Separating the Signal From the Noise: Analyzing Insider Transactions in U.S. Public Markets

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As value investors, we pride ourselves on taking a bottom-up approach to the investing process. Rather than forecasting currency moves or interest rate decisions from the Federal Reserve, we spend more time analyzing the guts of businesses. Part of that bottom-up approach is evaluating the quality of management (specifically, the CEO).

Granted, the best management team on earth won't necessarily be able to save a business with poor economics. As Warren Buffett famously said, "When a management with a reputation for brilliance tackles a business with a reputation for bad economics, it is the reputation of the business that remains intact." At the same time, Buffett recognized that strong management teams were essential to his long-term value investing strategy. "When we own portions of outstanding businesses with outstanding managements," Buffett said, "our favorite holding period is forever."

All businesses are made of people and the future course of any business is dependent on the skill, temperament, and behavior of management. Further, it's axiomatic that all long investors want to invest with good management teams over poor management teams. We are constantly looking for signals that management not only can grow earnings and cash flows, but that it can intelligently allocate its capital to the benefit of shareholders.

Identifying "good" management teams is a complex question. It is a huge part of a qualitative investing approach and remains more art than science. Meeting management teams can certainly provide value—so long as investors don't succumb to their biases. Nonetheless, all investors can look for publicly available signals that approximate management's view and faith in the business.

In this memo, I want to take a closer look at one of those clues—specifically, open market purchases and sales from corporate insiders.[1] The general consensus is that large insider purchases signal management's faith in the future of the business (and, consequently, that the current stock price is cheap). On the other hand, substantial insider sales signal that management may not be confident in the future performance of the business and/or stock price.

While all of this is generally true, there are nuances. As you will see:

- Open market purchases arguably have the strongest signaling value.
- Cluster buying and rapid changes of direction (purchases to sales and vice versa) can be particularly illuminating.
- Insiders may transact in their shares to send signals to the market. In some cases, they may announce upcoming purchases to much fanfare and fail to actually purchase those shares.
- While many investors look to transactions from a company's CEO, CFO transactions are underrated.
- Insiders may be dramatically miscalculating their company's intrinsic value. This obviously weakens (and perhaps completely eliminates) any signaling value from their buy or sell decisions.

Famously, Kobe Bryant was once asked what made him the best player in the world.[2] His response was, "I never, ever get bored with the basics." While insider buying and selling may not be the most important or complicated topic in investing, having a good understanding of the incentives and disincentives can help us leverage these signals when buying or selling companies. Insider buying and selling may be one piece of generating a thesis, yet mastering these basics is important in our lifelong quest to become better investors.

[1] The term "corporate insiders" can mean different things. For the purposes of this memo, however, I am going to primarily refer to transactions made by CEOs, CFOs, and COOs.
[2] As a rabid fan of the 1990s Chicago Bulls, I strongly challenge the assumption behind the question.

SECOND ORDER
Capital Management

A Brief Overview of Insider Transactions

Subject to some restrictions, company insiders are free to transact in the shares of their own company.[3] Insiders can do this in a variety of ways.

One of the most straightforward insider transactions is when an insider buys or sells the company's underlying stock in the open market. As we'll discuss below, these types of insider transactions arguably have the most signaling power compared to alternatives.

Besides open market transactions, there are situations where corporate insiders transact in shares via their corporate compensation packages. Here, I am referring to the granting, exercise, and sale of employee restricted stock units (RSUs) and stock options. Stock-based compensation continues to be an attractive way for companies to pay their employees and be economically aligned with the company's economic prospects. Increasingly, more companies are compensating their officers and directors through RSUs compared to option grants. A 2021 survey by Deloitte and the National Association of Stock Plan Professionals is enlightening. It showed that in 2000, only 3% of publicly traded companies in the U.S. granted RSUs. That number increased to 86% in 2021. As for option grants, they decreased from 100% in 2000 to 47% in 2021. As we will discuss below, there is significantly less signal here compared to open market purchases and sales.

Then, there are 10b5-1 trading plans. When those insiders aren't aware of MNPI, they can adopt a so-called 10b5-1 trading plan that lets those insiders buy or sell predetermined numbers of shares at a predetermined price and at a predetermined time.[4] While 10b5-1 trading plans do not allow for insider trading, they do provide for a limited affirmative defense so insiders can transact in their company's stock—even while they are in possession of MNPI.

Late last year, the SEC promulgated updated rules on the adoption of 10b5-1 trading plans. Notably, there are now "cooling-off periods" before trading can begin under these types of plans and updated quarterly disclosure requirements. Before these new rules, insiders could initiate 10b5-1 automated trading plans and begin selling shares immediately. This wasn't a rare

[3] For the purpose of this memo, I am not going to discuss illegal insider transactions. Illegal insider trading is another topic entirely and deserves its own memo. At the same time, there have been plenty of cases where a substantial insider purchase or sale is based on material, non-public information (MNPI). As minority shareholders, we can't know whether insiders are transacting based on MNPI. What we can do, however, is ensure that we are not trading or investing based on MNPI that comes across *our* desks.
[4] Alternatively, insiders can adopt and rely on a formula that determines the amount, price, and date of trades to be made. They can also delegate these decisions to a third-party (so long as that third-party does not retain MNPI).

practice. For instance, the *Wall Street Journal* recently analyzed 75,000 prearranged stock sales from 2016 through 2021. Of those sales, approximately 20% of them occurred within two months of the adoption of the 10b5-1 plan. According to the *Journal*, those sales more often preceded downturns in the stock price compared to corporate insiders who decided to sell at later dates. The analysis also found that insiders selling within those two months made $500 million more compared to if they made those sales three months later. While 10b5-1 trading plans aren't irrelevant, the focus below will be on insider transactions that are outside of these plans.

Reporting

The SEC has outlined detailed guidance on how officers, directors, and 10% holders of any class of stock report transactions in their company's securities. If, for instance, a new officer joins a publicly traded company, he or she will need to file a Form 3, which outlines the officer's initial ownership interest in the company. An increasing number of companies are requiring their newly-appointed officers and directors to own shares, so Form 3 purchases tend to be much weaker as a signaling device.

More relevant to investors is the Form 4. Insiders need to file a Form 4 within two business days of the actual transaction date. Once they file the relevant Form 4, the document becomes available on EDGAR (the SEC's website) almost instantaneously.

The Form 4 contains the amount of shares bought or sold and the price at which they were bought and sold. But beyond that, each Form 4 contains a transaction code for each buy or sell. You can find a list of all of the transaction codes here. For instance, "P" stands for the purchase of securities (non-derivatives or derivatives) on an exchange from another person. "S" is the sale of securities on an exchange from another person. "A" stands for the grant, award or other acquisition pursuant to Rule 16b-3 (for instance, participation in an employee benefit plan). In this circumstance, a corporate insider may have received an options grant as part of an equity incentive plan. Here is an example of a sale filing from Microsoft CEO Satya Nadella.

SEC Form 4

FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934
or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL	
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☐ Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. *See* Instruction 1(b).

1. Name and Address of Reporting Person*	2. Issuer Name **and** Ticker or Trading Symbol	5. Relationship of Reporting Person(s) to Issuer (Check all applicable)
Nadella Satya (Last) (First) (Middle) C/O MICROSOFT CORPORATION ONE MICROSOFT WAY (Street) REDMOND WA 98052-6399 (City) (State) (Zip)	MICROSOFT CORP [MSFT] 3. Date of Earliest Transaction (Month/Day/Year) 02/28/2023 4. If Amendment, Date of Original Filed (Month/Day/Year)	X Director / 10% Owner X Officer (give title below) / Other (specify below) Chief Executive Officer 6. Individual or Joint/Group Filing (Check Applicable Line) X Form filed by One Reporting Person Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	02/28/2023		F		5,760.811	D	$250.16	793,391.635	D	
Common Stock	02/28/2023		S		4,767[(1)]	D	$248.88	788,624.635	D	

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)		8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				

Explanation of Responses:

1. The sales reported on this Form 4 were made pursuant to a Rule 10b5-1 trading plan adopted on September 7, 2022.

Ann Habernigg, Attorney-in-Fact for Satya Nadella 03/02/2023

Most investors closely monitor Form 4s to see whether corporate insiders are transacting in the underlying stock. A great website to easily view insider transactions is Open Insider. A completely free resource, Open Insider canvasses SEC Form 4s to display the most recent buy and sell transactions for publicly traded companies. Users can easily see insider buys and sells according to different criteria, including the latest inside purchases above USD $25,000, the latest penny stock buys, and more. While there are alternatives, the bottom line is that it is relatively quick and easy to get the latest information on insider transactions.

Insider Transactions As a Signal

Academic research into insider transactions has been occurring for decades. The modern era of research into the subject started with a 1960s paper titled "Predictive and Statistical Properties of Insider Trading." It strayed from consensus at the time and concluded that investors *could* profit from studying insider trades. While data on insider trades was significantly more limited and delayed compared to filings today, James Lorie and Victor Niederhoffer found (among other things) that intensive insider activity can forecast unusual price movements.

Since Lorie and Niederhoffer's findings, academics (notably, University of Michigan professor Nejat Seyhun) have picked up on the research.[5] While some researchers continue to argue that there is little signal in mimicking insider trades,[6] the majority of research argues that there is at least some signaling effect here. Researchers like Seyhun have concluded that insiders can

[5] In 2000, Seyhun published a book on the subject. It is called *Investment Intelligence from Insider Trading*.
[6] For instance, see "Market Efficiency and Insider Trading: New Evidence" (M.S. Rozeff and M.A. Zaman).

anticipate future stock price changes (both increases and decreases) and position themselves accordingly. Some studies have even shown that simply copying insider purchases and sales can be lucrative. For instance, a 1997 paper titled "Mimickers of Corporate Insiders Who Make Large-Volume Trades" in *Financial Analysts Journal* noted that investors could obtain abnormal returns (net of transaction costs) by following insider purchases.

Some researchers have also taken insider trades in the aggregate and used it to speculate on overall market direction. For instance, there is the Brooks Ratio. It is calculated by looking at around 2500 companies, taking total insider sales and dividing them by total insider buys and sells. If this figure is less than 40%, there is a bullish market outlook. If it is above 60%, there is a bearish outlook.

The ultimate question, of course, is how we can take advantage of this publicly available insider trading data.

Peter Lynch famously said "Insiders might sell their shares for any number of reasons, but they buy them for only one: they think the price will rise." Many investors and traders stop there. The basic framework is that by purchasing shares in the company, management is signaling that it is bullish about the future. On the other hand, if the CEO or other high-level executives sell shares in the open market, it is often viewed as a red flag.

As investors, one of our jobs is to weigh probabilities. The future is always uncertain and any buy or sell decision forces us to consider a multitude of factors. Insider transactions are just one factor. At the same time, not all insider transactions are created alike. While there will always be some noise, it's worth digging deeper into different types of insider buys and sells. As just one example, an insider may decide to sell some shares because of uncertainty over the near-term direction of their sector and/or economy. Even though they may feel optimistic about the long-term nature of their business, they may "take some chips off of the table" due to broader macro nervousness.

What follows are my thoughts on the stronger and weaker signals that we get from insider transactions. This is certainly more art than science. Insiders transact in their stock every single day and every purchase or sale has nuanced motivations behind them. Along with this, regulatory changes (like the new 10b5-1 trading rules) can quickly affect insider behavior.

Even though there has been plenty of academic research in this area, human behavior and the nature of public markets make it complicated to distinguish signal from noise. Nevertheless, we can do our best to identify valuable transactions and ignore those with little signaling power.

Open Market Transactions Tend to Be Stronger Signals Than Option Grants or 10b5-1 Sales

Let's start with one of the most basic premises in this discussion. Generally speaking, open market purchases and sales are a stronger signal of future stock performance than the granting or disposal of stock-based compensation.

On the surface, it makes sense. When making open market purchases or sales, corporate insiders are putting their own cash on the line. At the very least, they are trying to preserve their capital. More excitedly, they anticipate a positive inflection in the business and want to personally capitalize on better business performance.

Open market transactions are a more powerful signal simply because of insiders' self-interest in maximizing their own profit. This is especially more powerful if the insiders make open market purchases before announcing that the firm will be starting a share repurchase program.[7]

On the other hand, there are RSUs and option grants. Generally speaking, RSUs are issued to company employees based on time served at the company and/or performance metrics that are met. Especially if those RSUs are purely based on time served at the company, we can find little (if any) signaling value there.

Like RSUs, options are granted to company insiders as part of a broader compensation package. Unlike RSUs, however, options don't always have intrinsic value once they are vested. Like other options that investors can purchase in the open market, those options may turn out to be worthless if their underlying price never rises above the strike price. There could be a separate discussion of signal when corporate insiders actually exercise their shares. That being said, as we'll discuss below, there is less signal here for minority investors.

As mentioned above, the majority of this memo is focused on the purchase and sale of shares in the open market. That said, corporate insiders have some discretion on when they can exercise options that have vested.

[7] For more on this, see "Insider Purchases and the Credibility of Open Market Share Repurchase Signaling" by I. Babenko, Y. Tserlukevich, and A. Vedrashko.

For instance, let's assume that we see insiders exercising options that have expiration dates well into the future. Furthermore, let's assume that they are quickly selling those shares once they are exercised. The surface-level argument is that those insiders are bearish about the long-term stock price. Generally speaking, if they were bullish, they wouldn't sell those exercised options so early and lose out on potential gains.

However, there could be other explanations. For instance, those insiders may have worked at the company since its inception and may want to monetize a portion of their already-earned compensation. Or those insiders may need to use part of their equity stake to pay for a new home. There are plenty of potential explanations here, which makes it tougher to get a strong signal when corporate insiders are acquiring shares through the exercising of options. Ultimately, if management's options are granted at severely discounted prices and they subsequently exercise and sell those shares when they are vested, it is hard to tell whether they are bearish on the long-term future of the company or if they simply want to monetize a portion of their already-earned compensation.

As for 10b5-1 plans, a 2021 study titled "Gaming the System: Three 'Red Flags' of Potential 10b5-1 Abuse" argued that some corporate insiders, through the adoption of 10b5-1 plans, were able to avoid significant losses. While most companies required insiders to wait at least 30 days after adoption of the 10b5-1 trading plan, some companies let insiders sell *the same day*. Unfortunately for investors, it was difficult to see when the insider's 10b5-1 plan was actually adopted, meaning that it would be tough to determine whether an insider quickly made a trade after adoption. And as the *Wall Street Journal* reported, federal authorities rarely pursued insider trading allegations related to 10b5-1 plans.

With the SEC's recent amendments to these types of plans, however, there may be less signal here. These amendments are newly adopted, and this combination of new disclosure requirements and mandatory cooling-off periods may lead to a cloudier picture. Time will tell.

Purchases Generally Have More Signal Than Sales

Now, let's return to Lynch's assertion about insider purchases and sales. Academic research supports this idea that insider purchases offer more information than insider sales.

One of the more notable studies comes from Josef Lakonishok and Immoo Lee in their 1998 paper "Are Insiders' Trades Informative?" Among other things, they concluded that there is more signal in insider purchases compared to sales. And as you would expect, stocks that had extensive insider purchases outperformed those stocks where insiders were putting on extensive sales.

That finding was echoed in a *Review of Economics and Statistics* article titled "Estimating the Returns to Insider Trading: A Performance-Evaluation Perspective." There, the researchers found that insider buys lead to abnormal returns of approximately 6% per year. On the flip side, insider sales didn't lead to substantive abnormal returns. The researchers found that part of the reason for this discrepancy came from those insiders buying small value stocks with higher betas. They also tend to make purchases when their companies have recently underperformed.

But along with these reasons, there does seem to be a good argument that purchases alone provide more signal value than sales alone. It's a numbers game. In other words, it comes down to Lynch's idea that there are fewer potential justifications for a purchase compared to the more numerous potential justifications for a sale. While it's important to monitor both insider purchases and sales, insider purchases may deserve more of our attention.

Look for Patterns (or Broken Patterns) of Purchases or Sales

Another strong signal is when corporate insiders execute patterns of purchases or sales. While one-off trades aren't nothing, patterns say more about the insiders' sentiment about their company. Plenty of academic research supports this idea that patterns of purchases and sales are highly illuminating. As Lorie and Niederhoffer argued, intensive trading is often predictive of unusual price movement.

Again, this idea operates off of the assumption that corporate insiders are motivated by their intrinsic financial desires. When making purchases, they are trying to increase their capital. When making sales, they are trying to preserve their capital. Forecasting the future is always difficult, but these insiders use their judgment about the future course of their businesses to make buy and sell decisions.

A solitary buy or sell from an insider can be illuminating. However, more open market purchases or sales from the insider typically adds more signaling weight. This is especially true if multiple insiders are transacting at the same time. So-called "cluster" transactions show more conviction in insiders' bullishness or bearishness toward the long-term direction of the company. If these transactions are occurring for several months, the odds are typically greater that there will be some type of abnormal return.

According to research from Lorie and Niederhoffer, we must also monitor changes in direction. A sudden reversal from insider buys to insider sells (or vice versa) can be a telling sign. This is especially true if there are multiple insiders that have broken the overall pattern. A clear break in direction from more than one insider can foreshadow important corporate news in the next several weeks or months.

Larger Transactions Tend to Have a Higher Signal Than Smaller Transactions

This is relatively straightforward. Generally speaking, when there is more money at stake, we can assume that the insider is acting more in their own interests. Whether they are trying to make more money or preserve their capital, large transactions speak greater volumes than smaller transactions.

When I say "large transactions," I mean both in terms of the actual dollar amount and the transaction amount in relation to the insider's overall equity position in the company. An insider selling millions of dollars worth of shares is likely sending a stronger signal compared to that same insider selling a few thousand dollars worth of shares. Along with this, if an insider is selling a significant percentage of their equity stake in one solitary transaction, that should raise investors' antennas more than an insider selling less than one percent of their overall equity stake.

At the same time, there is a caveat here. Especially when looking at small and microcap companies, small purchases may have more signal value because the CEO or other officer is making less money. It can be helpful to look at that insider's total purchase (or sale) price as a percentage of their yearly compensation. If, for instance, that insider makes a $300,000 purchase and their annual salary is $1 million, we can probably derive a stronger signal than an insider making a $1 million purchase when their yearly compensation is $50 million. Consequently, monitoring the transaction price as a percentage of yearly compensation is a great way to determine how strong the conviction is around a purchase or sale.

Transactions Around Earnings Announcements

Earnings announcements are the quintessential event where insiders have a disproportionate amount of information versus minority investors. Consensus earnings estimates are widely publicized. Management teams are aware of these estimates and, in some instances, have actively managed earnings to beat those same earnings estimates. One study found that profitable pre-quarterly earnings announcement insider transactions are positively associated with other types of red flags (like accounting restatements, SEC investigations, and shareholder lawsuits).[8]

The SEC's insider trading laws are built to prevent company insiders from using MNPI to quickly profit off of earnings beats. For instance, a CEO shouldn't be able to purchase shares shortly before an earnings announcement, announce a major beat, and then sell the stock shortly thereafter. Many companies implement blackout periods, whereby insiders cannot transact in their shares days before an earnings announcement.

With all of that said, insider activity around earnings announcements can provide some context around *future* corporate performance.

A [2011 paper] in the *International Review of Accounting, Banking and Finance* argues that managers (particularly CFOs) do account for future earnings. Notably, CFOs are active if they foresee divergences in current versus future earnings. If the current period's earnings are poor but management expects earnings to improve in the next several quarters, CFOs will be buying shares in the open market. The inverse is true. If the current period of earnings is good and management expects poor earnings in the next several quarters, CFOs are more likely to be selling shares. And if earnings for the current quarter are good and earnings are expected to be good? A broader collection of officers (including the CEO) will be buying. Academics at Michigan State University and Penn State further found that, to avoid allegations of insider trading, insider activity can precede company-specific news by up to two years before that actual news is disclosed to the public.

We can see similar types of behavior when company insiders are granted equity. The time frame can be more compressed but the principle is the same: corporate insiders will forecast future earnings and make compensation decisions based on those forecasts. Mike Puangmalai, the author of the fantastic Nongaap Investing blog, calls this "spring loading" (granting equity before good news) and "bullet dodging" (granting equity after bad news). Again, we're taking a Munger-like approach and simply analyzing incentives. As long as they aren't violating any laws or regulations, we can assume that these insiders are trying to avoid losses and maximize their financial gain.

In the end, the authors from the 2011 *International Review of Accounting, Banking and Finance* paper present five different regular behaviors of CEOs/COOs and CFOs. They are:

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[8] For more, see "Opportunism as a Firm and Managerial Trait: Predicting Insider Trading Profits and Misconduct" by U. Ali and D. Hirshleifer.

CEOs and COOs

- The researchers found more buying from CEOs/COOs before good earnings reports and when those same CEOs/COOs expected future earnings reports to be good.
- CEOs and COOs tend to buy after bad earnings reports when they anticipate future earnings reports to be good.
- CEOs and COOs have less buying before bad earnings reports and in anticipation of bad future earnings reports.

CFOs

- CFOs sell more shares after a good earnings report if they anticipate poorer future earnings prospects.
- CFOs buy more after a poor earnings report if they believe that future earnings reports will be good.

These aren't hard and fast rules. However, they show that insiders look to future earnings reports when making buy and sell decisions. Moreover, CFOs are more in tune with potential earnings reversals, and they don't hesitate to trade upon those intuitions.

Empty Promises

Arguably, this is where the least signal and most noise occur. Unfortunately for minority investors like us, this reality often comes after the fact.

In certain situations, some promotional CEOs and management teams will announce that they intend to (or are about to) purchase shares in the open market. After they make the announcement, however, these individuals may not actually go through with the purchase.[9]

There may be several reasons for this. For instance, the insider may be looking to shore up the company's stock price to receive some form of equity compensation. They may be trying to signal to the market that they are aligned with shareholders (especially if they suspect a proxy

[9] One historical example of this involves Healtheon/WebMD. Healtheon/WebMD was in the middle of an acquisition, but as the dot com bubble burst, the company's share price dramatically declined. Healtheon/WebMD then issued a press release stating that Jim Clark and John Doerr intended to purchase more than $200 million of Healtheon/WebMD shares. News of the pending purchase caused Healtheon shares to rise by 35%. Several months later, however, several publications reported that Clark and Doerr only purchased around 6% of their promised amount. While they blamed federal securities laws for their inability to purchase more shares, their initial press release didn't describe any such restrictions.

fight is on the horizon). In some of the darker scenarios, they may make this announcement to build up market confidence as one last-ditch effort to save their firm. It may be slightly meta, but the announcement of a substantial insider buy (particularly from the CEO) can shore up confidence in the firm and perhaps propel a short squeeze.

While we can try to surmise insiders' intentions when they are transacting in their shares, we can't be 100% clear *ex-ante* whether the announcement is real or not. The best that we can do is look at that insider's past promises and track record—both in terms of insider transactions and within the normal course of the business itself. If that insider is known to engage in puffery or constantly misses self-imposed deadlines, investors may want to be more skeptical toward announcements of future repurchases. On the other hand, if that insider executes well on their announcements and projections, investors should take them more seriously.

Other Transactions With Little to No Signal

There are several other types of insider transactions that occur, but arguably don't offer as much signal as the transactions mentioned above.

- **Regular Buying That Is Substantially Below Salary Compensation**: This is another signaling tactic that arguably offers significantly lower signal versus other transactions discussed here. It's the opposite of the stereotypical small cap CEO spending a significant part of their overall compensation buying shares in the open market. The idea is that an executive (especially a CEO) makes regular outside purchases of stock, but does so in a quantity that is dwarfed by their annual salary or other compensation. An example comes from Jeff Immelt, the former CEO of General Electric. Immelt had a habit of purchasing $1-2 million in shares per year, yet his overall compensation was significantly larger than this outside purchase amount. Even though the outside purchase of shares does more closely align the officer with minority shareholders, it doesn't necessarily mean that they have significant conviction in the company's long-term stock price. These sorts of token purchases have little signal value if the purchase amount is substantially dwarfed by their other forms of compensation.

- **Forced Buying from New Executives**: Once a new executive joins a company, they may be forced to purchase the company's shares with their own capital. This, as you can guess, is not a strong signal. The fact that the executive joined the company in and of itself is likely a stronger signal of conviction than their purchase of shares in the open market. Even if we were to think about this type of buying as a potential signal, there are some situations where new executives receive stock loans for half of the potential purchase price (or some other amount). While these forced purchases better align management teams with shareholders, it's hard to place serious weight on them if we are trying to anticipate the company's future share price.

- **The Sale of Exercised Options When An Officer Leaves the Company**: This is the inverse of the above. The departure of corporate insiders is governed by employment agreements and the company's stock option plan. Whether their options are rapidly vested through an acceleration clause, vested per a regular vesting schedule, or are vested per negotiated terms, departing officers often look to have their shares vested as quickly as possible. From there, they quickly exercise and sell their shares. There seems to be little (if any) signal in these types of transactions.

Some Additional Variables to Consider When Analyzing Insider Transactions

Insider transactions aren't created alike. Even though they can be categorized into broad buckets, each transaction has its nuances and peculiarities.

To determine as much signal as possible, I believe that investors should also consider the following variables. While not an exhaustive list, these variables can help us better understand the motivations behind specific insider transactions and how seriously we should consider them as we do our work.

First, ***market cap size, seniority, and total compensation may be relevant***. It comes from the practical realities of running a business. In smaller companies, executives may have greater insights into the financials compared to their peers at much larger companies. Simply put, there is a difference between a corporate officer at a $50 million market cap company and one at a $1 trillion market cap company. The officer at the smaller company is likely to be more hands-on and have more of a handle on the company's financials compared to their larger counterparts. Consequently, you could argue that, all else being equal, a buy or sell decision from an officer at a smaller company may have a slightly higher weight compared to a transaction from an insider at a larger company.

The same is true of the individual making the transaction. A company's chief marketing officer may not necessarily have the same level of information that a Chairman, CEO, CFO, or COO may have. While transactions from these "lower-tier" officers are not totally irrelevant, they may have less signaling power compared to their more senior colleagues.

Then, there is overall compensation. As mentioned above, monitoring the transaction size as a percentage of the insider's yearly compensation is an insightful way to determine conviction. As you would guess, a higher percentage here (both in terms of buys and sells) would likely provide more signal than a lower percentage.

Next, ***insiders may be miscalculating their company's intrinsic value***. Part of the reason why insider purchases are a compelling signal is that they aren't seen as a quick trade. If a company insider purchases shares, he or she is not allowed to sell that position within a six month period. Six months is still relatively short-term (albeit, it may be considered "long-term" in today's market environment), but the regulation forces corporate insiders to avoid extremely short trading.

The reality is more complicated than this. Sure, the insider may purchase shares because she thinks the business is undervalued. And granted, she has a better view of the business's future than minority investors. That being said, the belief that the stock price is going higher is just that—a belief. There are many situations where CEOs and management teams have made substantial insider purchases and the stock price has subsequently plummeted. The same is true of insider sales. An insider sale doesn't necessarily mean that the stock price is going to nosedive in the foreseeable future. While it may signal upcoming turbulence for the company, it may also be straightforward profit-taking from a founder who poured a vast amount of her professional life into her business.

Even the best corporate insiders may struggle to determine what their company is actually worth. The danger to minority investors comes from following insider purchases that incorrectly estimate intrinsic value *while* that intrinsic value decreases. Both company management and minority investors are offside and end up destroying value. It's even more dangerous if the share price starts collapsing and insiders keep buying. What appears to be strong conviction in a time of stress can be a substantial miscalculation of the company's franchise value going forward.

Then, there are situations where management isn't thinking about the intrinsic value of the company. Rather, they want to pump up the stock price for a variety of different reasons. In some circumstances, they may try to do so if certain bonuses or executive compensation is tied to market cap and/or the share price of the company. Investors (specifically short sellers) need to be cautious with these types of situations. If the management teams are especially promotional and start buying significant amounts of shares, they can trigger short squeezes and cause significant volatility—even though their behavior isn't tied to their actual estimate of the company's intrinsic value. While this type of insider buying can lead to a rise in the stock price, those gains may be transitory.

As is the case with all types of investing, ***time horizon*** is also an issue. The average holding period for equity investors is getting shorter and shorter. A recent eToro study showed that the average holding period for U.S. equities has decreased from around five years in 1977 to 10 months today.

Simply put, the time horizon of today's "long-term" investor may conflict with the time horizon of corporate insiders. For starters, the SEC promulgated the so-called "short-swing profit rule," which essentially requires corporate insiders to hold onto newly purchased shares for at least six months. If they don't, they need to deliver their profits back to the company. Often, however, company insiders are looking even further down the road. This has been shown by a study by R. Richardson Petit and P.C. Venkatesh.[10] They found that the number and value of insider trades to be significantly above normal up to two years before the company's stock returns are above normal. The same is true with sales, as insiders, on average, are looking at up to two years from the date of the transaction.

This mismatch is critical to minority shareholders. Ultimately, outside investors may be bullish on recent news about a CEO's outside purchase of shares, yet that CEO may have a much longer time horizon than those outside investors. Short-term volatility combined with a shorter-term investment horizon may result in crystallized losses—even if investors believe in the long-term future of the business.

Next, ***not all sales are created alike***. This comes across in the classic rule of thumb (Lynch's idea of "There's only one reason why insiders purchase shares"). An insider may sell shares to pay for a new home or some other large expense. If the insider is a founder, they may sell some shares to diversify their assets and "take some chips off of the table."

As James Scott and Peter Xu argued in *Financial Analysts Journal*, some insider sales can actually be positive signals. In their research, they found that not all insider sales are the same. Echoing a point made above, the key variable is size. According to the paper, substantial insider sales (in the sense of shares traded as a percentage of insiders' holdings) represented more of a bearish view of the company's prospects going forward.

[10] The paper is "Insider Trading and Long-Run Return Performance."

This is an unsurprising conclusion. On the other hand, small insider sales that accounted for a small proportion of those insiders' overall shares didn't predict poor performance. In fact, those small sales were correlated with abnormally high returns. As always, correlation does not imply causation. The key takeaway, however, is that small insider sales aren't as dire as they may seem.

Next, it pays to pay attention to ***who insiders are transacting with***. For instance, there may be a situation where an insider purchases a significant block of shares from a large private seller. This type of transaction can be meaningful. It can signal the insider's conviction in the business and can tighten up the stock's float in the short term. We can look at Form 4s to see more details on the types of these private transactions. Notwithstanding the caveats about an insider's true motivations behind a buy and sell decision, looking at these insiders' behavior and their counterparties can offer some interesting insights about both the insider and counterparty's motivations.

We must also monitor ***when these insiders are reporting their trades***. A paper from researchers at Miami University, Auburn University, and the University of Kansas[11] argued that the time of day is relevant to this conversation. They noted that filings after 5:00 p.m. ET led to larger abnormal returns. For instance, if the first sale of an extended sale sequence was reported after that time, the negative abnormal return would be 129 basis points greater than if the sale was reported between 4:00 p.m. and 5:00 p.m. The first purchase of an extended purchase sequence reported after 5:00 p.m. also resulted in 163 basis points of larger abnormal performance. After-hours trading isn't irrelevant and the time that insiders report their transactions may try to preserve an informational advantage that they may have.

Finally (and perhaps most critically), we must account for ***our own familiarity with management and the company***. While all of the above variables are important, they are much less effective if we are coming across the company and management team for the first time. By contrast, if we have studied the company and sector for years and have had meetings with members of the management team, we will probably have a closer understanding of the true motivations behind the insider transaction.

Investing knowledge compounds. Familiarity with a sector, business, and management team compounds. When evaluating a specific transaction, we can use our prior knowledge to determine which variables and signals matter. We can put extra weight on certain variables and less weight on others. It is this sort of experience that can help us develop an edge and help us better understand why insiders are making certain buy and sell decisions.

[11] The paper is called "Insider Trading Patterns" by L. Biggerstaff, D. Cicero, and M. Babajide Wintoki.

A Critical Part of the Management Mosaic

As bottoms-up minority investors, we have a wide mandate. Before making buy or sell decisions on a particular company, we must look at things like the company's competitive positioning, cash flows, growth prospects, and margin of safety. Not only that, but we must analyze these types of variables at that company's competitors. It is a never-ending process and one that separates great investors from the rest.

But along with analyzing the guts of the business, we must look at the individuals operating that business. Unfortunately, management quality can't necessarily be tied down to a single metric or algorithm. We need to take a broader-based approach to gauge "management quality"—both in terms of their operational skills and their capital allocation skills.

Sure, we can look to the past. Evaluating management's track record, whether they actually follow through with their promises, and how they navigate business cycles is a fruitful exercise. But at the same time, insider transactions can be a revealing signal of a company's future prospects.

Winston Churchill famously said, "I no longer listen to what people say, I just watch what they do. Behavior never lies." When thinking about insider transactions, I would argue that Churchill is mostly right. Actions speak much louder than words, yet those actions can still be noisy. A buy or sell decision has some strong motivation behind it, but failing to at least consider *why* that decision is being made can be dangerous. We need to dig a little deeper if we are going to incorporate insider transactions into our investment processes.

The research on this topic keeps advancing. What doesn't change, however, is human behavior. For as long as public markets exist, corporate insiders will attempt to monetize their equity stakes. They will try to limit losses and maximize their gains. They may not actually be able to do so in practice, but the intent is there.

As outside investors, we are constantly forced to read between the lines. We are like investigative journalists who cobble pieces of information together to compose a story. Even though it is just one piece of the overall mosaic, insider buys and sells are some great ways to get inside the minds of corporate managers. In the end, astute investors should pay close attention.

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