

**Charles University**  
Faculty of Social Sciences  
Institute of Economic Studies



MASTER'S THESIS

**Effects of the acquisition-based majority  
ownership: Evidence from the Czech firms**

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## **Declaration of Authorship**

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Prague, May 8, 2018

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Signature

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## Abstract

The thesis analyses Czech limited liability and joint stock companies, where a change of majority shareholder occurred between 2005 and 2011, from the perspective of their performance 3 and 5 fiscal years after acquisition. The main objective of the research is to compare realised acquisitions between themselves according to the target's size, and to the industrial relatedness of the acquisition target and acquirer as divided to: horizontal, vertical, financial acquisitions, and acquisitions completed by natural persons. Furthermore, various financial variables potentially affecting operating profitability expressed as EBITDA margin, and other performance indicators are explored.

Application of OLS regression on cross-sectional data structure for the two observed post-acquisition periods, and OLS with fixed effects on two-period panel data, provide similar results leading to conclusion that optimisation of variable costs relative to revenue after acquisition has the largest positive impact on EBITDA margin. No evidence is found for influence of types of acquisitions.

Contribution to the research in M&A field is brought thanks to the focus on Czech acquisitions that so far have not been systematically examined, and thanks to analysis from the perspective of acquisition targets' financial (accounting) indicators performance instead of acquirers' stock performance.

**JEL Classification** G34, L10, L25, M10

**Keywords** acquisitions, majority shareholder change, Czech M&A market

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## Abstrakt

Tato práce analyzuje české akciové společnosti a společnosti s ručením omezeným, které v letech 2005-2011 prošly změnou majoritního vlastníka, z hlediska jejich výkonnosti 3 a 5 let po akvizici. Hlavním cílem výzkumu je srovnání realizovaných akvizic mezi sebou s ohledem na velikost akvizičního cíle a na druh akvizice podle odvětvové blízkosti kupujícího a akvizičního cíle v členění na: horizontální, vertikální, finanční akvizice a akvizice ze strany fyzických osob. Dále jsou zkoumány různé finanční proměnné, které potenciálně mohou ovlivňovat provozní výkonnost vyjádřenou jako EBITDA marže a další výkonnostní ukazatele.

Pomocí OLS regrese aplikované na průřezová data ve dvou sledovaných obdobích po akvizici a pomocí OLS regrese s fixními efekty aplikované na panelová data je dosaženo podobných výsledků, které vedou k závěru, že optimalizace variabilních nákladů v poměru k tržbám má nejvýznamnější pozitivní vliv na EBITDA marži. Vliv typu akvizice není prokázán.

Hlavní přínos pro výzkum v oblasti M&A plyne ze zaměření práce na české akvizice, které dosud nebyly systematicky analyzovány, a dále z analýzy akvizic z hlediska výkonnosti akvizičního cíle po stránce finančních (účetních) ukazatelů namísto výkonnosti kupující společnosti z pohledu akciového trhu.

**Klasifikace JEL**

G34, L10, L25, M10

**Klíčová slova**

akvizice, změna majoritního vlastníka, český M&A trh

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# Acronyms

**AIC** Akaike criterion

**CAGR** compounded annual growth rate

**CSO** Czech Statistical Office

**DE** debt to equity

**DIO** days inventory outstanding

**EBITDA** earnings before interest, taxation, depreciation and amortisation

**FC** fixed costs

**HQC** Hannan-Quinn criterion

**IPO** initial public offering

**M&A** mergers and acquisitions

**MPO** Ministry of Industry and Trade

**OLS** ordinary least squares

**ROA** return on assets

**SMEs** small and medium enterprises

**SPA** sales and purchase agreement

**SC** Schwarz criterion

**WC** working capital

# Master's Thesis Proposal

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<b>Proposed topic</b>	Effects of the acquisition-based majority ownership: Evidence from the Czech firms

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**Motivation** Typical acquisition motives include, but are not limited to: (i) for an acquiring company a strategy of expansion, and (ii) for individual investors and private equity funds an investment opportunity. A change of majority shareholder resulting from either of the motives represents a key milestone for company. It is commonly followed by an attempt to optimise company's operation, and to improve its performance. To what extent does a change of majority shareholder lead to an improved outcome of acquisition target?

Existing studies and analyses on acquisitions by Tuch (2007), Yook (2004) or Loughran (1997) mostly focus on post-acquisition effects on shareholders' returns, and market stock price of the acquiring company after an announcement of the intention to acquire. They conclude negative effects. Performance of acquisition targets has been studied only on a small sample in form of case studies by Favre-Bonté (2013). Furthermore, the studies primarily examine publicly traded companies and large corporations on developed markets. More recently, Popli (2017) studied post-acquisition performance of Indian firms from the perspective of belonging to a larger business group, the number of M&A deals realized prior to the transaction and also group product-diversity with positive outcomes. Farinós and Latorre (2017) use Heckman two-step model to test for self-selection bias stemming from acquisition of either listed or unlisted companies on the acquirers' (listed companies only) abnormal returns proving with the goal of proving whether or not results of other studies not controlling for the self-selection bias show false results. They conclude insignificant difference between results found when employing standard OLS and Heckman model, hence that the inference from OLS estimators is not necessarily invalid, even though the estimators may be biased.

In the Czech market, research has been rather limited. Konkolski (2011) ex-

amined different a priori and a posteriori factors affecting performance of companies after acquisition based on interviews with top managers and questionnaires targeting 39 companies. This research was carried out on a rather small sample and included only basic statistics overview of responses, no regression analysis. Overall evaluation of performance was made via EVA and EBITDA relative to assets and sales indicators.

The Czech market has many specifics that make it distinguishable. The post-transition history of Czech market is relatively short. While there is a very limited number of publicly traded companies, there is a high number of SMEs with lower number of shareholders. Shareholders usually execute the role of the management rather than appoint external managers to name a few examples. Therefore, the Czech market is suitable for analyzing local acquisitions from a different perspective than acquisitions realized on large developed markets.

This thesis shall aim to fill the gaps by analysing how acquisition targets in the Czech market environment perform in terms of revenue, EBITDA growth and other operational performance indicators in short to middle-term after the transaction, regardless of the acquirer's returns.

## Hypotheses

Hypothesis #1: The size of the majority shareholder's share does not affect company's performance.

Hypothesis #2: Cross-industrial acquisitions do not outperform within-industry acquisitions.

Hypothesis #3: Acquisitions by natural persons (entrepreneurs) do not yield better results than acquisitions by legal persons.

Hypothesis #4: Acquisitions of SMEs do not yield better results in short-term (3 years) than acquisitions of large corporations.

Hypothesis #5: Acquisitions of large corporations do not yield better results in middle-term (5 years) than acquisitions of SMEs.

**Methodology** Data on acquisition targets will be collected from Bisnode's Magnusweb for 3 periods: last complete fiscal year before acquisition ( $t_0$ ), 3 ( $t_1$ ) and 5 ( $t_2$ ) years after acquisition for available sample of transactions realized in the period 2005 – 2011. Core data to be downloaded will include: balance sheet and income statement for each of the companies and each of the 3 periods of interest, industry categorization (according to NACE), percentage share of the majority shareholder,

and categorization of the majority shareholder (natural or legal person). The sample selection will be conditioned on the availability of financials 5 years after the transaction in order to compare results in short to middle-term after the acquisition.

Main studied performance indicators derived from companies' financials will include: revenues, EBITDA volume changes, relative EBITDA to sales change, and gross margin. These variables will be tested separately for  $t_1$  and  $t_2$  as independent variables for dependence on different combinations of, amongst others, the following variables: the size of the majority shareholder's share, the company's size, industry, acquisition type (vertical / horizontal), change in direct costs. Two models will be used for testing: classical OLS and two step Heckman model.

An endogeneity issue might be expected to arise in OLS due to self-selection problem (restriction of the sample only on companies where majority shareholder changed) and possibly also due to ownership structures affecting the company's performance. The logical goal of most acquisitions is lying in optimisation of operations, hence often an attempt to increase profitability directly. Nevertheless, there are other performance indicators that might be targeted after acquisitions, thus different indicators are expected to show different dependences on combinations of similar regressors. Also, there exists a possible solutions to the endogeneity issue and that is a use of fixed effects estimation to capture heterogeneity.

For the use of Heckman model, appropriate selection equation determining probability of the event of change of the majority shareholder will have to be defined which may be rather difficult, since drivers for majority shareholder change vary, are very subjective for each case and may not be observable (e.g. the case of inheritance). Logical relevant regressor to be used in probit model could be growth or average of EBITDA to sales over the period 2003 – 2005 as a relative operating performance indicator that objectively evaluates both small family firms and large companies with no need to add further variable capturing heterogeneity in companies according to their size. The EBITDA to sales indicator is commonly used in research on operating performance and evaluation of effectiveness as e.g. by Martynova (2006). Furthermore, M&A Research Centre (2016) identified it as one of key indicators of an attractiveness of a potential target. An additional probit regressor could be industrial categorization (NACE) to reveal a probability of companies being acquisition targets by specific industries.

The primary aim of the models shall be to examine and compare effects and their magnitudes on multiple performance indicators.

**Expected Contribution** The thesis shall provide an analysis and assessment of acquisitions involving a change of majority shareholder realized between 2005 and 2011 in the Czech Republic with a 3- and 5-year retrospection from the perspective

of the acquisition target's performance. By testing models employing various performance indicators and combinations of regressors, a complex view on company's post-acquisition efficiency dependence on transaction and company characteristics, and also assumed motives shall be revealed. In practice, the models and results may help for ex ante estimation of ex post results of transactions characterised by certain parameters.

## Outline

1. Introduction
2. Literature review
3. Czech market specifics
  - (a) Enterprise statistics and characteristics
  - (b) Development and trends of the market in terms of acquisitions
  - (c) Regulatory framework and role of regulatory institutions (Office for the Protection of Competition, Financial Administration)
4. Empirical model
5. Data description
6. Results and their implications
7. Conclusion

## Core bibliography

- CAPRON, L. (1999). *The long-term performance of horizontal acquisitions*. Strategic Management Journal, 20: 987 – 1018
- DEMSETZ, H. and VILLALONGA, B. (2001). *Ownership structure and corporate performance*. Journal of Corporate Finance 7(3): 209 – 233
- FARINÓS, V. J. E., HERRERO, B. and LATORRE, G. M. A. (2017). *Self-Selection Bias and the Listing Status of Target Firms: Value Effects in the Spanish Market*. Czech Journal of Economics and Finance 67 (5), 423 – 438.
- FAVRE-BONTÉ, V. and THÉVENARD–PUTHOD, C. (2013). *Resource and Skill Transfers in Subcontractor SME Acquisitions: Influence on the Long-Term Performance of Acquired Firms*. European Management Review, 10: 117 – 135. doi:10.1111/emre.12014

- HANOUSEK, J., KOČENDA, E. and SHAMSHUR, A. (2015). *Corporate Efficiency in Europe*. Journal of Corporate Finance, 32, 24 – 40
- KING, D. R., DALTON, D. R., DAILY, C. M. and COVIN, J. G. (2004). *Meta-analyses of post-acquisition performance: indications of unidentified moderators*. Strategic Management Journal, 25: 187 – 200. doi:10.1002/smj.371
- KONKOLSKI, S. (2011). *Strukturalizace a analýza faktorů ovlivňujících efektivnost fúzí a akvizic*. 192 s bez ISBN
- LOUGHRAN, T. and VIJH, A. M. (1997). *Do Long-Term Shareholders Benefit From Corporate Acquisitions?*. The Journal of Finance, vol. 52, no. 5, 1997, pp. 1765 – 1790
- M&A Research Centre at Cass Business School, City University London, and Intralinks (2006). *Attractive M&A Targets: Part 1: What do buyers look for?*
- MARTYNOVA, M. (2006). *The long-term operating performance of European mergers and acquisitions*. ECGI - Finance Working Paper No. 137/2006; TILEC Discussion Paper No. 2006-030
- POPLI, M., RADHA M. L., GAUS A. S. (2017). *Business group affiliation and post-acquisition performance: An extended resource-based view*. Journal of Business Research, vol. 81, December 2017, pp. 21-30
- TUCH, C. and O'SULLIVAN, N. (2007). *The impact of acquisitions on firm performance: A review of the evidence*. International Journal of Management Reviews, 9: 141 – 170. doi:10.1111/j.1468-2370.2007.00206.x
- YOOK, Ken C. (2004). *The Measurement of Post-Acquisition Performance Using EVA*. Quarterly Journal of Business and Economics, vol. 43, no. 3/4, 2004, pp. 67 – 83.

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Author

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Supervisor

# Chapter 1

## Introduction

The Czech Republic (Czechoslovakia until 1993) has been an emerging open economy since 1989, almost 30 years now. After the coupon privatisation in the 1990's, Czech companies set off a journey to approach developed markets, and transactions with companies started happening. However, the market of mergers, acquisitions and company transformations in the Czech Republic is a field that lacks systematic research.

EY became a pioneer in the field in 2010, when it started to annually review volumes, number and industry of Czech acquisitions realised in exchange for certain monetary value. An analysis of what happens after the deals are closed is still missing, same as an investigation of acquisitions realised as a result of a different transaction than exchange of monetary units.

This thesis aims to cover the gap in Czech research and analyse how a change of the majority shareholder resulting from whatever transaction reason affect operating performance of acquired companies in short to middle term (3 and 5 years) after transaction for different types of acquisitions and transaction targets.

Existing international research focuses mostly on performance of an acquiring company measured by stock indicators, and misses a perspective of the acquisition target. This study adds the perspective of the target and analysis of impact of various financial (accounting) indicators on post-acquisition performance.

Comparison of acquisition targets to companies that did not go through the change of majority shareholder will not be included as a research topic, because the data for execution of such analysis using either Heckman two-step model or the difference in difference technique are hard to retrieve from any accessible

database. A caveat of this work, therefore, is that no conclusions can be made about an effect of the act of acquisition itself.

Data on transaction targets and acquirers were gained from Bisnode MagnusWeb. Two techniques are used for testing hypotheses: OLS regression on cross-sectional data and OLS with fixed effects on panel data for the two time periods after transaction. Simple OLS regression allows for evaluation and comparison of time invariant characteristics such as the size of majority shareholder's share, acquisition type or categorisation of the target according to its size for the two periods. OLS with fixed effects enables treatment of potential unobservable variables that could cause endogeneity in simple OLS for the price of not observing time invariant specifics as they are all covered under the fixed effect.

Two major findings are that characteristics of an acquisition have no significant effect on its performance, and the most influential financial factor is a variable cost to revenue ratio, meaning that optimisation of per unit of sales cost plays the key role in improving operating performance.

The thesis first introduces theory behind acquisitions, and summarises literature focused on post-acquisition performance in Chapter 2. Further, specifics of Czech companies, development of M&A market and regulatory background are described leading to a formulation of hypotheses concerning Czech acquisitions at the end of Chapter 3. The following Chapter 4 describes collection of data, selection and construction of variables, and applied empirical models. Chapter 5 provides an overview of the key results and their interpretation. A brief summary is provided in the last concluding chapter 6.

# Chapter 2

## Acquisitions

### 2.1 Acquisition types

The term acquisition refers to an act of obtaining possession of more than 50% ownership in a company. A takeover of control over a company can be performed both in a friendly manner after negotiations with the management, or as a hostile takeover when an acquirer approaches shareholders directly, and typically aims at a replacement of the management as a post-acquisition strategy.<sup>1</sup>

In these cases, acquisitions are in most cases paid for, typically, but not limited to in cash or stock payments. The structure of a deal financing is a separate broad topic that will not be a subject of this thesis. In extreme cases, for instance when a target company is close to bankruptcy, an acquisition free of charge or for only a symbolic price can occur. Such deals are known as distressed acquisition. They are usually conditioned on future equity inflows or other provision of financing from the acquirer's side. Moreover, distressed acquisitions are more commonly performed by firms in the same industry, and in form of a friendly acquisition rather than hostile takeovers according to CLARK & OFEK (1994).

Less frequent options to acquire a company include: a result of an insolvency proceeding (whereby a creditor may become a shareholder), an inheritance proceeding (whereby a heir becomes a shareholder). It could be stated that these acquisitions are free of charge, but this statement is valid only in an immediate nominal cash value. Creditors in fact paid in advance when providing loans.

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<sup>1</sup>Investopedia (2018)

## 2.2 Acquisition process and impact

The acquisition process can be initiated by either a target company or an acquirer. The motives will usually vary for each of the sides of a deal, as further described in Section 2.3. Also, the process and negotiations leading to finalisation of the transaction will differ.

As GOMES *et al.* (2013) states there exists no unified generally approved definition of M&A process that would delineate beginning and ending of acquisition and characterise number and scope of all phases in the process. The only strict breaking point is the completion date, i.e. the moment when ownership rights are transferred legally to the new owner(s), thus separating pre- and post-acquisition phases. All other phases may vary in terms of scope, order of their execution, and even in their inclusion or exclusion from the process.

Phases of acquisition process described by TRICHTERBORN *et al.* (2016) based on definition by VOSS (2008) are underlining the inexistence of consensus on definition of acquisition process. They distinguish three main phases:

- **Preparation phase** aimed at information analyses and strategic decision-making. This phase corresponds with the pre-acquisition phase by GOMES *et al.* (2013);
- **Transaction phase** including due diligence and planning of integration. Due diligence occurs in the pre-acquisition phase, while planning of integration can take place throughout both pre- and post-acquisition phases.
- **Integration phase** with the major objective of a smooth target integration. This phase corresponds with the post-acquisition phase and is conditioned on the ownership rights transfer.

However, TRICHTERBORN *et al.* (2016) does not specifically mention the moment of transfer of ownership right that GOMES *et al.* (2013) considers the one and only strict milestone clearly dividing the process.

From the perspective of a practical execution, an acquisition deal requires division of the two or three phases into many smaller steps each demanding thorough attention.

### 2.2.1 The buyer's perspective

When an acquirer decides to initiate acquisition process, the following steps shall lead to acquisition realisation:

- Strategic planning,
- Identification of potential acquisition targets,
- Evaluation of potential targets and selection of an appropriate target,
- Transaction negotiations and preparation,
- Transaction realisation and post-transaction integration.

Main focus and aim of each step are described in a detail below. These steps incorporate the 10–step illustrative M&A process by Corporate Finance Institute (2018), follow the seven phases of rational linear sequence of acquisition process introduced by HASPELAGH & JEMISON (1991), and include author’s own elaboration and experience from transaction deals encountered in professional career.<sup>2</sup>

### **Strategic planning**

In this phase, required acquisition results and a strategy yielding them shall be formulated. Preferred acquisition targets in terms of key parameters such as size, location, and synergetic criteria for the acquirer should be defined. Acquirer’s criteria may include industry, know-how, patents, assets, specialised workers, products or a required growth potential. Market trends, and prediction of future sectoral development should be considered when deciding, whether there exists a potential for improvement of market position (for a strategic investor) via acquisition or a potential for a profitable investment (for a financial investor).

This phase is only preparational, still it impacts the whole acquisition. Future post-transaction development is derived from the acquirer’s motivation and objectives (further in Section 2.3) which drive the following executive steps that may vary from cost-cutting, through restructuring and utilisation of synergies, to financing expansion.

It is essential that all stakeholders participating on acquisition process within an acquiring company unify their strategy in order not to fail realising favourable opportunities. As ANGWIN *et al.* (2015) examined, even favourable targets meeting all internally defined criteria may fail to be further considered and addressed, mostly due to a strategic disagreement between participants on

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<sup>2</sup>The author has been a member of Transaction Advisory team at Grant Thornton Advisory, s.r.o. for two and half years.

targets' evaluation within the acquiring firm. A survey conducted by Deloitte (2013) revealed that primary objectives of M&A deals in large companies (with revenue above 500 mil. USD) are different for company executives and CFOs. This finding affirms the issue of internal strategic disagreement, and underlies the importance of the strategic planning stage.

### **Identification of potential acquisition targets**

Having a general strategic plan, detailed definition of transaction criteria occurs. The criteria include acquisition price boundaries, minimum required shares to be acquired, leverage, investment horizon, compliance with certain financial or other indicators. Then market research for potential targets is conducted.

Feasibility of the transaction with regards to a potential willingness of the seller should be considered in this stage. Especially in the Czech environment, where hostile takeovers are not very common, and transaction negotiations are conducted more in a friendly manner, the desire of the target's owner (and management) is of a vital importance. At the end of this phase, the acquirer shall have a short list of most suitable targets including evaluation of basic financial analysis and strategic intention hypothesis prepared.

GOMES *et al.* (2013) identify overall strategy and accumulated experience on M&A, size mismatches, organisation, choice and evaluation of the strategic partner between main pre-acquisition critical success factors frequently mentioned in papers on mergers and acquisitions.

### **Evaluation of potential targets and selection of an appropriate target**

Direct contact with acquisition targets is initiated and introductory negotiations about the potential acquisition are held. If there is willingness on the seller's side, a confidentiality agreement is typically signed. Pursuant that, further basic non-public information may be provided to the acquirer. When an acquirer and a target operate in the same industry, unwillingness to share sensitive internal information of the target may be an issue due to a risk of loss of business secrets and specific know-how.

Based on a deeper analysis of strategic and financial characteristics, and evaluation of their accordance with the defined criteria, the acquirer chooses the most suitable target. JEMISON & SITKIN (1986) emphasised also importance of organisational fit by matching administrative systems, corporate cultures,

or demographic characteristics as one of two main approaches to successful acquisition amongst analysts.

Having chosen the most suitable target, a letter of intent (also known as heads of terms or memoranda of understanding) is formulated and signed by both parties as a formal document representing preliminary terms of an agreement and a schedule of following progress in negotiations. Preliminary purchase price bid, and a mechanism of future purchase price determination are often included. It is not rare that the letter of intent prevents the seller from commencing negotiations with a third party and vice versa. A transfer to an escrow account may be used as a guarantee of the acquirer's intention to the seller before due diligence.

### **Transaction negotiations and preparation**

Having signed the letter of intent, due diligence<sup>3</sup> is performed by the acquirer or an appointed advisor. As KONKOLSKI (2011) found out in survey amongst top managers, due diligence is perceived as the most important factor influencing efficiency of M&A deals. Therefore, importance of this step should not be underestimated.

Due diligence shall uncover potential hidden risks in all aspects of the company business. Such risks shall be projected into the sales and purchase agreement (SPA) in form of representations and warranties, or may affect purchase price in form of an adjustment mechanism for specified occasion, retention for certain time, earn-out or another mechanism. In this way, the acquirer shall remain protected against realisation of unexpected losses that are due to the previous shareholders. Paying the right price and setting future compensation policy are additional pre-acquisition success factors identified by GOMES *et al.* (2013).

It is essential to bear in mind that companies are going concerns, so the period after acquisition cannot be strictly divided from the pre-acquisition period and history of the company. Historical development will always impact future. Also, adequate communication between buying and selling party, but also towards employees of both companies prior to acquisition plays a vital part on a path to bilateral consensus and efficient post-acquisition performance (GOMES *et al.* (2013)).

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<sup>3</sup>Including financial, tax, legal and if relevant, also technical and operational due diligence

### **Transaction realisation and post-transaction integration**

Once SPA is drafted and agreed upon by both parties, settlement of the transaction comes. There can be a significant interim period between signing and completion date for which reason efficient set-up of all obligations and rights of both parties is essential. Typically, it will be forbidden for the seller to make any dividend payments or major changes to the company's state and stakes. On the other hand, the buyer might be obliged to transfer money to an escrow account in advance as a prove of his ability to settle the purchase price payment.

It can happen that the seller breaks some of the obligations and a transaction is terminated, or postponed, despite the prior signature of the SPA.

After completion date, post-transaction integration process, and a strive of the acquirer for achievement of the pre-defined strategic goals begin. As GOMES *et al.* (2013) discover, an optimal level of integration and pace of implementing changes differ for each case. Both too much integration and its lack are harmful to the target's performance, same as too quick, or too sluggish application of changes.

#### **2.2.2 The seller's perspective**

When a seller decides to initiate acquisition (sales) procedure, the general process is similar, only the perspective differs. In the strategic planning phase criteria for potential investors are set and a relevant investment hypothesis justifying why the company could be a good target for the particularly defined type of investors shall be prepared.

The first phase is an identification of potential investors with regards to demanded transaction criteria including minimum sale price requirement. In addition to that, investment material for a brief presentation of the company as an investment target, so called investment teaser, is prepared prior to addressing selected investors in the next phase.

Once certain investors show deeper interest and the confidentiality agreement is signed, information memorandum with further information is provided. If the process is initiated by an acquirer, a search for investors and preparation of investment information materials may be skipped.

The following process is the same, only the role and interest of the seller are different. The seller justifies due diligence findings (explains why certain risks are bearable or how they can be mitigated, clarifies anomalies etc.). His

interest lays in keeping the price and price adjustment mechanism as favourable as possible.

## 2.3 Aquisition motives

WEBER *et al.* (2014) summarise acquisition motives followingly:

*The main drivers for acquisitions relate to various growth opportunities such as acquiring new products, expansion into new geographical areas, or access to new customers. This is in addition to such motives as improving profitability and the company's strategic capabilities and positioning.*

Their approach implicitly covers the theory of economies of scale and scope, whereby the post-acquisition aim is to decrease marginal cost of production due to increased output of a product (applicable for horizontal acquisitions), or increased number of different products (applicable for vertical acquisitions). Via market share increase, not only new customers, but also a price advantage relative to other market players with lower market share can be gained. The price advantage can cover both customer price setting, and a larger bargaining power towards suppliers.

Strategic capabilities and positioning may include transfer of resources between the acquirer and the target as CAPRON (1999), GAMMERLGAARD (1999) and POPLI *et al.* (2017) touch in their works. Resource transfers encompass amongst other knowledge, experience and competence, but also combination and reallocation of companies' strategic assets. Vertical acquisitions may involve direct supply chain successors or predecessors. In these cases broadening of capabilities may aim at making the product offer more attractive, or may help to decrease production price by optimisation of added value on intermediary and final product.

Besides these, various financial motives occur. SKÁLOVÁ (2015) mentions tax optimisation, and a solution of financial issues of the target company. Lack of internally generated funds or limited access to financial market are restrictive for organic growth. GAMMERLGAARD (1999) further adds the following financial motives:

- minimisation of the risk of bankruptcy by sharing capital,

- better access and conditions on the financial market (lower interest rate offers to larger companies),
- and utilisation of a tax shield via raising debt and decreasing cost of capital.

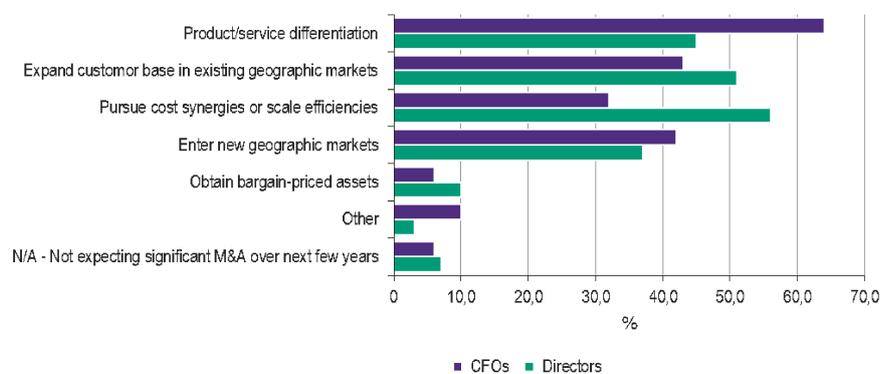
When an acquisition price is lower than the correct market value (GAMMERLGAARD (1999)), or when an acquirer invests with a plan of future exit with an expected return, the motive can be called speculative. In Deloitte (2013) survey, 10% of directors and 6% of CFOs mentioned obtaining bargain-priced assets as their M&A objective.

Other triggers for acquisitions may include heritage or insolvency proceeding mentioned in Section 2.1, a family business owner close to retirement searching for an exit from their company, or enforced tender process, which is, however, limited in the Czech Republic.

According to the Czech statistical office (2013), even after the 2009 recession, companies with a clear tendency to go bankrupt were supported by the banking sector. Commercial banks, feared off losing clients, behaved in a morally hazardous way offering loan restructuring, or instalment postponements to financially unhealthy companies, instead of writing-off provided loans. As a result, the number of enforced tender processes was lower than it might have been.

The chart 2.1 represents frequency of Deloitte (2013) survey responses to the question of M&A objectives amongst large corporations' directors and CFOs.

Figure 2.1: M&A objectives



Source: Deloitte (2013)

## 2.4 M&A indicators

It is essential to understand that some companies are more likely to become acquisition targets than others. This probability issue would be a cause of selection bias, if only acquired companies were examined and hypotheses about the impact of acquisition were to be tested. This thesis examines only acquisition targets, but avoids judgements about pure acquisition effect, still it is worth understanding the drivers for which companies are possibly included in the sample as acquisition targets.

M&A Research Centre at Cass Business School, City University London, and Intralinks (2006) prepared a study on financial indicators and their impact on the likeliness of companies to become acquisition targets. Over 30 thousand companies from all over the world from both private and public (state-owned) sectors were analysed. One group of the companies became a merger or acquisition target, and the remaining companies did not.

A probit regression, where percentile ranking of companies in a set of financial indicators as regressors, and a dummy variable indicating whether the company became a target or not as a dependent variable was used. The following six indicators were concluded significant for predicting a likelihood of becoming a target:

1. growth expressed as a 3year compounded annual growth (CAGR),
2. profitability expressed as an average 3year EBITA/sales,
3. leverage expressed as an average 3year debt/EBITDA,
4. size in terms of sales in a year before a transaction offer,
5. liquidity expressed as a current ratio in a year before a transaction offer,
6. and enterprise value/EBITDA valuation multiple in a year before a transaction offer.

CURTIS, G. (2017) describes 11 qualitative characteristics of companies that are more likely to become acquisition targets. These complement the quantitative ones and match some of the acquisition motives described in the previous section. Amongst others, Curtis mentions the following characteristics:

- **Product or service niche:** It is easier to acquire a functioning company than to develop own niche product, and risk a failure at the same time. Expressed in quantitative parameters, a start-up target would highly probably show high compounded annual growth rate and also high indebtedness.
- **Need for additional financing:** Also described as one of the motives in Section 2.3 for smaller companies lacking funds for expansion and proper marketing. Quantitatively described, size in terms of sales would be smaller relatively to market players with comparable business orientation, and CAGR would be below potential.
- **Clean capital structure:** Companies with complicated shareholder structure, various stock classes including convertible bonds, and variable shareholder's rights are less likely to become targets for it is more complicated to clarify the structure, identify associated risks, and cross all possible voting barriers to enter in the company. The negotiation part and drafting SPA would also bear high transaction costs.
- **Possibility to refinance debt:** Flexibility in refinancing existing debt is desirable, as it enables change in financing after acquisition, and also when market conditions yield better interest rates, thus supporting optimisation of group financing, and tax shield utilisation as financial motives. Rigid loan agreements may present an obstacle for transactions.
- **Clean operating history and minimal litigation risk:** Companies with stable outputs and lower volatility are more attractive than those that historically experienced negative events such as loss of customers or file of bankruptcy. In financials, negative events might be reflected in all of the over-time regarded variables (CAGR, average EBITDA margin and average debt/EBITDA).
- **Expandable margins** that open a way to utilise economies of scale and support the objective of growth potential.

To summarise, qualitative characteristics can in most cases also be expressed via quantitative indicators, and acquisition motives are projected into both types of indicators. This thesis examines a year before acquisition only from quantitative view, since an analysis of qualitative parameters would require

examination of each business case separately which is not feasible for a research of this extent.

Future research of Czech acquisitions could be enriched by examination of qualitative transaction indicators prior to execution of deals, analysis of quantitative parameters in longer pre-acquisition period, and comparison to unacquired companies' specifics.

## 2.5 Post-acquisition performance

Research in the field of post-acquisition performance has been focused mostly on post-acquisition effects on shareholders' returns, and on market stock price of the acquiring company after an announcement of the intention to acquire. Existing studies primarily examine publicly traded companies and large corporations on developed markets. LOUGHRAN & VIJH (1997) analyse acquirer's and target's abnormal returns 5 years after acquisition on a sample of 947 publicly NYSE traded companies with regards to a mode of acquisition: mergers and tender offers;<sup>4</sup> and three payment methods: cash, stock, and other payment types (including mixed cash and stock payments). For an evaluation of acquirer's returns, matching stocks were chosen based on book-to-market value benchmark and return on equity requirement. Differences between the sample and matching stocks returns were reported as abnormal returns.

Loughran finds out that more than 80% of tender offers are paid in cash and almost 50% of mergers are paid by acquirer's stocks. The following table presents an aggregate overview of Loughran's results for acquirer's returns for each combination of the acquisition mode and payment type subsets, and for a complete sample as a percentage difference of returns compared to the matching stocks.

As reported by (J.P.Morgan 2017) in M&A Outlook, in 2016, 62% of globally realised transactions were cash deals. Applying Loughran's results on 2016 transactions, it would be expected that in general, transactions would bring positive returns. However, due to market conditions, cash was more widely accessible in 2016 which is one of the reasons for increased number of cash deals. It would be useful to repeat Loughran's analysis on newer data to find,

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<sup>4</sup>Concerning acquisition types described in Section 2.1, mergers are friendly deals negotiated with both management and shareholders, while in tender offers shareholders are approached directly without prior negotiation with management, so they rather resemble hostile takeovers

Table 2.1: Results overview - abnormal returns

	Merger	Tender offer	All
Acquirer's stock	-25.0%	no inference	-24.2%
Cash	Negligible close to 0	value +61.7%	+18,5%
All payments	-15.9%	+43.0%	-6.5%

*Source:* This overview was created by the thesis author based on Loughran's results.

if the past conclusion about payment method holds or is highly dependent on current market conditions.

Concerning Loughran's approach to returns of the target's shareholders, they are examined as returns of target's stocks over the bid to effective day period, and as returns of holding the acquirer's stocks. Loughran's approach does not capture the target's stand-alone performance after the acquisition, but shows mixed results of the target and the consolidated parent company group.

MARTYNOVA (2006) examines M&A deals in continental Europe and UK also from the perspective of the consolidated unit of the acquirer and target. In contrast to Loughran, she concludes insignificance of means of payments as a determinant of performance. In her study, performance is not derived from stock returns, but from operating indicators EBITDA to sales and to assets, and EBITDA less changes in working capital to sales and to assets. Based on Martynova and M&A Research Center indicators mentioned in Section 2.4, EBITDA to sales is selected as the main operating performance indicator for the model used in empirical part of this thesis.

A different approach to performance measures (accounting versus stock measures) could partially explain the difference in results. TUCH & O'SULLIVAN (2007) analysed existing research. They found out that while evidence of shareholder's returns using stock measures for estimation of impact of takeover announcement is insignificant, accounting measures provide mixed evidence.

A difference across continents, and a difference across time could also explain different results. While Loughran's research is based on American data from 1970 – 1989, Martynova's based on European deals from 1997 – 2001. Martynova herself refers to theoretical studies supporting existence of the relationship between means of payment and performance, but then to empirical studies contradicting the theory disregarding Loughran's study. It could be

useful for future research, to assess different empirical results from multiple studies meta-analytically.

CAPRON (1999) specialises on horizontal acquisitions in manufacturing and their long-term performance as affected by disposal of assets and reallocation of resources from the parent company to the target. Major focus is put on efficient application of economies of scale for cost cutting, increase in revenue via higher volumes produced, and potential in broadening product portfolio. The testing was carried out on a sample of 253 European and US firms reached via survey, in combination with obtaining publicly accessible data. Structural AMOS model reveals that disposal of assets yields positive cost effect, only when the mother company's assets are divested, not when the target's assets are disposed, which, however, occurs more often and leads to rather negative results. Reallocation of resources in both acquirer to target and target to acquirer way generally helps to increase revenue, but the reallocation to the acquirer sometimes may worsen performance.

FAVRE-BONTÉ & THÉVENARD-PUTHOD (2017) further identify on 14 European SME business cases that skill transfers in the area of operational management, procurement, logistics and commerce from the acquirer to the target are key to enhance the target's performance. An ability to execute such transfer is conditioned by geographical, cultural and business proximities.

POPLI *et al.* (2017) study post-acquisition performance of 468 Indian firms involved in both domestic and international deals from the perspective of belonging to a larger business group, the number of M&A deals realised prior to the transaction, and also group product-diversity. Using OLS and tobit model for estimating abnormal returns, they conclude that better approach to resources of the acquirer by the target company helps its performance in hand with CAPRON (1999)'s finding. Furthermore, the authors find out that the number of prior M&A deals realised within a business group positively affects long-term performance of a new target. In the Czech environment, this research would be relevant for analysis of PE funds and large investment groups.

RASHID & NAEEM (2017) examine impact of mergers on accounting ratios (profitability, liquidity and leverage) of 25 traded Pakistani companies from non-financial sector realised between 1995 and 2012. Due to a small size of the sample they apply both OLS and Bayesian estimation concluding insignificance of the merger effect on profit margin, return on assets, current ratio and debt to equity ratio, but negative significant impact on quick ratio. The authors omit any explanation of reasoning of their results, they only state them which

decreases on credibility and value of the results.

The difference in effect on two liquidity ratios seems counter-intuitive. Quick ratio formula (equation 2.5) differs from current ratio formula (equation 2.5) only in numerator, where inventories are subtracted from current assets.

$$QR = \frac{\text{currentassets} - \text{inventories}}{\text{currentliabilities}} \quad (2.1)$$

$$CR = \frac{\text{currentassets}}{\text{currentliabilities}} \quad (2.2)$$

Implicitly, the difference in results for quick and current ratio may indicate that after the deal, companies struggle with financing working capital, and that inventory turnover slows down, i.e. the pace at which inventories are turned into sales decrease. It would be meaningful to focus on a bigger detail and provide rationale for the results in the study, for instance by also observing effects of inventory turnover. The model is not replicated in the empirical part of thesis, as Rashid examines mergers, while this work focuses on acquisitions, but similar financial ratios are applied in search for their significance.

This work should fill in research gap by taking a deeper insight on Czech acquisition targets from all industry fields, including companies that are not publicly traded, and not limited to certain type of acquisitions. A broader sample than in studies focused only on specific industry and in small sample studies shall allow for comparison of different acquisition specifics.

# Chapter 3

## Czech market specifics

### 3.1 Enterprise statistics and characteristics

As of December 2017, according to MagnusWeb search there are 791 311 legal persons actively operating in the Czech Republic, including branches of foreign based companies. They could be divided into the following categories:

Table 3.1: Active Czech companies by category

Category	#
(1) Financial institutions including banks, pension funds, investment companies and mutual funds	1 456
(2) Educational institutions	2 919
(3) Public institutions including health care facilities, public administration offices and state institutions	7 041
(4) Co-operatives (družstvo)	14 174
(5) Ownership communities and public-benefit corporations (společenství vlastníků a příspěvkové organizace)	
(6) interest grouping and associations (zájmová sdružení a spolky)	143 509
(7) companies including joint stock company (akciová společnost) limited liability companies (společnost s ručením omezeným), general partnerships (veřejná obchodní společnost) and limited partnership (komanditní společnost)	539 262
<b>total active legal persons</b>	<b>791 311</b>

*Source:* Bisnode MagnusWeb

There are only 23 companies traded on the Prague Stock Exchange, three of which are banks (Komerční banka, Moneta Money Bank, and ERSTE Group Bank) belonging under category 1, and the remaining are joint stock compa-

nies (category 7). Most recent initial public offering (IPO) occurred in 2016, when GE Capital divested its banking division, and Moneta Money Bank issued shares. The attribute of small number of traded companies, and rare IPOs authentically characterises Czech market. Compared to matured markets, activity on the Czech stock market lags. Approach of investors and issuers is rather conservative and sceptical due to historical lack of transparency (in the 1990s), easy accessibility of bank financing and a general tardiness of IPO process.

Further details on industrial division according to NACE classification in the Table 3.2 below are provided only on the last category (joint stock, limited liability (...) companies) which belongs to the field of interest for this thesis. Considering the number of active subjects on the Czech market, top 3 industries include wholesale and retail (G) with almost 145 thousand active companies, professional, scientific and technical activities (M) with over 71 thousand companies and real estate (L) companies with over 63 thousand active subjects.

Table 3.2: Active Czech companies by NACE

<b>NACE classification</b>	<b>#</b>
(A) agriculture, forestry and fishing	12 322
(B) mining and quarrying	432
(C) manufacturing	49 272
(D) electricity, gas, steam and air conditioning supply	2 080
(E) water supply; sewerage, waste management and remediation activities	3 573
(F) construction	41 647
(G) wholesale and retail trade; repair of motor vehicles and motorcycles	144 602
(H) transportation and storage	12 117
(I) accommodation and food service activities	23 920
(J) information and communication	17 480
(K) financial and insurance activities	3 043
(L) real estate activities	63 107
(M) professional, scientific and technical activities	71 554
(N) administrative and support service activities	12 695
(O) public administration and defence; compulsory social security	30
(P) education	4 210
(Q) human health and social work activities	9 889
(R) arts, entertainment and recreation	4 591
(S) other service activities	4 218
(T) activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	1
(U) activities of extraterritorial organisations and bodies	0
(00) manufacturing, sale and services not listed in appendices 1 – 3 of the Trade Licensing Act	1 198
uncategorised	57 281
<b>Total</b>	<b>539 262</b>

*Source:* Bisnode MagnusWeb

Additional important division is according to the standards defined in the Accounting Act (Act No. 564/1991 Coll.) in paragraph 1b. to micro, small, medium, and large accounting units. As long as at least 2 out of 3 criteria stated in the table are not exceeded, the company belongs to the corresponding

Table 3.3: Active Czech companies by category

	<b>Micro</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
<b>assets</b>	9 mil. CZK	100 mil. CZK	500 mil. CZK	
<b>revenue</b>	18 mil. CZK	200 mil. CZK	1 000 mil. CZK	$\geq 2$ criteria exceeded
<b>employees</b>	10	50	250	

*Source:* Accounting Act

Having raised queries regarding this enterprise classification to the Ministry of Finance, and Financial Administration, it was discovered that none of the two institutions keep record of this categorisation, even though it is a determinant for whether an accounting unit can file a simplified financial closure, or is obliged to file a full scope financial closure.

The Czech Statistical Office (CSO) and the Ministry of Industry and Trade (MPO) monitor companies according to the European Commission standards, regarding employees, turnover and assets. Nevertheless, the statistics are not available to public. The only up-to-date overview was received from CSO classifying companies according to the number of employees and regions of their seat as of December 31, 2017. Numbers for the whole Czech Republic including both natural and legal entrepreneurship are presented in the Figure 3.1

59,09% of all entities did not disclose the number of their employees. This could be caused by the fact that all registered subjects including the inactive ones, and those under the liquidation process are listed in the CSO overview. For this reason, the total number of companies also does not correspond to the numbers retrieved from MagnusWeb.

Observing only the companies with disclosed number of employees appear to be more accurate and of a higher informative value than the whole sample. 95.08% of disclosing companies employ less than 10 employees, 3.74% belong to the category with 10 – 494 employees, 0.98% has 50 – 249 employees and the remaining 0.2% has over 250 employees. This clearly depicts the size structure of companies operating on the Czech market.

Figure 3.1: Czech enterprises by employees

number of employees	number of companies	% of total	% of disclosed
undisclosed	1 683 384	59.09%	
-	879 386	30.87%	75.47%
1-5	199 884	7.02%	17.15%
6-9	28 681	1.01%	2.46%
10-19	25 573	0.90%	2.19%
20-24	5 782	0.20%	0.50%
25-49	12 216	0.43%	1.05%
50-99	7 380	0.26%	0.63%
100-199	3 382	0.12%	0.29%
200-249	634	0.02%	0.05%
250-499	1 307	0.05%	0.11%
500-999	646	0.02%	0.06%
1 000 - 1 499	183	0.01%	0.02%
1 500 - 1 999	84	0.00%	0.01%
2 000 - 2 499	47	0.00%	0.00%
2 500 - 2 999	19	0.00%	0.00%
3 000 - 3 999	21	0.00%	0.00%
4 000 - 4 999	22	0.00%	0.00%
5 000 - 9 999	25	0.00%	0.00%
over 10 000	16	0.00%	0.00%
<b>total</b>	<b>2 848 672</b>	<b>100.00%</b>	
of which disclosed	1 165 288	40.91%	100.00%

Source: Czech Statistical Office

CSO releases a commented analysis on SMEs. Last release was published in March 2013, covering development in the period 2003 – 2010. Although the report is outdated now, it covers the vast part of 2005 – 2011 which is the period of completion of acquisitions monitored in the empirical part of the thesis. According to the analysis, average wages in SMEs were by 10% lower than in the overall business sector. On the other hand, labour efficiency as measured by added value per labour unit was higher than in the overall business sector. Micro companies with less than 10 employees had been for long the main enterprise form creating 96% of all registered companies.

The Czech Republic recorded a paradoxical effect in the observed period: In times of economic growth between 2004 – 2006, number of employees in micro companies decreased and shifted towards large and partially also medium companies. This effect contradicts an assumption that number of micro companies grow in times of economic boom. Then in the crisis years 2009 – 2010, larger companies reduced open positions, while micro enterprises increased, thus partially offsetting growth of unemployment. At the same time, both added value

and revenue decreased by over 6pp more than the employment level, thus showing that the productivity of SMEs decreased.

Besides CSO report, MPO annually publishes a Report on Development of Small and Medium Enterprises and Their Support (Zpráva o vývoji malého a středního podnikání a jeho podpoře). Last release was in October 2017 covering the year 2016. Total share of SMEs on value added reached 54.5% which year-on-year means a 7.5pp decrease. The share of employees in SMEs also decreased, thus supporting general validity of the paradox experienced in 2003-2010. In times of economic growth, there is a shift of labour force towards large corporations.

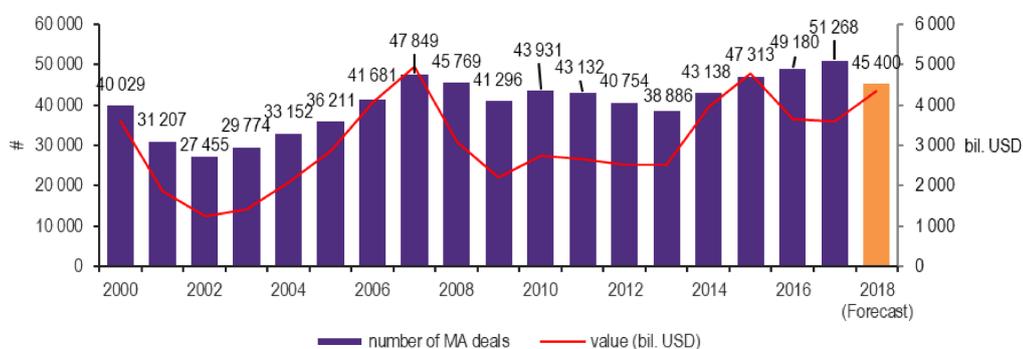
For the context of acquisitions, this raises a question of whether a proof for negative difference in efficiency of SMEs compared to large corporation can be found, and whether certain years of acquisitions will perform significantly differently from others due to the crisis period.

## 3.2 Development and trends on the Czech mergers and acquisitions market in the global context

### 3.2.1 Global M&A development

The global mergers and acquisitions market development copies the development of financial market, as patterns in Figures 3.2 and 3.3 below depict.

Figure 3.2: Global M&A



Source: IMAA M&A Statistics, available at:  
<https://imaa-institute.org/mergers-and-acquisitions-statistics/>

Figure 3.3: SP500 development



Source: Yahoo Finance

Figure 3.2 shows number of M&A deals and volumes as reported by The Institute for Mergers, Acquisitions and Alliances (IMAA). To capture the evolution of financial markets, S&P 500 index was chosen as an illustrative example of the major world indices.

After the dot-com bubble at the beginning of this millennium, M&A market started a recovery path in 2003. There was a quickening growth until 2007, at even a higher pace than financial markets experienced. This growth was supported by eased accessibility of financing opportunities, and the larger volumes also reflected skyrocketing stock prices. Between 2003 and 2007, the volumes multiplied by over 3.5 times to almost 5 billion USD in 2007, and the number of deals grew by 60%.

The drop after 2007 was more severe and longer, too. Within 2 years, the number of transactions fell only modestly by 15%, but volumes declined by almost 65% (while the world indices dropped by 40 – 50%). This resembles evolution of market with commercial papers where in reaction to the crisis a contraction in volumes of outstanding papers occurred, but the number of issued securities did not decrease.<sup>5</sup> The pace of recovery was rather sluggish until 2014, when a growth in both volume and number of transactions started growing.

2015 was the first year after the global financial crisis when transaction

<sup>5</sup>For further detail on ABS market see for instance Marcin Kacperczyk and Philipp Schnabl: When Safe Proved Risky: Commercial Paper during the Financial Crisis of 2007 – 2009. *Journal of Economic Perspectives*-Volume 24, Number 1 Winter 2010 Pages 29 – 50

volumes exceeded 4 billion USD. This year was driven by large transactions such as Anheuser-Busch Inbev's acquisition of SABMiller PLC for over 100 billion USD or Royal Dutch Shell PLC's acquisition of BG Group PLC for around 70 billion USD or Dell Inc's acquisition of EMC for 66 billion USD.

2016 decline in volumes was caused mainly by a decrease in deals exceeding 10 billion USD, and also by an increase in unsuccessful transaction, which were terminated either due to regulatory authorities' interventions, or due to failures in negotiations. Positive effects included China's multiplication of M&A investments in EMEA and US, general growth of economies, and convenient conditions of financing with low interest rates (J.P.Morgan 2017). These effects contributed to turning the year 2016 to the lead in the number of transactions realised with 49 180 deals closed.

2017 slightly surpassed 2016 in volumes, but there was a deterioration in the number of deals. A main trend of the year is an enhanced number of vertical acquisitions, as companies become more willing to interconnect different sectors mainly in technology and retail fields (VENTRESCA, C. and CRISTERNA, H. (2018)). Furthermore, due to high stock market valuations, stock payments became more frequent (Reuters (2017)).

### 3.2.2 Czech M&A development

Systematic public data on M&A transactions in the Czech Republic are non-existent. The last publication by the Czech Statistical Office on enterprise environment and economic growth of the Czech Republic was released in February 2010. It affirms that the data on number of transactions are missing, since the Trade Register does not keep record of them. Information of this type does not belong into the group of data subject to obligatory reporting.

Since 2011, EY have been annually publishing M&A Barometer for Central and Southeast Europe. In 2014, the first Czech focused M&A Barometer (presenting overview of 2013) was released. Data for these publications are collected from commercial databases like Mergermarket, DealWatch, Capital IQ and Zephyr; sources not accessible to the public.

As a small open economy, the Czech Republic mostly follows EU market trends, hence it could be assumed that in terms of trend in number and volume of transactions, the markets evolve similarly. However, statistics show that while European M&A market was decreasing between 2011 and 2013 both in terms of value and number of deals as visible in Figure 3.4, and from 2014 started

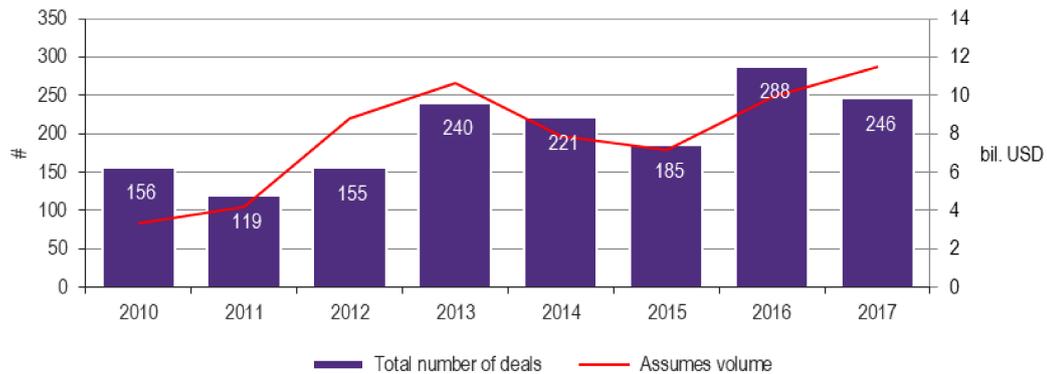
recovering same in accordance with the global trend, Czech M&A market was going in the opposite direction: growing between 2010 and 2013 in volumes, and declining in 2014 – 2015 as Figure 3.5 depicts.

Figure 3.4: European M&A



Source: IMAA M&A Statistics

Figure 3.5: Czech M&A



Source: EY M&A Barometer

EY data<sup>6</sup> only includes deals between private companies, and disregards acquisitions by natural persons that represent the vast majority of cases. This type of acquisitions will be included in the empirical analysis of this thesis.

In 2010, 156 transactions at the estimated value of 3.3 billion USD were observed. In 2011, a contraction in the number of deals occurred with 119 transactions realised. However, total estimated volume increased by 29% to 4.2 billion USD. Until 2013, a growth trend continued both in terms of number and volume of transactions. 240 deals were realised in 2013, and volume reached

<sup>6</sup>EY (2012a), EY (2013), EY (2014), EY (2015), EY (2016), EY (2017)

around 10.6 billion USD, despite the initiation of Czech National Bank's intervention against Czech Crown.

The 2013 peak was a result of acquisitions of Telefónica Czech Republic and Net4Gas that accounted for about 51% of total value of acquisitions in 2013. The following decline in 2014 and 2015 mainly reflects the exceptionality of so large transactions as in 2013 to take place on the Czech market. Furthermore, possibly the effect of the monetary intervention occurred with a typical monetary policy lag and a worsened position of companies that purchase their inputs in foreign currencies became more visible in these year. On the other hand, in the context of GDP growth reaching 4.3% y-o-y in 2015, growing trading activities and convenient financial market conditions (low interest rates), the drop in 2015 compared to 2014 seems counterintuitive. The bottom line follows that appetite for mergers and acquisitions is influenced by multiple criteria with contradictory effects, not all of them being observable.

Year 2016 has been the most successful, as the Czech market for the first time ranked first from CEE countries in the number of deals. In volumes, local market is still lagging behind Turkey and Poland. 288 transactions totalling to the value of 9.9 billion US dollars.

2017 followed global trend, and the market grew in volume to 11.5 billion USD, while the number of deals contracted to 246. Czech real estate market boom significantly projected also to M&A. Almost every fourth transaction involved real estate. The largest transaction of the year was an acquisition of Škoda Transportation by PPF for 0.5 billion USD.

### **3.3 Regulatory framework and role of regulatory institutions**

#### **3.3.1 Office for the Protection of Competition**

The Office for the Protection of Competition represents an authority established by the state administration with the main objective of market competition protection. Its main responsibilities and competencies include:

- creation of conditions that favour and protect competition,
- supervision over public procurement,
- monitoring and coordination of the provision of state aid,

- control of misuse of a significant market power.

Concerning mergers and acquisitions, the Department of Mergers under the Section for Market Competition of the office shall intervene in any merger of companies that could possibly create a risk of violating market competition (mostly if there is a risk of creation of a monopoly or a highly dominant market player). Merger of competitors for the purpose of evaluating market competition does not mean only the case when two or more competing companies cease to exist, while one new successor is created under a new ID, or the case when one or more competing companies ceases to exist, and become a part of another existing company as defined in § 61 of the Act No. 125/2008, Coll., on Transformations of Commercial Companies and Cooperatives. Under the definition of § 12 of the Act No. 143/2001 Coll. on the Protection of Competition, merger also includes the following cases:

- Acquisition of enterprise or a part of an enterprise belonging to another competitor, including a transfer of selected assets (i.e. not only enterprise, but also asset deals are concerned),
- Gain of control over another competitor, including creation of a new competitor under a mutual control of more subjects.<sup>7</sup>

A merger of competitors is subject to the Office's permission if:

- Total net revenue of all merging competitors exceeded 1.5 billion CZK on the Czech market in the past fiscal year, and at least two of the merging competitors separately reached revenue of over 250 million CZK each, or
- Total net revenue exceeds 1.5 billion CZK in the Czech Republic, and at the same time worldwide net revenue of another merging competitor exceeds 1.5 billion CZK.<sup>8</sup>

Merging companies are obliged to notify the Office prior to realisation of the merger. The penalty for not complying with the obligation can reach 10 million CZK or upto 10% of revenue of the acquirer (DSP (n.d.)) . The Office analyses each notified case, and either grants a permission, or, if a risk of market competition violation is identified, it prepares a set of conditions and liabilities,

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<sup>7</sup>A control means a legal or factual eligibility to have an executive influence on decisions over activities of another competitor or his part.

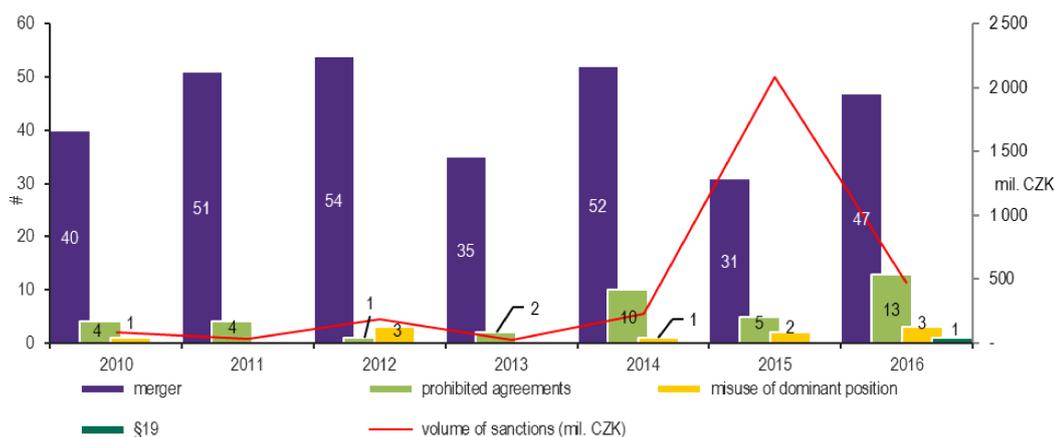
<sup>8</sup>This applies to mergers under § 12, paragraph 1, 2 and 5

under which the merger could be permitted. Rarely does the Office prohibit a merger.

Typically, conditions for permission include an obligation to sell a part of the business to a third party, not associated to the acquiring company. A well-known European example of a conditional merger was AB InBev's acquisition of SABMiller in 2017. AB InBev first had to dispose Pilsner Urquell (to the Japanese group Asahi) in order to prevent its dominant market position. In the Czech market, merger of Koninklijke Ahold N.V. (owner of Albert supermarkets) with SPAR Česká obchodní společnost s.r.o., and Imobilia Spa s.r.o. in 2014 was conditioned on a disposal of several retail places within an area of four cities, where the merged competitor would otherwise gain over 40% market share (ÚOHS, 2014<sup>9</sup>).

In 2016, there were 46 administration procedures concerning mergers were initiated, and 47 decrees were published as Figure 3.6 depicts. In 2015, there was a drop in notified and examined M&A cases compared to the previous years which goes in hand with the Czech M&A market decrease in this year. At the same time, the volume of imposed sanctions due to violation of any of the competition rules was the highest in 2015, totalling to 2.1 billion CZK. It is therefore possible that some deals were prohibited or postponed in time due to the intervention of the Office.

Figure 3.6: Overview of M&A decrees



Source: Office for the Protection of Competition, available at <http://www.uohs.cz/cs/informacni-centrum/statistiky/statistiky-z-oblasti-hospodarske-souteze.html>

<sup>9</sup>available at <https://www.uohs.cz/cs/hospodarska-soutez/aktuality-z-hospodarske-souteze/1833-fuze-obchodnich-retezcu-ahold-a-spar-by-la-povolena-se-zavazky.html>

### 3.3.2 Financial administration

Main agenda of Financial Administration is management of taxes. Since one of the motives for acquisition activities is tax optimisation (see also Section 2.3), it may happen that companies involved in M&A activities will become under the scrutiny of Financial Administration with higher probability, as the Global M&A Tax Survey and Trends by EY (2012b) revealed.

It is therefore essential to cover tax review of the target company in the due diligence process prior to acquisition, and make sure that taxes were filed correctly in the past periods that could still be subject of control, and set up correct structure for taxation also after the acquisition.

## 3.4 Hypotheses for Czech acquisitions

1. **The size of the majority shareholder's share does not affect company's performance.**

Previous studies by HANOUSEK *et al.* (2013) or by DEMSETZ & VILLALONGA (2001) evaluated effects on relationship between ownership structure and company performance and efficiency, concluding insignificant relationship. The same hypothesis will be tested on Czech companies via OLS regression. In a pooled cross-sectional time-series OLS with fixed effects, the size of majority share as a time invariant variable will be included under the fixed effect term.

2. **Cross-industrial acquisitions do not outperform within-industry acquisitions.**

MARTYNOVA (2006) points out inconsistencies in prior research findings in terms of industry focused versus diversifying acquisition. Newer research inclines more to insignificant effect of cross-industrial acquisition on performance, while pre-2000 research tends to evaluate diversifying acquisitions as poorer performing. Martynova's results confirm insignificance of the cross-industrial characteristic of acquisitions. Null hypothesis is expected not to be rejected in this study.

3. **Acquisitions by natural persons (entrepreneurs) do not yield better results than acquisitions by legal persons.**

Czech market is specific for its high number of micro and small entities owned by natural persons. As targets, these enterprises are more likely to

become targets of other natural persons than legal ones. If an acquiring natural person owns (an)other enterprise(s), it is possible to create synergies between such owned companies. Are capabilities of acquiring natural persons to improve performance of the target comparable to acquiring legal persons? Or is there a significant negative impact on the target's performance? No previous research attempted to test similar hypothesis.

4. **Acquisitions of micro and small companies do not yield better results in short-term (3 years) than acquisitions of medium and large corporations.**

Smaller companies might be easier to handle and manage than larger ones, when quick changes leading to optimisation are needed to be executed. It is expected the hypothesis will be rejected.

5. **Acquisitions of medium and large corporations do not yield better results in middle-term (5 years) than acquisitions of micro and small companies.**

In a longer term, the difference in manageability is expected to fade out. It is expected the hypothesis will not be rejected.

# Chapter 4

## Empirical analysis

### 4.1 Data collection method

The subjects of majority shareholder change were obtained from Bisnode Magnusweb in November and December 2017 based on an event filter. As a primary criteria a change of ownership of at minimum 50.1% of shares in the period 1 January 2001 to 31 December 2011 was used. Further, a filter on active companies was applied in the search criteria. The following fields were retrieved for a total of 36 985 observations:

- Date of the change,
- Majority shareholder's name,
- Identification number of the majority shareholder (if available in the system),
- Share of the majority shareholder expressed as an integer indicating percentage points,
- Name of the acquisition target,
- Identification number of the acquisition subject (if available in the system).

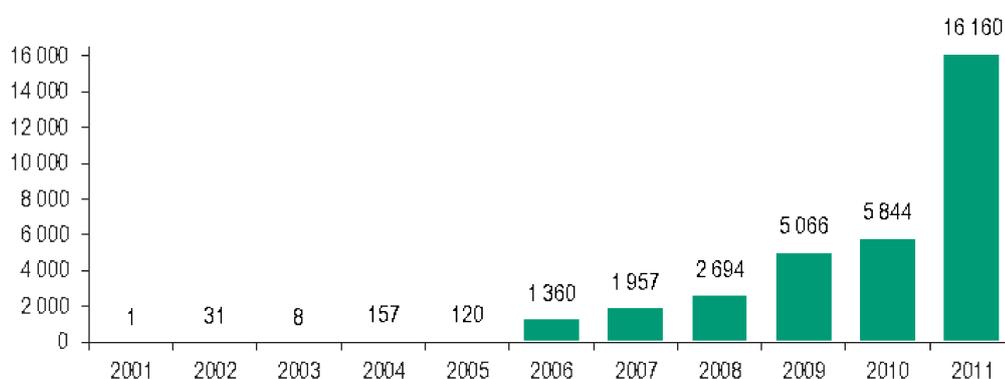
Following the basic search, the following manual adjustments were performed:

Majority shareholders were sorted by legal personality type for Czech companies, foreign companies without type differentiation, and natural persons.

Acquisition subjects with no valid identification number were dropped out, because missing identification makes a search for the companies' financials impossible.

Identification of subjects that are under the process of liquidation which is enlisted as a part of the Name of the acquisition subject. Those companies were excluded from the sample, since the rule of going concern, hence observation of their following performance would be disabled. This step contracted the dataset to 33 398 observations with the following distribution amongst individual years when the majority shareholder's change occurred.

Figure 4.1: Observations retrieved from Bisnode



The period 2001 – 2005 consists of a significantly lower amount of observations than the following years. This raised a question whether the search provides complete results. Therefore, a query to the database administrators was made. The administrators confirmed that accessibility of information on events further in past was limited.

For better relevance only period 2005 – 2011 is be further examined, even though the dataset might not include complete information on all acquisitions either. Following this exclusion, companies whose financial statements in either of three years of interest were inaccessible were left out. The three years of interest include: a closed fiscal year prior to the acquisition, 3 full fiscal years after the acquisition, and 5 full fiscal years after the acquisition.

A check for repetitiveness of the event of majority shareholder change of one company within the sample was carried out by checking for a duplicate target IDs. Repetitive change at one company would cause an error in estimation,

because the years of interest would be overlapping and not relevant for either of the analysed event of change.

Cooperatives as target companies were further left out, since they do not represent typical businesses with a major aim of profitable operations. Interpretation of their results would be unclear without studying each case separately. Only limited liability companies and joint stock companies remained in the final dataset.

Having reviewed individual variables in financial statements, companies with inconsistencies in financials or not meeting going concern condition were dropped. There were cases, where reported operating profit did not correspond to the sum of relevant reported operating revenue and costs, assets did not equal liabilities and shareholder's equity, accessible financial statements were incomplete, or financial characteristics signalled that companies were only empty shells (or special purpose vehicles) with no actual business operation.

Since MagnusWeb cannot apply a filter on negative type of events (i.e. events that did not happen), there is no straightforward option how to obtain information on companies that did not go through acquisitions in the examined period, hence how to obtain complete dataset to use any type of model controlling for selection bias.

## **4.2 Sample and variables description**

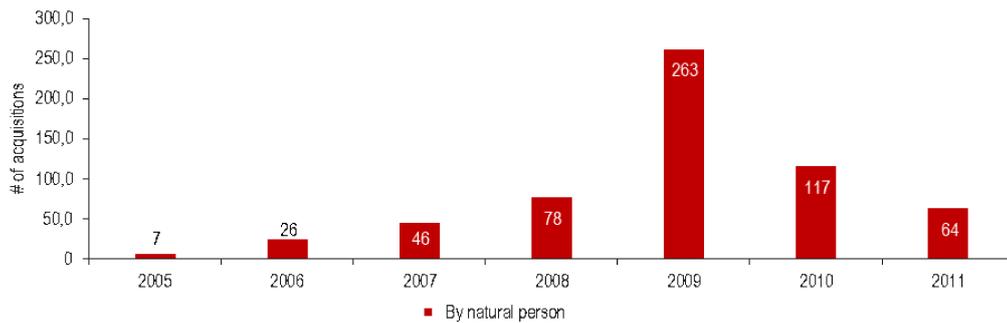
### **4.2.1 Dataset specification**

The final dataset consists of observations on 694 companies that were subject to a change of the majority shareholder in the period from 1 January 2005 to 31 December 2010. Distribution over the years does not correspond to the number of realised acquisition cases, but it reflects accessibility of the financial statements of companies. As visible from the Figures 4.2 and 4.3 below, 601 out of 694 acquisitions in the sample were realised by natural persons, thus forming 87% of the sample. Horizontal acquisitions represent 9% of the sample, vertical acquisitions 4% and financial less than 1%.

Figure 4.2: Acquisitions by legal persons



Figure 4.3: Acquisitions by natural persons



In terms of size of the acquisition targets as defined by the Accounting Act, micro and small accounting units compose 91.3% of observations, and medium and large companies 8.7%.

Table 4.1: Accounting units in the sample

Accounting unit	Observations
Micro	527
Small	100
Medium	33
Large	34
Total	694

Leading industries according to double-digit NACE in number of cases are: G46 Wholesale trade, except of motor vehicles and motorcycles with 151 representative cases, G47 - Retail trade, except of motor vehicles and motorcycles with 77 observations, and L68 - Real estate activities with 67 observations which approximately copies the frequency distribution of all active companies in the Czech Republic as presented in Section 3.1, Table 3.2.

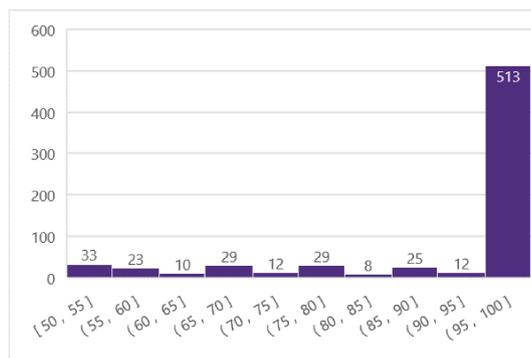
Table 4.2: NACE classification of the sample

<b>NACE</b>	<b>Observations</b>
(G46) Wholesale trade, except of motor vehicles and motorcycles	151
(G47) Retail trade, except of motor vehicles and motorcycles	77
(L68) Real estate activities	67
(F43) Specialised construction activities	54
(M71) Architectural and engineering activities; technical testing and analysis	35
(F41) Construction of buildings	33
(C25) Manufacture of fabricated metal products, except machinery and equipment	26
(J62) Computer programming, consultancy and related activities	22
(G45) Wholesale and retail trade and repair of motor vehicles and motorcycles	21
(M70) Activities of head offices; management consultancy activities	20
Other	188

### 4.2.2 Model variables specification

**Share** is a size of acquired majority shareholder's share expressed in percentage points. Figure 4.4 shows frequency of appearance. In 500 cases 100% share was acquired.

Figure 4.4: Frequency distribution of share size



**Logarithm of total assets (lAssets)** depicts size of the company with regards to asset base only.

**MedLarge** is a dummy variable for medium and large corporations as acquisition targets with regards to the volume of assets, revenue and number of employees according to the classification limits set by the Accounting Act (see Section 3.1). There are only 33 medium and 34 large acquisition targets in the sample.

**Dummy variables for types of acquisitions** include **Vertical**, **Financial** and **Naturalperson**. Horizontal acquisitions are used as a base group. Horizontal acquisitions were distinguished by examination of accordance in double-digit NACE of acquirer and target. Acquisitions by investment groups were marked as financial acquisitions, and the remaining acquisitions by legal persons are considered vertical.

Difference in EBITDA margin across years denoted **EBITDAm3diff** and **EBITDAm5diff** is a difference of EBITDA margin in percentage points computed as subtraction of EBITDA margin in year 0 (before acquisition) from EBITDA margins in years 3 and 5 after acquisition, respectively. EBITDA margin represents ratio EBITDA to Revenue, where Revenue is calculated as a sum of revenue from sales of goods, and revenue from sales of products and

services (rows 1 and 4 in standardised Czech income statement before 2017<sup>10</sup>), and EBITDA is calculated as Operating result (row 30) minus amortisation and depreciation of fixed assets (row 18). EBITDA margin is a key ratio of operating profitability regardless of means of financing operations. Martynova (2006) uses it along with EBITDA to assets ratio as a performance indicator.

**Change in variable costs to revenue ratio (changeVarRev)** represents a percentage point difference between variable costs to revenue ratios in years 3 and 0, and 5 and 0. Variable costs are a sum of cost of goods sold (row 2) and production consumption (row 8) in negative numbers that allows easier interpretation. A positive difference thus means lowering variable costs to revenue, which signifies optimisation (lowering) of per unit direct production costs. It is expected to have positive impact on dependent performance indicator. Cost of services are included under variable costs, despite the fact they may include certain fixed costs (e.g. cost of rent). Czech financial statements however do not allow for precise identification and breakdown of strictly variable versus fixed costs, so a simplified approach has to be taken.

Fixed costs (FC) summarise personnel costs in row 12 of standardised Czech income statement before 2017, and taxes and charges in row 17, expressed in negative numbers. **Change in fixed costs (changeFC)** between years is represented by an absolute difference, since construction of percentage change over years would lead to decrease of the sample by 71 additional observations, and distortion of the sample. Those 71 companies reported zero fixed costs in year 0 and/or 3 which indicates that they employ entrepreneurs, whose costs appear in costs of services within production consumption. The question of whether this is a sign of misclassification of employees as independent contractors is beyond the scope of this thesis, but would be an interesting topic for further research.

Return on assets (ROA) represents ratio of total assets to net profit of the year (row 60 in Czech income statement before 2017). It is a profitability ratio representing efficiency of employing assets to generate profit. **Change in ROA**

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<sup>10</sup>From January 1, 2017 a regulation implementing change to the structure of financial closure came into force, all items described here are derived from the financial closure valid until December 31, 2016

**(changeROA)** is expressed as percentage point change from the year 0.

**Debt to equity (DE)** expresses the amount of borrowings expressed as a negative number to equity. An accurate approach would be to investigate for all debt-like items within liabilities. However, the retrieved simplified structure of balance sheet from Magnus does not provide this level of detail, so a simplification was used and bank loans only were included. This leverage ratio expresses, how company's capital structure inclines toward debt or equity (Corporate Finance Institute). Often, ratio of total liabilities to total equity is used to express debt to equity (e.g. Investopedia presents this approach). This ratio does not focus on borrowing by its nature, but on all obligations including working capital items (accounts payable, accruals). Working capital is investigated as a separate indicator in this study.

**Equity ratio (EqRatio)** is computed as equity to total assets. It provides another view on the company's financing structure representing the portion of assets financed by shareholders. Change in equity ratio (changeER) represents percentage point difference in the ratio across time.

**Working capital (WC)** is calculated as subtraction of Current liabilities (short-term accounts payable, and accruals) from Current assets (CurAssets) including inventories, short-term accounts receivable, short-term financial assets and accruals.

**Days inventory outstanding (DIO)** computed as volume of inventories divided by revenue times 365 indicates how long it takes until the company sells its inventory. It is an efficiency measure with low values being more favourable, but largely variable across industries which could help absorb a part of unobserved variability.

### 4.3 Model description

The thesis proposal expected an application of both OLS regression and Heckman two-step model for estimation. However, data for Heckman model could not be retrieved, since there is no filter on negative events in the sense of a company not having been acquired in the selected period. Therefore, only OLS

regressions are used in forms described further, despite the possible distortion caused by the known selection bias. The aim of the thesis is to compare acquisition cases between themselves according to their specific characteristics, rather than to make any inference on influence of the acquisition act as such compared to general performance of companies that were not acquired.

Further argument for OLS not necessarily being invalid is provided by FARINÓS *et al.* (2017). He uses Heckman two-step model to test for self-selection bias stemming from acquisition of either listed or unlisted companies on the acquirers' (listed companies only) abnormal returns with the goal of proving whether or not results of other studies not controlling for the self-selection bias show false results. They conclude insignificant difference between results found when employing standard OLS and Heckman model, hence that the inference from OLS estimators is not necessarily invalid, even though the estimators may be biased.

First model used for testing hypotheses is an OLS regression with cross-sectional structure of data run separately for short-term effect after 3 years, and middle-term effect after 5 years using financial data on the pre-acquisition year, and 3 or 5 full fiscal years after the acquisition. Initial model specifications are represented by equation 4.1.

$$\begin{aligned}
 EBITDAmXdif = & \beta_0 + \beta_1share + \beta_2Vertical + \beta_3Financial + \\
 & + \beta_4Naturalperson + \beta_5MedLarge + \beta_6VarRevX + \\
 & + \beta_7changeFCX + \beta_8ChangeROAX + \beta_9lAssets0 + \\
 & + \beta_{10}lAssetsX,
 \end{aligned} \tag{4.1}$$

where X is either 3 or 5 years depending on short-term / mid-term regression.

This set-up is advantageous, as it allows for comparison of effects of time invariant characteristics including the size of majority shareholder's share, type of acquisition, and acquisition target type across the two different time spans. A disadvantage of the model is that if there are additional unobserved stable characteristics of the individual companies affecting performance indicators used as dependent variables, they might become a source of bias.

Therefore, as a second alternative is applied an OLS regression with fixed effects on two-period panel data. This model should reduce bias, and eliminate sampling variability by capturing heterogeneity and individual variability across subjects, hence provide a stronger test for the effect of various financial

indicators on performance. Testing effects of time invariant acquisition characteristics is not possible, since all such characteristics are all included under the company specific fixed effect, and no inference can be made about each one of them separately. The initial model specification is the following:

$$\begin{aligned} difEBITDA_{it} = & \beta_0 + \beta_1 difVarRev_{it} + \beta_2 changeFC_{it} + \\ & + \beta_3 ChangeROA_{it} + \beta_4 lAssets_{it} + a_{i+it} \end{aligned} \quad (4.2)$$

For a research on effects of acquisitions on acquired companies' performance compared to companies that did not go through an acquisition process in the observed period, it would be suitable to use for instance difference in differences technique with a constructed treatment group of unacquired companies to observe whether performance is affected by the act of acquisition as such. It is not the primary objective of this thesis, but it would be a relevant extension to the research field for the future.

# Chapter 5

## Results and their implications

### 5.1 Model with cross sectional data

#### 5.1.1 Short-term results

Model 1 regresses EBITDA margin difference (year 3 to year 0) on all acquisition specific dummy variables with base group of horizontal acquisitions of micro and small companies, changes in variable costs, fixed costs, return on assets, and logarithm of assets in both year 0 and year 3. It is used as a base case OLS for further determination of the best fit model by exclusion and inclusion of further variables.

Model 1: OLS, using observations 1–694

Dependent variable: EBITDAm3dif

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	t-ratio	p-value
const	0.498524	0.364008	1.370	0.1713
share	-0.00102292	0.00170152	-0.6012	0.5479
Vertical	-0.216737	0.197603	-1.097	0.2731
Financial	-0.149852	0.171346	-0.8746	0.3821
Naturalperson	-0.0535326	0.0711316	-0.7526	0.4520
MedLarge	0.187703	0.0994185	1.888	0.0594
changeVarRev3	0.679042	0.160067	4.242	0.0000
changeFC3	3.04617e-007	1.55284e-007	1.962	0.0502
changeROA3	0.143500	0.0610839	2.349	0.0191
lAssets0	-0.142718	0.0558496	-2.555	0.0108
lAssets3	0.0955775	0.0401846	2.378	0.0177

Mean dependent var	0.085611	S.D. dependent var	1.651714
Sum squared resid	679.0241	S.E. of regression	0.997085
$R^2$	0.640845	Adjusted $R^2$	0.635586
$F(10, 683)$	7.837136	P-value( $F$ )	5.64e-12
Log-likelihood	-977.1734	Akaike criterion	1976.347
Schwarz criterion	2026.314	Hannan-Quinn	1995.670

Test for normality of residual –

Null hypothesis: error is normally distributed

Test statistic:  $\chi^2(2) = 4045.92$

with p-value = 0

Regular standard errors were applied first, but homoscedasticity null hypothesis was rejected by Breusch-Pagan test. Therefore, heteroskedasticity robust estimators are further applied. Testing residuals against normality did not provide enough evidence for rejection of non-normality. No inference is made from the model, as t-statistics may be false, and observations with most extreme residuals are dropped out to remove the worst outliers that would distort the estimates.

Model 2: OLS, using observations 1–686

Dependent variable: EBITDAm3dif

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	$t$ -ratio	p-value
const	0.0816305	0.135441	0.6027	0.5469
share	0.000532469	0.000983539	0.5414	0.5884
Vertical	0.0660786	0.0583804	1.132	0.2581
Financial	-0.192909	0.151943	-1.270	0.2047
Naturalperson	-0.0570308	0.0426530	-1.337	0.1816
MedLarge	0.0354807	0.0456532	0.7772	0.4373
changeVarRev3	0.854164	0.0662772	12.89	0.0000
changeFC3	3.06773e-007	1.01166e-007	3.032	0.0025
changeROA3	0.0841335	0.0255058	3.299	0.0010
lAssets0	-0.0524742	0.0208244	-2.520	0.0120
lAssets3	0.0391688	0.0200591	1.953	0.0513

Mean dependent var	0.017605	S.D. dependent var	0.548724
Sum squared resid	64.55812	S.E. of regression	0.309260
$R^2$	0.686994	Adjusted $R^2$	0.682357
$F(10, 675)$	28.86383	P-value( $F$ )	3.04e-46
Log-likelihood	-162.7759	Akaike criterion	347.5518
Schwarz criterion	397.3915	Hannan-Quinn	366.8357

Running a model (Model 2) with sample restricted to 686 observations, all model criteria (SC, AIC, HQC) dropped by over 1500, providing sufficient evidence for an improvement of the model. Tests for adding and omitting model variables (presented on the following page) proved the following:

1. Dummy variables for years of acquisition (2005-2011) are all insignificant, and do not improve model specification. An initial expectation was that performance of acquisitions realised in 2005-2008 could be relatively worse due to the hit of global crisis in 2007, but the evidence proved not to be sufficient.
2. Change in revenue is also insignificant. In addition to significant indicators of change in costs, this leads to a conclusion that in general, efficiency is rather gained by cost-cutting, and optimisation of sales costs.
3. Tests for addition of variables capturing capital structure and changes over time evaluated only equity ratio in year 0 as significant. Indebtedness in terms of actual borrowings does not affect operational performance efficiency, but relative portion of own capital to assets does.

Model 3 with added equity ratio in the year before acquisition yields the best goodness-of-fit compared to all other tested model specifications in terms of  $R^2$  and all SC, AIC, HIC criteria, and is therefore used for inference as a benchmark model.<sup>11</sup> Dropping out acquisition type specific dummies improve the model only negligibly ( $R^2$  increase by only 1 basis point, criteria decrease by approximately 30), hence for the purpose of defined hypotheses testing, the variables are left in the model.

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<sup>11</sup>An endogeneity of equity ratio with respect to acquisition should not be an issue here.

Model 3: OLS, using observations 1–686  
 Dependent variable: EBITDAm3dif  
 Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	0.0688586	0.136103	0.5059	0.6131
share	0.000428620	0.000998909	0.4291	0.6680
Vertical	0.0651335	0.0570176	1.142	0.2537
Financial	−0.191095	0.151207	−1.264	0.2067
Naturalperson	−0.0537986	0.0419903	−1.281	0.2006
MedLarge	0.0280569	0.0453624	0.6185	0.5365
changeVarRev3	0.849782	0.0681232	12.47	0.0000
changeFC3	3.16935e−007	9.98151e−008	3.175	0.0016
changeROA3	0.115453	0.0347119	3.326	0.0009
lAssets0	−0.0430051	0.0205745	−2.090	0.0370
lAssets3	0.0329423	0.0201709	1.633	0.1029
EqRatio0	−0.0224988	0.00764909	−2.941	0.0034
Mean dependent var	0.017605	S.D. dependent var	0.548724	
Sum squared resid	63.36798	S.E. of regression	0.306623	
$R^2$	0.692764	Adjusted $R^2$	0.687750	
$F(11, 674)$	26.58528	P-value( $F$ )	4.01e−46	
Log-likelihood	−156.3936	Akaike criterion	336.7873	
Schwarz criterion	391.1578	Hannan–Quinn	357.8243	

The size of the majority shareholder’s share is economically negligible and statistically insignificant,  $H_0 : share = 0$  cannot be rejected, which provides a positive evidence for Hypothesis 1. (The size of the majority shareholder’s share does not affect company’s performance.) in line with past studies.

Vertical dummy variable is positive, which would indicate that within-industry acquisition performance over 3 years after acquisition develops worse than for cross-industry acquisitions against the assumed result. However, the coefficient is also insignificant.  $H_0 : vertical = 0$  cannot be rejected, which provides a positive evidence for Hypothesis 2. (Cross-industrial acquisitions do not outperform within-industry acquisitions) in line with Martynova (2006).

Financial acquisitions dummy does not reveal any significant difference compared to the base group either.

Naturalperson dummy variable has a negative value of  $-0.054$ , which is

lower than both financial and vertical dummy values and compared to the base group of horizontal acquisitions. If significant, this would mean that acquisitions realised by natural persons performs worse than all those realised by legal persons. However,  $H_0 : \text{naturalperson} = 0$  cannot be rejected, thus providing evidence for Hypothesis 3. (Acquisitions by natural persons (entrepreneurs) do not yield better results than acquisitions by legal persons.).

Based on these results, it could be assumed that capabilities of natural persons to improve performance of the target companies are not any worse than capabilities of legal persons.

Dummy variable for medium and large companies (*MedLarge*) is not significant,  $H_0 : \text{MedLarge} = 0$  cannot be rejected providing evidence for Hypothesis 4. (Acquisitions of micro and small companies do not yield better results in short-term than acquisitions of medium and large corporations.) that in short-term.

Change of variable costs to revenue ratio (*changeVarRev3*) coefficient with a positive value of 0.85 is significant and the largest in magnitude indicating evidence that cost cutting and per unit production cost optimisation are the most influential factors for operational performance change.

Change of fixed costs (*changeFC3*) is positive, statistically significant, but the coefficient value is economically negligible given the fact that the largest absolute change in fixed costs observed is in order of  $10^5$ , and median value in units.

Change of return on assets (*changeROA3*) has a positive significant effect of 0.115. Increasing effectivity of employment of assets thus positively affect operational performance of targets, as in accordance with theory.

While volume of assets as expressed on logarithmic scale in the year prior to acquisition has a negative significant effect of  $-0.043$ , the volume of assets 3 years after acquisition does not produce significant effect, nor does a change of assets over the 3-year time horizon. This result indicates that smaller companies in terms of assets volume might be easier to manage, and the larger the asset base gets prior to acquisition, the worse operational performance the targets yield within 3 years. Disregarding the official Accounting Act categorisation borders for revenue volume and number of employees, this finding demonstrates that smaller companies as targets yield better results in short-term, contradicting Hypothesis 4.

Equity ratio in the pre-acquisition year 0 produces significant negative effect of  $-0.022$ . Bigger share of equity produces marginal (small in magnitude)

effect on EBITDA margin development in short-term after acquisition.

**Overall, short-term model results illustrate that differentiation of acquisition types and characteristics of an acquirer have no impact on post-acquisition performance. Balance sheet structure prior to acquisition plays role in terms of total assets volume and equity to assets ratio, but neither working capital, nor debt to equity and their changes are of an impact.**

Tests for different dependent variables including change in ROA, EBITDA to assets ratio change, and change in profit margin were run on the restricted sample used in Model 3. With the sole exception of ROA, no combinations of explanatory variables that would explain variability in the dependent variable were found out, possibly meaning that a more sophisticated structural model would be needed to explain these indicators.

Model with change in ROA as a dependent variable yielded similar significant independent variables with same signs of coefficient as Model 3 (changeVar-Rev, lAssets0, EqRatio0). In addition to these, difference in EBITDA margin is concluded significant and with positive effect on ROA.

### 5.1.2 Middle-term results

Model 4 applies the same regression as Model 1 on a 5<sup>th</sup> year after acquisition with full sample of 694, restricted by 2 observations with missing variables.

Model 4: OLS, using observations 1–694 ( $n = 692$ )

Missing or incomplete observations dropped: 2

Dependent variable: EBITDAm5dif

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	0.470054	0.586889	0.8009	0.4235
share	−0.00338792	0.00342468	−0.9893	0.3229
Vertical	−0.742788	0.713230	−1.041	0.2980
Financial	−0.0383678	0.0904441	−0.4242	0.6715
Naturalperson	−0.0150787	0.113708	−0.1326	0.8945
MedLarge	0.284937	0.195577	1.457	0.1456
changeVarRev5	1.16308	0.176520	6.589	0.0000
changeFC5	6.94387e−007	4.10357e−007	1.692	0.0911
changeROA5	0.383323	0.205550	1.865	0.0626
lAssets0	−0.183611	0.112271	−1.635	0.1024
lAssets5	0.152007	0.128170	1.186	0.2360
Mean dependent var	−0.093004	S.D. dependent var	2.514796	
Sum squared resid	1837.245	S.E. of regression	1.642517	
$R^2$	0.579580	Adjusted $R^2$	0.573406	
$F(10, 681)$	19.48297	P-value( $F$ )	9.13e−32	
Log-likelihood	−1319.752	Akaike criterion	2661.505	
Schwarz criterion	2711.440	Hannan–Quinn	2680.818	

Test for omission of variables suggest that asset volumes are jointly insignificant. Residuals of the model are more extreme than from Model 1 suggesting certain companies improved a lot and certain degenerated. Adjusting for extreme residual values, sample is restricted to 679 observations, which improves all model criteria.

Model 5: OLS, using observations 1–679  
 Dependent variable: EBITDA<sub>m5</sub>dif  
 Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	−0.205777	0.144096	−1.428	0.1537
share	0.000767145	0.000877545	0.8742	0.3823
Vertical	0.00395210	0.0491075	0.08048	0.9359
Financial	−0.0425954	0.0421021	−1.012	0.3120
Naturalperson	0.00342535	0.0375545	0.09121	0.9274
MedLarge	0.00744505	0.0440401	0.1691	0.8658
changeVarRev5	1.12356	0.0605878	18.54	0.0000
changeFC5	5.33139e−007	1.69966e−007	3.137	0.0018
changeROA5	0.0783699	0.0472082	1.660	0.0974
lAssets0	−0.0177940	0.0158125	−1.125	0.2609
lAssets5	0.0286465	0.0153770	1.863	0.0629
Mean dependent var	0.039052	S.D. dependent var	1.456172	
Sum squared resid	81.09477	S.E. of regression	0.348424	
$R^2$	0.943592	Adjusted $R^2$	0.942748	
$F(10, 668)$	75.67334	P-value( $F$ )	5.8e−103	
Log-likelihood	−242.0208	Akaike criterion	506.0417	
Schwarz criterion	555.7685	Hannan–Quinn	525.2910	

Same as in the short-term models, acquisition type specifics remain insignificant, revealing that Hypothesis 1. – 3. persist from short to middle-term. Change in variable costs to revenue ratio remains key determinant significant at 1% level with even larger magnitude of 1.124.

Unlike in the 3year model, volume of assets become insignificant both in the pre-acquisition period and in the 5<sup>th</sup> year, omitting them from the model improves model information criteria, hence they are left out. Adding dummies for depicting acquisition years does not improve the model either, similar as in short-term.

Adding change in equity ratio between years 0 and 5, and debt to equity ratio in year 5 to the Model 6 provides the best fit from all tested models (including the ones not presented here).

Model 6: OLS, using observations 1–679  
 Dependent variable: EBITDAm5dif  
 Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	−0.0694343	0.0904377	−0.7678	0.4429
share	0.000426242	0.000867246	0.4915	0.6232
Vertical	−0.000200942	0.0500341	−0.004016	0.9968
Financial	−0.0509134	0.0415249	−1.226	0.2206
Naturalperson	−0.00958346	0.0352029	−0.2722	0.7855
MedLarge	0.0478317	0.0267025	1.791	0.0737
changeVarRev5	1.12213	0.0609590	18.41	0.0000
changeFC5	5.11412e−007	1.47381e−007	3.470	0.0006
changeROA5	0.0940538	0.0463605	2.029	0.0429
changeER5	0.0124879	0.00478108	2.612	0.0092
DE5	0.00922671	0.00215397	4.284	0.0000
Mean dependent var	0.039052	S.D. dependent var	1.456172	
Sum squared resid	80.01859	S.E. of regression	0.346104	
$R^2$	0.944341	Adjusted $R^2$	0.943508	
$F(10, 668)$	92.11989	P-value( $F$ )	1.2e−118	
Log-likelihood	−237.4853	Akaike criterion	496.9707	
Schwarz criterion	546.6975	Hannan–Quinn	516.2200	

Coefficient at MedLarge remains still insignificant. The null hypothesis that there is no performance difference for medium and large companies compared to micro and small companies in the middle-term cannot be rejected, providing evidence for Hypothesis 5. (Acquisitions of medium and large corporations do not yield better results in middle-term than acquisitions of micro and small companies). The value of coefficient MedLarge in the 5-year model increases compared to the 3-year model, if significant, this would suggest that the difference in performance according to the size grows in time.

Change in variable costs to revenue ratio remains significant, and even increases in magnitude. The same applies for fixed costs that are still of an economically negligible value.

Change in return on assets in 5 years has lower significance (is significant at 5% significance level, but not at 1% as in the Model 3). Magnitude decreased by 0.02, and remains positive.

Difference in equity ratio (changeER5) across time is significant, but marginal in value. Increase of equity ratio by 1 percentage point affect EBITDA margin only by 1.2 basis points. Significant debt to equity signals that the volume of borrowing matters too. However, the economic impact is negligible, only 0.9 basis points effect per 1 percent change in debt to equity.

**Results of hypotheses testing in short-term remain unchanged in middle-term. The major differences are in magnitude of coefficients, and in assets becoming insignificant. Capital structure is statistically significant, but with economically negligible effects.**

## 5.2 Model with two period panel data

Initial pooled model results on the complete sample of 694 accounting units across 2 time periods are presented by Model 7 results.

Model 7: Fixed-effects, using 1386 observations

Included 694 cross-sectional units

Time-series length = 2

Dependent variable: difEBITDAm

Robust (HAC) standard errors

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	-0.0931138	0.0269417	-3.456	0.0006
difVarRev	1.01114	0.0232406	43.51	0.0000
difFC	1.21666e-007	4.79521e-007	0.2537	0.7998
difROA	0.355795	0.172122	2.067	0.0391
difAssets	0.0159068	0.290911	0.5468	0.5847
Mean dependent var	â'0.004446	S.D. dependent var	2.127938	
Sum squared resid	415.1884	S.E. of regression	0.776834	
LSDV $R^2$	0.933797	Within $R^2$	0.825495	
Log-likelihood	â'1131.276	Akaike criterion	3658.551	
Schwarz criterion	7312.007	Hannan-Quinn	5024.979	

Joint test on named regressors –

Test statistic:  $F(4, 693) = 532.762$

with p-value =  $P(F(4, 693) > 532.762) = 1.0138e-209$

The frequency plot chart shows outliers causing non-normality of residuals. Therefore, extreme observations are dropped out, restricting the sample to 671 observations over 2 periods in time. Model 8 provides improved criteria.

Model 8: Fixed-effects, using 1342 observations

Included 671 cross-sectional units

Time-series length = 2

Dependent variable: difEBITDAm

Robust (HAC) standard errors

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	-0.0450299	0.00537339	-8.380	0.0000
difVarRev	0.990480	0.0239895	41.29	0.0000
difFC	1.84170e-007	3.25749e-007	0.5654	0.5720
difROA	0.218002	0.0457314	4.767	0.0000
difAssets	0.0108577	0.00601104	1.806	0.0713
Mean dependent var	0.044755	S.D. dependent var		1.589080
Sum squared resid	11.98630	S.E. of regression		0.134054
LSDV $R^2$	0.996460	Within $R^2$		0.969109
Log-likelihood	1261.664	Akaike criterion		-1173.329
Schwarz criterion	2337.965	Hannan-Quinn		142.0398

Joint test on named regressors –

Test statistic:  $F(4, 670) = 543.074$

with p-value =  $P(F(4, 670) > 543.074) = 1.46505e-208$

Unlike in the cross-sectional models, constant is strongly significant in the pooled model, and fixed costs change insignificant. Coefficient at VarRev is significant and of a value reaching 0.99 indicating almost exact correlation with EBITDA margin change. This also signals that there might be another unobserved factor missing in the model, as such high level of correlation is rather unlikely also from the business point of view. Fixed costs are of an important role too, in most of businesses with no regards to the industry.

Tests for addition and omission of variables lead to Model 9 selection as the most explanatory and suitable one. Days inventory outstanding variable is included here. Time dummy variable was tested with an expectation of depicting change between the two observed periods, but no significance or model enhancement occurred.

Model 9: Fixed-effects, using 1342 observations

Included 671 cross-sectional units

Time-series length = 2

Dependent variable: difEBITDAm

	Coefficient	Std. Error	<i>t</i> -ratio	p-value
const	-0.0410786	0.00593802	-6.918	0.0000
difVarRev	0.964299	0.00847821	113.7	0.0000
difFC	1.71992e-007	8.90045e-007	0.1932	0.8468
difROA	0.234201	0.0208028	11.26	0.0000
difAssets	0.0106090	0.00471117	2.252	0.0247
ITO	-6.62787e-007	1.20999e-007	-5.478	0.0000
Mean dependent var	0.044755	S.D. dependent var		1.589080
Sum squared resid	11.46958	S.E. of regression		0.131231
LSDV $R^2$	0.996613	Within $R^2$		0.970441
$F(675, 666)$	290.3152	P-value( $F$ )		0.000000
Log-likelihood	1291.233	Akaike criterion		-1230.466
Schwarz criterion	2286.030	Hannan-Quinn		86.85168

Joint test on named regressors –

Test statistic:  $F(5, 666) = 4373$

with p-value =  $P(F(5, 666) > 4373) = 0$

Test for differing group intercepts –

Null hypothesis: The groups have a common intercept

Test statistic:  $F(670, 666) = 78.3665$

with p-value =  $P(F(670, 666) > 78.3665) = 0$

Common intercept is of a negative value  $-0.041$  implying that in general, the performance change after acquisition is slightly negative. The null hypothesis that the 671 cross-sectional units have a common intercept can be rejected. The fixed effects are justifiable for capturing within sample variability.

The magnitude of change in variable costs to revenue ratio decreases to still a high value of 0.964, pinpointing that optimization of direct costs might be the factual key driver of operating performance far surpassing impacts of sales increase and optimisation on the level of overhead costs.

Difference in return on assets follows the logic of cross-sectional models

with a significant positive value of 0.234 that is higher in magnitude when both-periods are examined in a pool than for each period separately.

Difference in assets expressed in percentage change relative to the pre-acquisition year becomes significant at 5% significance level with a rather negligible value of 0.011.

Eventually, days inventory outstanding have a significant marginal negative effect which follows the economic intuition that worse capability of a company to turn inventories into revenue means worse operational efficiency. To summarise, regression of two-period pooled panel data structure confirms the results of the cross-sectional evidence that changes in variable costs to revenue ratio and return on assets affect the post-acquisition performance most.

**To summarise, regression of two-period pooled panel data structure confirms the results of the cross-sectional evidence that changes in variable costs to revenue ratio and return on assets affect the post-acquisition performance most.**

# Chapter 6

## Conclusion

The thesis examines impact of acquisitions of Czech companies, where a change of majority shareholder occurred between 2005 and 2011, on performance of the companies. The essence of the research is a comparison of executed acquisitions according to their specifics, and a search for most influential financial variables affecting operating profitability expressed as EBITDA to sales ratio, and other performance indicators.

On a sample of 694 observations, OLS regressions on cross-sectional data for 3- and 5-year period after acquisition reveal that the size of the majority shareholder's share does not influence performance. No evidence is found for a significance of a deal categorisation to horizontal, vertical, and financial acquisitions, nor for acquisitions realised by natural persons. Classification of target accounting units to micro and small, and medium and large is also concluded insignificant for the post-acquisition performance.

Concerning financials, optimisation of variable costs relative to revenue emerged as the most influential factor on EBITDA margin after acquisition with cost optimisation having an expected positive effect. Further discovered significant variables are return on assets, volume of assets prior to acquisition, and equity ratio. No contradicting result is found between short and middle term performance except for volume of assets becoming insignificant in longer-term, and magnitudes of coefficients changing slightly.

An alternative test is made on a two-period pooled panel data yielding confirmatory results for the significance of variable costs to revenue and return on assets as affecting EBITDA margin.

For investors intending to realise acquisitions in the Czech market, the results have the following implication. If there is an intention to increase operat-

ing profitability of the target company, in the planning phase and throughout due diligence, special focus should be put on investigation whether there exists a space for direct cost optimisation, or if via synergies there is a way to optimise per unit sales cost. If a financial investor has a shorter investment horizon, the size of the target's assets and space for optimisation of their employment is worth investigating.

Contribution to the research in M&A field is brought thanks to a focus on the Czech market, which is not stock-based, but more privately and bank financed. So far, it has been missing systematic analysis of company acquisitions performance. Furthermore, approach to performance analysis is taken from the acquired company perspective, not the acquirer's, unlike in most of existing research. The evidence is based on evaluation of financial indicators retrieved from reported financial statements which is also quite unique, since a majority researches take stock-approach.

A useful future research extension in the field of evaluating acquisitions would be a comparison between performances of acquired and unacquired companies both from qualitative and quantitative view. This would serve as an evaluation tool for the act of acquisition as such; something this thesis does not cover.

In addition to that, a study comparing the perspectives of both stock and accounting measures could enrich the field, and serve as an inspection of existing results. This is, however, possible only on markets with a sufficiently developed stock market, where the Czech Republic does not belong yet.

# Bibliography

- ANGWIN, N., PAROUTIS, S., & CONNELL, R. 2015. Why good things Don't happen: the micro-foundations of routines in the M&A process. *Journal of Business Research*, **68**, 1367–1381.
- CAPRON, L. 1999. The long-term performance of horizontal acquisitions. *Strategic Management Journal*, **20**, 987–1018.
- 2010]CSU2009 {CeskÅ" statistický úřad. 2010. *PodnikatelskÅ© prostředÅ a ekonomický růst ČeskÅ© republiky*. Available at <https://www.czso.cz/csu/czso/cri/male-a-stredni-firmy-v-ekonomice-cr-v-letech-2003-az-2010-n-u3ag8rcnab>.
- CLARK, K., & OFEK, E. 1994. Mergers as a Means of Restructuring Distressed Firms: An Empirical Investigation. *The Journal of Financial and Quantitative Analysis*, **29**(4), 541–565.
- Corporate Finance Institute. 2018. *M&A Process – Steps in the Mergers & Acquisitions Process*. Available at <https://corporatefinanceinstitute.com/resources/knowledge/deals/mergers-acquisitions-ma-process/>.
- CURTIS, G. 2017. *Trademarks of a Takeover Target*. Available at [https://www.investopedia.com/articles/stocks/07/takeover\\_target.asp](https://www.investopedia.com/articles/stocks/07/takeover_target.asp).
- Deloitte. 2013. *Bridging the Gap: M&A â\ Are CFOs and boards aligned?* Available at [https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Mergers-and-Acquisitions/gx\\_ma\\_bridging\\_the\\_gap\\_080213.pdf](https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Mergers-and-Acquisitions/gx_ma_bridging_the_gap_080213.pdf).
- DEMSETZ, H., & VILLALONGA, B. 2001. Ownership structure and corporate performance. *Journal of Corporate Finance*, **7**(3), 209–233.

- EY. 2012a. *Central and South Eastern Europe - M&A Barometer 2011*. Available at <http://www.hvca.hu/wp-content/uploads/2011/12/MA-Barometer-CSE.pdf>.
- EY. 2012b. *Global M&A tax survey and trends*. Available at [http://www.ey.com/Publication/vwLUAssets/EY-global-ma-tax-survey-trends/\\$FILE/EY-global-ma-tax-survey-trends.pdf](http://www.ey.com/Publication/vwLUAssets/EY-global-ma-tax-survey-trends/$FILE/EY-global-ma-tax-survey-trends.pdf).
- EY. 2013. *Central and South Eastern Europe - M&A Barometer 2012*. Available at [http://www.ey.com/Publication/vwLUAssets/BB\\_MA\\_Barometer\\_2012/\\$FILE/M&A%20Barometer%202012%20CSE\\_ENG.pdf](http://www.ey.com/Publication/vwLUAssets/BB_MA_Barometer_2012/$FILE/M&A%20Barometer%202012%20CSE_ENG.pdf).
- EY. 2014. *M&A Barometr 2013 Česká republika*. Available at [http://www.ey.com/Publication/vwLUAssets/MA\\_Barometr\\_CZ/\\$FILE/M&A%20Barometer%202013%20CZ\\_final.pdf](http://www.ey.com/Publication/vwLUAssets/MA_Barometr_CZ/$FILE/M&A%20Barometer%202013%20CZ_final.pdf).
- EY. 2015. *M&A Barometr 2014 Česká republika*. Available at [http://www.ey.com/Publication/vwLUAssets/EY-MA-barometr-2014/\\$FILE/MA%20Barometer%202014%20CZ%20-%20FINAL.PDF](http://www.ey.com/Publication/vwLUAssets/EY-MA-barometr-2014/$FILE/MA%20Barometer%202014%20CZ%20-%20FINAL.PDF).
- EY. 2016. *M&A Barometr 2015 Česká republika*. Available at [http://www.ey.com/Publication/vwLUAssets/2016-MA-Barometer-CZ-2015/\\$FILE/MA\\_Barometer\\_CR\\_2016.pdf](http://www.ey.com/Publication/vwLUAssets/2016-MA-Barometer-CZ-2015/$FILE/MA_Barometer_CR_2016.pdf).
- EY. 2017. *M&A Barometr 2016 Česká republika*. Available at [http://www.ey.com/Publication/vwLUAssets/2017-MA-Barometr-CZ/\\$FILE/Barometr%202016%20.pdf](http://www.ey.com/Publication/vwLUAssets/2017-MA-Barometr-CZ/$FILE/Barometr%202016%20.pdf).
- FARINÓS, V. J. E., HERRERO, B., & LATORRE, G. M. A. 2017. Self-Selection Bias and the Listing Status of Target Firms: Value Effects in the Spanish Market. *Czech Journal of Economics and Finance*, **67**(5), 423–438.
- FAVRE-BONTÉ, V., & THÉVENARD-PUTHOD, C. 2017. Resource and Skill Transfers in Subcontractor SME Acquisitions: Influence on the Long-Term Performance of Acquired Firms. *European Management Review*, **10**, 117–135.
- GAMMERLGAARD, J. 1999. Competence: A Dynamic Extension of the Existing Typology of Acquisition Motives. *Department of International Economics and Management, Copenhagen Business School*. Available at <http://openarchive.cbs.dk/cbsweb/handle/10398/6587>.

- GOMES, E., ANGWIN, D.N., WEBER, Y., & TARBA, S.Y. 2013. Critical Success Factors through the Mergers and Acquisitions Process: Revealing Pre- and Post-M&A Connections for Improved Performance. *Thunderbird International Business Review*, **55**(1), 423–438.
- HANOUSEK, J., KOČENDA, E., & SHAMSHUR, A. 2013. Corporate Efficiency in Europe. *Journal of Corporate Finance*, **32**, 24–40.
- HASPESLAGH, P. C., & JEMISON, D. B. 1991. Managing acquisitions: Creating value through corporate renewal. *The Free Press, Oxford*.
- Investopedia. 2018. *Acquisition*. Available at <https://www.investopedia.com/terms/a/acquisition.asp>.
- JEMISON, D. B., & SITKIN, S.B. 1986. Acquisitions: The Process Can Be a Problem. *Harvard Business Review*, March.
- J.P.Morgan. 2017. *2017 Global M&A Outlook*. Available at <https://www.jpmorgan.com/jpmpdf/1320723701797.pdf>.
- KONKOLSKI, S. 2011. Strukturalizace a analýza faktorů ovlivňujících efektivnost fúzí a akvizic. Available at <http://aak.cms.opf.slu.cz/pdf/2011/4/konkowski.pdf>.
- LOUGHRAN, T., & VIJH, A. M. 1997. Do Long-Term Shareholders Benefit From Corporate Acquisitions? *The Journal of Finance*, **53**(5), 1765–1790.
- M&A Research Centre at Cass Business School, City University London, and Intralinks. 2006. *Attractive M&A Targets: Part 1: What do buyers look for?* Available at [https://s3.eu-west-2.amazonaws.com/acuris-live/Attractive\\_M&A\\_Targets\\_PART%201\\_v2.pdf](https://s3.eu-west-2.amazonaws.com/acuris-live/Attractive_M&A_Targets_PART%201_v2.pdf).
- MARTYNOVA, M. 2006. The long-term operating performance of European mergers and acquisitions. *ECCI - Finance Working Paper, TILEC Discussion Paper No. 2006-030*, **137**(November). Available at [http://ssrn.com/abstract\\_id=944407](http://ssrn.com/abstract_id=944407).
- 2017]MPO2017 Ministerstvo průmyslu a obchodu. 2017. *Zpráva o vývoji malého a středního podnikání a jeho podpoře v roce 2016*. Available at <https://www.mpo.cz/cz/podnikani/male-a-stredni-podnikani/studie-a-strategicke-dokumenty/zprava-o-vyvoji-maleho-a-stredniho-podnikani-a-jeho-podpore-v-roce-2016--2327>

- POPLI, M., L., RADHA M., & S., GAUS A. 2017. Business group affiliation and post-acquisition performance: An extended resource-based view. *Journal of Business Research*, **81**(December), 21–30.
- RASHID, A., & NAEEM, N. 2017. Effects of mergers on corporate performance: An empirical evaluation using OLS and the empirical Bayesian methods. *Borsa Istanbul Review*, **17**(1), 10–24.
- Reuters. 2017. *CEOs go M&A hunting as booming markets unleash dealmaking spirits*. Available at <https://www.cnbc.com/2017/12/29/ceos-go-ma-hunting-as-booming-markets-unleash-dealmaking-spirits.html>.
- SKÁLOVÁ, J. 2015, 2.edice. *Účetní a daňové souvislosti přeměn obchodních společností*. Wolters Kluwer.
- TRICHTERBORN, A., D.Z., KNYPHAUSEN-AUFSES, & L., SCHWEIZER. 2016. How to improve acquisition performance: The role of a dedicated M&A function, M&A learning process, and M&A capability. *Strategic Management Journal*, **37**, 763–773.
- TUCH, C., & O’SULLIVAN, N. 2007. The impact of acquisitions on firm performance: A review of the evidence. *International Journal of Management Reviews*, **9**, 141–170.
- VENTRESCA, C. and CRISTERNA, H. 2018. *M&A Outlook*. Available at <https://www.jpmorgan.com/global/cib/2018-ma-outlook>.
- VOSS, I. 2008. *M&A Capability Evolution: The Art of Balancing Standardization and Flexibility*. Goettingen, Germany: Cuvillier.
- WEBER, Y., TARB, S.Y., & OBERG, C. 2014. *A Comprehensive Guide to Mergers & Acquisitions: Managing the Critical Success Factors Across Every Stage of the M&A Process*. FT Press.

# Appendix A

## Appendix

### A.1 Tests for addition and omission of variables

#### A.1.1 Model 2

Test for addition of variables –

Null hypothesis: parameters are zero for the variables  
DE3

Test statistic:  $F(1, 674) = 0.0245785$

with p-value =  $P(F(1, 674) > 0.0245785) = 0.875469$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables  
DE0

Test statistic:  $F(1, 674) = 2.98936$

with p-value =  $P(F(1, 674) > 2.98936) = 0.0842714$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables  
changeER3

Test statistic:  $F(1, 674) = 3.11744$

with p-value =  $P(F(1, 674) > 3.11744) = 0.0779112$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables  
EqRatio0

Test statistic:  $F(1, 674) = 8.65166$

with p-value =  $P(F(1, 674) > 8.65166) = 0.0033797$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables

EqRatio3

Test statistic:  $F(1, 674) = 0.00665972$

with p-value =  $P(F(1, 674) > 0.00665972) = 0.934983$

### A.1.2 Model 3

Test for addition of variables –

Null hypothesis: parameters are zero for the variables

EqRatio3

Test statistic:  $F(1, 673) = 1.03785$

with p-value =  $P(F(1, 673) > 1.03785) = 0.308687$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables

ChangeND3

Test statistic:  $F(1, 673) = 0.0531428$

with p-value =  $P(F(1, 673) > 0.0531428) = 0.817752$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables

changeER3

Test statistic:  $F(1, 673) = 1.03785$

with p-value =  $P(F(1, 673) > 1.03785) = 0.308687$

### A.1.3 Model 4

Test for omission of variables –

Null hypothesis: parameters are zero for the variables

lAssets5

Test statistic:  $F(1, 681) = 1.40654$

with p-value =  $P(F(1, 681) > 1.40654) = 0.236044$

Test for omission of variables –

Null hypothesis: parameters are zero for the variables

lAssets0

lAssets5

Test statistic:  $F(2, 681) = 1.73853$   
with p-value =  $P(F(2, 681) > 1.73853) = 0.176557$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables  
dum2005  
dum2006  
dum2007  
dum2008  
dum2009  
dum2010

Test statistic:  $F(6, 675) = 0.43117$   
with p-value =  $P(F(6, 675) > 0.43117) = 0.858295$

Test for omission of variables –

Null hypothesis: parameters are zero for the variables  
lAssets0

Test statistic:  $F(1, 681) = 2.67465$   
with p-value =  $P(F(1, 681) > 2.67465) = 0.10242$

Test for normality of residual –

Null hypothesis: error is normally distributed

Test statistic:  $\chi^2(2) = 3124.01$   
with p-value = 0

Test for omission of variables –

Null hypothesis: parameters are zero for the variables  
changeROA5

Test statistic:  $F(1, 681) = 3.47771$   
with p-value =  $P(F(1, 681) > 3.47771) = 0.0626306$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables  
EqRatio0  
EqRatio3  
EqRatio5

Test statistic:  $F(3, 678) = 1.98111$   
with p-value =  $P(F(3, 678) > 1.98111) = 0.115478$

Test for addition of variables –

Null hypothesis: parameters are zero for the variables

EqRatio0

EqRatio5

Test statistic:  $F(2, 679) = 2.05731$

with p-value =  $P(F(2, 679) > 2.05731) = 0.128594$