Market Abuse

A Survey

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Abstract

The purpose of this study is to give an overview of how rules are broken in and at places connected to financial markets, such as the stock market. The approach is aimed at answering the following questions: Who are the investors and traders in the market, who are the market actors? How are financial market prices and quantities being changed in ways not allowed in the market, i.e., how are prices and quantities manipulated? What kind of harm is done to actors in the markets? How can market abuse, the breaking of market rules, be prevented? The findings for the first question divide the market actors into two groups, based on the amount of information they possess: Insiders, who have access to and can use information from inside of companies; and outsiders, who do not have insider information. The second question is answered in detail by describing how manipulation is happening at two places: at the markets, and outside, where four types of market manipulation techniques are used by those who manipulate the markets. The third question asked leads to looking upon harm as coming from a form of "theft." If, for instance, actors lose wealth in the market because of manipulation, it can be argued that actors are harmed because of wealth is being "stolen". Outsiders risk losing wealth and opportunity of future profits as a result of manipulation, and manipulation may even cause suffering for people who are not invested in the market. Manipulation is a problem in the developed markets and may be an even more pressing concern for emerging markets. When market actors lose trust because of market abuse and manipulations it may lead to decreased investments and trading. The last question dealing with how market abuse can be prevented aims to avoid harm falling upon individuals, businesses, institutional investors, and state investors. There seems to be a need to combine efforts, for market actors, investigators of fraud, and regulators, to use several harm-preventing measures, i.e., practical tools, to protect the investors, their market trust and assets, to safeguard a functional market.

Key words: Financial markets, Market abuse, Fraud, Market manipulation, Insiders, Outsiders, Theory of Harm

Sammanfattning

Syftet med denna studie är att ge en översikt över hur regler bryts på och på platser kopplade till finansmarknader, exempelvis aktiemarknaden. Tillvägagångssättet syftar till att svara på följande frågor: Vilka är investerarna och handlarna på marknaden, vilka är marknadsaktörerna? Hur ändras marknadspriserna och -kvantiteterna på ett sätt som inte är tillåtet på marknaden, det vill säga hur manipuleras priser och kvantiteter? Vilken typ av skada åsamkas aktörerna på marknaderna? Hur kan marknadsmissbruk, brott mot marknadsregler, förhindras? Resultaten för den första frågan delar upp marknadsaktörerna i två grupper, baserat på den mängd information de har: insiders, som har tillgång till och kan använda information inifrån företag; och outsiders, vilka är de som inte har insiderinformation. Den andra frågan besvaras i detalj genom att beskriva hur manipulation sker på två platser: på marknaderna och utanför, där fyra typer av marknadsmanipulationstekniker används av dem som manipulerar marknaderna. Den tredje frågan som ställs leder till att se på skada som att den kommer från en form av ”stöld”. Om till exempel aktörer förlorar rikedomar på marknaden på grund av manipulation, kan det hävdas att aktörer skadas på grund av att rikedom "stjäls". Outsiders riskerar att förlora rikedom och möjligheter till framtida vinster till följd av manipulation och manipulation kan till och med leda till lidande för andra människor som inte har investerat i marknaden. Manipulation är ett problem på de utvecklade marknaderna och är möjligtvis ett ännu mer angeläget problem för tillväxtmarknaderna. När marknadsaktörer förlorar förtroende på grund av marknadsmissbruk och manipulationer kan det leda till minskade investeringar och handel. Den sista frågan om hur marknadsmissbruk kan förhindras syftar till att undvika att skada drabbar individer, företag, institutionella investerare och statliga investerare. Det verkar finnas ett behov av att kombinera ansträngningar för marknadsaktörer, bedrägeriutredare och tillsynsmyndigheter, för dem att använda flera skadeförebyggande åtgärder, det vill säga praktiska verktyg, för att skydda investerarna, deras marknadsförtroende och tillgångar, för att säkerställa en fungerande marknad.

Nyckelord: Finansiella marknader, marknadsmissbruk, bedrägerier, marknadsmanipulation, insiders, outsiders, theory of harm

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1. Introduction

The financial market has rules, and sometimes those rules are broken. The rules can be broken when prices or quantities are changed so that market prices, such as stock prices, no longer reflect the actual values of the companies. For instance, in the case of Ivar Kreuger, the "Match King", this world-famous businessman kept secrets about his companies being worth much less than what markets across the world believed. This led to people, who had invested in those companies, losing an historic amount of wealth, upon revelations on accounting and financial facts; revelations that may have given the US Congress reason enough to implement new laws, to avoid anything similar from happening in the future (Flesher & Flesher 1986). But even after the 1930s, market rules can still be broken, resulting in popular investments ending up as losses for many investors. In the case of Kreuger, the prices of financial instruments can be seen as *manipulated*, when people were made to believe that market values relating to the Kreuger companies was at levels corresponding to what the companies were worth.

Ivar Kreuger may exemplify a form of *insider*, someone who can use information from inside companies that only someone inside the companies would have access to. Illegal trading done by insiders can occur when nonpublic information is used for buying or selling securities (Deng, Wang, Wang & Sun 2019). Insiders may use their information in ways unfair to other actors, to *outsiders* who, by definition, possess less information than insiders. When an insider uses information that only they have access to, leading to profit for the insider, it can become unfair because of the information advantage they possess over other actors in the market.

> To most people it appears rather unjust that some speculators are able to earn profits at the expense of others who just happen to know less about the asset in question.
>
> (Agarwal & Singh 2006)

If using insider information to gain profit would be allowed the market could become like a game with the rules set to the insiders' advantage. Other market actors may not consider that to be a fair game. Which could lead to some actors choosing to not play it, i.e., to not invest in the market. One aim of this study is to look at how markets risk becoming unfair, and lead to harm, because of insider practices.

Insiders may simply benefit by trading, without manipulation. They may not try to change prices in the market, but instead, use information only they have access to, and spot opportunities to make profits not seen by anyone else. While other times they may choose to use their information to manipulate markets, both prices and quantities, in various ways. This will be explored in detail in this study.

It is not needed to have more information than others to change prices and quantities. Stocks and other financial assets change owner often, the number of stocks traded changes from day to day. Outsiders, people who do not have inside information, can also change prices and quantities in those markets. They may try to change prices and quantities, and therefore manipulate. While it may also be a natural occurrence that prices change, because of assets becoming more, or less, popular to buy and sell. This study will try to see how financial markets, such as the stock market, are being targeted by different manipulators of financial instruments who can choose to engage in unallowed activities at the markets.

Therefore, another aim here will be to explore if both insiders and outsiders may cause harm on those who trade and invest in the financial markets. Even more important, the analysis and discussion will lead to showing how financial harm can be avoided, when looking at harm preventing tools, such as regulations.

As a starting point, the ambition has been to understand the way financial markets work, what things are illegal at the markets, and why. This gives an opportunity to clarify an important, risky, aspect within and outside the markets, which may need further attention from everyone involved in the markets. What needs clarification is what kinds of risks, such as manipulations, the financial instruments and people are exposed to, and how this can impact the value of their investments and affect investors' investment decisions. In turn, if financial products and people's decisions are being manipulated, we may argue that prices are set artificially high, or low, if price levels have reached high above, or much lower, than the actual values of the companies which should support market prices.

Artificial price means that a price does not reflect supply and demand. It is a price that may have been manipulated, if the buyer or seller of a stock made a transaction for the purpose of setting, or maintaining, a price at a particular level (John & Clee 2013). Stocks and other financial products are expected to reflect how well companies are performing, and how much they are worth. If a price of a financial product does not seem to reflect that value, such as seen in financial reports, or company accounts, we can suspect that a price may be artificial.

The risks explored in this study are seen as vital to consider for actors in the market. Whatever is harmful to them may be an issue to be addressed by regulators. The main risks reviewed can be summarized into the terms market abuse, fraud, and market manipulations. These actions can be considered as acts of misconduct, misbehavior, or even a crime. The main purpose is to understand the phenomenon of market abuse, the harm caused, and what can be done about it.

The literature reviewed consists of published, mainly academic, work on the topic, and the analysis and discussion are based on these sources. This serves to give insights into market abuse and manipulations, the market actors, and into how different agencies, who regulate and surveil the markets detect, prevent and make policies against illicit activities. Using previous research compiled into a survey, on the topic of market abuse, provides an overview.

When investors buy and sell financial products confidence can be undermined by those who use insider information, commit fraud, and manipulate prices. This study argues that people need to have trust and confidence in the financial markets. Therefore, important questions that the study revolve around are:

1) *Who are the market actors?*
2) *How are financial markets being manipulated?*
3) *What kind of harm is done in the markets?*
4) *How can market abuse be prevented?*

Chapter 2 provides a brief overview with regards to the first question. Chapter 3 and 4 will analyze and discuss different kinds of market manipulations, how it is done, and who does it. Which will lead us into understanding, to some extent, the harm that is done to market actors as a result of manipulations. Chapter 5 will then examine some ways, i.e., "tools", used to prevent manipulation and market abuse, and how to prevent harm being done to market actors. Finally, chapter 6 will summarize by discussing some of the most important findings.

Central Concepts

Before attempting to answer the four questions above, an explanation and differentiation will be conducted on some of the most central concepts and terms. Amongst them, *market abuse* is the broadest of the relevant terms, meaning that rules are broken in a manner not allowed in the market. The European Union have regulations, in place telling how one should buy and sell securities, i.e., how to exchange financial instruments, assets, which are tradable on the financial markets. Breaking against those rules mean to engage in market abuse (Ekobrottsmyndigheten 2021).

Finansinspektionen (2021), who regulate and monitor the financial markets in Sweden, define *market manipulation* as being a form of market abuse. Market abuse also covers *insider trading* and revealing of *insider information*. Insider, or *inside*, information is defined as information which, if made public, would have an impact on financial instruments. As mentioned, an insider is a person with access to inside information, who can choose to use this information for buying or selling financial instruments related to that information. Which is a prohibited action (Finansinspektionen 2021).

In this survey, we will spend much time on market manipulation. Market manipulations occur in a variety of markets and is not a new phenomenon. As early as 1688, the Amsterdam Stock Exchange was described as a place where speculators could conceal facts, work secretively in groups, and cheat; it could even lead to a "tragic end" (Putnins 2012). Market manipulation can be about creating false impressions, company stocks can be sold off to make people believe that important news is affecting the market, when that is not the case. Today, rumors on the internet can make nearly bankrupt companies' stock prices rise quickly, and entire market segments can become manipulated. It can be hard to tell how much harm comes out of this practice; and manipulation is a term often used in an imprecise manner. However, countries have in statutory law stated that engaging in market manipulation centers around unlawful transactions which can create artificially high or low prices (Putnins 2012).

The terms market manipulation and *fraud* can often be used interchangeably. Even though the terms can mean different things in different context, in this study they often mean the same thing. Fraud can be about someone being intentionally misleading towards someone else. Financial fraud can happen when one person, who have more information, tries to gain money in a dishonest way, by misleading another person at the financial market. An actor committing fraud may profit while another actor loses money. Fraud can take place when someone manipulates another person's perception of a specific financial value. And as seen in the coming chapters, it is not uncommon that wherever there is fraud and manipulation there is an insider present.

It is worth going through the confusion on the matter of terms. Other authors have taken note that to define manipulation "is no simple task" (Gerace, Chew, Whittaker & Mazzola 2014). It can be a form of fraud, a way of trading falsely. We may allow ourselves to see manipulation at the market happening when an actor there is trying to change prices, trying to fool other actors, or both. The Swedish Economic Crime Authority, Ekobrottsmyndigheten (2021), states that *buying or selling securities should be done for the purpose of long-term or short-term ownership, not for the intention of changing the price*. To change equity prices can be done in other ways than trading, for example by spreading rumors on supply, demand, and price. Which may lead to a person becoming convicted of a crime (Ekobrottsmyndigheten 2021). Whenever there is an intent to change price, or quantities, and not an intent to own the financial instrument, market manipulation is occurring.

Theory of Harm

This study argues that prevention of financial harm requires insight into why market abuse and manipulation occur, and how market actors can risk becoming hurt. To see the reasons behind can help

the investigation of prohibited actions, especially when one wants to avoid harm being done to individuals, businesses, institutional investors, and state investors.

In the theories of harm, one view, according to Slavny (2014), is that the one who is harmed is placed in a "bad state" because of an event; while the event-based view looks at the event itself, in which there is a victim. Losing a quantity of a good, or acquiring a quantity of a good, is the simplest form of harm or benefit (Slavny 2014). Harm can, in the example of theft, be seen as a person being put into a state of suffering as a direct result of the theft, for example, from the momentaneous ordeal of shock when realizing that he or she has become the victim of a crime. Or the harm may center around the theft preventing the person from the benefits of no longer be in possession of the thing that was stolen. Also, the harm may be ongoing if the later recovered item is not in the same condition as before the theft. If what was stolen is returned and the owner cannot regain the quality of the item, as it was before the theft, then it may lead to an experience of harm that is continuing.

If a safe and harmless market is not maintained, one risk is that such a market leads to harmed market actors. If manipulation leads to some sort of theft, where the manipulator's actions mean that wealth is stolen from an actor, it can be viewed as simply transferring wealth from one actor to another. The sum on an aggregated scale of an entire market might not change when something is stolen, but it can bring harm upon a person or business being the target of manipulation. If a person is manipulated into buying an asset, which the manipulator knows will drop soon in price, that person may be put into a state of suffering as a direct result of the "theft". Harm can result from the shock at that moment when realizing that he or she has become a victim. This can occur if an insider persuades a victim into buying an asset, when the information shared by the insider may be part of spreading a false rumor.

Harm may occur if a person can no longer benefit from the wealth that has been lost, if the price of an asset has decreased. And the harm may be ongoing if later recovered wealth does not cover all losses, both at the time of the manipulation, and considering the wealth one could have accumulated in the time the person has to spend making investment decisions to recover lost wealth. It seems that the theory of harm may apply to outsiders being hurt. And it is also possible that insiders can harm and "steal" from other insiders.

Efficient markets, markets where information is more equally shared among market actors, is an issue worthy of consideration. Gerace et al. (2014) examine stock market manipulations in Hong Kong between 1996 and 2009, and mention that successful prosecutions against manipulations have been done in that market by the Hong Kong Securities & Futures Commission. Manipulation may negatively impact a market's efficiency, when affecting the price differences between buy and sell orders placed

on securities, the so-called *bid-ask spread*; and manipulation may potentially increase when the market goes “through a stage of volatility and uncertainty”. Markets are not efficient because manipulators act in an environment “characterized by information asymmetry”, meaning that the amount of information is indeed not equally divided between the market actors (Gerace et al. 2014).

Even more troubling than the bid-ask spread and volatility being affected is the effect manipulation have directly on the investors and traders. They are at risk when there is an erosion of confidence in the markets, because of the issue of market efficiency, when information is unequally shared between market actors who may, or may not, be engaging in market abuse.

2. Types of Market Actors

The attention of this chapter will be on giving a brief overview of the market actors, to clearly differentiate between two groups: The insiders with inside information, and the outsiders who do not necessarily need more information to make profits and change prices.

Insiders

The manipulator is typically more informed than other traders. Insiders, who have access to information that outsiders do not have access to, can be working as brokers, underwriters at insurance companies, or be large shareholders spreading false information, disinformation, via the internet and chat rooms (Aggarwal & Wu 2006). Aggarwal and Wu (2006) explain that manipulators "trade in the presence of other traders seeking information about the stock's true value." With many *information seekers*, market efficiency may improve. But many information seekers may also risk enabling easier trading for manipulators. The more informed manipulator may be influencing stock prices via accounting and earnings manipulation, as seen in cases where such revelations lead to companies, like Enron and Worldcom, declaring bankruptcy (Aggarwal & Wu 2006). But insiders may use also other techniques to manipulate the markets, as will be shown in the next chapters.

We can look upon the insiders alongside a group consisting of other market professionals, such as brokers, who may or may not be insiders with inside information into companies. These market professionals can be divided into the ones informed, and those not informed, where both are able to manipulate prices. And they can act as *senders* of false signals, if we agree that they contribute to creating artificial prices, i.e., prices not supported by companies' fundamental, actual, value.

Outsiders

On the other end, we have *receivers* of false signals, the outsiders. They can be normal investors, small savers, big investors, and everyone in between, who simply want to make decent returns on savings and investments. These information seekers, as described by Aggarwal and Wu (2006), act upon information they receive when they, and their financial assets, become targets of manipulation.

Companies which information seekers follow closely are more susceptible to insider manipulation (Aggarwal & Wu 2006). The price changes in these companies' stocks may function as a vehicle for the companies', and the information seekers', perception of companies' value. But not entirely, if manipulators also turn the price and quantity changes into a vehicle of deception. These concerns are particularly important in relation to the chapter dealing with Information-based manipulation, where events taking place outside of the market, such as rumors spreading, may lead to effects on the market.

So, outsiders are here defined as investors and traders without access to inside information. When it comes to comparing insiders with outsiders, Bhattacharya and Spiegel (1991) find that the outsiders will only trade with market insiders if they feel that they have enough information. A market breakdown can occur when the outsider refuses to trade with the insider, and it can be important with insider-trading laws for maintaining well-functioning markets, to allow the outsider to have enough confidence to trade with the insider (Bhattacharya & Spiegel 1991). Outsiders may invest by themselves, and, as we will see in the section on Manipulations via Social Media, they can also belong to groups where the collective aim may be to profit. Which can lead to big price and quantity changes at the market.

More attention may need to be placed on harm falling upon outsiders. Because it seems likely that it is more common that insiders cause harm on outsiders, than the other way around. Particularly exposed, younger outsiders will have less information than insiders, and be less experienced than traditional, fundamental investors. Abrahamson (2016) sees the average share holder to be an aging person, who has a more diversified portfolio, in comparison to the new, younger investor. Therefore, the younger outsiders' portfolios may generally have a riskier arrangement of investments, due to less diversification. Young traders may prefer high risk trading and may choose to not diversify their risk at all, to go "ALL IN" when trading with life savings, betting on one single stock (Mendoza-Denton 2021). As outsiders will only trade in a market when they feel that they have enough information (Bhattacharya & Spiegel 1991) it does not exclude outsiders making mistakes, believing they have much and enough information, feeling confident enough to trade.

3. Manipulations in the Markets

Types of Market Manipulations

Market abuse in form of market manipulation can be placed in types, depending on the technique that is used. The types "often overlap, [while they] are nonetheless useful to demonstrate the variety of methods of manipulation" (Gerace et al. 2014). Several authors (Gerace et al. 2014; Chan & Ka Chun Ma 2014; Putnins 2012) define the techniques as the following, which can be applied to the stock market:

1) *Trade-based*, where only actual trades of stocks are used as a manipulation tool, without using false information or inside information. With this technique, the market actor does not need to be an insider to manipulate price, if the actor has enough funds the price can be changed. Stocks with low liquidity, i.e., stocks not frequently traded, are more likely to be targeted for trade-based manipulation.
2) *Action-based*, where the market actor acts with intention to change the market's perception of the firm's value. Potentially, this area of manipulation sees more insiders, than outsiders with less information, employing the technique. Informed manipulators may intentionally trade to confuse investors. They can make others believe that a company is doing well, while, via inside information, they may know that the opposite is true. They can choose to buy, or sell, and other traders might copy the manipulators' behavior. The manipulators' actions might conceal their knowledge about upcoming events which they have information about.
3) *Information-based*, where false information and rumors are used to affect the stock price. Old-fashioned ways of using the information-based technique include word of mouth, newsletters, and financial newspapers. With the internet, there are now more ways to spread rumors, and a higher chance for the manipulator to remain anonymous. This will be thoroughly reviewed in the chapter about Information-based manipulations, where the technique is applied outside of the market.

Chan and Ka Chun Ma (2014) ads to this list:

4) *Order-based*, which takes place in the market, and where no trades are done by the manipulator. Manipulation is still possible because orders can be changed or cancelled. This fourth type applies the technique of using buy and sell orders, with no intention of buying or selling a financial instrument. The manipulator can make an order appear, long enough for it to be seen by other traders who seek information, before the order is taken away. If many orders appear, it may seem like there is a high stock demand, and the manipulator can act as if being an informed

trader with the intent of buying. Stocks from the largest companies, more frequently traded, are generally preferred by order-based manipulators (Chan & Ka Chun Ma 2014).

Over the past forty years, the United States has been leading the investigations in the area on manipulations; and financial crises have given reason for further research. Studies of insider trading and *pump-and-dump* schemes are some of the most common occurrences when investigating and examining stock market manipulations (Akram, RamaKrishnan & Naveed 2021). Pump-and-dump schemes and *bear raids* are mentioned by Putnins (2012) as some of the most common forms of manipulation, where both can be applied to several of the mentioned techniques above. The former is essentially about the manipulator causing an inflation in price, while the latter sees the manipulator causing the price to decline. Pump-and-dump manipulators are likely to hold a position in a stock, and they want to attract other actors to buy the stock, so that the stock price is "pumped up". While the manipulator who engages in a bear raid will have short sold a stock (Putnins 2012) and want others to start selling.

To *short sell* is allowed in many markets, and basically means to speculate that a financial asset's price will go down. Short selling can be done by borrowing stocks, which are then sold on the market, later bought back to a lower price, and given back to the lender. The difference between a higher sell price and a lower price when the stock is bought back equals a profit for the short seller. However, as we will see in the section on Manipulations via Social Media, short sellers may also make big losses, even if they are large *institutional investors*. And also those investors may choose to manipulate the market.

Manipulations by Institutional Investors

Institutional investors act on behalf of many investors. Many people and businesses put away money, not only directly in stocks, but can choose to let funds and their managers do the job of investing for them. Smaller investors may do it because they trust that the large, institutional, investors will make better decisions, hopefully leading to higher returns, than if they were to place the money and spread the risk themselves. Institutional investors may diversify risk among hundreds of stocks and other securities, which can be hard to do for the individual investor.

Hedge funds are examples of large institutional investors. Ben-David, Franzoni, Landier and Moussawi (2013) see tendencies for institutional investors, who chose to manipulate stock prices, doing so on certain dates of the month, with more returns being made during the last minutes of trading days. The activities of hedge funds to act towards the end of months, quarters, or years "can have a significant impact on market prices." There is a pattern where stocks owned by hedge funds surges in the last hours every quarter, followed by a strong selling phase at the first day in the next quarter. Hedge funds

with a bad month are more inclined to have a big return difference around the beginning and end of quarters and are not unlikely to have high differences after that. As hedge funds report monthly returns to their investors, and new capital is attracted by track records of monthly returns, there is an incentive to manipulate the short-term performance. Hedge funds may also short sell, to bet against the market in hope that a securities' value will decline, and they can sell more towards the end of the year to inflate returns (Ben-David et al. 2013).

This behavior is not exclusive for hedge funds. Ben-David et al. (2013) point out that also *mutual funds* have incentives to pump up prices of stocks they hold, and mutual funds with best past performance seem more likely to manipulate stock prices. It has been suggested that $5 to $10 million dollars is all it takes to move stock prices, and make it appear as if a fund is successful.

The following *are signs of hedge funds' and mutual funds' manipulations*: If returns, trading volumes (i.e. quantities), or buying or selling pressures are abnormal around the last and first day of a month; if many trades are institutional; if the large investor has a not very diversified portfolio; if the stock which price is being moved has less liquidity; and if manipulation seem to persist over time, like a "habit" (Ben-David et al. 2013).

Comparing this to the four types of manipulation, we recall that stocks with low liquidity are more likely to be targeted by trade-based manipulators, while stocks from the largest companies, with higher liquidity, are generally preferred by order-based manipulators (Chan & Ka Chun Ma 2014). The low liquidity stocks should then be preferred by institutional investors, such as hedge funds, unless the stock in question has been recently manipulated by that fund. We may not want to exclude fully the possibility that institutional investors can use order-based manipulations, but it seems likely that hedge and mutual funds may have more to gain by using their large amount of money to not withdraw orders, but to see those orders go through and become bought or sold. The temptation for the hedge fund may lie more in using the funds, execute orders, to see prices change.

The institutional investors may therefore be more inclined to use trade-based manipulation and target low liquidity stocks. They do not seem to have much need to send false information to other traders, when they may have enough money to change the price simply by trading. A difference between the two methods is that order-based is a "signaling method", where the manipulator wants to send signals to make other actors believe something and benefit later when the other actors swing the price up or down. While the institutional investors' end-of-the-month actions directly changes price by moving a lot of money in or out of the market in a short time. The large funds can manipulate prices without the intention of fooling anyone.

It does not exclude institutional investors from also using action-based techniques, where they could hope to signal to other traders to follow in their footsteps, to buy when they buy, and sell when they sell. They could pretend to be informed, that they act as if having new information that gives reason to take a new position or increase the size of an existing market investment. If an institutional investor buys early, and the other actors then increases the price further, these big funds may subsequently sell early, just when or before the price starts to drop. And if the price keeps swinging up and down, and hedge and mutual funds always act early, they might change prices and profit repeatedly. We can picture that this way of profiting continues for a long time, unless no one detects it, by perhaps spotting a pattern of a manipulative way of acting in the market.

Manipulations in Emerging Markets

Manipulation is easier done in emerging markets, because of differences in market regulations, compared to developed countries (Ergün, Yalaman, Manahov & Zhang 2021). This gives reason to place special attention on developing countries and emerging markets, when investigating challenges that market abuse presents. While taking into account that the following examples of different manipulations may well apply to occurrences in *any* financial market.

Cornering the market is one of these occurrences, describing how people are misled into believing a market is on the rise, leading to increasing stock prices, but ending in a price decrease when the manipulators dump their positions. To corner a market can have the same effect as a pump and dump scheme, with the difference that cornering a market means a market actor has obtained such a large fraction of the security being traded so that the actor has gained *control over the supply* (Putnins 2012).

Sufmi, Aldyan and Pujiyono (2018) find that this phenomenon occurs at the Indonesian market; where they see three types of market crime happening: fraud, insider trading, and market manipulation. Actors here can generate profits at no risk. The authors find that this is probably happening in many emerging markets, where “Large uninformed traders with market power [can] manipulate prices to their advantage [, and harm] the investors who buy the stock at high price”. The authors conclude that this is a crime in Indonesia, following their review on what the Indonesian law states regarding the practice of cornering the market (Sufmi, Aldyan & Pujiyono 2018).

What comes to mind here is that the Indonesian market, based on these findings, may suffer much from trade-based manipulation, where no insider information may be needed. We can recall the previous section on the institutional investors, where size of the trade can matter to change the price. While it cannot be ignored that market actors here may be using action-based manipulation, trading to make

others change their view of a company, to increase trading in that particular stock. Outsider manipulators are accompanied by insiders. Whether the trades in Indonesia are done mostly by outsiders or insiders is in this example not as relevant. What it highlights is the fact that *actors who can make larger trades may find it easy to steer the price*.

The Indonesian case of cornering the market bring up the issue of large traders creating "price momentum" (Sufmi, Aldyan & Pujiyono 2018), meaning that the one who manipulates probably steers others into buying more, building up intensity in buying over some period of time. When the buildup of share ownership could happen, so one actor own most of the shares, control much of the quantity of the stock, and may therefore be more able to manipulate price. We may speculate that *someone who corners the market may use trade-based manipulation*, at least to start with. If the actor can then mislead other people by trading, it could mean that *the behavior may also fall under action-based*, if the manipulator intends to trade so that other actors' perception of the firm's value changes. As a final move, a majority shareholder could decide to sell off the entire stock position after gathering up the stock majority, which will be the time when the unallowed profit is made. Which could easily push the price down when it adds selling pressure, harming other actors who own shares, when sell orders at that moment heavily outweighs the buy orders.

Market manipulation may indeed be a more pressing concern in emerging markets (Akinmade, Adedoyin & Bekun 2020), and the costs to those markets may be greater if more manipulation is occurring here than in the developed countries. Akinmade, Adedoyin and Bekun (2020) look at what effect manipulation can have on economic performance, by considering indictments handed down by the Nigerian Security and Exchange Commission, when the commission prosecuted market wrongdoers over a fourteen-year period, up until 2016. The authors see that markets can be negatively affected when traders choose to leave the market in presence of manipulation. The economic performance and GDP can be weakened following the time of manipulative trading. While if a stock market functions well it can lead to increased savings, diversification of risk, and allocation of capital and funds from the part of the economy in surplus to the other parts with deficit. Manipulation threatens such a market's stability (Akinmade, Adedoyin & Bekun 2020).

The Nigerian Security and Exchange Commission regulates the country's market, detects, investigates, and prosecutes in cases of unfair practices and where rules are broken. It is believed that Nigeria's fast-growing financial market saw troubles in 2008 much due to "unethical and harmful practices", leading to companies selling off their assets, increased unemployment, and tax revenues being lost. Manipulation impacted the market by widening the bid-ask spread, i.e., the difference between the highest bid price of the buyers in the order book, and the lowest asking price of the sellers. This made

traders trade at price levels that may have not reflected supply and demand, and there was an increased market risk and volatility. As a result of the increased volatility, when the price varied more in a short time, it scared away traders and negatively impacted the volume of stocks being traded, which reflects a decrease in trading. Nigeria's banking stocks were main targets of manipulation and following the manipulation period market values collapsed (Akinmade, Adedoyin & Bekun 2020). Which, in sum, gives an example of how harmful manipulation can be for a market. Because when market values collapses, when the prices decrease greatly, it means saving and investment values are lost for those who have invested and saved money in that market.

The authors find that manipulation tends to thrive in a low liquidity market, where stocks are not traded frequently. However, liquidity often rises in the time when manipulation occurs, to then fall after the time of manipulation. In the authors' opinion, "Every form of abuse and sharp practices that amount to manipulation should be eradicated[, and the] Security and Exchange Commission should design a responsive legal framework to ensure early detection and prosecution of manipulation" (Akinmade, Adedoyin & Bekun 2020).

Connecting this to the four types of manipulation, we can therefore suspect that *much trade-based manipulation may be occurring in this market*, since low-liquidity stocks have been seen to be favored by trade-based manipulators, where large amount of money is needed to change prices, and inside information may not be required for manipulation. Which implies that both insiders and outsiders can actively manipulate prices in Nigeria.

Ergün et al. (2021) review cases of trade-based manipulation in Turkey's emerging market, where the manipulators' intentions are to change price and value of market instruments, and also influence investment decisions. Manipulators "mislead the liquidity, price, and volatility […] which can reduce market efficiency". Also in Turkey, manipulation leads to higher stock liquidity and higher daily returns during manipulation phases, followed by lower returns after manipulation has been done. Manipulators "prefer underperforming stocks", and their actions result in higher prices, followed by lower prices. The authors show that "manipulators pick stocks of low volatility, and after the manipulation period, manipulated stocks exhibit volatility." It is believed "that the manipulation activity identified in [their] study is likely to be prevalent among other emerging markets" (Ergün et al. 2021).

Which gives a hint as well of how *trade-based may intertwine with action-based*, since there is a will from those who manipulate to change market prices and influence other actors' decisions. We may argue that if actors see a stock doing well, it is not impossible that many are also led to believe that the

firm is doing well at that time. They may believe the firm's value has changed, and reason therefore that the stock price should change to reflect a higher value.

Staying on the Turkish market, *wash trading* is another technique, observed to be applied by actors in the Istanbul Stock Exchange (Imisiker & Tas 2018). During a wash trade, a manipulator buys and sells the same security, with the result that there is no change in ownership, and others in the market can be led to believe that the stock is "more actively traded than it really is" (Gerace et al. 2014). Supervisors in the market has put a lot of effort into detecting these manipulators, and Imisiker and Tas (2018) find these efforts being possibly more important to put in place and maintain in developing economies. Wash trading, an illegal practice, may be done as part of pump-and-dump schemes, with small transactions followed in short intervals. The main aim is to catch normal investors' attention via abnormal trading volumes, where the number of stocks traded differ a lot from the number of stocks normally traded. The manipulator acts as a form of "marketer", when making buy and sell trades as a way of marketing the stock that he or she owns. There are three phases in this scheme:

1) The manipulator accumulates the stock and drives up the price.
2) The wash trade occurs, where the manipulator buys and sells additional stocks to make it appear as if the market is highly liquid.
3) The manipulator sells the initial stock position to the less informed trader (Imisiker & Tas 2018).

The authors mean that if only a wash trade would occur (phase 2), without the other phases happening, the manipulating trader would not have a positive outcome from the trade, due to *transaction costs*. In the stock market, the transaction costs would be the fees paid to the broker when buying or selling a stock. When a wash trade occurs there is *only an appearance of change of ownership taking place*, when in fact the trader trades with himself. The wash trader may use different bank accounts to make the scheme possible (Imisiker & Tas 2018). And if we compare wash trades to the four types of stock market manipulations seen above, *it may fit as trade-based manipulation*, affecting stock prices and quantities. And *may also be a form of action-based manipulation*, if there are aims to change the perception other actors have of the firm value, when giving the appearance of a stock being popular.

The sources in this section point us toward similar conclusions. Trade-based manipulation is likely to be occurring at emerging markets, which may cause prices to rise and then decrease, which can hurt other actors in the market when those buy at a higher price, the price where the manipulator may sell. Furthermore, the bid-ask spread, volatility, and volumes are affected, and may lead to entire market values decreasing, which can harm many market actors. Low liquidity stocks seem to be more in focus

by manipulators in the developing markets. And, as mentioned, there may be occurrences of action-based manipulation as well. The sources further come back to the same point, that emerging markets face a higher risk from market manipulations. So research on market manipulation seems indeed needed in developing countries (Akram, RamaKrishnan & Naveed 2021). And even though it has not been much light shed in this section on information-based manipulation, it may not be excluded that emerging markets, along with any of the world's financial markets, are affected also by this type of manipulation.

4. Information-based Manipulations

Not all manipulations take place at the financial market. Many things related to financial investment and trading happen elsewhere. This chapter will be about the information-based manipulations, the third type mentioned by Gerace et al. (2014), Chan and Ka Chun Ma (2014), and Putnins (2012), where rumors and false information are used. Continuing the exploration of literature on market abuse, we will now look at other actions which potentially can affect market prices and quantities.

Audit Risk

A common form of fraud takes place within the companies. Bernardino, Ospina, Souza, Rêgo & Pereira (2021) find share prices being manipulated via audit processes related to the Brazilian stock market and find that even senior auditors, whose job is to ensure that financial records are accurate, make mistakes when auditing company data. Which implies value for auditors to use detection software, which can assist in spotting fraud in data by rapidly filtering information and compare the information to numerical patterns. *Audit risk* revolves around "a measure of failure when auditing data". Considering this risk is the same as looking at how much or large errors may be made by auditors when they strive to give correct opinions on the financial statements, "to reflect the real financial situation of a company". There have been cases of companies overvaluing their assets, and not registering losses, and what auditors can do, if they are successful in giving a real reflection of a company's financial situation, is to reveal that a company is not doing as well as many may believe (Bernardino et al. 2021).

An example briefly mentioned in the introduction can be recalled here: By actively controlling what was written into company accounts, and keeping secrets, people were made to believe for a long time that Ivar Kreuger's stocks were based on companies with solid finances (Flesher & Flesher 1986). This example, too, falls under audit risk, with manipulation not done via trading. Kreuger's fraud seem relevantly placed within the information-based manipulation type, where *false information was shared*, while *facts were hidden*. Since this may have been one of the biggest swindles of money ever (Flesher & Flesher 1986) it brings understanding to why much weight is placed on the issue of insider trading, even today, by authorities who aim to prevent market abuse and crime at the financial market (Finansinspektionen 2021; Ekobrottsmyndigheten 2021).

A third, somewhat different, example of insiders committing fraud can be found in Canada. Brown and Burdekin (2000) write about people with inside information in the junior mining sector, the part of the mining industry which strives to find new mineral deposits, using a method called "salting". This method entails physically adding gold to rock samples, and has been detected upon independent analysts seeking independent confirmation of samples. What followed in one of these cases was that

one company's fraudulent activities had a negative impact on the entire sector, in terms of stock value, and investor confidence (Brown & Burdekin 2000).

These three cases all lead to manipulation of stock value, when investors are led to believe that companies are doing better than they really are. No trading is done to change prices or valuation of the company, the fraud takes place from within the companies, where information makes the market actors react, to later buy and increase the stock price. One risk for investors is when a company report states more sales than is the fact. The auditing processes can be corrupted, with wrong figures put there intentionally. It will require an auditor, and possibly detection software, to spot the error or manipulation. Otherwise, it may lead to people buying more of the stock than they would have, than if the reports would have shown other figures. What is mentioned here is a type of manipulation that can happen before the market even opens, which will have an effect on the market later, making stocks become positively traded. Later, investors, without even knowing it, will have inflated the price, because they have been lured into a scheme. Insiders may have bought the stock beforehand, to then see the stock reach a desirable price. They are using *an information-based type of manipulation, which can be a pump-and-dump scheme*, if investors are steered into pumping up the stock that the manipulator holds, enabling the manipulator to later dump the stock at a higher price.

In the example with the Kreuger stocks, similar cases of this kind of fraud may have another objective than to make pump-and-dump profits at the stock market. Kreuger was a very successful businessman who was growing his business, with many companies under his control. The interest in such cases may be more directed at growing the business, to keep expanding, while an insider in such a position may also seek profits at the stock market at the same time. Without making conclusions with certainty on any particular real-life case, we can use the story of Kreuger the businessman as a model of how an insider may want to manipulate accounts, leading to incorrect audits, which makes stock value rise, and enable the business empire to keep growing. And that person *may never sell his stocks*, which would make those *actions different than from that of a pump-and-dump scheme*.

The example with the rock samples has the same effect as cases with false company accounts: People hear good news, in this case about more gold being found, and the rock samples confirm the news. It leads to investors feeling positive and the stock price inflates as trading of the stock intensifies. And the insiders may have done the same here, already have their stock positions in place, they wait as the price rises, and sell whenever the stock price is on a desirable level. Or they may simply hold onto stocks, or not even own any stocks, as the scheme was another: To use the market hype to help expand a business.

Perhaps the greatest danger is if insiders are never caught. If insiders continuously manipulate the price fundamentally, company report can be kept erroneous, and rock samples remain salted. While if prices keep rising and no investor loses money, investors may wonder: *Is there a problem?* Well, the problem is that insiders do get caught, and when they do, not only insiders suffer. As mentioned, one company's manipulation can affect an entire sector. And if an entire sector is affected, all the investors in that sector may feel it, when prices are likely to drop. It means wealth lost, and harmed market investors.

Manipulations by Intermediaries

Investment and trading require a middle-hand between buyers and sellers, enabling the exchange of asset ownership. The stock market has informed *intermediaries,* brokers, who enable investors and traders to buy and sell financial products. Intermediaries can choose to manipulate stock prices, unless their reputation is under threat. If choosing to manipulate, the intermediaries act in the presence of information asymmetry, which means that people have different amounts of information on companies and financial instruments, such as stocks (Siddiqi 2017).

To look at this form of information-based manipulation, we need to first look at the market again. An actor in the market may have *superior information*, meaning that the actor has more information than another actor. It follows that actors may also have *inferior information*, i.e., less information than other actors. According to Siddiqi (2017), we can look at investors and intermediaries as players in a game, where manipulating intermediaries may benefit from the trades. Brokers have an advantage in this game by having access to clients' data, data on who is trading, with information on many traders. To understand the game, it can be good to get an overview on who invests at the financial markets and categorize the different types of investors. It can be added here that this is a separate categorization than from insiders and outsiders, where the focus is on the amount of information market actors have. This categorization looks at *actors' investment horizons*, and *at what time they enter the market*:

1) *Fundamentalists*, who act in the market with a long investment horizon, with intentions to keep their investments for a long time.
2) *Speculators*, who also act in the market with a short investment horizon, with intentions to keep investments for a short time.
3) *Trend-followers*, the "behavioral investors", who interpret price trends, and therefore is the type who enter the markets after the other actors. It is popular today to be a trend-follower in the stock market (Siddiqi 2017).

The game consists of four players: the three mentioned investor types, and one intermediary. The first to invest in the market will be investors 1 and 2, the fundamentalists and the speculators. After that,

investor 3, who follows trends and have either the same or less information than the other investors, invests. Meanwhile, the broker observes all investors. After the three investors have made their investments, the broker will send signals to the three via the release of a research report, containing a forecast that the market will see price movements either going up, down, or remain at the present level. Which can be a way of manipulating the demand on financial instruments, because the reports can make people more, or less, inclined to buy, sell, or hold their positions (Siddiqi 2017).

The game model becomes more realistic if we see that there are several brokers competing, who all want customers to come to their platform to invest and trade stocks. In a modified version of the game, broker competition may make manipulation less likely, because the brokers' preferences are always to preserve their credibility towards people using their platform. However, *intermediaries' manipulations have been seen to be especially common in emerging markets*, with cases of brokers secretively working together, and *collaborating with companies to pump up prices*, before dumping their positions (Siddiqi 2017).

Since brokers make money when traders trade, a broker may see incentive to commit fraud by manipulating information in the market, to increase trading, and thereby increasing profits made from the increase of trading on their trading platforms. Manipulating demand, to make people want to trade more, is one way for the profits to increase, if it goes unnoticed by their customers, the market actors. Broker websites contain news, analyses, and forecasts regarding the market, provided for investors and traders. We may wonder if this information provided always can be trusted. According to Siddiqi (2017), the answer seems to lean towards a yes, if brokers compete amongst each other on a "moderate" level, with not too much, or too little, competition, and if they do not have more information than other brokers.

But is superior information absent in the market? It seems that it is not, when insiders act in the market with more information than the rest, on companies relating to financial products being traded. And if we assume that the variety of actors possess a wide spectrum of different knowledge on many instruments and stocks they can choose to trade. Brokers may sit on more knowledge than shared on their sites which, if that is the case, means they have more information than at least some of the actors.

As researchers highlighted earlier, more insight is needed into manipulations at emerging markets and in developing countries. While that does not exclude the possibility of broker manipulation occurring also in the developed part of the world. Wherever a broker may benefit from spreading news, whether false or true, the timing of releasing news could be a well calculated action. Even when taking into consideration that reputation can be threatened by manipulative behavior, the more trades coming

through broker platforms means more fees that traders will pay, which is money ending up with the intermediaries.

At this time, we will not attempt to conclude if intermediaries have incentives enough to manipulate markets also in the developed part of the world. Whether the following quote weighs to the general defense of intermediaries, or not, can be debated. That other researchers have found in their analysis of repeated games "that opportunistic manipulators will refrain from bluffing or cheating because they may lose their reputation and their ability to manipulate prices" (Gerace et al. 2014). Which suggests that *intermediaries, and traders, may bluff or cheat sometimes, and avoid it at other times,* as they are afraid to lose the ability completely to manipulate prices.

Manipulations via Email

Senders of commercial messages sent to many recipients via email, so-called *spam*, may contain information related to the market. If market-related, the *spam messages often favor stocks that have been heard of in news, and stocks with previously high returns*. Nelson, Price and Rountree (2013) describe what can happen when markets react to spam, when people can be deceived by these emails, even when disclaimer messages at the bottom of the emails are included. Stock volumes and returns may increase as a result of investors' limitations in attention and information processing, which can be connected to Tversky and Kahneman's (1974) *anchoring*: A personal *bias,* which is an emotional inclination an investor may have, leading to subconscious use of information which may not be relevant, nor be of best of use, for the situation. Optimistic statements in emails seen in combination with credible corporate information can lead to investors having an optimistic bias. It becomes a form of *starting point for investment decisions*. Which connects to traders increasing trading in certain stocks where they drive the stocks toward predicted target prices (Nelson, Price & Rountree 2013).

People use mental operations, thought processes, when making decisions under uncertain conditions; and a person's ability to imagine things is important when evaluating probabilities in real-life situations (Tversky & Kahneman 1974). One aspect of mental operations, which Nelson, Price and Rountree (2013) connect to traders being fooled by emails, relates to anchoring when people estimate an answer, by using an initial value (Tversky & Kahneman 1974). But adjustments that people then make to arrive at the answer are not sufficient, and "different starting points yield different estimates". We can therefore choose to see *spam email providing a starting point* which, in case the manipulator is successful in the attempt to change the perception of value of a certain stock or company, sneaks a bias into the traders' minds.

Investors may react to signals within the financial market. For example, the price movement can function as a "signal" upon which the investor chooses to act. Or the investor may react to signals outside the market, by news coming from various sources, such as spam in emails. Many disclaimers are often put at the bottom of advertisement emails in a smaller font than the rest of the text. The receiver may see a disclaimer, but not read it carefully nor think about what it implies.

People may actively stand skeptical to messages received, while others may not question the messages. Especially when spam is not perceived as spam. If a message looks like it contains correct information, the stock mentioned in the email can be seen as an investment opportunity not to be missed. If the message, on the other hand, is one of fear, claiming that the receiver is at risk with his or her investment, the receiver may sell now because later seems like it will be too late. Not all spam may be optimistic. There may be plenty of spam filled with pessimistic forecasts of the market, particular stocks, and other financial products. They may also be neutral, advising the receiver to hold on to the investment, to not sell or buy more.

If the receivers of spam are convinced to buy, and the sender owns the stock, it can mean a profit for the sender. Or senders of spam may have an interest in short selling the relevant financial instrument when spam receivers are convinced to sell. These are examples of how senders of spam can make money in the market. Ultimately, spam relating to financial investments may serve one main purpose: for the sender's portfolio to gain value.

As manipulators operating via sending out spam prefer stocks heard of in news, with high returns, it seems likely that those stocks have also been frequently traded, i.e., have high liquidity. Which, in turn, should mean that not only people engaging in information-based manipulation will target these stocks. Order-based manipulators also prefer frequently traded stocks, which could mean that spam receivers may run the risk of first being manipulated by information-based manipulators via email. And as they arrive at the market, they may be manipulated once again, by order-based manipulators who place many or large orders which are never executed.

Manipulations via Social Media

With new technologies, market manipulation has come to be increasingly associated with the internet and social media (Akram, RamaKrishnan & Naveed 2021). Every day, millions of people use this media as an important source of information, on which corporations, interest groups, and even governments have motivations to influence. Reported abuse on social media have included stock market manipulation (Varol, Ferrara, Menczer & Flammini 2017).

It is relevant to look at information trustworthiness and the transparency, or concealment, of entities standing behind messages, which may be part of a series of messages, with potential aim to achieve certain goals. Messages that can be part of *online campaigns*. Campaigns may be harmless, while some may have hidden agendas, with political messages, propaganda, and financial manipulations seeping through to online users. For example, advertisements on social media can be mistaken to be part of growing and popular trends, when they are in fact promoted messages (Varol et al. 2017).

While trends that are not promoted can arise naturally, when there is an interest that gains momentum as users become increasingly engaged in *online conversations*. On the online platform Reddit, one of its communities, r/wallstreetbets (WSB), consisting of many outsiders, made a large collective investment in the GameStop stock, following conversations online. Anand and Pathak (2021) describe how this large group of mostly young retail investors, with a preference for risk and day-trading, made initial returns of 900% in a stock they saw as underpriced. Eventually, these *market actors traded themselves into losses for many within the group*, as the stock then declined by 90%. The *large institutional investors made great losses* as well, amongst those the hedge fund Melvin Capital reporting losses of 53%. Those large investors who hoped for a decline in the GameStop price, who had short-sold the stock, were forced into closing their positions and take the loss (Anand & Pathak 2021). Which is what can happen to market short sellers during rapid price increases. The results for the institutional investors in this case is what is called a *short squeeze*, when short positions end up as losses.

Any group, like WSB, may have enough means to change the course of a stock price movement. When many users online act with many and small trades within a short period of time, the market price can be affected greatly. If many small investors decide to buy, it may cause a short-term, artificial boom, eventually leading to the price declining, with the same or higher intensity as it did during the price rise, when many within the group decide to later sell their positions. This may cause increased stock volumes, volatility, and liquidity at the market. And, as seen above, lead to financial loss and harm.

It may be hard to conclude whether much of the harm coming from the trading in GameStop would be related to manipulation, or not. It is possible that most traders within WSB, during the short squeeze, simply wanted to make money on trading. Some may have had wishes to cause losses for institutional investors (Mendoza-Denton 2021), while Anand and Pathak (2021) mean that WSB traders spotted an opportunity and hoped to make monetary gains, when perceiving the stock as undervalued.

Anand and Pathak (2021) describe that also experienced traders are active at WSB. Maybe a few of them have more, even inside, information that the rest within the group do not have. We can consider that insiders may be active within online forums. Some could be manipulating groups, leading to

market prices being affected. We can speculate and imagine that these actors may apply a combination of techniques connecting to all four manipulation types. Insiders could execute large buy orders in a stock, which for a start may be not frequently traded, pushing a stock price up, equaling trade-based manipulation. Then, the insiders could make many small trades, engaging other actors to trade more, equaling an action-based approach. Insiders could, as seen, manipulate via online forums, which is an information-based technique. And if a stock becomes highly liquid, many orders may be more easily placed in the market order book and swiftly taken away by those who manipulate in an order-based fashion. We can consider, but not know the likelihood, the potential risk that various unallowed manipulation types may be used prior to and during the trading of a stock that grows in popularity.

Outsiders, insiders, and various interest groups can all cause instances of price changes in the market. The price change can follow from a trend growing naturally out of an ongoing online conversation, which may have been the case for the WSB group who traded the GameStop stock. Or there may be attempts by those who use campaigns and spread promoted messages, to influence the conversation. Aims via channels on social media *to influence a conversation, for the purpose to change a stock's price, is to be considered information-based manipulation*.

Manipulations by Automated Software

As social media is increasingly important as an alternative information source, new risks can be seen appearing on technological platforms. Fan, Talavera and Tran (2020) look at a particular issue regarding messages on Twitter, where the sender of tweets might not necessarily be human. *Bots* are computer algorithms, programs which can be designed to add a lot of information to the constant flow of information to the public. They are automated, and have taken part of communication via Twitter.

Recently, bots on social media have become dangerous as they may be used to carry false information and the means of market manipulation. Social media information can be swift, and the volumes of bots' *automated tweets* via Twitter may cause changes in stock volumes, returns and volatility (Fan, Talavera & Tran 2020). Tweets can be linked to major stock indices, lists of companies that are meant to represent an entirety or segments of a market, such as the Dow Jones Industrial Average. Reactions to stock prices at the S&P 500 index have been seen to connect to number of tweets, there is a relationship between the mood and emotions on Twitter and the way stocks are traded; messages sent through Twitter, and other online channels, may even predict stock returns (Fan, Talavera & Tran 2020).

Bots can be understood as being an actor affecting the market. However, we will assume here that whenever automated software is used, there will first have been a person there to decide on when to make use of and activate that software. The software's actions may therefore be viewed as an extension

of a human being's intention. From this study's view on outsiders and insiders, both types of market actors may be the designer of bots. Both groups of investors may have the required technological knowledge on how to program software, to make those software act human-like online. And those bots may cause an effect in social media information and conversations, which subsequently can make people act upon those messages, such as tweets, when they buy or sell assets at the financial markets.

The harm may follow then from people not being given sound advice by bots. If they are, instead, led to believe they are making investments in companies which should have good solid finances, and that that would not be true. If we, for example, would imagine a market actor programming a bot to spread false rumors online, the result could be that many people believe that they should buy a certain stock, when the actor knows that information will soon be released, information that will send the stock price collapsing downwards. In this case, this is an insider acting, who could benefit first from the artificial price increase when people start buying. The insider may sell just before the information is released, and then take a short position to profit when the price goes down. While all the other actors, the outsiders, could become seriously financially injured when losing wealth. How to prevent this from happening, both with regards to bots being used, and with regards to other risks of harm coming from market abuse and manipulation, will be discussed in the next chapter.

5. Tools for Prevention of Harm

Tools of harm prevention are practical concepts that may prove useful when protecting market actors from financial harm. Potentially serving to decrease the likelihood for actors to become victims of market abuse, to avoid loss of wealth and value on portfolios containing their investments. The following text will present areas of importance, on how detection of fraud and manipulation can be done: How detection may protect market actors; how price limits may benefit markets; how companies may stay away from audit risk, and how to apply good corporate governance; why cyber security should not be neglected in days of modern technology; we will hear a call for better transparency regarding bots; and we will look at regulations, and some of its development.

In short, this chapter strives to answer the question on how to prevent harm being done to market actors, when presenting not a complete list of tools, but simply a list of some central ones that those who set market rules, investigate fraud, or act in the market, are using, or could consider using differently, to create a safer market.

Detection Tools

We will first look at how to detect market abuse, in moments when we discover and may find out the truth about market events. There are different ways of detection, which can reveal manipulation, such as action-based manipulation being used in trading to confuse other traders, or lead to us seeing that investors are given the wrong message when information-based manipulation is applied. What it can lead to, if used wisely, is supervisors of the market successfully protecting market actors. Also, market actors may protect themselves when being alert and gaining a better understanding of how stocks and other financial assets may become manipulated. Below are examples of detection, some of which was reviewed in earlier chapters, along with a few suggestions on how to act in the market to decrease risk.

Observant actors may avoid some risk of taking positions during times of manipulation. Possibly, they can avoid taking positions in manipulated assets if seeing that prices have reached artificial levels, i.e., abnormally high, or low. An average investor can *avoid buying at price peaks, in a stock which has otherwise been not highly traded,* and *where no optimistic news seems to justify the increase*. These observations may give good reason to suspect a pump-and-dump scheme with the potential of inflating the market price. To avoid an investment in such a case could act as an example of *how to avoid trade-based manipulation*. Because that manipulation type often targets low-liquidity stocks (Aggarwal & Wu 2006, in Chan & Ka Chun Ma 2014).

If detection is a difficult or impossible task, market actors may want to consider ways of staying away from investing in some of the financial assets with potential manipulations. Detecting and inferring *institutional investor manipulation* is not easy. For example, it can be hard to answer how many hedge funds manipulate the markets, when they can choose to act that way sporadically (Ben-David et al. 2013). While it is also possible that these large investors hold portfolios that partly overlap, and unintentionally happen to manipulate stock prices. To decrease risk here, *reports regarding returns and public data on stockholders can be used*, to see changes in returns, and see if large funds hold certain stocks. If large funds hold the stocks, and changes in returns are increased toward the end of months (Ben-David et al. 2013), it may not be concluded for certain that manipulation have taken place, but may function as a warning flag for investors who want to stay away from financial instruments where there may be an increased risk of manipulation.

It has been detected that hedge and mutual funds have tendencies to manipulate towards the end of months, quarters, and years (Ben-David et al. 2013). So, one suggestion for market actors to further decrease their risk, in an imagined *manipulation-free portfolio* (wherever such a portfolio is possible), is to *not buy during common manipulation phases*. That actors should only put money into funds, or invest in assets the funds invest in, at the middle of time periods. Which could equal an investment strategy to *only invest in the middle of the months*. That way, actors could avoid some effects of potential manipulation, if avoiding short-term high prices at the end of months, quarters, and years, and avoid price decreases often occurring in the days that follow, at the beginning of every month. Because of institutional investors seemingly preferring to manipulate stocks with less liquidity (Ben-David et al. 2013), the way of buying at the middle of the months may, to some degree, enable actors to avoid times when large investors seem more likely to use trade-based manipulation.

To avoid trade-based manipulations seems particularly useful in the emerging markets, where it has been shown to happen frequently (Akinmade, Adedoyin & Bekun 2020; Ergün et al. 2021). It may also function to detect action-based manipulation. In developing countries, *wash trades*, where a person may act as both buyer and seller of a security, can be related to trade-based manipulations, which can be detected by *looking at account numbers*. If buyers and sellers of a stock have identical account numbers, wash trading may be happening (Imisiker & Tas 2018). Which would make this tool well suited for professionals who investigate the market, professionals working in banking, finance, broker firms, with access to compare what account numbers were used for trading.

Other professionals may detect fraud by *investigating company records*. *Auditors* may benefit from being assisted by *detection software* (Bernardino et al. 2021). In the case of *audit risk*, auditors may play a key role in preventing harm from falling onto market actors. Market actors who are keen on

checking company reports may well also spot inconsistencies or changes when comparing reports released in different time periods. Possibly to see if there are numbers, such as sales or debt figures, reported from the companies that could be too good to be true. In general though, not all actors may have, or want to, put down the time needed to engage in what can be a demanding and skill-requiring harm preventing measure. So, the auditors and their detection software seem vital for safeguarding the market from this kind of information-based manipulation.

What follows for the rest of this chapter is a sample of other relevant tools. We will continue, more in depth, exploring the toolbox of financial harm prevention, with further ways to detect market abuse.

Price Limits

Stock markets can have *daily price limits*. These limits decide how much a stock price can move up or down during a trading day, and it is a means to prevent market manipulation (Kim & Park 2010). Price limits can mean that the market allows, as in the Philippines, that a stock cannot move up by more than 50%, or down by 40%, during a trading day. If reaching this level of percentage price change, the stock price is automatically frozen by the system. Without limits, shareholders with influence could buy many shares to push up the price and spread rumors to affect the price, so it would reach even above or below these percentage levels (Kim & Park 2010).

There are other ways to control market fraud and manipulation, but Kim and Park (2010) argue that using limits is "the most inexpensive" way to do it. It seems that wherever manipulators see a low cost to their manipulations the markets could benefit by imposing price limits. In countries where corruption is high, and manipulators are not surveilled, countries seem more likely to use a limit regulation. "It is easier to manipulate markets in corrupt countries, and manipulation is more tempting when there is little fear of being caught and punished" (Kim & Park 2010). Price limits may be a good choice for countries suffering from corruption and manipulators tempted to abuse the system. And the limits may not just help detect potential manipulation of prices, but also *limit the manipulators' profits*, when those unallowed profits may not be prevented entirely.

Wu, Huang and Ni (2020) find that a too narrow price limit can result in volumes decreasing, while implementing a limit can prevent overreaction in share price changes. On one hand, price limits interrupt market movements, movements which would have allowed for prices to be established and changed. With other words, the price mechanism is interrupted. Which may not just hinder manipulators, but also hold back a market that could be growing naturally and be booming. The market may not be allowed to grow as fast as it would have if price limits would not slow the pace of growth.

On the other hand, limits may function as moderators of volatility, keeping prices on even, controlled, levels. Limits can cost less than if surveyors would monitor prices, can stabilize the system, and enhance market efficiency (Wu, Huang & Ni 2020). While institutional investors, directors, and insiders can manipulate by using the price limit system. It is often that price limits are hit in companies with high institutional shareholding and inferior corporate governance (Wu, Huang & Ni 2020). We can therefore wonder if price limits are always needed interruptions of the price mechanism, for preventing manipulation, or if they risk opening doors for other kinds of manipulation.

Price limits may affect the number of shares traded, meaning volumes may decrease, and liquidity could be affected (Wu, Huang & Ni 2020). The downside here could be this: *If liquidity decreases, it risk giving more room for trade-based manipulators to act*. Wu, Huang and Ni (2020) mean that too little research has been done in the area on institutional investors, which may be a fair point since institutional investors have been seen to favor low-liquidity stocks. If daily limits would decrease liquidity, this could lead to institutional investors being given more room to manipulate.

Then again, volatility, the speed of trading telling us how much the price swings up and down during a certain amount of time, is affected by limits. Which might be a good thing, if limits slow down actors who act and react in the market by buying and selling a lot in a short time. Limits may cool down an overheated market, where prices have been swinging greatly up and down previously to the limit being reached. It might give the market an opportunity for a needed break in volatile securities, to maintain daily stability.

Limits can be seen as an automatic tool, an *indicator*, which may not detect fraud, but indicate that something unusual is happening with the price movement. Which upon further investigation could reveal actions of misconduct. They may also show signs of a market being simply enthusiastic or fearful. If, say, a company releases news about a product, which is interpreted positively or negatively by actors, which may be the reason to why the price rises or drops more than usual.

Further to the above observations, Wu, Huang and Ni (2020) conclude that institutional investors in Taiwan find it easier than in other countries to manipulate stocks via the price limit system. The reason being that the limit level in that market is rather low, a stock may only rise or drop by 7% before trading in a security is automatically stopped. Still, this limit is more allowing than what was previously set. The authorities in Taiwan have raised the limit from only 5%. Institutional investors have used the Taiwanese system to strengthen stocks they own, weaken the performance of their competitors' stocks, and benefit from a price decline in stocks when the institutional investor holds short positions in those stocks. And when institutional investors from abroad "increase their

shareholding in a particular sector, the dealers, margin traders, and mutual funds will also increase their shareholding" (Wu, Huang & Ni 2020).

One big take-away from this is for regulators in markets to take note, to consider *not setting the limit too narrowly*. As seen in the Philippines, the limit can be set much higher. Setting daily price limits at a level, preferably *above 5%*, could potentially have the effect of preventing institutional investors from using the price limit system, at least not as often, for manipulative purposes. And when the price limit is hit, it could be like the system ringing the alarm for actors, alerting them that something may not be right. To give an indication of increased risk of potential manipulation, and, as will be seen in the next section, increased risk of potential flaws in the way companies are run.

Corporate Governance

Corporate governance can be seen as consisting of all what decides how corporations are controlled. The concept considers elements such as laws, corporations' shareholders, and all its directors, which decide which way the company can and will go, how it is run and led.

Better corporate governance can lead to a company performing better. *Having most of the directors being independent*, who are "un-affiliated with or are outside the firm", *is a sign of good governance* (Wang 2014). The distinction can be made between inside CEOs and outside CEOs, where the former has worked within the firm prior to becoming a CEO, while the latter has not worked at the firm before becoming the CEO of the firm. Other directors in the board may have also worked, or not worked, at the firm before becoming part of the board, they are either *inside or outside directors*. And "as the number of independent outside directors increases in the board and in its audit and compensation committees, the likelihood that the firm will commit fraud decreases" (Wang 2014).

Wang (2014) examines how effective it is to monitor and watch over CEOs and the work they do via an insider-dominated board, versus a board dominated by independent directors. Evidence suggests that an outsider-dominated board provides a more effective monitoring, while after introducing new laws, such as the Sarbanes-Oxley Act of 2002, laying out laws on how audits reports should be conducted, an insider-dominated board can be just as effective. That is, "if the CEO was initially hired from outside of the firm" (Wang 2014). *Companies with not many independent board members could therefore be seen as another warning sign* to look out for, to be checked by investigators of financial fraud seeking to detect companies at risk of acting with misconduct.

The following quote strongly relates to the previous section, because of a link between price limits and corporate governance:

> The price limit ratio […] often occurs in losing firms that pay rewards to their directors. The stock price limits also take place in firms with lower sales growth, lower credit ratings, and even in firms with no independent directors. These findings imply that price limits and price down-limits often happen in firms with inferior corporate governance.
>
> (Wu, Huang & Ni 2020)

It might be that a stock reaching a price limit potentially increases the likelihood of the company of that stock not being run in a preferable manner, seen from the view of investors. Inferior corporate governance may signal that a company lacks good leadership, or not living up to expectations. Meaning the company may not be run at standards that, for example, shareholders may expect and even require to justify an investment in that company. What the regulator or actor could do: *If a price limit is hit, control for potential low sales growth, low credit rating, and check if the firm has no independent directors*. If so, it may not conclude inferior corporate governance, but may give some cause to question the quality of the job done by the board of the company.

The tool of corporate governance may reveal an increased risk of directors engaging in market abuse. As many of the tools, it may work best in combination with other tools. Here, price limits may become step one, the first warning sign, leading to step two, where the corporate governance risk can be investigated. The risk of fraud within a firm is seen to increase with an inside director-dominated board, and an inside CEO, which means the risk of fraud increases further when there is a board consisting of people who all have worked at the company before joining the board. The board would therefore consist of people who are likely to have *more information* about the company, as they have worked here for some time. If allowing ourselves to speculate, we could consider a possibility of individuals in such a board acting as insiders, who could choose to use various manipulation techniques, or simply trade upon information they have. If so, they could be more likely to use action-based or information-based manipulation techniques. Or choose to trade upon information they have and not manipulate, but still profit when others in the market would not profit, which would result in market abuse.

Cyber Security

In today's world, the ones who trade and manipulate markets are likely to use devices. *Cyber security* is about computers, or information technology, being kept safe, which can stop crimes from being committed via various modern devices. The manipulations seen in previous chapters are now mostly done online. Therefore, they can be seen as forms of *cybercrime*, defined as "as any crime that is facilitated or committed using a computer, network, or hardware device", and this type of crime is on

the rise (Urciuoli, Männistö, Hintsa & Khan 2013). Estimations are that the entire world's marijuana, cocaine, and heroin trade cannot compete with cybercrime, in terms of costs and losses. The drug trade saw a combined "value" of $288 billion, according to a report from 2011. Meanwhile, cybercrime affected 431 million people, with an annual global cost of $388 billion (Urciuoli et al. 2013).

Cybercrime can be divided into two types: Type I involves hacking or viruses, stolen information, and bank fraud. Type II covers areas such as harassment online, corporate espionage, and stock market manipulation. Among the major crimes committed against stakeholders in the supply chain, *insider fraud covered 10% of all crimes*, making it one of the most common (Urciuoli et al. 2013).

Type II is the one most applicable for the purpose of this study. The mention above of insider fraud gives a valid reason to suspect that insider crime causes much harm to market actors. Potentially, insider crime brings a high cost, even when compared with all other fraud in the markets. Outsiders buying and selling stocks may cause harm as well, but it is questionable whether that cost comes even close to the degree of harm caused by insiders. Considering modern information technology, and recollections of times before computer networks, when those with more information seemed more able to control the markets (Putnins 2012), we could state a hypothesis: That the aggregated market abuse made by insiders is more costly to the market than outsiders' potential misconduct and illegal actions.

It can be added that insiders may know much about the systems within the companies they work. Insiders knowing how cyber security at companies function, and how systems can be used. How potentially rules can be broken, by using information technologies, without anyone seeing it. The more pressing concern here is how insiders may use various devices to trade assets and communicate with other actors in the market. That they sit on more information about companies and stocks that all actors may trade. By using devices and having inside information they have a position of knowing more than the others and may be more able to control the markets. With modern devices, their position of control may have changed, as devices are increasingly faster, internet connections bring the user what is requested at the speed of light; the speed of access to markets and actors have increased.

Against type I, it is possible that stolen information and hacking may be best prevented by software developers and systems engineers who can consistently prevent theft and break-ins into modern devices with new software, updates, and programming. While for type II, and possible to some extent for type I, it may also be much up to the market actors, who are also device users, to protect themselves. The entire chapter on information-based manipulations apply here, as the ones who manipulate can send false information via various channels by using devices: Company reports via internet, intermediaries bringing misleading market forecasts via websites and trading platforms, spam emails, and social media

where both people and automated bots can post messages that aim to affect the markets. Ways to protect against these combined threats may be for users to stay vigilant and alert, and to pick up only on financial advice that seems right after taking time to consider them. *Security savvy actors may bring an increased defense against cybercrime*.

What can be done from the side of providers of social media is to enhance cyber security: *Better bot transparency* could be called for. Which means to allow people to clearly tell the difference between messages sent by humans from the messages sent by bots. As mentioned, manipulations can be made by bots. And maybe this kind of transparency could strengthen device users' and market actors' rights when enhancing available technical solutions, to allow for easier understanding on when bots are posting messages online. Fan, Talavera and Tran (2020) mean that "transparency of tweets posted by bots on social media should be enhanced. Moreover, policymakers and regulators should establish a code of practice to monitor social media providers to prevent the spread of fake information." It is worth noting that bots can imitate humans, and humans are more likely to retweet a bot's message, than the other way around (Fan, Talavera & Tran 2020). Which may bring implications, if people at times follow and act upon bots' tweeted messages, with the potential to affect markets.

Possibly it can be evaluated, with awareness from people, and with present technology, if a sender is truly human or not. While with enhanced technology and increasingly human-like software even this task may become increasingly difficult. Which might demand an ever-developing detection system, and constantly growing knowledge base on the issue of information technology and information security, to stay ahead of how bots act as increasingly advanced sources of false information.

Meanwhile, the legal framework and regulators could allow for a rich and reasonable amount of online freedom of communication, with perhaps a reasonable amount of freedom leaning towards a rich amount of freedom of information. When restricting these freedoms may also lead to harm in the markets if actors do not get the opportunities of having access to information which may benefit their decisions with regards to investments and trading.

Regulations

Regulations are rules, laws and framework within which market actors are allowed to act. And regulating a market can increase the amount of *trust* people put in a market. We may go as far to say that market investments will not happen without trust, and that regulations can sustain the trust that make markets function.

Christensen, Maffett and Vollon (2019) find that more asset investments can be made when countries adopt regulation; and that regulation have a stronger effect when trust is low in a country. There is a need for households to believe in fair markets, enabling them to invest their wealth, implying an importance of consumer protection, and punishments for market abusers. Governments can ensure belief in markets being fair, and regulation in one country can matter for equity ownership in other countries (Christensen, Maffett & Vollon 2019).

The United States have been successful in using regulation to deal with market abuse (Gerace et al. 2014). The Securities Exchange Act 1934 came out of the stock market crashing in New York in 1929, an event leading into the Great Depression. Manipulation was not clearly defined by US law, and a reason to not clearly define it in legal terms may have been to make prohibition of the full range of manipulation techniques possible, such as prohibiting pump-and-dump. Recently, new technology and automated trading platforms have led to issues on how to legally battle market fraud. Which seems to imply a *legal balancing act*, meaning that decisions on new laws need to result in laws being specific enough, but not too specific, to avoid the risk of laws holding back "the natural evolution of the market" (Gerace et al. 2014).

The Security and Exchange Commission (SEC) regulates the market, detects, investigates, and prosecutes in cases of unfair practices and where rules are broken (Akinmade, Adedoyin & Bekun 2020). Tanimura and Wehrly (2012) show in their research that *restricting insider trading*, contrary to previous findings, had meaningful effects in the 1960s and 1970s. It led to less shares being sold by insiders prior to dividend omissions, a decline in "abnormal profits", and less sudden changes in stock prices before dividend initiations.

Dividends can be important for investors, as it is the instance when companies pay out money to shareholders, an amount based on every share they own. *Dividend initiations* happen when companies decide, for the first time, that they are going to distribute dividend payments to shareholders. And a *dividend omission* happens if a company decides to no longer pay out dividends. Tanimura and Wehrly (2012) reveal how insiders have incentive to trade before dividend announcements, when shareholders will be informed on how much money is going to be paid out on shares they own. The stock market tends to respond positively to dividend initiations, and negatively to omissions (Tanimura & Wehrly 2012). Insider trading may have been dealt with in many cases relating to dividends, because of necessary regulations in place, when laws equipped the regulatory agencies with tools to bring insiders to court and being able to prosecute them. And what enables regulations to work may be that various detection tools come to use, informing regulators, which then enables them to prosecute.

Cheng (2008) looks at the Chinese Securities Regulatory Commission's (CSRC) actions and find very few court cases against insider trading in China. One major obstacle for the CSRC is that the authority lacks power to punish people from the government and the ruling party. The government is the largest investor, and most cases on insider trading in China involves people from the government and the party. Cheng (2008) recommends to *give more power to the CSRC*, and for it to *improve surveillance capabilities and systems*. A fair and orderly market is important for those who want to invest in China. Transparency and openness of legal and regulatory systems need to be enhanced to ensure an increase in investors' confidence in the long run (Cheng 2008). Which bring implications for Chinese regulators, and possibly also other countries' regulatory agencies, to improve their surveillance capabilities, which is the same as saying to improve detection tools. Perhaps starting by reassessing present laws, which, if improved, may give more power to regulators.

As seen in earlier chapters, much of the ongoing manipulations seem to happen in emerging markets (Siddiqi 2017; Akram, RamaKrishnan & Naveed 2021). It is possible, but not conclusive, that markets in developed countries generally give more power to regulators. At least if we base that assumption on comparing mentioned cases of US and China markets. The US has seen its insiders being hindered in illegal practices. While China insiders, on a government level (Cheng 2008), seem able to act under somewhat different set of conditions, and make well-informed investments, which may hint on a market suffering from information not being so equally divided between actors, where the well-informed insiders profit more than the outsiders. It may make such a market more unfair to many actors when the majority are outsiders. If outsiders know that they are in a disadvantaged position, knowing they have less information than the insiders, they may therefore have less confidence to trade and avoid investing in the financial markets (Bhattacharya & Spiegel 1991). Which could lead to less profits earned and seen as harm done to outsiders when opportunity of investing can be seen as stolen.

If basing a decision on the above, would the foreign market actor be doubtful towards investing in China, and more inclined for a US investment? Other factors than trust of *information fairness* may come into play, and the investor might take a gamble if the outlook of the developing nation, and not the developed, looks like the prospect with higher return. Cheng (2008) considers that *transparency and openness of legal and regulatory systems need to be enhanced to ensure an increase in the long-run confidence of investors*. So perhaps it is only in the short run that the mentioned factor of information fairness may be overlooked, so that the domestic as well as the foreign investor may choose China before the US. But if investors come to believe that China markets are less fair, less transparent, allowing insider trading to take place, and to not be as regulated as the US market, they may reconsider and prefer the latter in the long run.

In the European Union, the Market Abuse Directive (MAD) was a regulatory framework, consisting of articles defining and prohibiting inside information. In 2011, the European Commission proposed a replacer for MAD, in its place would be the regulation for insider dealing and market manipulation, the Market Abuse Regulation (MAR). Kersting (2014) writes that MAR is needed as the old framework has "been outpaced by the growth of new trading platforms." The definition of inside information stays the same since MAD:

> information of a precise nature, which has not been made public, relating, directly or indirectly, to one or more issuers of financial instruments or to one or more financial instruments, and which if it were made public, would be likely to have a significant effect on the prices of those financial instruments or on the price of related derivative financial instruments.
>
> (Kersting 2014)

MAR has a wider scope than MAD, with legal implications reaching outside of the EU. It applies across all EU member states and replaces individual laws within those states (Kersting 2014).

Sweden's financial supervisory authority, Finansinspektionen (2021), writes that MAR contains rules about prohibitions against market abuse, in form of insider trading, market manipulation and unlawful disclosure about insider trading. Because of this prohibition, it is not allowed for people with inside information to make use of it for themselves, or on anyone else's behalf. A person cannot buy or sell financial instruments relating to insider information, and the rules also cover the changing or cancellation of an order (Finansinspektionen 2021).

The legal framework has been in place for some time, and have seen updates, while techniques and software used by actors abusing the market have been updated on their end. The market abusers chase unlawful gains in new ways, which may propel the regulators to sharpen regulations. When considering Finansinspektionen's (2021) view of MAR, mentioning manipulations and fraud, the emphasis seems firmly placed on insider information. From their point of view, insider dealings seem to create a greater area of concern. So one conclusion from reviewing regulations in the EU, and China (Cheng 2008), may well apply globally in other markets, that *regulations need enhancements and regular updates to remain effective against market abuse*.

6. Concluding discussion

This study's analysis and discussion have revolved around market abuse in financial markets. Much attention have been put on market manipulation, where financial assets, such as stocks, risk becoming changed in ways not allowed in markets. Market manipulation is a kind of fraud describing how individuals, groups, and computer software change prices and quantities of financial instruments.

Firstly, this thesis set out to answer the question, *who are the actors in the market*? Dividing the actors into two groups, based on the amount of information they possess. The more informed manipulator can be an insider, someone with access to information from inside of companies. Someone typically more informed than other traders (Aggarwal & Wu 2006). The other group, outsiders, are market actors who do not have inside information, a group seemingly more at risk, due to insiders' advantage of having more information. Conclusions from several sources weigh toward a likelihood of more commonly insiders causing harm on outsiders, than the other way around.

The second question, on *how financial markets are manipulated*, can be seen as happening at two places: either at the markets, or outside. The types of market manipulations are viewed here as four types, three of which are happening in the markets: Trade-based, Action-based, and Order-based manipulation techniques. While Information-based manipulation happens outside of the market (Gerace et al. 2014; Chan & Ka Chun Ma 2014; Putnins 2012).

Trade-based manipulation does not require the market actor to be an insider to manipulate price. With large amounts of money, the price can be changed. Which gives reason to suspect that institutional investors, such as hedge funds and mutual funds, may be more inclined to use this manipulation technique, since they have been seen to prefer low liquidity stocks (Ben-David et al. 2013), which is often the case with trade-based manipulators. Large funds have the amount of money needed to change prices.

This study argues that *action-based manipulation* may be observed in emerging markets. This technique involves an intention from the manipulator to change the market's perception of the firm's value; informed manipulators may intentionally do this by trading to confuse actors, and make actors copy their behavior. One example of this is wash trading taking place in the Istanbul Stock Exchange, where the manipulator buys and sells the same security, with the result that there is no change in ownership. Others in the market are led to believe that the stock is "more actively traded than it really is" (Gerace et al. 2014). Which should lead to at least a part of the market, who are led into buying the stock, also are led into believing the company is doing well and that its value has changed.

The *information-based* technique concerns false information and rumors being used to affect prices of financial assets. Word of mouth, newsletters, and financial newspapers are means that can be used for this technique. Today, spreading rumors and false information are done much via the internet, via reports and news released to the public, via websites, email, and social media platforms. Not only insiders may manipulate by using information, also intermediaries, who supply platforms on which investments and trading are done, can choose to manipulate markets (Siddiqi 2017).

Anand and Pathak (2021) describe experienced traders engaging in conversations on online forums, so it can be suspected that those traders may be insiders using false information to influence online groups, to make actors change market prices. And there is a risk that market actors using social media may receive advertisements with false information through those channels and mistake advertisements to be non-promoted messages in popular trends online (Varol et al. 2017). While automated computer algorithms, bots, can be designed to add false information to social media conversations, which may cause changes to the number of stocks traded, stock returns, and how quickly stocks are traded in a day (Fan, Talavera & Tran 2020).

Order-based manipulators make orders appear at the market, long enough for other actors to see them, which can give an impression of a high stock demand. Stocks from large companies, more frequently traded, are generally preferred by order-based manipulators (Chan & Ka Chun Ma 2014). From sources studied here, there have not been much focus in the literature on this type of manipulation. Which could suggest that it is a phenomenon needing further research; that it has either happened undetected in the markets, or may not be as frequently used as a manipulation tool when compared to the other types.

The third question asked at the beginning of the thesis was with regards to *what kind of harm is done in the markets*. It connects to losing a quantity of a good as being the simplest form of harm (Slavny 2014), where we can look upon harm as coming from a form of “theft”. If actors lose wealth and savings in the market because of manipulation, we can argue that actors are harmed because something was stolen and resulted in a loss. We can then ask, what is stolen and lost from actors? As seen in pump-and-dump schemes, where prices are inflated and then followed by distinct drops in prices (Putnins 2012), outsiders who are led into hypes of buying may *lose money* when prices drop. And actors may not get their money back.

Secondly, entire markets can be negatively affected when traders choose to leave the market in presence of manipulation (Akinmade, Adedoyin & Bekun 2020). Which means those actors leaving the market *lose the opportunity of future profits* if they do not return to make investments.

Thirdly, the economic performance and GDP can be weakened following the time of manipulative trading (Akinmade, Adedoyin & Bekun 2020). Which could mean that *people who are not invested in the market may suffer* if an entire economy, such as in a developing country, is affected. If the GDP drops and has a negative impact on, for example, businesses, and some businesses declare bankruptcy, people will lose jobs. People who are employed and not invested in the market could be harmed.

Manipulation may also negatively impact the market efficiency, meaning the amount of information is less equally divided between market actors (Gerace et al. 2014). So we could argue that *the right for equal access to market investment information is stolen* if insiders use inside information to profit by using information not made available to outsiders at the same time.

Lastly, when investors trust advice it may lead to increased stock returns and volumes (Nelson, Price & Rountree 2013). But, as mentioned, if people see the presence of manipulation, they may leave the market (Akinmade, Adedoyin & Bekun 2020) and not come back. We can argue that people leaving the market *lose trust* due to manipulations.

The last question asked in the introduction deals with *how market abuse can be prevented*. So, to avoid harm falling upon individuals, businesses, institutional investors, and state investors, market abuse, fraud and manipulations should be avoided. There seem to be a need to combine efforts, for both market actors, investigators of fraud, and regulators, to use several harm-preventing tools. This to maintain people's market trust, to ensure market stability and efficiency. These are a few examples of tools that can be applied:

- Detection made by auditors can help catch insiders acting within companies, when auditors' expertise and their detection software may find errors and manipulation hiding in company accounts. Accounts which make the foundation for what should always be correct company reports, on which investors may base their investment decisions on.
- People who invest in financial assets that institutional investors invest in may use company reports regarding returns, and public data on stockholders, to see unusual changes in returns, and see if large funds hold certain stocks. They may also use the observation that effects of institutional investor manipulation are more likely to occur around the beginning and end of months. Which gives implications for when to invest in financial instruments traded by institutional investors: to consider investing only in the middle of the months.
- Daily price limits can enhance stability by controlling and halting trade during times of great market volatility and can serve as indicators for when potential manipulations may take place. Companies with bad corporate governance may see their stocks more often reach price limits.

- Within the company leadership, good corporate governance can be secured by making sure there are independent directors in the board. If that is not the case, then that and other signs like low sales figure could point toward an increased risk of fraud, which may also affect stocks tied to that company.
- Cyber security is increasingly important, and research points to insider crime bearing a high cost, as it may cover 10% of all fraud committed. Insiders may be committing cybercrime, when using devices to act on the market. The cyber security tool is partially applied by the market actors, when they remain watchful, considering that manipulation via modern devices can aim to influence any actor, who is also a device user, via several online channels, such as social media. Bot transparency, where manipulative software can be discovered, is part of this tool, which various online platforms may want to consider further implementation of.
- Regulation has over course of history proven effective by the SEC in the US, while possibly China's regulatory agency may need more work to be done for implementing increased fairness to the market. Other countries' financial regulatory agencies have kept up with new technology, and EU updating legislation aims to stay ahead of market abusers and insiders acting outside of the rules. That last tool is a tool in development over time as laws are written and rewritten.

Summarizing the tools, we can look upon regulations as a key tool to prevent financial harm. Regulations can matter for people's ability to trust markets and have the potential of bringing markets to function better. This could imply a chain of events, that can be summed up in a model scenario, where well-balanced regulations lead to prevention of harm. In a good-case scenario: Investors are protected, and market abuse prevented, leading to an increased trust, where more people dare to make investments, and the financial markets grow as more money is flowing in. Which, in the best of all worlds, could potentially assist in making market prices rise steadily, less artificially, in the long run, enabling individual savers, businesses, institutional investors, and states to gain profits. Even make it easier for many involved in the market to prevent harm. We could conclude by going over this once more, and summarize, when stringing it together into a chain of events:

Detection tools, such as cyber security where online platforms and its users stay alert, may lead to → More market abuse detected → Those who break the rules are found guilty of market abuse → Regulators become better at prosecuting and deterring those who break the rules, while regulations are improved → Increased trust from market actors → Increased investments → The financial market grows → Individual savers, businesses, institutional investors, and states increase their wealth → Enabling more investments and funding dedicated to make improvements to the market and its harm preventing tools.

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