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## Bachelor Thesis: Limits to Arbitrage

Arbitrage in financial markets is understood as a risk free return without the employment of own capital. However, in practice, it turns out that that this theoretical arbitrage only exists in perfect markets. Actual arbitrage strategies require own or at least other peoples capital and they cannot be assumed risk free. The semi-strong market efficiency hypothesis (Fama 1970) states that a market price reflects all publicly available information about a security and any potential mispricings should be immediately dissolved by arbitrageurs. Market prices remaining in a non-equilibrium state are explained by a theory called limits to arbitrage. This theory also explains that arbitrage strategies exploiting these anomalies are associated with different types of risk and costs such as fundamental risk, implementation costs (e.g. short rebate) or leverage and margin constraints.

The goal of this bachelor thesis is to review the existing academic literature on arbitrage and associated risks. The student is expected to systematically sort and present related literature in order to draw possible conclusions based on the findings. Additionally, a small empirical study based on the German stock index DAX can be conducted. In this empirical part of the thesis, the student should analyze whether real arbitrage possibilities exist, how they can be exploited and if certain market conditions lead to an increase in arbitrage possibilities. The data will be provided on an aggregated level. Nevertheless, the student is expected to be able to deal with a larger amount of data and has a sufficient level of econometric knowledge.

### Supervisor:

Sven Panz

### Literature:

- Gromb, Denis, and Vayanos, Dimitri (2002), Equilibrium and welfare in markets with financially constrained arbitrageurs, *Journal of Financial Economics*, 66, 361-407.
- Gromb, Denis, and Vayanos, Dimitri (2010), Limits of Arbitrage, *Annual Review of Financial Economics*, 2(1), 251 -275.
- Kondor, Peter (2009), Risk in Dynamic Arbitrage: Price Effects of Convergence Trading, *Journal of Finance*, 64(2), 631-655.
- Mitchell, M., Pulvino, T. and Stafford, E. (2002), Limited Arbitrage in Equity Markets, *The Journal of Finance*, 57(2), 551–584.
- Shleifer, Andrei and Vishny, Robert W. (1997), The Limits of Arbitrage, *The Journal of Finance*, 52(1), 35-55.
- Xiong, Wei (2001), Convergence trading with wealth effects, *Journal of Financial Economics*, 62, 247-292.