. The market treats you better when you're diversified because you never know what will happen.

I'm a diversified guy; I never have more than 5%. So if a stock does become more than 5%, as my Tesla stock did, I sell it down to 5%. If it continues increasing, I will keep selling it down, so I'm taking cash and reallocating it.

The chart below shows that as the number of stocks in your portfolio increases and diversifies, your risk starts to be eliminated.

Not Everyone's On Board

Warren Buffett, one of the most successful investors, has an interesting perspective on MPT.

Alongside his long-time business partner Charlie Munger, they say MPT has led to a misguided direction in investment education over the past four decades.

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When you buy a business, you own a business.

As a result, you need to focus on the fundamental aspects of the business for investing. Buffet and Munger believe the problem with all these theories is people are fixated on the numbers and data, losing sight of the bigger picture.

According to Buffett, volatility isn't an accurate indicator of risk.

He points out that an investment with fluctuating returns between 20% and 80% isn't necessarily riskier than one that consistently earns 5% annually. Instead, Buffett defines risk as "the possibility of harm or injury."

They stress the significance of knowing the core aspects of a business instead of solely focusing on graphs and numbers. Munger playfully describes their method as "enlightened common sense."

Warren Buffett said, "Much of what is taught in modern corporate finance courses is twaddle. Modern portfolio theory has no utility. It will tell you how to do average, but I think anybody can figure out how to do average in fifth grade.

It's elaborate, and there are many little Greek letters and all kinds of things to make you feel that you're in the big leagues, but no value is added.

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If you find three wonderful businesses in your life, you'll get very rich.

And if you understand them, bad things aren't going to happen to those three."

Final Thoughts

It is positive to acknowledge different perspectives on investing and portfolio management.

The diversification is correct, but I believe Buffett is also right.

It doesn't prevent risk.

You can invest in different sectors, but those companies can still be risky investments.

My mother's guidance and financial insight were crucial in shaping my investment philosophy and success.

Ultimately, deciding which approach best aligns with your goals and risk tolerance is up to you.

Warren Buffett and Charlie Munger take a fundamental approach.

"is it a good business you're investing in?"

If you're not sure, maybe that's the risky part.

QUANTIFYING AND MEASURING RISK

Risk is measured by the amount of volatility, that is, the difference between actual returns and average (expected) returns. This difference is referred to as the standard deviation.

There's a multitude of ways to measure risk. Beta is a measurement that compares the risk or volatility of an investment against the general market. Standard deviation measures the dispersion of performance from an investment's average.

Finally, the Sharpe Ratio measures whether an investment's returns fairly compensate an investor for the associated level of risk assumed.

RISK VS. REWARD

Every company has different products and services, customers and competitors, technologies, and employees. These unique circumstances and situations mean that every company listed on the stock market has a different risk profile.

How can we measure and compare the relative risk of different stocks?

The **equity risk premium** is the excess return investors in the stock market require above and beyond the interest rate provided by U.S. treasury bonds. U.S. Treasury bonds are the de facto risk-free alternative because they are backed by the government's ability to pay.

Investors think in terms of a **risk-reward** tradeoff. The additional anticipated return compensates investors for taking on the higher risk of investing in stocks.

The stock risk premium is a theoretical estimate. It can't be known precisely. No one knows how stocks will perform going forward.

We can estimate the risk premium by measuring past stock market performance.

Markets compensate investors for taking on the higher risk of investing in stocks.

Estimates of the equity premium vary. A reasonable estimate of the equity premium is around 5.5%. That premium compensates us for putting our money in the stock market instead of a treasury bond.

But what if we invest in the stock of an individual company? What if we put our money in shares of Apple, Goldman Sachs, or Tesla? What rate of return should we expect to invest our hard-earned money in a single company's stock?

Individual stocks are potentially riskier than investing in the overall stock market. That is why mutual funds and ETFs are so popular. They mirror the entire market or sectors of it.

We must determine the premium to compensate us for taking on the additional risk. We need to **measure individual stock risk and price that risk.**

. . .

Our estimate for the annual average overall stock market return is 5.5%. We need a way to think about and measure the risk of individual stocks to calculate the risk premium required for investing in that stock.

How much risk premium should we expect to compensate us for investing in a specific stock? How do we measure how risky that stock is?

Let's consider what makes a stock risky. Stocks are volatile. **Volatility** is another way of saying that their price fluctuates up and down a lot. We can't predict the future. We never know if a stock will go up or down in the short term.

The short-term movement of a stock is a random walk. It may jump around more than the average share. One day it's up 15%, and the next, it goes down 25%.

We can evaluate a stock's past performance to understand the stock-specific risk. For example, we can see how much the share price has varied in their prior performance.

We aren't limited to investing in only one specific stock. Instead, we can invest in many different stocks with different risk profiles. Holding a bunch of various commodities is called a **portfolio**.

Some of the various stocks go up while others drop, and vice versa.

Think of investing in a suntan lotion company and an umbrella company. When the sun is shining, people buy suntan lotion, and that stock performs well.

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But few people are buying umbrellas, and that stock languishes. When it rains, the umbrella company makes sales, and that stock soars. But the suntan lotion company is quiet.

The two companies perform the opposite. Each offsets some of the risks of the other.

Umbrellas and suntan lotion is a simplified example that illustrates the concept of **diversification**. Investing in different stocks creates **diversification that reduces portfolio risk**.

I might require a 20% return to hold a risky stock. However, some other investors might be willing to accept less than a 20% return because they will place the stock in a diversified portfolio. As a result, the company will raise money from the investor requiring the cheaper required rate of return. From the company's perspective, that is a less expensive **cost of capital**.

BETA

We want to measure how a particular stock changes the risk of our portfolio. That measurement is called Beta. Remember, **volatility is our measure of risk.**

Beta tells us how much the stock moves up and down with the market.

We're going to measure the **variance** of the stock, and we're also going to calculate **covariance**. Covariance is how two things vary together.

If two stocks tend to move together, they've got high

covariance. On the other hand, if two stocks vary independently, they don't matter to each other; there's little or no covariance between them.

The more they move together, the more covariance there is.

Covariance is the measure of how things move together. Variance is a measure of how something moves by itself.

Now I am going to introduce the **risk measurement called Beta**.

Beta measures an individual stock's risk contribution to a portfolio.

Beta is a ratio of covariance and variance where we divide one by the other. Beta is covariance divided by variance.

Beta measures an individual stock's volatility relative to the market's volatility. **A stock with a beta of precisely 1.0 means it moves in lockstep with the market.** If the stock's Beta is less than 1.0, it moves less than the market.

If a stock moves more than the market, the stock's Beta is greater than 1.0.

Investing is all about **risk vs. return**. Having a **quantitative way of assessing risk** gives us a tool to evaluate the returns we require or can expect.

. . .

High-beta stocks are considered riskier but provide higher returns. Conversely, low-beta stocks pose less risk but also have lower yields. It's a tradeoff.

How much does a stock move with the market?

Here is the formula for calculating Beta.

Beta coefficient(β) = Covariance(Re ,Rm) / Variance(Rm)

where:

Re =the return on an individual stock

Rm=the return on the overall market

Covariance=how changes in a stock's returns relate to changes in the stock market's returns.

Variance=how far the market's data points vary from their average value.

The **covariance** between our stock Re, and the market, Rm, is the numerator. Covariance measures how much the individual stock we are interested in moves relative to the overall market.

We scale our covariance measure **by the variance** of how much the market moves overall.

That ratio of the variation of the individual stock relative to the variation of the stock market (covariance) divided (scaled) by the overall market variance is called **Beta**, or the beta coefficient.

Beta quantifies an individual stock's unsystematic risk compared to the entire market's systematic risk.

. . .

Systematic risk refers to the risk built in to the entire market. Systematic risk is an undiversifiable risk as it can't be diversified away.

Beta is a statistical measurement. We can also calculate Beta by plotting the returns over time of the individual stock against the performance of the market. Beta is the slope of the regression line through those data points.

The good news is that **Beta is calculated for you** and is available as part of the general information about any stock on Google or Yahoo finance or your favorite place to look up stocks.

You must know that Beta measures how much a stock moves relative to all stocks scaled by how the market varies overall.

That is a stock's Beta. It's a measure of how much it moves with the market.

Beta measures how risky a stock is when we include it in a portfolio.

If I put a particular stock into my portfolio, does that make my collection vary more or less?

Betas are usually around one. They can go as low as 0.25 and as high as 2.5. That is the range.

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Beta tells us how much market risk we are taking when buying a stock.

Let's look at an example.

If a stock has a beta of 2.0, that stock varies in price twice as much as the market. Therefore, that stock is two times as risky as the market. We will require two times the market premium to buy that stock.

Two times the market risk should also produce much higher returns.

Let's think about the cost of equity. The cost of equity capital is how much of a rate of return investors require to invest in the company stock.

The rate of return was the risk-free rate plus a risk premium. Recall our estimate of the overall stock market risk premium was 5.5%.

Now we can think about and quantify the risk premium for individual stocks. That risk premium is Beta. So the risk premium for a stock is: how much market risk I'm taking, Beta, times the equity premium, the 5.5% of market risk. The risk premium of a stock with a Beta of 2.0 is 2 * 5.5 = 11%

Beta measures how many portions of market risk a stock represents. For example, the overall stock market risk

premium, which we estimate as 5.5%, equals one portion of market risk.

CAPM

We can put it all together in the **Capital Asset Pricing Model CAPM**.

CAPM describes the relationship between systematic risk, the risk that creating a portfolio can't diversify away, and the expected return for individual stocks.

CAPM says any asset's *required* or expected rate of return equals the risk-free rate, plus beta times the Equity Premium.

RRoR = Rrf + B * EP

Where:

EP is the Equity Premium (the expected rate of return from the market above the risk-free rate)

B is Beta (Covariance / Variance)

Rrf is the Risk-Free Rate (U.S. Treasury Bonds)

RRoR is the Required Rate of Return

CAPM is a formula for measuring the risk and the required return on any stock. Every stock has a unique beta. We can calculate that Beta or look it up on Yahoo.

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We can determine what the return is we require on that stock. Our required rate of return is the risk-free rate plus beta times the equity premium.

Let's calculate an example for a stock with a beta of 1.7. The equity premium is around 5.5%, and the risk-free rate is 2%. How would we calculate the cost of equity for that stock?

It's the risk-free rate plus beta times the equity premium. In this case, that would be 2% + 1.7 times the 5.5% equity premium, which equals 11.35%.

So if we buy that stock, how much do we expect to earn for taking that much risk? We plan to receive over 11% for a stock with a beta of 1.7.

Now we have a number. ***We can use that as the discount rate to discount our estimates of the future cash flows to equity holders.***

If we look at the company's balance sheet, we see assets on the left-hand side. On the right-hand side of the balance sheet are debt and equity.

We now have a discount rate that we can apply to discount the company's cash flows.

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That discount rate is calculated using the capital asset pricing model, the risk-free rate plus beta times the market premium.

From the Cash Flow Statement, we can calculate Free Cash Flow. Then we can estimate the growth of future free cash flows and discount that income stream to present value with our CAPM calculated discount rate.

We use Net Present Value calculations to use that discount rate to discount estimated future cash flows to present value.

HOW TO CREATE A DIVERSIFIED STOCK PORTFOLIO

The stock market has been the greatest wealth generator of the past century. So with that in mind, the surest way to become wealthy is to save money and invest it in the stock market.

Here are two tools you should be familiar with to reduce risk and increase your returns through diversification and portfolio theory.

HARNESS THE POWER OF BETA AND THE CAPITAL ASSET PRICING MODEL.

Beta and the Capital Asset Pricing Model (CAPM) are used to calculate the cost of equity. CAPM is a method to derive a meaningful discount rate for discounting future cash flows and value income-producing assets.

Attention Entrepreneurs

• • •

Entrepreneurs and investors can use these tools to create a rational valuation for a startup seeking early-stage equity financing.

Let's take a look.

Beta and CAPM

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Quantifying Diversification

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To take advantage of the risk-reduction qualities of holding a portfolio, we want to measure how diversification affects the risk of a single stock in our portfolio.

Consider the following example, which employs the historical returns on three equities over five years. We want to measure how diversification affects the risk of a single stock in our portfolio.

Consider the following example, which employs the historical returns on three equities over five years: A, B, and C.

Imagine we are looking at the graphs of these three stocks. You know those squiggly lines that chart the movement of a stock over time? You can see them when you look up a company on Google Finance.

Company A goes up the most at 21% a year, plus or minus 27%. That's a lot of volatility.

B is the middle stock and goes up, on average, 15% a year over five years, plus or minus around 19%. It goes up less and is less volatile.

C has been lackluster over the last five years and hasn't had high returns. It has gone up 5% on average over the previous five years, plus or minus around 17%.

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By analyzing the individual returns and volatility, in terms of risk premium, we should charge A the most, we should charge B the middle, and C the lowest risk premium.

But what if we put all three together in a diversified portfolio? What risk premium would I require for the collection?

The three stocks together average out to a smoother line. Let's say the total curve goes up at around 12% plus or minus 10%.

The aggregate line is smoother than any of the three individual lines.

By owning those stocks together in one portfolio, the wiggles in the lines tend to cancel each other out. This smoothing phenomenon is due to the diversification of the portfolio.

Let's return to the umbrella company and a suntan lotion company to reinforce the concept of diversification. The umbrella company does well when it's raining, and the suntan company languishes. When it is sunny, the suntan lotion company sells products, and the umbrella company is stagnant. Each cancels out the other, and the two together are less volatile than either by itself. That is the risk-hedging impact of diversification.

In our case, sometimes A goes up a lot when B goes down. Sometimes stock C goes up when B and A go down. The mutual cancellation of each independent variation creates a smoother group price line.

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That's what we seek as investors. We want to earn a smooth return without being concerned about the market's ups and downs.

Through diversification, the variations in individual stock price movements cancel each other out. That helps us be more comfortable putting our hard-earned money into risky securities like stocks.

The more those variations cancel each other out, the lower the return we require for an individual stock.

We want a quantitative measure of how each stock contributes to the portfolio variation.

Does a stock make the overall portfolio more or less volatile? It doesn't depend on the individual stock wiggles but on how much it varies with the other stocks in our portfolio.

That's a key concept. The risk of a stock comes from how much it impacts the other stocks in our portfolio. So holding multiple equities can reduce overall risk.

Why not hold lots of stocks? Why not invest in a portfolio representing the whole market? That is what mutual funds and ETFs are. They are baskets of stocks representing an industry sector or the entire market.

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Let's examine how to measure the risk of an individual stock. Volatile variations and jumps could be helpful if that stock wiggles and jumps independently of all the other stocks in our portfolio. We are looking for stocks that zig when our other stocks zag.

We want to measure how a particular stock changes the risk of our portfolio. For example, how do the stock's price movements make the portfolio price movements vary? Does the stock make our collection more or less volatile?

Beta

We want to measure how a particular stock changes the risk of our portfolio. That measurement is called Beta. Remember, volatility is our measure of risk.

Beta tells us how much the stock moves up and down with the market.

We're going to measure the variance of the stock, and we're also going to calculate covariance. Covariance is how two things vary together.

If two stocks tend to move together, they've got high covariance. On the other hand, if two stocks vary independently, they don't matter to each other; there's little or no covariance between them.

The more they move together, the more covariance there is.

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Covariance is the measure of how things move together. Variance is a measure of how something moves by itself.

Now I am going to introduce the **risk measurement called Beta**.

Beta measures an individual stock's risk contribution to a portfolio.

Beta is a ratio of covariance and variance where we divide one by the other. Beta is covariance divided by variance.

Beta measures an individual stock's volatility relative to the market's volatility. A stock with a beta of precisely 1.0 means it moves in lockstep with the market. If the stock's Beta is less than 1.0, it moves less than the market.

If a stock moves more than the market, the stock's Beta is greater than 1.0.

Investing is all about risk vs. return. A quantitative way of assessing risk gives us a tool to evaluate the returns we require or expect.

High-beta stocks are considered riskier but provide higher returns. Conversely, low-beta stocks pose less risk but also have lower yields. It's a tradeoff.

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How much does a stock move with the market?

Here is the formula for calculating Beta.

Beta coefficient(β) = Covariance(Re ,Rm) / Variance(Rm)

where:

Re =the return on an individual stock

Rm=the return on the overall market

Covariance=how changes in a stock's returns relate to changes in the stock market's returns.

Variance=how far the market's data points vary from their average value.

The **covariance** between our stock Re, and the market, Rm, is the numerator. Covariance measures how much the individual stock we are interested in moves relative to the overall market.

We take our covariance measure and scale it by the variance of how much the market moves overall.

That ratio of the variation of the individual stock relative to the variation of the stock market (covariance) divided (scaled) by the overall market variance, is called **Beta**, or the beta coefficient.

Beta quantifies an individual stock's unsystematic risk compared to the entire market's systematic risk.

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Systematic risk refers to the risk built-in to the entire market. Systematic risk is an undiversifiable risk as it can't be diversified away.

Beta is a statistical measurement. We can also calculate Beta by plotting the returns over time of the individual stock against the performance of the market. Beta is the slope of the regression line through those data points.

The good news is that Beta is calculated for you and is available as part of the general information about any stock on Google or Yahoo finance or your favorite place to look up stocks.

You need to know that Beta measures how much a stock moves relative to all stocks scaled by how the market varies overall.

That is a stock's Beta. It's a measure of how much it moves with the market.

Beta measures how risky a stock is when we include it in a portfolio.

If I put a particular stock into my portfolio, does that make my collection vary more or less?

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Betas are usually around one. They can go as low as 0.25 and as high as 2.5. That is the range.

Beta tells us how much market risk we are taking when buying a stock.

Let's look at an example.

If a stock has a beta of 2.0, that stock varies in price twice as much as the market. Therefore, that stock is two times as risky as the market. We will require two times the market premium to buy that stock.

Two times the market risk should also produce much higher returns.

Let's think about the cost of equity. The cost of equity capital is how much of a rate of return investors require to invest in the company stock.

The rate of return was the risk-free rate plus a risk premium. Recall our estimate of the overall stock market risk premium was 5.5%.

Now we can think about and quantify the risk premium for individual stocks. That risk premium is Beta. So the risk premium for a stock is: how much market risk I'm taking, Beta, times the equity premium, the 5.5% of market risk. The risk premium of a stock with a Beta of 2.0 is 2 * 5.5 = 11%

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Beta measures how many portions of market risk a stock represents. The overall stock market risk premium, which we estimate as 5.5%, is equal to one portion of market risk.

CAPM

We can put it all together in the **Capital Asset Pricing Model CAPM**.

CAPM describes the relationship between systematic risk, the risk that creating a portfolio can't diversify away, and the expected return for individual stocks.

CAPM says the *required* or expected rate of return of any asset equals the risk-free rate, plus beta times the Equity Premium.

RRoR = Rrf + B * EP

Where:

EP is the Equity Premium (the expected rate of return from the market above the risk-free rate)

B is Beta (Covariance / Variance)

Rrf is the Risk-Free Rate (U.S. Treasury Bonds)

RRoR is the Required Rate of Return

CAPM is a formula for measuring the risk and the required return on any stock. Every stock has a unique beta. We can calculate that Beta or look it up on Yahoo.

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We can say what the return is we require on that stock. Our required rate of return is the risk-free rate plus beta times the equity premium.

Let's calculate an example for a stock with a beta of 1.7. The equity premium is around 5.5%, and the risk-free rate is 2%. How would we calculate the cost of equity for that stock?

It's the risk-free rate, plus beta times the equity premium. In this case, that would be 2% + 1.7 times the 5.5% equity premium, which equals 11.35%.

So if we buy that stock, how much do we expect to earn for taking that much risk? We plan to receive over 11% for a stock with a beta of 1.7.

Now we have a number. ***We can use that as the discount rate to discount our estimates of the future cash flows to equity holders.***

If we look at the company's balance sheet, we see assets on the left-hand side. On the right-hand side of the balance sheet are debt and equity.

We now have a discount rate that we can apply to discount the company's cash flows.

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That discount rate is calculated using the capital asset pricing model, the risk-free rate plus beta times the market premium.

From the Cash Flow Statement, we can calculate Free Cash Flow. Then we can estimate the growth of future free cash flows and discount that income stream to present value with our CAPM calculated discount rate.

We use Net Present Value calculations to use that discount rate to discount estimated future cash flows to present value.

Summary

Diversification changes risk. Market risk can't be diversified away.

We use an estimate of 5.5% in these examples, but you can modify that to meet your risk profile. Beta measures a stock's sensitivity to that market risk.

When we put those two things together, the risk-free rate plus beta times the equity premium, we have a way to measure the risk of owning individual stocks. And we can use that measure of risk as a discount rate to calculate the present value of a stock. Then, finally, we compare our present value calculation with the market price and conclude whether or not it is worth investing in.

THE SHARPE RATIO

The Sharpe Ratio was developed by Nobel laureate William Sharpe. It is used to help investors understand the return on investment compared to its Risk. The ratio is the average return an investor earns in excess of the risk-free rate per unit of volatility or total Risk. Volatility is a metric for asset or portfolio price changes used as a proxy for Risk. Standard Deviation is the statistical technique used to measure and quantify volatility (i.e., Risk).

The Sharpe ratio is calculated as follows:

Sharpe Ratio = **(Rx – Rf) / StdDev Rx**

Rf = Risk-free rate of return.

StdDev Rx = Standard deviation of portfolio return (or, volatility)

• Subtract the risk-free rate from the return of the portfolio. The risk-free rate could be a U.S. Treasury rate or yield, such as the one-year or two-year Treasury yield.

• Divide the result by the standard deviation of the portfolio's excess return (it is assumed that the risk-free rate is constant, so there is 0 standard deviation). The standard deviation helps to show how much the portfolio's return deviates from the expected return. The standard deviation also sheds light on the portfolio's volatility.

KEY TAKEAWAYS

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• The Sharpe ratio adjusts a portfolio's past or expected future performance for the excess Risk that the investor took.

• A high Sharpe ratio is good when compared to similar portfolios or funds with lower returns.

• The Sharpe ratio has several weaknesses, including an assumption that investment returns are normally distributed.

DIVERSIFICATION: AN ESSENTIAL INVESTING RULE

A Random Walk Down Wall Street is one of the most popular investing books ever.

A significant part of the book is dedicated to one concept:

Diversification.

Author Burton Malkiel states, "Diversification is the single most important concept in investing."

The only free lunch

As Burton Malkiel says, "The basic principle of diversification is simple: Don't put all your eggs in one basket. Diversification is the only free lunch in the investment world."

Diversification is important because it's impossible to predict which specific investments will perform well in the future.

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"No one can consistently predict which stocks or mutual funds will outperform the market. Therefore, it's essential to diversify your holdings," writes Malkiel.

Investing in a diverse portfolio of stocks from different sectors and industries is a better strategy than putting all your money into a single stock (or a handful of stocks).

Nevertheless, being overexposed to just one stock (or stock market sector) is one of investors' most common - and costly - mistakes.

Instant Diversification With Index Funds & ETFs

Investing in various index funds or exchange-traded funds (ETFs) that track different market indices or sectors is a quick and easy way to diversify your portfolio.

As Malkiel said in A Random Walk Down Wall Street:

"Investors who use ETFs and index funds are better positioned to weather market turbulence because their portfolios are diversified and not tied to the performance of any single company or sector."

For example, you could invest in an ETF that tracks the **S & P 500 Index**, representing the performance of the 500 largest publicly traded companies in the United States.

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You could also invest in an ETF that tracks the **Wilshire 5000 Total Market Index**, which consists of all publicly traded U.S. stocks.

Or you could invest in an ETF that tracks the **FTSE All-World Index**, which includes 3,600 stocks from 47 different countries - adding global diversification to your portfolio.

Investing in index funds and ETFs allow you to own hundreds or thousands of stocks in your portfolio.

This level of diversification would be challenging to achieve by investing in individual stocks.

Diversify Across Asset Classes

The next level of portfolio diversification is to spread your investments across various asset classes such as bonds, real estate, and (potentially) commodities and cryptocurrency.

As said in A Random Walk Down Wall Street:

"One of the benefits of diversifying across different asset classes is that it can help to balance out the ups and downs of the market. When one asset class is performing poorly, another may be doing well, which can help to smooth out returns over time."

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You can use ETFs and index funds to add bonds, real estate, or commodities to your investment portfolio.

Diversification = Risk Management

All in all, diversification is one of the essential risk-management concepts in investing.

Don't put all your eggs in one basket by being overexposed to any single stock, market sector, or asset class.

As Malkiel concludes:

"Diversification is the most important concept in investing because it helps reduce risk and increase the chances of long-term success."

EXAMPLE INVESTMENT DECISION

Let's analyze an income-producing asset, in this case, a **publicly traded stock**, and make an investment decision!

We can put it all together in the **Capital Asset Pricing Model CAPM**.

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CAPM says the *required* or expected rate of return of any asset equals the risk-free rate, plus beta times the Equity Premium.

RRoR = Rrf + B * EP

Where:

- EP is the Equity Premium (the expected rate of return from the market above the risk-free rate)
- B is Beta (Covariance / Variance)
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CAPM is a formula for measuring the risk and the required return on any stock. Every stock has a unique beta. We can calculate that Beta or look it up on Yahoo.

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So if we buy that stock, how much do we expect to earn for taking that much risk? We plan to receive over 11% for a stock with a beta of 1.7.

Now we have a number. ***We can use that as the equity component of WACC to calculate a discount rate to discount our estimates of the future cash flows to equity holders.***

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If we look at the company's balance sheet, we see assets on the left-hand side. On the right-hand side of the balance sheet are debt and equity.

We now have a discount rate that we can apply to discount the company's cash flows.

That discount rate is calculated using the capital asset pricing model, the risk-free rate plus beta times the market premium.

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CHAPTER 11
STOCK MARKET SECTORS

STOCK MARKET SECTORS

GICS SECTORS

Sectors are a comprehensive classification system for organizing companies in the stock market. Within each sector, there are numerous sub-sectors and industries.

The **Global Industry Classification Standard (GICS)** is the financial industry standard for defining sector classifications.

The GCIS's hierarchy begins with 11 sectors, further delineated into 24 industry groups, 69 industries, and 158 sub-industries. Finally, the GCIS coding system assigns a code from each grouping to every publicly traded company in the stock market.

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Industry-wide use of the GICS coding system allows for detailed reporting and stock screening.

The 11 broad GICS sectors include the following:

- Energy
    - Materials
    - Industrials
    - Consumer Discretionary
    - Consumer Staples
    - Health Care
    - Financials
    - Information Technology
    - Telecommunication Services
    - Utilities
    - Real Estate

Diversification and Sectors

Stocks from the majority, if not all, GICS sectors will be included in a diversified stock portfolio.

Diversification among stock sectors reduces idiosyncratic or unsystematic risks from factors impacting certain businesses or industries.

Investors looking to invest in a particular industry's growth potential can use sector index funds.

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Investors have access to passive index funds from investment firms that aim to mirror the eleven GICS sectors.

For example, the Vanguard Information Technology Index Fund is a passively managed mutual fund that seeks to replicate the MSCI U.S. Investable Market Information Technology Index holdings. The strategy is also available through an exchange-traded fund, the Vanguard Information Technology ETF.

What Makes a Portfolio's Sector Breakdown Good?

A well-diversified portfolio should include as many industries as feasible and avoid investing excessive money in a single industry or group of industries. The five percent guideline is also applicable to sector funds. For instance, you would maintain your allocation to 5% or less for each specialty sector, such as energy, financials, or information technology, if you wished to diversify within them.

What Are the Major Industry Sectors?

GICS recognizes the 11 industry sectors, including utilities, healthcare, and technology. The 11 sectors are divided into 24 industrial groupings by the GICS, including banks, clothing manufacturers, and automakers.

Here Is the Sector Breakdown of the S&P 500 Index

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As of January 31, 2022, the sector breakdown of the S&P 500 is:

- Information technology - 28.7%
- Healthcare - 13.1%
- Consumer Discretionary - 12%
- Financials - 11.3%
- Communication Services - 10%
- Industrials - 7.8%
- Consumer Staples - 6.1%
- Energy - 3.4%
- Real Estate - 2.7%
- Materials - 2.5%
- Utilities - 2.5%

THE S&P SECTORS

The S&P Sectors are a method of sorting companies based on primary business activity.

Companies are categorized into S&P sectors or the Global Industry Classification Standard (GICS) according to their main commercial activity.

Investors can create a balanced portfolio or use the sectors to identify stocks of interest.

Information Technology, Health Care, Financials, Consumer Discretionary, Communication Services, Industrials, Consumer Staples, Energy, Utilities, Real Estate, and Materials are the order of the 11 sectors in size.

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Uses of Breaking Down into Sectors

Sector breakdowns assist investors and portfolio managers in allocating funds within a portfolio. For instance, if a trader wants to build a diverse portfolio, they should include stocks from different industries. An index exchange-traded fund (ETF) is a simple way for smaller investors to build a diversified portfolio. Yet, an investor may limit their investment to only the sectors they are interested in if they only want to invest in energy- or technology-based enterprises.

Here are the sectors:

1. Information Technology

The information technology – IT – sector comprises companies that develop or distribute technological items or services, including Internet companies. Computers, microprocessors, and operating systems are examples of technology products. Big brands in this industry include Alphabet, Oracle Corp., and Microsoft Corporation. Due to the fast expansion of technology-based businesses, this industry has seen a significant transformation in recent years.

2. HealthCare

Pharmaceutical firms, medical supply firms, and operations or services based on science to enhance the human body or mind make up the healthcare industry. For example, Abiomed, which produces medical implant devices, and Johnson & Johnson, a pharmaceutical and medical device business that sells Tylenol, are two well-known brands.

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3. Financials

Any businesses engaged in finance, investment, or the transfer or storage of funds are part of the financial industry. Banks, credit card businesses, credit unions, and insurance firms are all included. Because many of the companies in this category are old, well-established businesses, they are often stable. Bank of America Corp., JPMorgan Chase & Co., and Goldman Sachs are some of the banks in this industry. American Express and Berkshire Hathaway are a few more well-known companies in the field.

4. Consumer Discretionary

Luxury goods or services that are not required for existence are discretionary consumer goods. The demand for these goods is influenced by people's wealth and the state of the economy. Examples of products include automobiles, jewelry, sporting items, and technology gadgets. Vacations, hotel stays, or fine eating are examples of luxury experiences. The majority of businesses in this industry are well-known. Starbucks, Best Buy, and Amazon are among the examples.

5. Communication Services

Companies that keep people connected make up the communication services industry. Internet service providers and phone plan providers are included in this industry. Media, entertainment, and interactive media & services firms comprise the industry's most interesting portion. Walt Disney Co. and Netflix Inc. are in the communication services industry. Other businesses in this industry include AT&T, CBS Corp., and Facebook.

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6. Industrials

Industrials refer to various businesses, including railroad, aviation, and military equipment producers. The sector contains 14 different industries due to the wide variety of companies. Construction & Engineering and Aerospace & Defense are two of the biggest industries. The most well-known companies in this industry include FedEx Corporation, Boeing Company, Delta Air Lines, and Southwest Airlines.

7. Consumer Staples

Consumer staples businesses provide all essentials for life. This industry includes domestic and personal goods producers and food and beverage firms. Because individuals frequently see their items in shops, consumer staple firms are well known. For instance, Procter & Gamble, a well-known corporation in this industry, manufactures soap and laundry detergent under the Dawn and Tide brand names. Kroger, the biggest supermarket chain in the United States, is another.

8. Energy

Any businesses involved in producing oil, gas, and consumable fuels are included in the energy industry. Companies that locate, drill for, and extract the commodity are part of this industry. Also, it comprises businesses that refine the material and those that offer or create the tools utilized in the refining process. For example, gas is extracted and refined by firms like Exxon Mobil and Chevron, while gasoline is transported to gas stations by companies like Kinder Morgan.

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9. Utilities

Electricity, water, and gas are produced or provided by utility firms to homes and structures. Duke Energy, for instance, produces and distributes electricity, and Southern Company offers gas and electricity. Several utility corporations are also developing other renewable energy sources.

10. Real Estate

Real Estate Investment Trusts (REITs), realtors, and other businesses are included in the newest S&P sector. The real estate industry makes up 2.9% of the S&P 500. Boston Properties, Equinix, and American Tower Corp. are some of the companies in this industry.

11. Materials

Companies in the materials industry provide the raw materials required for other sectors to operate. This industry comprises mining firms that offer copper, zinc, and gold and forestry firms that produce wood. Container and packaging firms are among the businesses in the industry that are not linked with materials.

SPREAD YOUR BETS

Two layers of diversification are necessary for a well-balanced portfolio: within and between asset groups. You will thus need to spread your investments within each asset category, such as stock sectors, and divide them across stocks, bonds, cash equivalents, and other asset classes.

The five most common asset classes are **equities, fixed-income securities, cash, real estate, and marketable**

commodities.

Two recently developed asset classes are Startups (Angel and Venture Capital investments) and cryptocurrencies.

CHAPTER 12
STOCK RESEARCH

USE THIS SIMPLE TACTIC TO BECOME A TALENTED STOCK PICKER

YOU CAN BEAT THE MARKET, but it won't be easy

We're conditioned to believe it's difficult to beat the market. So people left and right explain how index funds mirror market returns and give us a safe path to compounded wealth.

And yet, some investors beat the market. Many stocks more than doubled in 2021, leaving average market returns in the dust. Saying that it's impossible to beat the market guarantees that it's impossible for you.

While investors beat the market, it's certainly not easy. Rather than invest in an index fund and do zero research, beating the market requires plenty of research. Finding stocks, reviewing their numbers, and deciding how to allocate your money each affects your ability to outperform.

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Creating your criteria and digging through the numbers will help any investor. First, you get a better glimpse into what you're buying. You can determine if a stock is overvalued or undervalued.

The underlying business and valuation are why you'll hear things like, "Great company, bad stock," or vice-versa.

If you use Yahoo! Finance to analyze a stock's valuation along with growth in revenue, earnings, and dividend payouts, you're already ahead of 80% of investors.

However, a simple tactic will put you in a special class of investing potential. This tactic quickly gives you access to pertinent information and allows you to make more educated decisions about your investments.

The tactic…

Listen to the earnings calls!

You don't need to work for a brokerage firm to gain access to earnings calls. All publicly traded companies are required to make earnings calls available to the public. So you can hop on and listen to management present the company's financial performance.

The media often tunes into these earnings calls to help with writing filtered versions of those calls. They'll highlight a small number of points and 1–2 quotes from the call.

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Analysts will hop on the call and ask questions. Management proceeds to address each question asked during the Q&A. Anyone can ask a question, including you. While analysts fill up the Q&A spots, you don't have to be an analyst to ask your question.

Earnings Calls vs. Reading The News

Before listening to earnings calls, I'd read the news about my favorite stocks. The media is quick to pump out articles about a stock during earnings season. Naturally, it's helpful to receive information that quickly. However, the earnings call presents a lot of additional information that gives you a better picture of a company's current state.

Listening to earnings calls vs. reading the news is the same as buying processed food vs. making it yourself. Once you start making your own food, you reach a point of no return and get as little processed food as possible.

An earnings call gives you every granular detail you need to decide. You can hear what management thinks of their recent acquisitions, the quarter ahead, and key catalysts.

The media gives you a few stats, and then you choose. Unfortunately, the media can't provide a complete analysis of the earnings call because they're 30–60 minutes long. No one has time for a 30–60 minute article.

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While listening to an earnings call, I'll take notes and do low maintenance activities. Since I talk about stocks and investing, the notes I write down for an earnings call turn into a video outline.

You can also listen to earnings calls after the fact. Companies keep their earnings calls up on their Investor Relations pages. You visit those pages to register for upcoming earnings calls.

Remember That You're Not An Analyst

Focus on the earnings calls around companies you own. If a company makes up less than 1% of your portfolio, you probably shouldn't listen to its earnings calls. Prioritize earnings calls based on a company's weight in your portfolio or your level of interest in a stock that's not in your portfolio.

Most earnings calls are 30 minutes long. So listening to a single earnings call each week will give you plenty of knowledge on different companies and industries.

Since companies operate under the same sector as other companies and under the same economic umbrella as many others, listening to earnings calls can tip you off on how other stocks will perform.

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Earnings calls give you an edge but only listen to the earnings calls that make the biggest difference for your portfolio.

SIX SIMPLE STEPS TO RESEARCH ANY STOCK

Learning to research stocks is like learning to analyze anything else you might buy: learn the basics and then narrow down your choices. Once you know how stocks work on a basic level, you can find the information you need to buy stocks matching your investment goals.

There are many ways to research stocks. However, finding one that works for you to reduce risk and get a better return is essential.

Using my five-step process, you'll have a way to research stocks in the future.

Let's get into the Six Steps:

1. Learn the Basics of Stock Analysis

Stock analysis is how experts investigate how a business works and how it makes money. Investment analysts spend their days looking at companies' financials and other market data to guess how a stock will do. Warren Buffet famously reads 500 pages of financial reports daily.

There are two main ways that analysts look at this data:

• **Fundamental Analysis:** This type of stock analysis tries to determine if the company's current price is a good indicator

of its future value. It gets into the details of a company's finances, like its annual reports, financial statements, earnings per share (EPS), the price-to-earnings ratio (P/E), and more. A more sophisticated way to value a stock is to estimate its future cash flows and discount this cash stream to a present value.

• **Technical Analysis:** This type of stock analysis looks at trading volume and prices to determine what will happen next to a company's stock price. If you use technical analysis, you'll use tools like software, charts, and trends to predict how prices will change in the future.

2. Deep Dive into the Company's Reports

Every company that trades on the stock market must regularly share certain information with the public. You can use this information to find companies that match your investment goals.

Start by going to the website of a company to find these reports. Many have pages for "investor relations" where you can find their most recent filings and older ones.

You can also search the Securities and Exchange Commission's (SEC) filing database, EDGAR. In addition, the SEC website is a great place to find all the reports of all publicly traded companies. It's a one-stop shop.

Look for these reports:

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• **10-K**. This form is filled out every year and sent to the SEC. It has financial statements that a third-party auditor has reviewed. It's a detailed form that will tell you almost everything you need to know about a company. In addition, you can find financial information for the last five years, such as how the company makes money, what risks it faces, and what management has to say about the company.

• **10-Q**. Reading this quarterly filing, you can look at a company's unaudited financial statements. It doesn't cover as much as the 10-K form, but it's still a helpful tool. In addition to quarterly financial reports, you'll find management discussions about the company and information about possible market risks, legal proceedings, internal controls, and any unregistered sales of equity securities.

After finding the above forms, find the needed information. For example, to evaluate a corporation, consider the following:

• **Net Income:** This shows whether a corporation ended the reporting period with a gain or loss. Net Income is reported on the Income Statement. Total revenue minus expenditures, depreciation, taxes, etc.

• **P/E Ratio:** Divide a share's market value by its earnings per share. A corporation with a high P/E ratio may signal future growth. Compare a company's ratio to industry averages to gauge its competitiveness. You can find the P/E ratio on any trading platform like Robinhood or Schwab.

• **Return on Equity:** Return on equity shows how well a corporation uses investor cash and distributes earnings to

shareholders. Divide Net Income by the Equity number on the Balance Sheet.

3. Learn and Look for Experts' Advice

The advice comes in various forms, some you wouldn't call "advice." Listening to professionals is critical to analyzing stocks since they examine every aspect of a firm.

How to get expert advice:

- **Online Tools:** Online brokerage accounts offer many research tools. Use stock screeners, analyst reports, and news feeds to narrow your possibilities.
- **Analyst Reports:** Stock research and investing suggestions are a profession. Online brokerage ticker pages often have analyst reports. You may also study analyst ratings to determine how accurate they've been in the past.
- **Advice from Financial Advisors:** A financial advisor can help you acquire equities that match your goals. You can use their experience to design a diversified stock portfolio that matches your risk tolerance and wealth-building goals.

4. Dig Deep into Advantages and Challenges

You should be more than just familiar with a firm's financial accounts; you should also know how the company operates.

To give one example, how does it generate revenue?

Who exactly are its clients? Which nations does it have a presence in currently?

All of these are crucial issues that ought to be answered by your stock research.

In addition, it is essential to examine the fundamentals of the industry in which the company is active and determine its role within that sector.

Is it a well-known industry powerhouse or a start-up business exploring uncharted territory?

Exist obstacles posed by regulations that need to be conquered by the industry?

Finally, it would help if you considered how the company would function in the industry's future.

Will it be able to adjust to the new circumstances, or will it lag behind the rest of its competitors? Does it have any benefits over the competition?

5. Qualitative Research

While a company's financials are essential when researching stocks, qualitative research, a less quantifiable evaluation of a company's caliber, is also crucial.

In qualitative research, you will investigate topics such as:

• **Leadership**. A corporation can't survive without skilled leaders. Websites frequently list the leadership team's names and duties. Once you locate the leaders, search for their names online. Learn about their histories and management methods. These leaders' past behaviors may affect their future

decisions. Ensure you trust the management growing your investment's value.

- **Company's Value and ethics:** Some investors value ethics over profit. Public declarations like mission or sustainability statements can reveal a company's ideals. If you disagree with the company's values or global citizenship, reconsider investing.

6. Earnings Calls

Each quarter there is an "Earnings Season" where all public companies schedule a conference call between senior management (the CEO and CFO) and investors. Listening in on these calls will give insight into management leadership, how they field questions, and their thoughts on the prospects for the company. It also provides perspective on macro events, the economy, competitors, etc.

Conclusion

Learning how to research stocks involves a lot of different moving components.

However, with some experience, you'll discover a streamlined technique that will give you the confidence to acquire stocks that live up to your criteria.

CHAPTER 13
MACRO ECONOMIC EVENTS

SPECULATION BUBBLES AND CRASHES IN MODERN HISTORY

WHY DO the stock and housing markets occasionally encounter tremendous booms followed by massive busts, and why is this happening more and more frequently?

Let's go on a riveting ride through the history of financial bubbles to help us understand why bubbles happen and why some have catastrophic economic, social, and political consequences while others have benefited society.

Bubbles start when investors and speculators react to new technology or political initiatives, showing that our ability to predict future bubbles will ultimately come down to being able to predict these sparks.

CHAPTER 14
MONEY AND BANKING

FRACTIONAL BANKING SYSTEM

MONEY IS CREATED when a government prints it. But that's only partially true because banks create money too. Banks don't print their own currency (save for a few banks in Scotland). So how does a bank "create" money?

M1, which comprises money in circulation (not held in a bank) and demand deposits kept in banks, is the most basic definition of the money supply. Less than half of M1 in the US is represented by physical cash; most of the remaining M1 consists of bank accounts.

Each time a dollar is deposited into a bank account, a bank's total reserves increase. The bank must keep some of it on hand as required reserves but loan the excess funds out. When a loan is made, the money supply increases.

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This system is how banks "create" money and increase the money supply. The money supply increases when a bank makes loans out of excess reserves. We can calculate the maximum change in the money supply with the money multiplier.

Under the fractional reserve system, banks are only required to hold a small fraction of the deposits in their accounts. By law, they're only required to hold 10% of your money — so if you deposit $1,000, only $100 of it is actually there in the bank.

The benefit of fiat fractional banking is that the system can grow exponentially without draining all money and good collateral from the economy.

A concern raised is that the current debt-based fractional banking system is akin to a confidence game and that the system is a fragile house of cards.

CHAPTER 15
TRADING STRATEGIES USING STATISTICAL ARBITRAGE AND ASSET PRICING MODELS

THE HISTORY AND EVOLUTION OF QUANTITATIVE FINANCE

TRADING STRATEGIES USING statistical arbitrage and asset pricing models

The Birth of Statistical Arbitrage

In the 1980s, Morgan Stanley was one of the first financial institutions to develop and implement statistical arbitrage strategies. The pioneers of this strategy at Morgan Stanley were a group of quants led by Nunzio Tartaglia. Tartaglia was a former Jesuit priest who had earned a Ph.D. in physics before moving into Finance. Some notable members of this team were Peter Muller, who later founded PDT Partners, and David Shaw, who founded D.E. Shaw & Co.

Their methodology is based on the concept of "pairs trading." Pairs trading is a strategy that involves finding two highly

correlated stocks and taking opposing positions in these stocks when their prices diverge from their historical relationship. The idea behind this strategy is that the stock prices will eventually revert to their historical relationship, at which point the positions can be closed and a profit realized.

One of the key innovations of the Morgan Stanley team was the use of principal component analysis (PCA) to identify relationships between different securities. PCA is a statistical technique that transforms a set of correlated variables into a smaller set of uncorrelated variables called principal components. Using PCA, the Morgan Stanley team identified trading opportunities that were not apparent using traditional methods.

Here's an example of how Morgan Stanley's team could have used PCA in their statistical arbitrage strategies:

1. Data collection: The team would gather historical price data for a group of stocks, typically belonging to the same sector or industry. This is because stocks within the same sector are likelier to have similar price movements driven by common factors, such as economic conditions, industry trends, or regulatory changes.

2. Data normalization: The data must be normalized before performing PCA. This process involves scaling the stock prices or returns to have a mean of zero and a standard deviation of one. Normalization helps to ensure that scale differences do not influence the PCA results in the units of the input variables.

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3. PCA computation: PCA can be applied to the dataset once the data is normalized. The first principal component (PC1) is calculated by finding the linear combination of the original variables (stock prices or returns) that captures the data's most significant amount of variance. The second principal component (PC2) is calculated similarly but must be orthogonal (uncorrelated) to the first principal component. This process is repeated to create as many principal components as the original variables, with each subsequent component explaining a smaller proportion of the total variance.

4. Analysis and interpretation: The team would then examine the PCA results to identify the most important principal components, i.e., those that explain a significant portion of the variance in the stock price data. These principal components represent common factors driving the price movements of the stocks in the group. The team could gain insights into the relationships between the stocks and the underlying factors by analyzing the loadings (coefficients) of the original variables on these principal components.

5. Portfolio construction: Based on the insights from the PCA analysis, the team could create a portfolio of long and short stock positions, designed to exploit the identified relationships and correlations. For example, if the PCA results indicated that two stocks were highly correlated and their prices were expected to revert to their historical relationship, the team could establish a long position in the underperforming stock and a short position in the outperforming stock.

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While it is difficult to pinpoint the amount of money the desk made, it is widely believed that the group generated significant profits for Morgan Stanley during the 1980s and early 1990s. Some estimates suggest that the team made hundreds of millions of dollars in profits, while others claim the number was in the billions.

The success of Morgan Stanley's statistical arbitrage desk profoundly impacted the finance industry. It laid the groundwork for developing and proliferating algorithmic trading and quantitative hedge funds. Today, statistical arbitrage and other quantitative strategies are commonly used by hedge funds and other institutional investors, highlighting the lasting influence of the pioneering work done by Tartaglia and his team at Morgan Stanley.

Asset Pricing Models

Asset pricing models have played a crucial role in Finance, with their usage becoming more widespread in the 1980s. These models provide a theoretical framework to estimate the expected returns on various financial assets and are used to make investment decisions and evaluate portfolio performance.

One of the first and most influential asset pricing models is the Capital Asset Pricing Model (CAPM), developed in the early 1960s by William Sharpe, John Lintner, and Jack Treynor. The CAPM gained popularity in the 1980s as computers and data became more accessible, allowing investors to apply the model more easily.

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The CAPM assumes that investors are risk-averse and hold a well-diversified portfolio. It measures the risk of an individual asset relative to the overall market through a single factor called **beta**. Let's consider an example of how an investment firm in the 1980s might have used the **Capital Asset Pricing Model (CAPM)** to make money.

Suppose the investment firm wanted to build a portfolio with three stocks: Company A, Company B, and Company C. The firm aimed to optimize the expected return of the portfolio while taking into account the risk associated with each stock. The CAPM would be used to estimate the expected return of each stock and help the firm make informed investment decisions.

1. The investment firm would first collect historical price data for the three stocks, the overall market (represented by a broad market index like the S&P 500), and the risk-free rate (such as the yield on 3-month U.S. Treasury bills).

2. The firm would then calculate the beta for each stock, which represents the stock's sensitivity to overall market movements.

3. Using the calculated betas, the investment firm would estimate the expected return of each stock using the CAPM formula:

Expected Return = Risk-Free Rate + Beta × (Market Return — Risk-Free Rate)

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For example, suppose the risk-free rate is 4%. In that case, the expected market return is 12%, and the betas for Company A, Company B, and Company C are 1.2, 0.8, and 1.5, respectively, the expected returns would be:

Company A: 4% + 1.2 × (12% — 4%) = 13.6%
Company B: 4% + 0.8 × (12% — 4%) = 10.4%
Company C: 4% + 1.5 × (12% — 4%) = 16%

4. Using the estimated expected returns, the investment firm would determine the optimal allocation of the three stocks in the portfolio, aiming to maximize return while managing risk. This could involve using mean-variance optimization techniques, which take into account the expected returns, volatilities, and correlations among the stocks.

For example, the firm might find that allocating 40% to Company A, 50% to Company B, and 10% to Company C would provide the highest return for a given level of risk.

5. The investment firm would regularly monitor the portfolio's performance and update the betas and expected returns as new data becomes available. If market conditions or the risk profiles of the stocks change, the firm might adjust the portfolio's allocations to maintain the desired risk-return profile.

By using the CAPM to estimate expected returns and construct a well-diversified portfolio, the investment firm was able to make informed decisions that helped them generate profits while managing risk. In addition, the CAPM provided a simple and effective tool for understanding the relationship

between risk and return, which was critical in achieving the firm's investment objectives.

In sum, the 1980s were a period of significant innovation and growth in Quantitative Finance. The development of mathematical models, the introduction of derivatives, and the increased use of computers paved the way for modern Finance and changed the way financial markets operate.


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