

# **Small-Cap and Large-Cap Stocks and the Herding Phenomenon: Insights from a Leading Social Trading Platform (STP)**

## **Abstract**

This study seeks to provide comprehensive insights into the phenomenon of excessive herding behaviour among social traders in small-cap and large-cap stocks. To achieve this goal, the daily portfolios from a leading Social Trading Platform (STP) were scrutinised over the period from 01/01/2021 to 03/06/2023. The analysis focused on identifying instances of excessive herding behaviour using two established herding measures: Lakonishok, Shleifer and Vishny (1992), and Frey, Walter and Herbst (2014). A total of 7,672 portfolios and 8,679 distinct stocks were examined during the study period to assess the prevalence of excessive herding behaviour. Following the detection of excessive herding behaviour in a small-cap and large-cap stock, the subsequent 30-day return was calculated for further analysis.

The results show that the herding behaviour of social traders in small-cap and large-cap stocks lead to contrasting results. Small-cap stocks systematically generate negative returns, while herding behaviour in large-cap stocks leads to positive returns. Social traders apparently manage to make better investment decisions when the quantity and quality of information is better. The volatility of large-cap stocks is only half that of small-cap stocks. The risk for the follower is significantly lower when investing in large-cap stocks.

**Keywords:** Social Trading, Herding Behaviour, small-cap Stocks, large-cap Stocks

## Glossary

Cap	Market Capitalisation of Stocks
ETF	Exchange Traded Funds
FHW	Frey, Walter and Herbst's Herding Measure
Finfluencer	Financial Influencer
Fintech	Financial Technologies
LSV	Lakonishok, Shleifer and Vishny's Herding Measure
<i>R</i>	Software for Data Analysis
STP	Social Trading Platform

## **Introduction – Details Regarding Social Trading Platforms (STPs)**

Private individuals now have the opportunity to access and exchange information about stocks through a platform known as Social Trading Platform (STP), a notable innovation in the realm of Financial Technology (Fintech). This development has significantly broadened access to capital markets, allowing more people to participate. Within an STP, there are two primary roles: signal providers, also known as traders, and signal followers, referred to as followers. Followers entrust their trading decisions to the trader of their choice. Both traders and followers engage with one another on the platform. Traders offer their expertise in the form of trading strategies, which followers can choose to emulate. Importantly, users of the platform followers and traders benefit from complete transparency, enabling them to view and potentially replicate trades executed by other traders (Doering, Neumann & Paul, 2015). Due to the complete transparency inherent in STPs (scopic regime), there exists a heightened risk of traders engaging in excessive herding behaviour, potentially resulting in overvaluation of assets. This elevated risk poses a greater threat to the capital of followers. The increased transparency within STPs further exacerbates the likelihood of excessive herding behaviour compared to other trading environments (Chmura, Le & Nguyen, 2022). A scopic regime exists when all actions can be monitored by other users in real time and there is complete transparency (Cetina, 2003). This characteristic distinguishes an STP fundamentally from other traditional environments (Gemayel & Preda, 2018).

This work is intended to provide in-depth results in the area of the herding behaviour of social traders of a leading STP in the area of large-cap stocks. For this purpose, the daily portfolios were evaluated over the period 01/01/2021 to 03/06/2023 and examined for herding behaviour using the two herding measures of Lakonishok, Shleifer and Vishny (1992) (hereinafter referred to as LSV) and Frey, Walter and Herbst (2014) (hereinafter referred to as FHW). This research is intended to close the gap in how the average return of large-cap stocks behaves when excessive herding behaviour has been diagnosed. For this purpose, the observation period of 30 days was chosen and the average return over all years was calculated. The result is that the herding behaviour in large-cap stocks led to a clearly positive return over the entire period under review. In addition, this research shows that large-cap stocks are affected by relatively low volatility. Due to the lower volatility and higher liquidity of large-cap stocks, there is a lower risk for followers.

Social trading arose shortly after the 2007 financial crisis and quickly became a major innovation in online trading. It enables users to collaborate on a platform and execute trades

collectively. Moreover, each user has visibility into the trades made by others, enhancing transparency. The combination of increased transparency, easy accessibility, and low costs has contributed to its widespread acceptance among users (Dorfleitner & Scheckenbach, 2022). In social trading, professional investors interact with inexperienced traders. This framework allows novice investors to copy the trades of the traders, thereby tapping into the expertise of the trader for a fee (Deng, Yang, Pelster & Tan, 2023). The follower delegates the investment decision to the trader (Oehler & Schneider, 2023). Traders may exhibit a tendency to forego conducting their own analyses and instead opt to replicate the trades of others. The phenomenon of herding behaviour among investors has been embraced by numerous brokerage firms in recent years, leading to its integration into online trading platforms. This evolution has spawned the emergence of a new business segment known as social trading (Gemayel & Preda, 2018). It has already been shown that the top traders of an STP are able to make good investment decisions together (Kanschat, Krahnhof & Zureck, 2022).

The STP serves as the hub where traders and followers converge. Within the STP, information is gathered, analysed collaboratively, and joint investment decisions are formulated (Doering *et al.*, 2015). STPs are an innovative form of trading. They combine the features of social networks and established banks (Neumann, 2014). STPs offer the infrastructure for collaborative efforts, resembling a social network where traders are showcased. The introduction of complete transparency marks a novel development in the financial realm. On these platforms, every user has real-time access to view all trades made by other users, fostering a culture of openness and shared information (Glaser & Risius, 2016). STPs is categorised as a portfolio manager following audits by the European Union. This means that not every trader has to act as a portfolio manager, but does so as part of the STP (Doering *et al.*, 2015). Trust is fundamental in online investments conducted through STPs. Users rely heavily on trust when engaging in transactions and collaborating with others on these platforms. Trustworthiness is paramount for establishing credibility, fostering transparency, and ensuring the integrity of investment activities within the STP ecosystem (Chen & Dibb, 2010); (Gupta & Kabadayi, 2010).

In social trading, the importance of trust is heightened. Followers entrust their funds to traders without necessarily having personal knowledge of them, relying solely on the belief that the trader will invest the money wisely. This relationship underscores the significance of trust, as followers must have confidence in the integrity and competence of the trader to make informed investment decisions on their behalf (Wohlgemuth, Berger & Wenzel, 2016).

Herding behaviour is extensively documented and studied within the realm of behavioural finance. It describes the tendency of individuals to converge on the same side of a market, whether it be as buyers or sellers. This phenomenon can result from intentional actions or unintentional influences, ultimately shaping market dynamics and impacting asset prices (Gemayel & Preda, 2018); (Hirshleifer & Hong Teoh, 2003). Intentional herding behaviour occurs when individuals disregard their private information and instead opt to follow the crowd. In this scenario, individuals copy the actions of other market participants without independently assessing available information, thereby contributing to the herd mentality (Bikhchandani & Sharma, 2000); (Lakonishok *et al.*, 1992). Herding behaviour can lead to increased volatility of asset prices and destabilisation of capital markets (Hirshleifer & Hong Teoh, 2003); (Persaud, 2001). Possible reasons for herding behaviour include concerns about reputation and career advancement. Managers may opt to conform to prevailing market trends to maintain their reputation or to align with industry norms, even if it means sacrificing potentially higher profits. This desire for consistency with the market can drive individuals to engage in herding behaviour (Dasgupta & Prat, 2008); (Scharfstein & Stein, 1990); (Wermers, 1999). Intentional herding behaviour can also arise from concentrated ownership (Viet, Tan & Westerholm, 2008) or weak market regulations (Borensztein & Gelos, 2003); (Oehler & Wendt, 2008).

In their study, LSV (1992) investigated herding behaviour in relation to market capitalisation. They discovered that herding behaviour in the smallest quintile, representing small-cap stocks, amounted to 6.1%, whereas in the largest quintile, it stood at only 1.6%. This means that the herding behaviour of small-cap stocks is significantly greater than that of large-cap stocks. This may be due to the fact that traders do not conduct their own research and simply follow the herd. This finding suggests that herding behaviour diminishes as company size increases (Lakonishok *et al.*, 1992). In his study of mutual funds, Wermers (1999) also found that the herding behaviour of small-cap stocks is significantly greater than that of large-cap stocks (Wermers, 1999). Due to the increased transparency, the risk of excessive herding behaviour is particularly high with STPs (Chmura *et al.*, 2022).

The Herding measures of LSV (1992) and FHW (2014) were employed in this study. Widely utilised in the literature, these measures serve as foundational tools for identifying excessive herding behaviour. LSV (1992) and FHW (2014) quantify the extent to which herding behaviour deviates from normal market activity, providing valuable insights into market dynamics and investor behaviour (Frey *et al.*, 2014); (Lakonishok *et al.*, 1992).

# **Analysis of the performance of excessive Herding Behaviour in Small-Cap and Large-Cap Stocks**

## **Structure of the Study**

Within the STP, social traders have access to a wide variety of investment options, including stocks, certificates, ETFs, funds, and leverage products. This broad range of choices provides traders with significant flexibility, although many consciously choose to avoid leverage products. They justify this decision by citing concerns about increased risk exposure for their followers. However, if a trader does decide to utilise leveraged products, a warning signal is issued to their followers. This signal is intended to alert and protect followers from potential losses (Oehler & Schneider, 2023). This study exclusively focused on stocks as the primary investment instrument, as herding behaviour can be effectively assessed at the individual stock level. Other financial products were not considered; for instance, ETFs comprise multiple stocks, and trading an ETF is driven by a broader strategy rather than solely focusing on a particular stock. The analysis relied solely on data obtained from the platform as its foundational basis.

The data utilised in this study was sourced from a prominent STP operating in German-speaking regions. It consisted of end-of-day portfolio holdings, detailing the stocks held, their quantities, and closing prices per stock. While manual data retrieval from individual traders is possible, it's a laborious process. Therefore, access to the aggregated data was facilitated by the leading STP, without which this analysis would have been impractical. The study focused exclusively on portfolios and stocks within the platform, with no consideration given to other financial products. Spanning from 01/01/2021, to 03/06/2023, the study period encompassed all available portfolios, scrutinising them for herding behaviour in large-cap stocks. A comprehensive analysis covered 7,672 portfolios and 8,679 distinct stocks over the specified timeframe.

The integrity of the provided data was validated and then processed using the *R* program. This involved computing Herding measures such as LSV (1992) and FHW (2014) for each stock on a daily basis. Additionally, market capitalisation data for each stock was incorporated, sourced monthly from the Thomson Reuters financial database. Any missing daily closing prices were obtained from Thomson Reuters and subjected to thorough plausibility checks. Finally, all datasets were merged, and various calculations were performed as part of the data processing and analysis.

## **Definition of Large-Cap Stocks and highest Herding Behaviour**

Following the computation of herding measures LSV (1992) and FHW (2014), market capitalisation data was appended to the daily stock dataset. Quintiles were subsequently determined daily based on market capitalisation, ranging from 1 to 5. Quintile 1 represented the smallest companies, commonly referred to as small-cap stocks, while quintile 5 represented the largest companies, known as large-cap stocks. Only large-cap stocks were included in this study. Once the largest companies were identified, excessive herding behaviour was assessed. To achieve this, quintiles were again applied daily, ranging from 1 to 5. Quintile 1 indicated low trading activity for the day, while quintile 5 signalled excessive herding behaviour. Only the largest stocks exhibiting the highest levels of herding behaviour were selected for further analysis. Subsequently, the nature of the herding behaviour – whether buy-side or sell-side – was examined. Buy-side herding was identified when daily purchases of a stock surpassed its sales. This differentiation holds significant importance for the analysis. When programming the "trigger," it verifies whether the herding behaviour is buy-side or sell-side. The trigger then marks instances of excessive buy-side herding with a 1 in the corresponding column. Once triggered, the subsequent 30 days are considered. The start date corresponds to the day when excessive herding behaviour was identified, and the end date is calculated by adding 30 days to the start date. If the same stock exhibits excessive herding behaviour within the 30-day period, the analysis does not extend or restart; rather, the original start date is maintained. Similarly, subsequent sales or purchases during this period are not factored in. The objective of the analysis is to examine the return performance over a 30-day period following traders' purchases of large-cap stocks. Since the stock market may be closed on certain days, end-of-day prices from the previous day are utilised. Returns were calculated accordingly:

### ***Equation 1: Return per Day***

$$\text{Return per Day} = \frac{\text{Price at Day } X}{\text{Price at Day } 0} - 1$$

Source: Own illustration

The returns for each particular day are computed without factoring in transaction costs, taxes, fees, or similar expenses. Subsequently, these returns are aggregated and averaged on a daily basis over the 30-day period. The mean value is calculated using the following formula:

### **Equation 2: Mean of Return per Day**

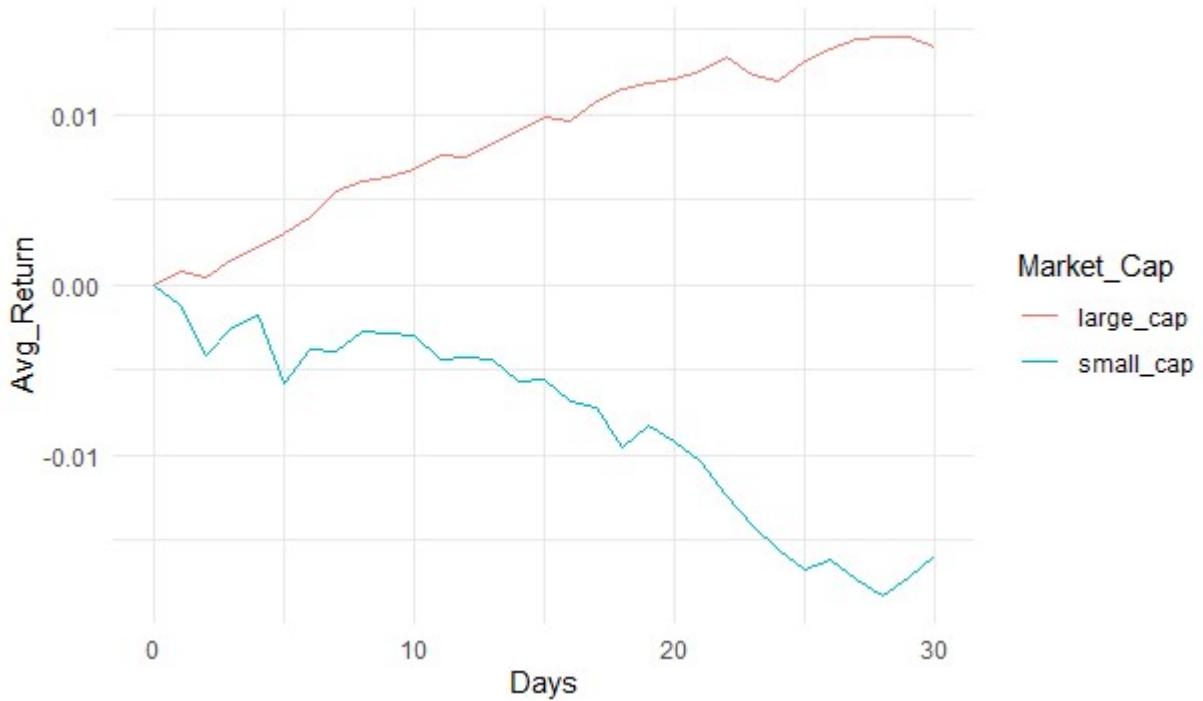
$$\text{Mean of Return per Day} = \frac{\sum \text{Return per Day}}{\text{Amount of Return per Day}}$$

Source: Own illustration

A 95% confidence interval is employed to exclude extreme outliers from the analysis. This approach ensures that both positive and negative outliers are accounted for, thus yielding a more robust and generalisable result.

### **Empirical Results**

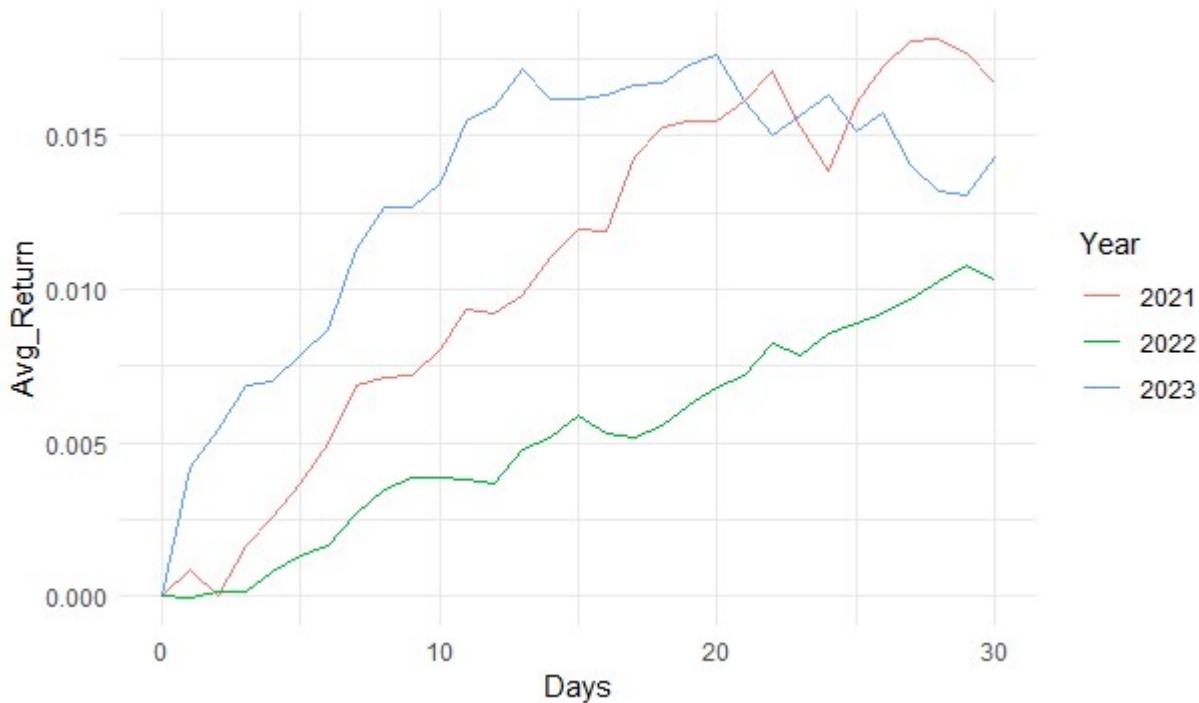
Once the returns had been calculated, the results were visualised and evaluated. The differences in returns in herding behaviour between small-cap and large-cap stocks are completely different. While small-cap stocks on average show clearly negative returns after 30 days, large-cap stocks are clearly positive after 30 days. This difference is impressive and there may be several reasons for this. In contrast to small-cap stocks, traders in large-cap stocks are better able to coordinate their behaviour and select the better stocks. The excessive herding behaviour of large-cap stocks leads to an almost linear positive function and positive returns. Obviously, traders in large-cap stocks are better able to process the information. It is not possible to say whether better private information is available, as the quality and quantity of information on large-cap stocks is significantly better and greater than on small-cap stocks. The risk of a bad investment is significantly lower with large-cap stocks than with small-cap stocks. There can be many reasons for herding behaviour in large-cap stocks. One reason may be that traders do not have to fear a loss of reputation in the event of losses in herding behaviour. Another reason is the lower risk. Large-cap stocks have higher liquidity and lower volatility. This minimises the trader's risk, but also limits the jumps in returns. The following chart shows the average return by day for small-cap and large-cap stocks.



**Figure 1: Returns Small-Cap and Large-Cap Stocks**

Source: Own illustration

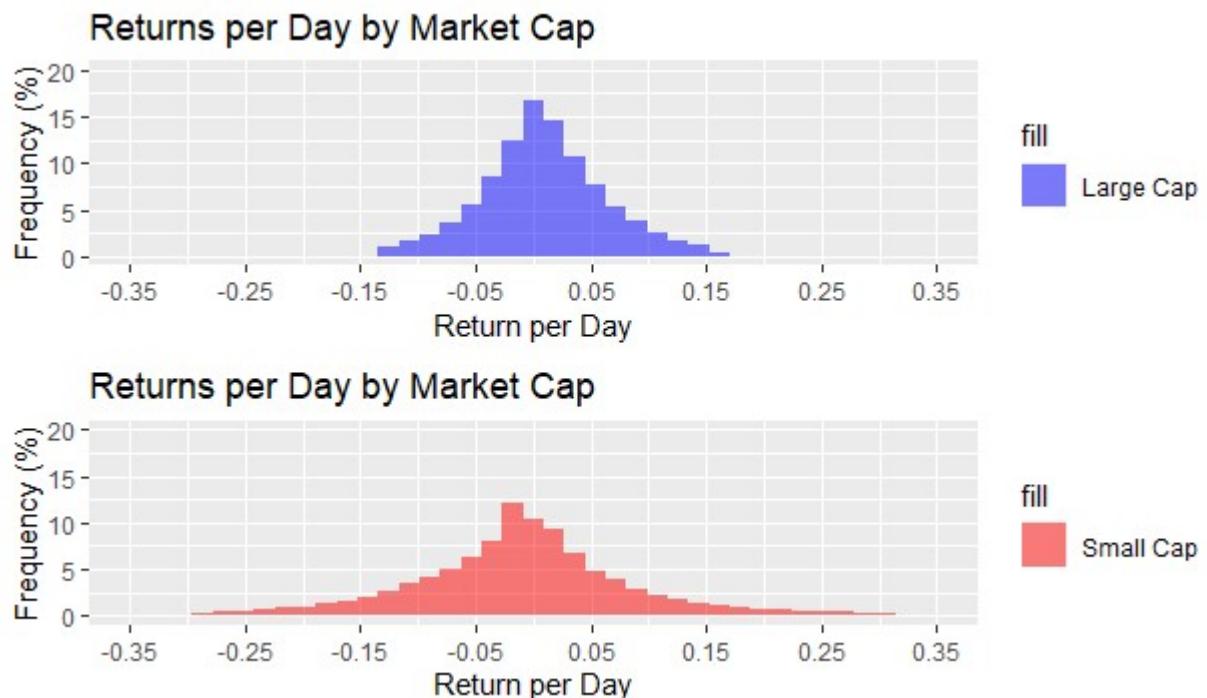
If you look at the individual years, it is impressive that every single year is positive. As with the small-cap stocks, 2022 is the worst year. Nevertheless, an average return of around 1% was achieved in this year. The negative sentiment may stem from Russia's war of aggression against Ukraine. The curve shows similarities to a linear increase. The year 2023 can clearly show the best returns, especially in the first 20 days. This may be due to the sentiment on the stock market and the current economy. In addition, only part of the year 2023 was considered. 2021 was the best year overall, but only after the 25th day. In the period between the 20th and 25th day, the two years 2021 and 2023 are very similar. There were different economic influences over time, and it could be shown that the traders were able to incorporate these influences into their investment decisions. In the following chart, the average returns are now broken down by year.



**Figure 2: Return per Year Large-Cap Stocks**

Source: Own illustration

The next graph shows a histogram that illustrates the distribution of daily returns within the 30-day period for small-cap and large-cap stocks. In the next step, a histogram is used to show the dispersion of the values. As can be seen in the chart below, the distribution for small-cap stocks is significantly broader than for large-cap stocks. In the case of large-cap stocks, the distribution is concentrated in the centre at the zero point. In addition, the distribution is significantly more acute and tilted to the right into the positive range. The small-cap stocks are significantly wider, and the curve is flatter. This means that the volatility in herding behaviour is significantly lower for large-cap stocks than for small-cap stocks. The standard deviation for large-cap stocks is 0.05, while for small-cap stocks it is 0.1. This means that the variance is twice as high. This is a considerable risk that traders take when buying small-cap stocks. The average for large-cap stocks of 0.01 shows that here too, the tendency is positive. The following histogram shows the distribution of returns per day according to the logic presented.



*Figure 3: Histogram of Returns per Day Small-Cap and Large-Cap Stocks*

Source: Own illustration

## Critical Appraisal and Recommendation

The new research findings fit very well into the current body of knowledge. It could be shown that the returns on herding behaviour of social traders depend on the market capitalisation of the stocks and that these deliver opposite returns. It was shown that after 30 days an average positive return was generated for large-cap stocks, while small-cap stocks had a negative return. The method chosen is well suited to measuring the short-term success of herding behaviour. However, a longer period could be chosen and the time before Covid-19 could be included.

The study analysed a significant volume of data spanning multiple years. However, one limitation arises from the unavailability of certain data, such as market capitalisation data on the Thomson Reuters platform. Additionally, the trades themselves do not provide clarity on whether a trader acted based on private information or simply copying others' trades. Moreover, the quality of any private information utilised remains undisclosed. Given the relatively low quantity and uncertain quality of information in the realm of small-cap stocks, traders often rely on private signals and information. Despite these limitations, the results appear plausible. It was shown that the traders can coordinate well with each other and make good investment decisions for large-cap stocks. The available information was therefore exchanged and processed efficiently. In addition, it is possible that traders not only coordinated with each other, but also copied each other's trades. It would also be of interest to replicate this investigation across other STPs. Does the observed phenomenon hold true across different platforms, or does it manifest differently elsewhere? Importantly, the author maintains a neutral stance without any vested interests influencing the study.

The methodology employed aligns well with the research objectives. Utilising a 95% confidence interval effectively mitigated the impact of significant outliers, thereby enhancing the consistency of the findings. Furthermore, employing the average across all days within the study period proved to be a robust approach for observing and analysing the effects of excessive herding behaviour. Prior to commencing the study, a thorough literature review was conducted, incorporating the most recent papers for analysis. Additionally, active engagement with fellow scientists facilitated rigorous discussions on the results. Overall, the findings are congruent with the prevailing research landscape.

More in-depth research could expand the herding behaviour of social traders. Further herding measures could be used, e.g. from Sias (2004), and other platforms could be analysed (Sias, 2004). Other years should also be considered. Another possibility would be to analyse only the herding behaviour of the top traders. The ranking on the platform could be used for this. The

ranking on the platform is very important for the follower, as the best-rated traders are visible first.

## Conclusion and Outlook

The results show that the herding behaviour of social traders on a leading STP leads to completely opposite results. The herding behaviour of small-cap stocks leads to clearly negative average returns, while the herding behaviour of large-cap stocks leads to clearly positive returns. With large-cap stocks, traders can make good investment decisions together, whereas with small-cap stocks they make poor decisions. The risk for traders and followers of investing in small-cap stocks is significantly higher, as the probability of suffering losses is much higher. As shown in the study, traders with less risk manage to generate higher returns with large-cap stocks. The lower risk comes from the lower volatility and higher liquidity of the stocks. The capital of followers and traders can be increased in the long term with this strategy, whereas it is systematically destroyed when investing in small-cap stocks. In addition, the loss of reputation for the trader is significantly greater if he invests in small-cap stocks and it subsequently leads to losses.

In the next step, further platforms with this method should be analysed. Are there perhaps similarities here or is this a distortion, as the leading STP is a German-language STP that also focuses on the German market. In addition, mid-cap stocks could be analysed. The quality and quantity of information here is also still quite high, but the stocks are no longer known to the same extent. In addition, the volatility of these stocks is likely to be greater than that of large-cap stocks. In addition, it should be investigated whether good traders with a good ranking engage in herding behaviour and if so, to what extent. Is this behaviour perhaps even reinforced due to the design of the STP? These results can protect the follower from price losses and minimise the risk of a bad investment. It could also be analysed whether the performance changes over a longer period of time. This research gap could be closed with the points described.

## References

- Bikhchandani, S., & Sharma, S. (2000). Herd Behavior in Financial Markets. *IMF Staff Papers*, 47(3), 279–310.
- Borensztein, E., & Gelos, R. G. (2003). A Panic-Prone Pack? The Behavior of Emerging Market Mutual Funds. *IMF Staff Papers*, 50(1), 43–63.
- Cetina, K. K. (2003). From Pipes to Scopes: The Flow Architecture of Financial Markets. *Distinktion: Journal of Social Theory*, 4(2), 7–23.
- Chen, J., & Dibb, S. (2010). Consumer trust in the online retail context: Exploring the antecedents and consequences. *Psychology & Marketing*, 27(4), 323–346.
- Chmura, T., Le, H., & Nguyen, K. (2022). Herding with leading traders: Evidence from a laboratory social trading platform. *Journal of Economic Behavior & Organization*, 203, 93–106.
- Dasgupta, A., & Prat, A. (2008). Information aggregation in financial markets with career concerns. *Journal of Economic Theory*, 143(1), 83–113.
- Deng, J., Yang, M., Pelster, M., & Tan, Y. (2023). Social trading, communication, and networks. *Center for Risk Management, TAF Working Paper*.
- Doering, P., Neumann, S., & Paul, S. (2015). A Primer on Social Trading Networks – Institutional Aspects and Empirical Evidence. *Presented at EFMA Annual Meetings*(Breukelen/Amsterdam), 1–28.
- Dorfleitner, G., & Scheckenbach, I. (2022). Trading activity on social trading platforms – a behavioral approach *The Journal of Risk Finance*, 23(1), 32–54.
- Frey, S., Herbst, P., & Walter, A. (2014). Measuring Mutual Fund Herding - A Structural Approach. *Journal of International Financial Markets, Institutions and Money*, 32, 219–239.
- Gemayel, R., & Preda, A. (2018). Does a scopic regime produce conformism? Herding behavior among trade leaders on social trading platforms. *The European Journal of Finance*, 24(14), 1144–1175.
- Glaser, F., & Risius, M. (2016). Effects of Transparency: Analyzing Social Biases on Trader Performance in Social Trading. *Journal of Information Technology*, 33(1), 1–12.
- Gupta, R., & Kabadayi, S. (2010). The relationship between trusting beliefs and Web site loyalty: The moderating role of consumer motives and flow. *Psychology & Marketing*, 27(2), 166–185.

- Hirshleifer, D., & Hong Teoh, S. (2003). Herd Behaviour and Cascading in Capital Markets: a Review and Synthesis. *European Financial Management*, 9(1), 25–66.
- Kanschat, C., Krahnhof, P., & Zureck, A. (2022). Die Nutzung der Kollektiven Intelligenz im Rahmen des Social Tradings unter Berücksichtigung der Behavioral Finance. *SSRN Electronic Journal*.
- Lakonishok, J., Shleifer, A., & Vishny, R. W. (1992). The impact of institutional trading on stock prices. *Journal of Financial Economics*, 32(1), 23–43.
- Neumann, S. (2014). *Empirical Essays on Regulatory and Technological Impacts on Banking and Finance*. PhD thesis.
- Oehler, A., Rummer, M., & Wendt, S. (2008). Portfolio Selection of German Investors: On the Causes of Home-Biased Investment Decisions. *Journal of Behavioral Finance*, 9, 149–162.
- Oehler, A., & Schneider, J. (2023). Social trading: do signal providers trigger gambling? *Review of Managerial Science*, 17(4), 1269–1331.
- Persaud, A. (2001). Sending the herd off the cliff edge: the disturbing interaction between herding and market-sensitive risk management practices. *Bank for International Settlements*, 2, 223–240.
- Scharfstein, D. S., & Stein, J. C. (1990). Herd Behavior and Investment. *The American Economic Review*, 80(3), 465–479.
- Sias, R. W. (2004). Institutional Herding. *Review of Financial Studies*, 17(1), 165–206.
- Viet, D., Tan, G., & Westerholm, P. (2008). Correlated Trading in Concentrated Market. *Journal of International Finance and Economics*, 8(4), 148–163.
- Wermers, R. (1999). Mutual Fund Herding and the Impact on Stock Prices. *The Journal of Finance*, 54(2), 581–622.
- Wohlgemuth, V., Berger, E., & Wenzel, M. (2016). More than just financial performance: Trusting investors in social trading. *Journal of Business Research*, 69, 4970-4974.