Welcome to the world of stocks.

This is an introductory chapter designed to introduce students to equities (stocks) in the first module of my Economics 104 Financial Economics class at Harvey Mudd College.

I assume that the reader knows next to nothing about stocks and the stock market, but even if you understand these markets it still might be a good idea to review this chapter. There is likely to be some new material in here somewhere.

Here is what I intend to cover:

1. What are stocks and what are you buying when you buy them?
2. Buying and selling stocks and the role played by brokers.
3. What are market indexes, like the DOW and the S&P500?
4. What are mutual funds and ETPs?
5. Stock listing and initial public offerings (IPOs).
6. What are stock splits and reverse splits?
7. Listing of foreign stocks on U.S. markets (SDRs).

Please remember that this is an introductory essay just to get us started. Most of these subject above will receive only a superficial review. Much greater detail will be given later in semester in other chapters and lectures.¹

1. What are Stocks?

Shares of stock represent some degree of ownership by the stockholder of the corporation that has issued the stock. In other words, if you buy 100 shares of stock in Nathan's Famous Inc., the hot dog franchiser which started on Coney Island, which you could have done for $15.56 per share (or $1,556.00 plus fees) the moment this portion was written (in 2010), you technically own a little piece of Nathan's Famous. You wouldn't own very much, because Nathan's Famous has 5.59 million shares outstanding.

Owning this stock gives you the right to earn dividends² if dividends are paid by this stock. A dividend is a small cash payment made by the company to shareholders, typically quarterly. Nathan's Famous pays no dividend and a majority of companies don't pay dividends, but if they do it goes to the shareholders. All stocks have trading symbols and Nathan's Famous Inc. is NATH.

Owning the stock confers other rights too, such as the right to vote in corporate elections, but most investments in stock target capital gains, which are defined to be the a rise in a stock's market value during the period that you own it. In our example above, we might have bought Nathan's Famous for $15.56 per share because we hope to sell it at some point in the future for a greater amount, say $18.75. That would result in a capital gain of $3.19 per share, or a total gain of $319 less fess. (Had we sold for a loss, which happens a lot, we would call that a capital loss).

¹ There are two free excellent sources of information about individual stocks and the markets in which they trade, finance.yahoo.com and finance.google.com. The reader might look up one of these and have it running in the background or at least accessible, in order to supplement the material that follows.

² If you are enrolled in Economics 104 and are reading this material for that class, terms identified in purple letters are terms that I will expect you to know on the exam that covers this material. They may be represented with matching or multiple choice questions.
Investing for capital gains essentially defines the strategy of most investors. No matter what the duration of your investment strategy, which could range from daily (day-trading speculators) to covering decades (conservative investment portfolio managers) you are mostly hoping to buy low and sell high. It really is as simple as that.

To see why, take this opportunity now to go online to http://finance.yahoo.com and look up NATH. This stock was chosen as an example in 2010 because certain things were interesting about the stock's trading patterns and it was being used as an example in an advanced derivatives class (Economics 136 if you are a Harvey Mudd student). So as we said above you could have purchased it then for $15.56 per share, or 100 shares for $15,560 plus a small commission.

What would that 100 shares be worth now? Do you get the point of capital gains?

Although the objective, achieving capital gains, is simple, execution is not, especially in the troubled markets that we have seen in the United States and overseas for the last decade.

Take a look at Figure 1 A Down Day for Intel. I own Intel (Intel's trading symbol is INTC) and I was running this one-day Ameritrade graph on my trading computer on August 30, 2013, the day of this revision and captured this image at market close. It doesn't look all that good, does it? The market actually opened for trade at 9:30AM New York time at an opening price of $22.24 per share and the red line at that time shows the beginning of a little plunge that lasted throughout the day. The stock closed at $22.06 at the end of the trading day at 4:30 PM for a decline of $0.18 per share. In percentage terms the decline was modest, only about one-half percent.

But I bought INTC a few years back during a market decline and paid right around $15 per share for it so this one day move is of concern to me. Far more important to me is that INTC also pays a annual dividend of 90 cents per share, which
at the price I paid for it, is giving a dividend yield of above 6%. (The dividend yield equals the dividend per share divided by the price per share - so the dividend yield at the current price is about 4%). That eases the day's pain entirely.

**Figure 1** is an example of a candlestick chart and since the chart is up and can be used as an example it, it is worth a more detailed explanation. Candlestick charts divide any trading period, such as day or a week, into smaller intervals. **Figure 1** divides the trading day into 5-minute intervals, so each bar represents a 5-minute interval.

![Figure 2 - Reading a Candlestick or Bar Stock Chart](image)

To understand the candlestick itself refer to **Figure 2 - Reading a Candlestick or Bar Stock Chart** which shows a segment of the same data from **Figure 1**, except that the candlesticks in **Figure 2**, which are on the left side of the figure, are divided into one-minute segments. Another type of chart, the bar chart, is shown on the right and represents exactly the same information as is represented in the candlestick segment. For the candlestick, generally red implies that the stock price fell over the interval and green represents a rising price. Look at the red labeled candlestick as an example. The top of the wick represents the highest priced reached during the interval and the bottom of the wick represents the lowest, and this is true whether the candlestick is red or green. But on a red candlestick the top of the bar represents the opening price at the start of the interval and the bottom of the bar represents the closing price, which of course is lower. The open and close price relationship is reversed on a green bar, as is shown on the labeled green bar to the left.

Compare these to the equivalent one-minute bars on the bar chart on the right side of **Figure 2**, where the convention is to have the open indicator point left and the close indicator point right.

In the United States alone there are more than 15,000 stocks to choose from for trade, although fewer than 1,000 get the lion's share of trading activity. There are many thousands more overseas traded on global markets and these markets are becoming very accessible to U.S. traders through some of the larger online trading sites. (This essay concentrates on trading in the U.S. only).

### 2. How do Individuals Buy and Sell Stocks?

When I was a kid back in the 1950s I had a newspaper route that paid me about $50 per month, so I saved up my cash and started buying and selling stocks when I was around 12 years old. My parents had to cosign for a custodial account.

I made my trades through the venerable *Merrill, Lynch, Pierce, Fenner and Smith* (later *Merrill Lynch* and then later destroyed by the mortgage meltdown and absorbed by *Bank of America*) brokerage office in Fresno, California and my stockbroker was a polite and helpful young gentleman named Marvin Arnold.

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3 At this point the reader should stop and access either [finance.yahoo.com](http://finance.yahoo.com) or [finance.google.com](http://finance.google.com) and peruse the homepage, then type in the symbol for Intel (INTC) or Nathan's Famous (NATH) to see what kind of information is offered. Look at the charts and peruse some of the material offered in the left-side links. Don't worry yet about understanding it all, just see that it is there. Before departing, use the symbol lookup feature to find the trading symbol for the stock of a company that you recognize, like Cisco.
Back in those days, trades were done in person or by telephone through your local broker, who in turn consulted a streaming stock "ticker" for the price and, on your behalf, would make a telephone transaction (typically) to get you the "best" price.

Stocks then were quoted in "eighths" rather than decimals (like 5 5/8 instead of 5.63) and the practice remained until 2001. Although the convention then and now was to buy stock in 100-share blocks, it was possible then and now to buy blocks of less than 100 shares, called an odd lot. Fees were a little higher for odd lots and the brokers consolidated the odd lot orders before executing them. I recall that I owned 50 shares of Ford.

It was fun to visit the trading office. It was like a Starbucks for stocks. Heavy traders and people with little else to do would hang around the office during market hours and watch the electronic radio ticker, showing streaming stock symbols and prices displayed with large red pixels. I remember a lot of chatting about the next hot stock.

Transactions fees, the cost of buying and selling shares, were very high then compared to now.

These days you can trade stocks for a decade without ever once speaking to anyone at your brokerage, in person or by telephone, because you are likely to be using an online trading site like TDAmeritrade, ETrade, Scottrade, or Charles Schwab, to name a few of the more popular sites. Generally such sites offer low-latency access to price quotes and other trading information, they provide easy-to-use interfaces for buying and selling, offer detailed research services and training sessions for free or a nominal charge, and do all of this at transactions fees that are a fraction of what they were in the days prior to automation. Most require only a small amount, like $500, to open an account. Online sites often charge far less than $10 to buy a sell a block of stock.

Figure 2 TDAmeritrade Trading Ticket for Buying 100 Shares of Ford shows a typical Java-based interface for buying and selling shares of stock. In this case, the order shown gives instructions to buy 100 shares of Ford (F). Because of the type of order shown (Market) this order would be immediately executed, probably at $11.63 per share. The user would get immediate confirmation of the order status. All of this would transpire in less than a second on a fast internet connection.

Selling the stock once owned, whether five minutes later or five months later, is done the same way, except the Action box would say Sell rather than Buy.

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4 Rather than describe at length what services the brokerages provide, at this point the reader would benefit by going to the homepage of any of the brokers listed above to see what services they provide.

5 This sample was actually taken when the market was closed, so this marker order would not have executed. The meaning of such terms as Bid, Ask, Order Type and so forth will be explained in a later lecture. The point demonstrated here is the ease of execution.
That you would normally use an online trading site these days doesn't mean that you don't have the right to talk in person to a broker. Some of the popular sites listed above all have walk-in brokerage offices (although may not have one near where you live) that you can visit, and of course other brokerage offer direct personal service for trading exclusively the old-fashioned way, although typically at much higher fees.

In summary, brokers in general provide the consumer interface to stock market exchanges, where the trades are actually made. The role of these exchanges are discussed in a later chapter.

More about the order type and how you might price the purchase or sale of your stock is discussed in the next chapter.

With some restrictions, most brokerages allow their customers to trade with margin accounts, which gives you the right to borrow half of the value of your stock purchase rather than use only your own cash in the account. For example, if you have $12,000 in cash in your brokerage account, if you have been granted permission to have a margin account, then you can buy up to $24,000 worth of stock. An interest fee is charged (typically a reasonable rate) for the amount of the loan balance. By law, margin loans are restricted to 50% of the value of the stocks held in the account. If your stocks plunge in value after purchase and there is no spare cash in the account, if the value of the margin loans exceeds more than 50% of the current value of the stocks in the account, the broker must issue a margin call which requires you to quickly post more cash or sell stocks, and if you don't do either, the broker will sell stocks on your behalf.

Margin calls are rare but during a very bad declining market they can cause a real problem, forcing sales at the worst possible time, possibly even making the declining market worse.

Dedicated tax-exempt retirement accounts are not allowed to use margin accounts for trading.

3. Market Indexes

One quickly notices that the homepages of these trading sites and the homepages of the two large and free online financial sites, finance.yahoo and finance.google, feature a whole block of stock market indexes, including typically the Dow Jones Industrial Average, the S&P500, and the NASDAQ Composite. Also, listening to the radio or televised news one often hears comments like "The Dow was up 106 points today."

These stock market indexes represent portfolios of individual stocks combined in a weighted sum and are meant to provide a measure of how the general stock market is doing rather than an individual stock. When the news reports that "the S&P 500 was up today," that generally means that stocks in general rose.

The oldest (since 1896) and probably most cited index is the venerable Dow, which is short for Dow Jones Industrial Average or DJIA (there are many other Dow Jones Indexes). The Dow consists of only 30 enormous recognizable companies, ranging from Alcoa (AA) to Exxon Mobile (XOM). Each of the 30 stocks in the Dow has an equal weight.

Because of the huge size of the Dow companies and the list being so short, the Dow is not a very good measure of overall stock market strength. Instead that role typically goes to the Standard & Poor's 500, or the S&P 500 as it is typically called. The S&P 500 is a weighted index made up of 500 large companies across many sectors. Because it includes only

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6 The 30 stocks that make up the Dow Jones Industrial Average are listed under the "Components" link after you click on DOW on the home page of finance.yahoo.com. An interesting history of the Dow and the many, many companies that have been part of this elite 30 (because of course the list changes frequently) can be found at the parent site of the Dow Jones Indexes at http://www.djaverages.com

7 When one looks at the data they may not appear to have an equal weight. But the current weights observed, which are not equal, have been adjusted for stock splits and dividend payments over time. For more details on why this is necessary, just type "Dow divisor" into any search engine and read the results of the search.
large companies in the index, the **S&P 500** really only shows how large companies are doing in the stock market, although it is a very good indicator for at least that⁸.

The third popular index, the **NASDAQ Composite**, sometimes referred to by the media as just the **NASDAQ**, is a weighted index of all of the stocks, more than 3,000, that are listed as **NASDAQ** stocks⁹. Even though the **NASDAQ Composite** is more inclusive than the other two indexes, the **S&P 500** is nonetheless probably a better indicator of overall market performance. The **NASDAQ Composite** has a disproportionately high percentage of technology companies in the index and many of these technology companies are small and much more volatile and prone to failure than other companies in the other indexes. Therefore it over-represents the technology sector and at times is more volatile than the other two indexes¹⁰.

In both the **S&P 500** and **NASDAQ Composite**, the stocks are weighted by **market capitalization**, also called **market cap**, which requires some explanation.

Market cap is a measure of the relative size of a corporation as measured by the market value of all of the outstanding shares of its stock. In other words, the market cap of a company at any moment will be equal to the number of shares outstanding times price per share. For example **Google (GOOG)** on August 30, 2013 had 333.02 million shares outstanding at a price of $846.90 per share, giving it a market cap of approximately **$282.03 billion**. In contrast, on the same day Nathan's Famous (NATH) had only 4.46 million shares outstanding priced at $51.28 per share, giving it a market cap of **$228.7 million**, tiny in comparison to Google.

It should be obvious from this example that the market cap of a company changes every day because the stock price changes every day.

Sometimes the market cap of a stock can change dramatically. British oil giant **BP pic (BP)** saw a collapse of its market cap in the summer of 2010 because of the disastrous oil spill resulting from their failed offshore deep drilling platform. On August 29, 2010 **BP's** market cap was $111.4 billion because the stock was trading at $35.56 per share. Given that the stock was trading above $60 per share in early May before the disaster, **BP's** market cap then was about $188 billion¹¹. That is a huge loss in value.

Companies as large as **BP** and **Google** are classified as **large cap** companies. A company as small as **Nathan's Famous** would be classified as a **small cap** company and companies that are even smaller are sometimes classified as **micro cap** companies. And as one might guess, there is a category of market caps between small and large that are classified as **mid cap**.

Because these terms are used loosely by the financial media and by mutual funds that use the terms to describe their portfolios in their marketing, there is no common agreement on where the lines are drawn for these distinctions. The investment website **investopedia.com** uses the following classification, which is useful:

- Large cap - above $10 billion.
- Mid cap - $2 billion to $10 billion
- Small cap - $300 million to $2 billion

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⁸ For a more detailed explanation of the S&P 500, including some of its history, visit [http://www.standardandpoors.com/indices/us](http://www.standardandpoors.com/indices/us)

⁹ The meaning of this is explained in a later section.

¹⁰ For example, the NASDAQ Composite has never come close in recent years to reaching its peak value of 5,132.52 reached on March 10, 2000, hit just before the so-called **dot.com crash**. Both the Dow and the S&P 500 did recover from their peaks of around the same time. One reason is because so many of the NASDAQ stocks were technology companies that went to zero! There is no recovery from that. NASDAQ, by the way, is an acronym for National Association of Securities Dealers Active Quotation, an obsolete reference to NASDAQ's origins.

¹¹ Data for the calculation of the market cap examples above were taken from [finance.yahoo.com](http://finance.yahoo.com).
So, finally, when we say that the *S&P 500* and the *NASDAQ Composite* are weighted by market cap, that means the higher the market cap of a company the higher the weight of that company in the index. *Google* would have a much higher weight than *BP* in any index that included both.\(^{12}\)

Therefore even the inclusive *S&P 500* is not a good measure of the overall strength of the stock market because it includes only large cap stocks. Because this is true, it is worthwhile to mention two more indexes that are less quoted by the media than the three above - the *Russell 2000 Index* and the *Russell Midcap Index*. The *Russell 2000 Index* is a small-cap index (of the smallest 2,000 companies among the largest 3,000, which, believe it or not are relatively small companies).\(^{13}\)

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**Figure 4 – 14 Years of the S&P 500 Stock Index**

![Graph showing the performance of the S&P 500 Stock Index from January 4, 1999 to August 29, 2013.](image)

Whether biased or not, an index offers an overview of how well a market has been doing over any period of time. Look at *Figure 4 - 14 Years of the S&P 500 Stock Index*, which shows the performance of this popular index from January 4, 1999 to August 29, 2013.

Given that most investors' objective are to realize capital gains on stocks, *Figure 4* makes it obvious that the last decade has been tough sledding. The current market is not much higher than its the value 1524.56 reached on March 24, 2000. In fact, what is seen there between that date and the trough on October 9, 2002, is the infamous *dot.com crash*, when

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\(^{12}\) The practice of weighting by market cap introduces a bias into the indexes that use this convention because it throws a squaring term into the index - the price is represented as the primary variable in the index and then again in the weight. This tends to swing the indexes a little more on volatile days than would be the case with a constant weighting method.

\(^{13}\) It is worthwhile to review the structure of the various Russell indexes, which can be seen at [http://www.russell.com/indexes/default.asp](http://www.russell.com/indexes/default.asp).
technology shares in companies that had been bid up wildly by speculators came crashing down, some of them plunging to zero and disappearing forever.

The market had a five year rally (literally to the day!) after that crash and moved (barely) to a new high of 1565.15 in 2007.

That rally however was destroyed by the horrific mortgage meltdown crisis which ushered the economy and many markets, including equities, into chaos. As can be seen, the terrifying plunge this second time around was more severe and happened more quickly.

We won't compare indexes (the NASDAQ Composite performed much worse than the S&P 500 in the dot.com crash for example) or tell the story of these dangerous cycles in this introductory essay. That comes later. Here the objective is to understand what these indexes represent.14

Before concluding this section it is worth mentioning that there are many, many more indexes than the five discussed in this section. Every market segment and specialty sector that one might imagine is represented by at least one index, and there are, of course, indexes for every stock market and their various segments in the world.

4. Mutual Funds and Exchange Traded Products (ETFs, and ETNs).

No discussion of stocks can be concluded without at least mentioning mutual funds and related assets called exchange traded products. This discussion here is merely introductory and superficial. Mutual funds are discussed in detail in Chapter 5 and exchange traded products are treated separately in Chapter 6.

Mutual funds are huge portfolios made up of various combined financial assets including, but not limited to, stocks. Equity mutual funds are a class of mutual funds that are made up of stocks exclusively. These mutual funds are typically offered by large mutual fund companies like Vanguard or Fidelity, who pool contributions by investors to purchase a large portfolio of stocks. By so doing they offer investors diversity in investments (or at least a lot more diversity than would be realized if invested in only three or four stocks) at a reasonable (typically, not always) fee.

Most tax-deferred employee investment plans offered by companies (typically 401-K plans, as they are called) are invested in mutual funds rather than stocks.

An equity mutual fund will always have a stated investment objective (sometimes met and sometimes not) that will determine the composition of the portfolio. Among the most common equity mutual funds are those that promise to match the performance of an index like the S&P 500 index. The fund accomplishes this by buying the stocks that are in the index in proportion to the weights of the index, so as goes the index, so goes the mutual fund15. In effect, when you invest in an S&P 500 Index fund, you are investing in 500 stocks at once.

Other mutual funds might be dedicated to mid-cap or small-cap stocks only, technology stocks only, chip stocks or pharmaceutical stocks only, stocks that pay dividends and so forth. Various examples will be explored in later chapters.

It is important to note that from an investor's perspective, mutual funds do not trade like stocks. Investing in mutual funds is more like depositing or withdrawing money from a bank than like buying stock. Although the investor buys or sells "shares" in the fund at a special price called the Net Asset Value, or NAV, the transaction is made at the end of the day.

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14 At this point the reader might find it useful to go to either of the financial websites and click on the charts for some of the indexes discussed above and compare their performance.

15 This would of course mean that an investor in an S&P 500 index fund invested in 1999 would have performed modestly, because Figure 4 more or less shows you how that fund would have performed. Dividend payouts to the fund from those stocks in the S&P 500 that pay dividends what have raised the return some, but not much, less than 2%, from what is suggested by Figure 4.
after the market is closed and the share price, the *NAV*, is determined by the closing value of the stocks in the portfolio at the end of the day.

Likewise there are restrictions to trading mutual fund shares. With an individual stock like Microsoft (MSFT), the investor can buy it in the morning and sell it later the same day. The typical mutual fund family restricts transaction reversals (such as first buying, then selling) for extended periods of time, often as long as 90 days. In other words, once you buy into an equity mutual fund, you may not be able to sell out of it for three months. This is partly because the mutual fund managers do not want to make huge portfolio shifts if a large group of investors all try to do the same thing at once.

*Exchange Traded Products (ETPs)* generally consist of either *Exchange Traded Funds (ETFs)* and *Exchange Traded Notes (ETNs)* and are like a cross or a hybrid between a mutual fund and a stock. Because the distinction between an ETF and ETN is legal, that distinction will be ignored in this chapter.

ETPs trade exactly like stocks and investors buy and sell them in the same way that they buy and sell stocks. The price changes throughout the day and the quotations and charts look about the same. You can buy them and sell them at any time with no restrictions.

But ETPs are not shares of stock in a company. Like mutual funds, they represent an invested portfolio of something, sometimes stocks and sometimes something else. And like mutual funds they are investment pools, although the means for pooling the money is very complicated compared to mutual funds (and not discussed here).

It is best to explain ETPs by example.

All of the major indexes both in the United States and globally are represented by ETPs. For example, the S&P 500 is represented by (showing symbols only in these examples) SPY, the Dow by DIA, the NASDAQ 100 (a subset of the NASDAQ Composite) by QQQ. All of these index tracking stocks follow their index very closely (which is not to say that all ETPs of all categories track well).

Global index ETPs also track their respective markets, for example EWJ for Japan, EWY for South Korea, and entire regions like Latin America (LBJ). Some ETPs track commodities rather than stocks, like the heavily traded GLD for gold, bonds (TLT), every stock sector imaginable, like the energy sector (XLE) and even ETPs that allow you to bet that the market will go down, like DOG, which goes up when the Dow goes down.

There are thousands of ETPs offered now and they play an important growing role in the markets of the 21st century. They are not stocks in the traditional sense of that word (although they may represent stock portfolios or indexes as stated above) but they trade like stocks and are increasingly part of the investment strategy of even the smallest investors.

We will return to ETPs in a Chapter 6.

5. **Stock Listing and Initial Public Offerings (IPOs)**

In the United States and most countries, when a business organization forms as a corporation, it is required to represent the ownership structure of that corporation with the initial disbursement of shares of stock (among the founders) and later sale of shares to private parties. Once these shares exist, however, it is illegal to sell these shares to the general public (some very restricted trading is allowed, discussed later) until the corporation is publicly listed.

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16 The distinction between these two, which is very technical, will not be discussed here. Hereafter the acronym ETF will be used to refer to either of them.

17 The financial media often refer to all ETPs as ETFs when they are not identical and some ETPs commonly referred to by the media are instead ETNs, and the distinction is important. It will be deferred to a later chapter.
Companies do not automatically have the right to have their stocks listed for trading. And you, as a trader, do not have the right to buy and sell stocks in every company that is out there.

Generally, companies that want to have their stocks traded on a large scale must choose between two listing services in the United States, NYSE (the acronym originally stood for the New York Stock Exchange) and NASDAQ.

Further, these two listing agencies offer different types of listing services for different size companies and allowing overseas listings (through NYSE Euronext and NASDAQ OMX).

In the past NYSE used to list the large caps and NASDAQ listed technology companies (because the listing requirements were so lenient, especially on profitability, compared to NYSE) and mid-caps and small-caps, but now that distinction has largely disappeared. In both cases now, given the listing niche desired, candidate companies have to submit detailed applications to show that they meet listing metrics, which is typically some combination of minimum thresholds for revenues and/or earnings, number of shares outstanding, anticipated market cap, number of private shareholders, length of time in business, and so forth. The multiple listing options allow companies with different configurations or weakness in one area and strength in another to list under different criteria.

For example, a small-cap technology company with no profits but two years of operating history might apply to be listed under the NASDAQ Global Market and the later might apply to be listed on the more prestigious NASDAQ Global Select Market.

It should be noted that the potential investor, you, would never know this distinction and would not care about it. All that matters to the typical investor is that it is listed somewhere.

Once the listing has been approved the company and its sponsors (brokerage houses like Goldman Sachs) begin the elaborate process of preparing for the first day of making stock available to the public, the process that is called the initial public offering, or IPO. Shares sold during an IPO are mostly newly-issued shares intended for the event. From the company's point of view, the primary purpose of the IPO is to raise new cash through the sale of new shares. From the investor's point of view, the purpose of the IPO is to allow trading in the company's stock.

If the company is well known or highly publicized, the IPO can be a much anticipated spectacle.

Older investors can still remember the glory days when back in the 1990s a technology stock might IPO (it is used as a verb too) and triple on its first day and then increase ten-fold in the year that followed! For example, when America

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18 The types of listings available and the listing requirements are too complicated and detailed to cover in this introduction and they change often. This will be discussed in more detail in a later presentation. The reader who is curious now is advised to consult, for NASDAQ listings, http://www.nasdaq.com/about/nasdaq_listing_req_fees.pdf and for NYSE listings, type "NYSE listing requirements" into any search engine and follow the links to NYSE Euronext listing services overview.
Online (originally Quantum Computer Services and now AOL) IPOed on March 19, 1992, the company’s market cap stood at $61.8 million. Share prices went stratospheric in the speculative fever that followed, and by July 30, 1999, America Online had a market cap of a staggering $105 billion! A $100 investment made on the day of the IPO would have been worth more than $28,000 by 199919.

Of course this all collapsed with the dot.com crash and those days are gone, probably for good.

More typical now of the high profile technology company might be Tesla Motors (TSLA) IPO, which debuted on June 28, 2010, and raised $266 million for the company (and is a NASDAQ listing). Tesla Motors makes all-electric high-performance roadster pictured in the inset of Figure 5 - The Tesla Motors IPO above.

TSLA opened at around $19 per share, fell during the day, but by the next day was trading for above $23 per share. But in the tepid stock market of 2010 the price fell back to the IPO and the stock was lackluster.20 However Elon Musk took the investor capital raised by the IPO, converted an old GM and Toyota plant in Fremont, California, introduced a new Model S Tesla (shown in the inset in Figure 7), and although the product relied upon energy rebates to turn a profit, turn a profit it did, and by 2013 the Tesla Motors IPO was vindicated and early investors were rewarded - the stock was trading for the unbelievable price of more than $165 per share.21

In the summer of 2012 the markets anticipated one of the largest and most publicized IPOs ever - the public debut of Facebook, the social media giant, founded and headed by prodigy Mark Zuckerberg.

The Facebook (FB) IPO on Friday, May 18, 2012, captured the attention and buzz of traders weary of the poor market performance of 2012 (world markets were beset with concern about Europe and specifically Greece, which appeared to unraveling at the time). As the big day emerged, the enormous IPO reminded older traders of the heady days before the 2000 market crash, when billions of dollars were to be made, at least by insiders and private investors, when a company went public.

Facebook’s IPO pricing was ambitious, announced at $38 per share in the day before the IPO, which valued the company at $104 billion, making that the highest IPO valuation in history and 23rd in capitalization ranking for all U.S. companies, as large as Amazon, which at the time had a market cap of about $100 billion and was an established high-growth technology leader with revenues of more than $50 billion per year and $631 in profits in 2011. Facebook’s revenues for the previous year on the other hand were less than $4.5 billion.

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20 The stock had recovered some and was trading at 28.52 on August 31, 2012. Go to an online site to see what it is trading for presently.
21 If you are a student in Economics 104, if you mistakenly think your teacher is some kind of genius, here is a sobering thought - at no point did I believe that Tesla was a good investment. I was certain that Tesla would fail.
Specifically, Facebook offered 337,415,352 net shares of common stock to the investing public, worth slightly under $13 billion at the projected IPO price of $38. However more than 157 million of those shares were offered by company private investors who were merely cashing out some of their investment early, leaving less than $7 billion in cash (after fees and expenses) for use by Facebook. Without doubt that is a lot of money, but the IPO pushed the value of stock owned by founder Mark Zuckerberg to more than $20 billion.

Zuckerberg was not the only enriched beneficiary. The stock owned by co-founder Dustin Moskovitz would be worth more than $5 billion, former President Sean Parker more than $2.5 billion, and multiple private investors, typically venture capital firms, tens of billions of dollars.

Why were insiders so enriched? Because even though more than 337 million shares were being offered to the public, total common stock outstanding after the IPO equaled a staggering 2,138,085,037 shares! Therefore the general public who invested in the IPO would own less than 16% of the total stock outstanding.

As it turns out, the actual Facebook IPO was an unqualified fiasco. NASDAQ OMX, the sponsoring exchange, never got their new software working on opening day, so trading, which was delayed by half an hour from the scheduled start time, was handled by smaller exchanges like the NYSE's Arca, BATS, The Edge, and regional exchanges like Philadelphia and Chicago. The first listed trade was at 45, but the stock price plunged throughout the day and the following trading days, closing below 30 on May 29th, $8 below the projected IPO price.

Your teacher recorded a Video of the Facebook IPO on opening day. It is clear from the video that the IPO is a disaster from moment one.\(^2\)

In the week that followed the media reported multiple claims of traders who could either not get into or out of their trades (mostly because of the NASDAQ OMX failure) and a flurry of lawsuits were filed against Facebook, underwriters, and the NASDAQ OMX because of the glitches and because of allegations that some of the underwriters, like Morgan Stanley (lead underwriter), informed large private traders before the IPO, that Facebook's prospects for revenue growth were dimming, information that was not passed on to the general public.\(^3\)

Figure 5 shows that Facebook stock continued to lose value through the summer of 2012, closing in late August below $20 per share. In the summer of 2013 Facebook shares salvaged a nice rally once it became clear that Facebook was making some inroads into the mobile media market, so for a time FB was off the hook. And Facebook wasn't the only

\(^{22}\) If reading this chapter for Economics 104, then this reading assignment includes the requirement that you watch this video. That can be done after the chapter is completed.

\(^{23}\) Most information about the IPO offering is from the SEC Amendment No. 6 to Form S-1 Registration Statement for FaceBook Incorporated, filed on May 9, 2012, available at http://goo.gl/i47pD. Some information was also taken from various articles in The Wall Street Journal and finance.yahoo on the day of the IPO the days that followed. See also The Wall Street Journal, May 24, 2012 "Some Big Firms Got Facebook Warning."
troubled technology IPO of 2012. *Groupon (GRPN), Yelp (YELP),* and *Zynga (ZNGA)* had all been poor performers after their IPOs. The magic of the technology IPO was long gone, maybe for good.

In recent months a new type of internet-based company has emerged that has created a special kind of market for trading prominent unlisted private stocks like *Facebook* (before it went public) among wealthy traders. Three primary dedicated companies promoting these kinds of transactions were *SharesPost* (which sold *Facebook* shares), *SecondMarket*, and *NYPPEX*. These are currently being called *secondary private markets* and their legal status for selling shares of large unlisted companies is somewhat questionable at the time of this writing. The companies making such sales claim that so long as the total number of shareholders remain under 500 (the current limit by law for unlisted companies) and sales are registered in large blocks only to so-called *accredited investors* (those who have a net worth of more than $1 million or income greater than $200,000 per year for at least two years) then the sales are legal.

These secondary private markets went largely unnoticed until the spring of 2011 until *Facebook*'s CEO Mark Zuckerberg decided that rather than sell *Facebook* to another company or do an early IPO, he would first offer large blocks of shares at high value through these secondary private markets. He consequently sold minority positions in *Facebook* to Goldman Sachs, Digital Sky Technologies, and investment fund GSV Capital for values that seemed to elevate *Facebook*'s implied market cap to well about $50 billion, a value probably triple what it had been a year before and questionable to many analysts. This was part of a chain of decisions that led to the final inflated *Facebook* IPO value above $100 billion, as described above.

Before we depart this discussion of listings it should be mentioned that there is a much smaller free-wheeling listing market of companies that trade on the *Over the Counter* or *OTC* market. Listing standards are low (effectively none) for companies listed here and share prices are typically less than a dollar and sometimes only a few pennies a share. The *OTC* is more of a stock casino than stock market and investors generally don't wander across the tracks to dabble in *OTC* unless they have a real knack for gambling.

Many companies that were once proud to list on *NASDAQ* were delisted by *NASDAQ* and disgracefully bumped down to the *OTC* because they failed to conform to the criteria required for continuation of listing, typically because the share price of the stock fell below $1 per share.

### 6. Trading Stocks from Other Markets and Economies

The emphasis in Economics 104 and this online book will be about trading in United States securities offered in domestic markets, if for no other reason than to considerably reduce the complexity of an already complicated topic. Therefore most of the discussion about stocks will be restricted to stocks of American corporations traded in the huge U.S. market. But as a student, you probably already realize that investing is slowly becoming a truly global phenomenon because restrictions are easing on overseas investments and online access to global markets is rapidly expanding and at the same time becoming far less expensive. You may have heard your parents or friends talking about investing in “emerging markets” or something similar, so you know it is possible.

Well, although it is not quite as fluid as you might think – it is certainly easier for professional investors than it is for small retail consumers to access overseas markets – it is possible, using three potential channels:

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24 Find the websites for these three companies to see what they claim to offer.
25 See http://www.otcmarkets.com for a sample of this market. When perusing stocks, select *Share Volume* as a criteria and review what pops up.
6.1 Buying directly on foreign exchanges

First, it is possible to open an online brokerage account that has access to foreign markets and their listed securities and get permission to trade in these markets. Such trading typically requires that the trader also obtain permission to trade in foreign exchange currencies (you can’t buy stocks in the Japanese market with Dollars – you have to use Yen) and therefore the trader must be willing to accept exchange rate risk. But if you have your heart set on buying 100 shares of Mitsubishi Corporation, you could have paid around ¥1,800 per share in late August, 2013, on the Tokyo Stock Exchange, so long as you had an E*Trade Global Trading Account or an equivalent account at some other broker providing this service. This class says very little about this type of investment channel, mostly because these other two options below provide the small investor with plenty of opportunity to invest overseas.

6.2 Investing in foreign markets through mutual funds and ETPs

Even the smallest investor can invest any amount from a pittance to 100% of your retirement funds (not advised!) in foreign markets through a full range of mutual funds and exchange traded products (ETPs) that offer selections from nearly every market and class of financial asset that exists. Investing through these channels is indirect, but you are still investing in foreign companies and foreign markets. Investing overseas through mutual funds is discussed in Chapter 5 and doing the same through exchange traded products is discussed in Chapter 6.

6.3 Buying ADRs

You probably know that Sony Corporation is a Japanese company headquartered in Tokyo. Sony stock is also listed on the Tokyo Stock Exchange, which means you can also buy it with an E*Trade Global Trading Account. It is an important company in the Japanese economy and therefore is one of the companies included in the Nikkei 225 index, the Japanese equivalent of the S&P500 index. But if you have a brokerage account in the United States, you can also look up a quote in Dollars for Sony under symbol SNE and you may be pleasantly surprised to discover that Sony is listed by the New York Stock Exchange and is just as easy to buy and sell as Ford. This is because Sony and thousands of other foreign companies have been given permission to trade on U.S. markets in U.S. Dollars because they have established American Depositary Receipts (ADR). To be more specific, they have created either Level II or Level III ADRs which are at a permission level and disclosure level high enough to all the securities to be traded on exchanges regulated by the SEC.

Generally a given amount of shares denominated in the home currency are deposited in a financial institution and an identical amount of shares are then issued to the U.S. markets denominated in Dollars. For example, if a million shares of Yen-denominated Sony stock are deposited as an ADR, then a million shares of Sony stock can be issued through the New York Stock Exchange to be sold in Dollars. Thereafter these are traded just like stocks that had IPOed in the U.S. market, with no restrictions. Some of these stocks, such as oil giant BP plc (which used to stand for British Petroleum) often pay dividends both at home and in Dollars in the United States.

These ADRs are cross-listed, which means that they are listed and traded on both exchanges (such as Sony on the New York Stock Exchange in Dollars and the Tokyo Exchange in Yen). In case you are wondering about hidden opportunities for profits from pricing inefficiencies (which are certainly theoretically possible), trader arbitrage more or less keeps the two quotes in alignment given fluctuating exchange rates. For example over the weekend of August 30, 2013, when both markets were closed, the quoted price for Sony on the NYSE at Friday market close was 19.96 per share, whereas the

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26 E*Trade is used as an example because this online brokerage was an early pioneer in retail-level online trading in foreign markets. These services have not really taken off, though, as of 2013, possibly because just about the time they were being heavily promoted to retail investors global markets collapsed, and the fear factor has since then kept small investors away.

27 To be more specific, they have created either Level II or Level III ADRs which are at a permission level and disclosure level high enough to all the securities to be traded on exchanges regulated by the SEC.

28 It is too early to explain trader arbitrage, which will be addressed in a lecture way on down the road, but an example might suffice. If the two stock prices become so misaligned that a profit can be made by, say, buying Sony in New York and immediately selling a matching block in Tokyo, this very activity among speculators will bring the prices back into alignment.
quoted Yen price of Sony (symbol 6758:JP -the symbols are by number in the international markets) was 1,972 per share. Given that the Yen-to-Dollar exchange rate at the time was just a little under 100-to-1, the quotes were in alignment.

In summary, even though as a U.S. investor you might not be inclined to go to the trouble of opening an international trading account, if the overseas company in which you want to trade is very large and a recognizable name, there is a very good chance that it is offered in the U.S. markets through an ADR. To find out if it is, simply go to one of financial websites like finance.yahoo or finance.google and type the name into the company or symbol lookup box to see what appears.

8. Stock splits and Reverse Stock Splits

A stock split is a simple process that keeps the stock price for any given stock trading in an attractive range. The most common stock split is a 2-for-1 stock split that increases the number of shares outstanding shares by exactly double while leaving it to the markets to cut the price exactly in half. 3-for-1 stock splits are also common and other proportions are possible.

The stock split is initiated by the Board of Directors of a corporation, approved by the shareholders, then calendared with ample lead time. On the market open of the trading day that was calendared as the effective date, any registered owner of the stock will, in the case of a 2-for-1 split, be represented as owning twice as many shares as the owned the day before.

For example, on May 8, 2013, Six Flags Entertainment Corporation (SIX), the amusement park company, announced a 2-for-1 stock split effective on June 27, 2013 (this is sometimes called the x date). That was a Thursday, so any investor who went to sleep that Wednesday with 100 shares of SIX checking the brokerage account the next day might be shocked to see that they now owned twice as much SIX – 200 shares! Since stock prices are determined by pure supply and demand, it is up to the market to half the stock price, but that more or less always happens with great precision. In effect, the shareholder will discover that she owns twice as much stock at half the price.

Typically all other adjustments are proportionate to the split. Dividends are adjusted of course, and shareholder voting rights are typically unaltered.

A company will do this to keep a successful stock in an acceptable trading range, say below $100 or below $50, where it is thought that smaller investors might be more inclined to buy a stock without having to buy an odd lot (less than 100 shares). There is no requirement, however, that this be done. For many years the gigantic corporate holding company named Berkshire Hathaway, controlled by legendary investor Warren Buffett (Berkshire Hathaway was originally an obscure nearly-bankrupt textile firm that Buffett slowly took over in a series of stock trades) refused to split their stock despite the company’s phenomenal success. On August 30, 2013 Berkshire Hathaway Class A (BRK-A) shares closed at the price of $167,050 per share (down $1,000 for the day)! Berkshire Hathaway also had a listing of Class B shares (created in 1995 against Buffett’s wishes), but even they were not split until split for the first time in 2010 in a 50-for-1 split. BRK-B was trading for $111.22 per share on August 30, 2013.

Tech giants Apple (AAPL) and Google (GOOG) seem reluctant to split their stock despite prices soaring about $500 per share (although Apple has split its stock 2-for-1 three times in the past, in 1987, 2000, and 2005). At the time this edition was written Google has asked for shareholder approval for a 2013 2-for-1 stock split, but was sued by shareholders when management proposed that the new shares, called Class C shares, have no voting privileges. This is certainly a breach of the tradition of typically preserving shareholder rights. But then Google has publicly announced that “We are not evil,” so despite this split controversy and clear evidence that Google spies on its customers, we should probably take their word for it. After all, they are developing a driverless car.

Generally the decision to split a stock, which is always well publicized, has no clear impact on the performance of the stock afterward. It is now understood that you don’t buy a stock just because you think they may split.
A reverse stock split, as the name implies, accomplishes the opposite of a stock split, by reversing the proportion of stock outstanding by some ratio, like 1-for-10, while effectively increasing the per-share value proportionately. The ratio is seldom a low ratio, like 1-for-2, but higher, like the example just given. Normally a reverse stock split is a sign of distress because it implies that, for whatever reason, the market price of the stock has been deemed by the company’s Board of Directors to be too low. The listing services like NASDAQ will often threaten to delist a stock if its market price consistently drops below one Dollar per share, so during times of market distress many companies will engineer a reverse stock split to prevent their stock from being delisted. Since bumping the price effectively from around a Dollar per share to two Dollars per share may not do much good, a more radical solution, such as moving it to $10 per share is a more likely outcome, which explains why a more extreme scale of adjustment is more common in reverse stock splits.

The 2009 Citigroup (C) reverse stock split provides a good historical example. Citigroup was one of the many huge financial services and banking corporations that were caught up in the huge market collapse triggered by the mortgage crisis beginning in 2007. Unlike many peer institutions like Leman Brothers, Bear-Stearns, Washington Mutual, and Countrywide Bank, all destroyed by the scandal, Citigroup survived, but barely. The stock had traded in a range between $40 and $50 per share prior to 2007, but had plunged to only $1 per share at one point in early 2009. C had then rallied to around $4 per share later that year. At that time the stock was consistently the most heavily traded stock in the U.S., but for the wrong reason - it had become a speculator's stock, with day traders trying to catch minute price swings in the wild volatility, with the constant threat of delisting in the background. On Monday, May 9, 2011 the problem was finally solved with a 1-for-10 reverse stock split, which effectively raised the price to around $40 per share.

Figure 10 shows the effect upon the market price of C during the period in question. You should understand that when you look at the historical stock prices of a stock over time, the data shown are typically adjusted for splits and reverse splits. If you were to go back and look at a chart of prices for C for any period prior to 2008, it would show stock prices for C well above $ 400 per share. But actual market prices never were that high - as seen in Figure 10 they were around $50 per share. But historical charts show the adjusted close, which for the sake of consistency have adjusted for the split or reverse split.

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29 A delisted stock no longer trades on the national markets and slinks off to be traded in the murky over-the-counter market, which is essentially the death knell for any stock that was once publicly traded.

30 A detailed account of this transaction is provided by Matt Phillips and Randall Smith for The Wall Street Journal, "Citigroup instantly becomes a $40 stock," May 10, 2011. In that article they discuss studies that show that historically stocks that have been reverse split tend to underperform market indexes in general.

31 You are encouraged to go to either finance.yahoo or finance.google to see this for yourself.