

Before and after acquisition in Hungary: focus on working capital management*

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The European mergers and acquisitions (M&A) market saw a pronounced upswing in 2014, as attested by the 40.5 per cent increase relative to 2013. In the period between 1997 and 2014, 861 acquiring companies took part in M&A transactions subject to authorisation based on the threshold value defined by the Hungarian Competition Authority in Hungary. Were the dynamic tendencies linked to the improvement in the efficiency of working capital management? In this paper, I seek an answer to this question using the findings based on data from balance sheets and profit and loss accounts and their analysis: turnover time, financing time, average working capital, the maturity indicator, ROA and ROE and their components in the framework of the DuPont model.

Journal of Economics Literature (JEL) Classification: G34, G38

Keywords: mergers, acquisitions, working capital management

Introduction

My objective is to investigate how acquisitions impact the efficiency of working capital management. I have created two databases for this analysis, using the balance sheets and profit and loss accounts of the acquiring and target corporations established in Hungary.

First, an overview of the definitions of the topic and the link between M&A transactions and working capital management is provided. Then, the due diligence method, which is less familiar in the Hungarian literature, is presented. Applying the (operational) due diligence method enables acquiring corporations to analyse the working capital management of target corporations prior to the conclusion of the transaction. Subsequently, the findings of foreign papers on the topic are discussed, along with the applied methodology and databases used. In the second half of this article, the findings of the analysis of the databases which were created are presented. Both acquiring and target corporations are looked at, based on the

* The views expressed in this paper are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

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database created using their balance sheets and profit and loss accounts.¹ In order to obtain comparable results, the calculations stated for target companies in respect of the acquiring firms are also performed. The findings of the examination of target companies may provide an explanation for the changes occurring after merger, as the earnings in the years following acquisition are shaped by whether the target corporation prospers, stagnates or flounders. In order to do this, one year preceding the acquisition and two years following the acquisition during the 2007–2011 period is examined. It should be noted that during this period, the 2006–2013 period thus obtained was marked by two economic downturns (2009 and 2012).

In this paper, it was not possible to distinguish the impact of the crisis from that of acquisitions, and thus one must bear in mind that a significant portion of the negative trends may very well stem from the crisis.

1. Theoretical overview

1.1. The impact of M&A transactions on (operational) efficiency

First, it is necessary to address the relevant terms of the subject matter in the context of an overview of the literature, and in terms of how acquisition impacts the operative efficiency of both the acquiring company and the target company.

The currently effective *Act LVII of 1996 on the Prohibition of Unfair and Restrictive Market Practices*² defines mergers as follows: “A concentration shall be deemed to arise where two or more previously independent companies merge, or one merges into another, or a part of a company becomes a part of another company which is independent of the first company.” The entity acquiring control over the other entity is called the acquiring company, while the entity chosen for acquisition is called the target company. The two forms of unification are called acquisitions and mergers. In case of an acquisition, the acquiring company retains its original form, while in case of a merger, a new legal entity is created.³ In business parlance, we often hear the term “corporate mergers and acquisitions”. In this paper, I will use the terms “M&A deal”, “M&A transaction” and “acquisition” synonymously. The literature also uses the term “*combination*” (*Moyer et al. 2003*).

¹ The calculation of the weighted average balance sheet and profit and loss account items of the acquiring and target companies does not carry more information than summarising the individual balance sheet and profit and loss account items separately for the acquiring and the target corporations. We did not calculate weighted average values for the year preceding the acquisitions, as I use the year of conclusion of the M&A transaction as the basis of comparison when assessing the financial impact of the acquisition.)

² Last modified: Article 63 of Act CI of 2014, Article 210(1) of Act XCIX, Article 210(2) of Act XCIX. Effective: From 1 January 2015.

³ Act CLXXVI of 2013 on the Transformation, Merger and Demerger of Certain Legal Entities.

One of the advantages of M&A transactions is improved business operation efficiency. The following opinions corroborate this finding: “As a result of acquisition, the cost of products and services decreases due to savings on fixed unit costs enabled by larger production and service volumes” (*Sinkovics 2010:70*). The cost efficiency of production is improved by combining the means of production, as the available technologies are restructured and resources reallocated. In addition to efficiency gains, the synergistic effect of mergers is also reflected in rising corporate value: the total value of the companies is greater than the sum of the value of the individual companies (*Bélyácz 2009*).

Following an M&A transaction, organisational and governance costs may rise instead of shrinking as expected, as the larger corporation may be more difficult to govern and supervise, and incentivisation issues may be exacerbated, thereby increasing the operational risk of the unified company. Along with transactions that improve efficiency, some acquisitions decrease operational efficiency and profitability (*Bárczy et al. 2008*). In these cases, the management of the unified company strives to take advantage of tax law opportunities and/or expand market or political power. This means that while the shareholders of the unified company derive a benefit, society incurs a loss (*Carlton–Perloff 2003*).

1.2. The (operational) due diligence procedure

Before looking at the working capital management of acquiring companies, I briefly present the valuation and due diligence methods applied to target companies, as these procedures are fundamentally needed for these types of transactions.

To date, the Hungarian literature has not dealt in depth with the due diligence procedure, despite the fact that this procedure can shed light on the operational strengths and weaknesses of the target company to be acquired prior to the purchase. The following section therefore presents this due diligence procedure.

Due diligence is a review procedure conducted by the acquirer aimed at valuing the target company (*Howson 2003*). Due diligence decreases the risk of the acquirer overvaluing the target company and thus paying a higher price.

Who is responsible for overseeing the due diligence procedure? The review is conducted by a due diligence team, the size of which changes as a function of the transaction cycle and also depends on the size of the target company. In extreme cases, the due diligence team may include hundreds of members. The due diligence team includes financial analysts and operational managers, lending it far greater efficiency than if it were comprised solely of financial experts. The acquirer’s operational managers prepare due diligence interviews with the operational managers of the target company (*Wessels et al. 2010*).

The due diligence process starts with the identification of the acquisition prospect. The acquirer first compiles the information easily available on the target company. The acquirer then continues reviewing the acquisition process after answering the following three questions: In the long run, is it worthwhile for shareholders to own and operate the target company? How much is the target company worth? Is the acquiring company capable of financing the transaction? (*Reed et al. 2007*).

The due diligence procedure is not mandatory under any legislation, and is different from the mandatory draft balance sheet and the corroborating draft asset inventory required under Act CLXXVI of 2013 on the Civil Code. Due diligence covers all organisational units of the target company, its entire operating process and the external factors influencing operation. *Snow (2011)* and *Bruner (2010)* distinguish the following areas of due diligence: (i) law, (ii) information technology process, (iii) accounting, taxation, (iv) operating activities (production, service), (v) human resource management, (vi) marketing.

In accordance with my chosen topic, this paper only focuses on due diligence assessing the operating activities of the target company.

The due diligence procedure includes the on-site assessment of operating processes, as well as interviews with operational managers. It sheds light on bottlenecks affecting the target company's operations, the quality of its production/service (for instance the ratio of faulty products), its inventory usage and operating and corporate culture (*Bruner 2010*). In the due diligence process, the acquiring company compiles the following information in order to analyse operations (*Snow 2011:217*): (i) the products and services manufactured/sold by the target company. (ii) the products and services in development. (iii) informal and formal supplier and buyer contracts and agreements. (iv) product/service quality standards and procedures.

1.3. International empirical findings, the method of analysis and the databases used

I would like to highlight two papers that provide guidance for research on M&A in Hungary and for devising my analytical methodology. Along with the findings of the research, we can also gain insight into the financial methods used by the researchers and the number of years examined by them prior to and after acquisition.

Köke (2001) examined the operational performance of 1,700 German medium and large enterprises over the period 1986-1995, using their ROA (Return on Assets) and ROE (Return on Equity), and found that companies exhibiting poor operational performance were the targets of acquisitions. *Alexandridis et al. (2011)* looked at the average and median ROA values of M&A transactions carried out in the US between 1990 and 2007, in the three years preceding and following acquisition.

The firms under review were classified as either small, medium or large enterprises based on their market share. The study revealed that ROA decreased across all three categories in the years following acquisition, with the greatest decline affecting medium and large enterprises.

Selcuk and Yilmaz (2011) analysed the ROA, ROE and ROS (Return on Sales = Net Income/Net Sales) values of 62 Turkish acquiring companies in the two years preceding and following the M&A transactions between 2003 and 2007. According to the results, the transactions had a negative impact on the acquiring companies' performance. *Carline et al. (2009)* looked at the impact on operational cash flow of acquisitions completed in the United Kingdom between 1985 and 1994. The researchers analysed the one year preceding and the five years following the M&A transactions. The value of operational cash flow only increased for 34.7 per cent of the small enterprises and 23.4 per cent of the large enterprises under review. *Kwoka–Pollitt (2010)* scrutinised the impact of M&A transactions completed in the US electronics sector between 1994 and 2003 on operating costs. The authors looked at the two years preceding and the two years following the acquisitions, concluding that operating costs did not decrease in the electronics sector following the acquisitions. *Tsung-ming and Yasuo (2002)* looked at to the impact of 86 acquisitions completed in Japan based on ROA, ROE, sales revenue and the employee growth rate, focusing on the four years preceding and the four years following the M&A transactions. The authors concluded that Japanese M&A transactions did not improve rates of return or the profitability indicators. In his dissertation, *Balogh (2006)* compiled the financial attributes of M&A transaction based on the international literature. The authors of the 14 papers based on accounting data observed a decrease in the acquiring companies' ROE and ROA values after the acquisitions. The samples examined during the 1948–1995 period covered 200 M&A transactions on average (*Balogh 2006*).

The following section presents the financial toolset used for analysing the selected area. Working capital is the difference between current assets and current liabilities (*Brealey–Myers 2003:121; Copeland–Weston 1992:41*), used synonymously with net working capital (*Brealey–Myers 2011:906; Bélyácz 2007:360; Szabó–Pálinkó 2004:330; Fazekas et al. 2003:548*). Positive working capital is when a corporation has working capital in excess of its current liabilities. This is considered positive if the working capital is liquid, i.e. the amount of liquid assets and liquid securities exceeds the amount of non-liquid or less liquid current assets, that is, inventories and receivables. Positive working capital is not regarded as a liquid asset if the amount of inventories and receivables exceeds the amount of liquid current assets (*Katits–Szalka 2015*). This is problematic because current assets do not cover current liabilities, and therefore the company is not only funding its current assets with current liabilities, but also its fixed assets.

Working capital management analysis includes calculation of the turnover time, the cash conversion cycle and the operational cash cycle (Mathur 2007; Bhattacharya 2009). The rapidity of return of working capital elements from sales revenue shapes and also determines the operational efficiency of every company. I begin the analysis by calculating the turnover period of current assets directly linked to operational activities.^{4,5} The length of the turnover period is obtained by adding inventory storage and processing time, the collection time of trade receivables and the deposit time of liquid assets. Companies should strive to decrease this time span.

The operational cash cycle is the period when the company's financial resources are tied up in its purchased and own-produced warehouse inventories, and in trade receivables before the influx of funds following a sale or supply of service (Katits-Szalka 2015; Hofmann et al. 2011).

To calculate to the cash conversion cycle, we add up the storage period, the processing time and the collection time of trade receivables, and then deduct the settlement period of trade payables period (Sagner 2010:15; McLaney 2009:381) This is identical to the calculation of the financing period, which expresses the number of days for which the company requires liquid working capital. If the storage time and the trade receivables collection time add up to less than the settlement period for trade payables, the financing time is negative, which is positive because it means that the company has excess financing resources.

ROA and ROE can be calculated similarly to the studies published in the international body of literature. Using the DuPont model to break apart ROA and ROE we can glean more information on firms' operational efficiency.

My research looks at all acquiring and target companies established in Hungary and parties to transactions authorised by the Hungarian Competition Authority (GVH). The GVH's authorisation must be sought for the merger of companies *if the net sales revenue of the members of the affected corporate groups jointly exceeded HUF 15 billion in the previous business year* and if the affected corporate groups include *at least two corporate groups posting net sales revenue of over HUF 500 million (GVH resolution no. Vj/85-13/2014).*

⁴ Processing time is not calculated for companies in the trade and service sectors as they do not engage in production activities, therefore the value of work in progress and semi-finished goods is not stated in their balance sheets.

⁵ The deposit time of liquid assets reflects the number of days it takes for a company to be able to use the sums received from customers for purchasing new inventories. Based on Katits-Szalka (2015), I removed dealing and liquid securities from the analysis, as they may be used by corporations to fund their business operations if monetary assets run scarce.

Similarly to the above international M&A analyses, I look at the impact of acquisition in the two years preceding and the two years following acquisition and then compare the trends. Accordingly, in 2007–2011, I look at the balance sheets⁶ and profit and loss accounts for the 56 companies established in Hungary and kept on record by the GVH for the period 2006–2013. The starting date of the study is fundamentally determined by the fact that the electronic reporting websites (www.e-beszámolo.hu) only contains publicly accessible annual reports starting from 2006.

The companies' operating conditions diverge across the various sectors and segments, and thus I have classified the 56 acquiring companies listed in the database by economic sector – agriculture, industry, construction industry, trade and service – and perform the analysis according to this classification. A total of 11 acquisitions were concluded in the industrial sector, 10 in the trade sector and 29 in the service sector. As during the period under review only two acquisitions were concluded in the construction industry and four in the agricultural sector, I ignored these sectors and performed the calculations in respect of the above three sectors.

2. Analysis of the working capital management of acquiring companies in Hungary – Empirical findings

In this section, I look at the findings obtained using the database that I compiled and then state my conclusions and recommendations in the summary. The (!) in the table indicates adverse changes. For each result, I state whether an increase or decrease represents adverse change.

Table 1 shows how the turnover time, which includes the operational cash cycle, rose in all three sectors in the first and second year following acquisition. Which components of turnover time reflect deterioration in efficiency? In the industrial sector, in the years following acquisition, the efficiency of inventory management did not improve as storage periods grew somewhat longer. Following acquisition, the collection period of trade receivables increased moderately. The deposit time of liquid assets rose by 80 per cent (12 days) in the second year following acquisition relative to the year of acquisition. In the second year following acquisition, the settlement of trade payables rose to 54 days relative to 41 days during the year preceding acquisition.

⁶ The average opening and closing values for balance sheet items were computed.

Table 1.

Developments in turnover time components and the settlement period for trade payables in industry, trade, and the service sector before and after concluded acquisitions (in days)

Name	t-1	t 0	t+1	t+2
INDUSTRY				
1. Storage period	19	19	(!)24	(!)23
2. Processing time	18	16	18	18
3. Collection period for trade receivables	45	34	36	38
4. Operational cash cycle (1 + 2 + 3)	82	69	(!)78	(!)79
5. Deposit time of liquid assets	14	15	(!)19	(!)27
6. Turnover period (4 + 5)	96	84	(!)97	(!)106
7. Settlement time of trade payables	41	45	(!)50	(!)54
TRADE				
1. Storage period	23	36	34	36
2. Processing time	-	-	-	-
3. Collection period for trade receivables	34	35	31	29
4. Operational cash cycle (1 + 2 + 3)	57	71	65	65
5. Deposit time of liquid assets	3	2	(!)4	(!)7
6. Turnover period (4 + 5)	60	73	69	72
7. Settlement time of trade payables	40	43	44	44
SERVICES				
1. Storage period	8	16	(!)35	(!)51
2. Processing time	-	-	-	-
3. Collection period for trade receivables	32	32	30	33
4. Operational cash cycle (1 + 2 + 3)	40	48	(!)65	(!)84
5. Deposit time of liquid assets	26	28	(!)35	(!)45
6. Turnover period (4 + 5)	66	76	(!)100	(!)129
7. Settlement time of trade payables	42	50	45	(!)58

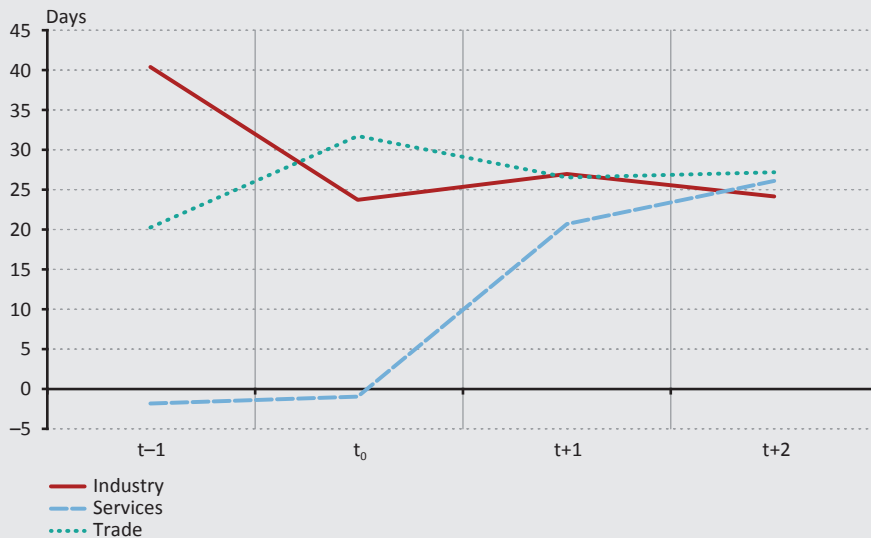
Source: Data based on own calculations based on data contained in e-reports

Although the collection period for trade receivables decreased by four days in the first year following acquisition in the trade sector, working capital management efficiency did not improve in either the first or second year following the M&A transactions, as the storage time of purchased inventories, the deposit time of liquid assets and the settlement period of trade payables all increased. Contrary to industry and trade, every element of turnover time showed a deteriorating tendency following M&A transactions in the service sector.

In the event that the operational cash cycle exceeds the settlement period of trade payables, liquid assets are needed to finance operations. As shown in *Figure 1*, the acquiring companies did not have excess financing resources prior to or after the transactions in the three sectors under review. After completion of acquisitions in the industrial sector, the affected companies requested operational sources of finance for one month on average to ensure smooth operation. In the trade sector, the financing time shrank moderately in the years following acquisition, meaning that the companies required liquid sources of finance for increasingly shorter periods. The companies in the service sector under review required liquid sources of finance for increasingly longer periods in the years following acquisition.

Figure 1.
Developments in financing time in industry, trade, and the service sector before and after concluded M&A transactions

(in days)



Source: Data based on own calculations based on data contained in e-reports

Using *Table 1*, we can check whether the acquiring companies used trade receivables to finance their trade payables. The collection period for trade receivables is shorter in every sector compared to the settlement period for trade payables, meaning that the acquiring companies used trade receivables to finance their trade payables both before and after the M&A transactions (except in the year preceding acquisition in the industrial sector).

According to *Table 2*, the working capital value of M&A transactions in trade exhibited a moderately declining trend in the years following acquisition. In the industrial sector, after the completion of M&A transactions, the average working capital values, although positive, decreased substantially. The negative values in the service sector signal that current assets were insufficient to cover current liabilities both before and after the M&A transactions.

Table 2.**Developments in working capital in industry, trade, and the service sector before and after concluded M&A transactions***(HUF thousand)*

Sector	t-1	t0	t+1	t+2
INDUSTRY	41 170 931	32 186 969	(!)9 043 532	(!)1 662 491
TRADE	15 086 093	12 548 847	12 418 549	15 353 865
SERVICES	-129 908 748	-150 064 527	(!)-162 946 744	(!)-86 346 634

Source: Data based on own calculations based on data contained in e-reports

Table 3 shows the composition of current assets in the period under review. In the industrial sector, the value of inventory and receivables accounts for over 80 per cent of current assets, both before and after M&A transactions. This means that working capital is not liquid. In the trade sector, this value is even higher, at 90 per cent for both pre-acquisition and post-acquisition.

By calculating the duration indicator, we can draw conclusions regarding funding risk, as the calculation provides answers to the following questions: How long could companies operate without the influx of any revenues while funding operational expenditures using their monetary assets, liquid and trading securities, and the collection of their trade receivables? To determine this, we add up trade receivables, liquid securities and monetary assets, then divide this figure by the degree of daily operating expenditures (material costs, personnel costs and other expenditures) (*Katits 2002*).

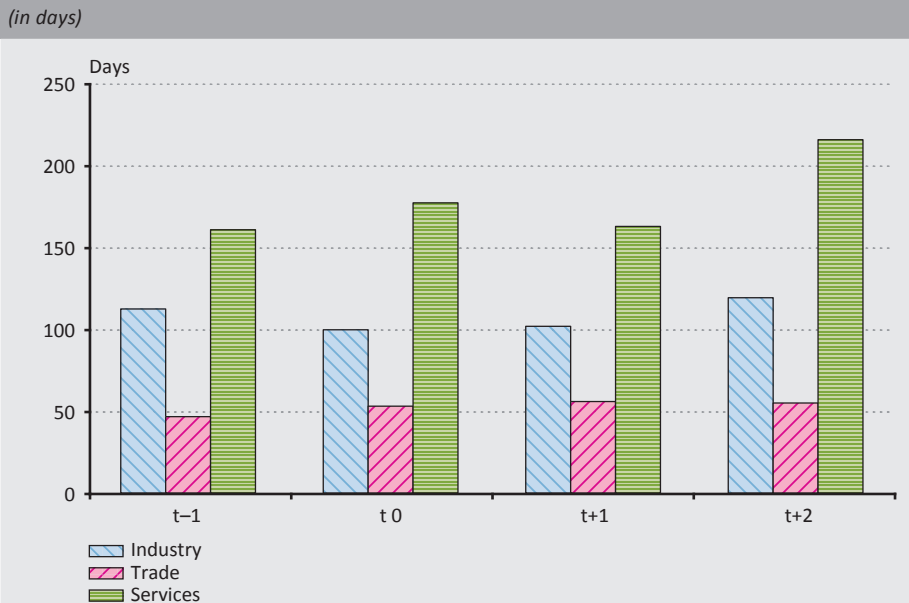
Table 3.
Developments in the ratio of liquid and non-liquid assets in industry, trade, and the service sector before and after concluded M&A transactions

(%)

Name	t-1	t0	t+1	t+2
INDUSTRY				
Liquid current assets ratio	14.6	12.9	15.9	19.5
Non-liquid current assets ratio	85.4	87.1	84.1	80.5
Total	100	100	100	100
TRADE				
Liquid current assets ratio	2.7	3.4	6.2	9.5
Non-liquid current assets ratio	97.3	96.6	93.8	90.5
Total	100	100	100	100
SERVICES				
Liquid current assets ratio	22	16.8	24.6	18.7
Non-liquid current assets ratio	78	83.2	75.4	81.3
Total	100	100	100	100

Source: Data based on own calculations based on data contained in e-reports

Figure 2.
Developments in duration in industry, trade, and the service sector before and after concluded M&A transactions



Source: Data based on own calculations based on data contained in e-reports

According to *Figure 2*, the duration indicator increased in all three sectors in the second year following acquisition. This allows us to conclude that the companies would have been able to finance their operation using liquid working capital even if they did not have any revenue both before and after the acquisitions. Companies affected by acquisitions in the service sector exhibited the highest values, 169 days on average in the years under review.

In the industrial sector, the average value of the duration indicators of the companies created in the wake of acquisitions is 108 days in the period under review, and 52 days in the trade sector.

The following section looks at the rates of return⁷ both before and after acquisitions. The DuPont model, developed by the DuPont company in the early 1920s, allows ROA and ROE to be broken down into distinct elements (partial indicators), providing more information on corporate profitability and efficiency. ROA can be broken down into two factors, asset turnover and the net profit margin (formula 2), while ROE can be broken down into five elements (formula 4): the tax burden ratio, the interest burden ratio, the operational profit margin, asset turnover and the equity multiplier (*Jae 2012*).

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}} \quad (1)$$

$$ROA = \left(\frac{\text{Net Sales}}{\text{Total Assets}} \right) \times \left(\frac{\text{Net Sales}}{\text{Total Sales}} \right) \quad (2)$$

$$ROE = \frac{\text{Net Profit}}{\text{Equity}} \quad (3)$$

$$ROE = \left(\frac{\text{Net Profit}}{\text{EBT}} \right) \times \left(\frac{\text{EBT}}{\text{EBIT}} \right) \times \left(\frac{\text{EBIT}}{\text{Net Sales}} \right) \times \left(\frac{\text{Net Sales}}{\text{Total Assets}} \right) \times \left(\frac{\text{Total Assets}}{\text{Equity}} \right) \quad (4)$$

$$ROE = ROA \times \left(\frac{\text{Total Assets}}{\text{Equity}} \right) \quad (5)$$

$$EBIT = \text{Pre-tax profits} + \text{Interest and interest type expenditures paid} \quad (6)$$

⁷ I did not calculate ROI (Return on Investments), as it carries information on the efficiency of fixed assets rather than current assets, and is therefore not directly linked to the area under review.

Table 4 shows that in the industrial sector, ROA and ROE are negative both before and after the M&A transactions and decreased sharply in the first year following the acquisitions. The negative ROA stems partly from the net profit margin and deteriorating asset turnover. Increases in the tax burden and interest burden ratios are deemed as being positive, reflecting a decrease in the company's tax liability and the value of interest payable and interest type expenditures. In this sector, in the years preceding and following the M&As, quantifying the tax burden and interest burden ratios is meaningless due to losses before and after taxes and balance sheet loss. The equity multipliers, reflecting financial leverage, were greater than 1 during all years under review. In the second year following acquisition, the value of total assets is nearly the triple of equity value, which means that the financing of assets – relative to equity – was achieved using greater leverage.

In the trade sector, in the years following acquisition, ROA and ROE values are lower relative to before the acquisition. After the transactions, neither the operational margin nor the net profit margin significantly improved ROA and ROE values. After acquisition, the positive developments in ROE were shaped by rising tax burden and interest burden ratios, i.e. a decline in tax and interest liabilities.

Asset turnover had a negative impact on the increase in ROE, as these values deteriorated in the years following the transactions. Based on the values reflecting leverage, we can conclude that acquisitions were funded using a high level of leverage.

The assessment of the service sector based on the results of *Table 4* is yet to be completed. In this sector, ROA and ROE values after the acquisitions, although positive, exhibit decreasing tendencies, shaped by shrinking profit margins, and asset turnover and financial leverage did not improve either. The tax burden ratio reached 1 in the years following acquisition, that is the decline in the tax liability boosted net profit. The moderately declining trend in the interest burden ratio indicates an increase in companies' interest liability, which also led to a moderate decline in ROE.

Table 4.

Developments in the ROA and ROE of acquisitions in the industrial, trade and service sector and their components in the framework of the DuPont model before and after the M&A transactions under review

Name	t-1	t 0	t+1	t+2
INDUSTRY				
ROA (%)	-1.6	-0.5	(!)-5.2	(!)-4.5
Asset turnover	1.1	1.2	(!)1.0	(!)0.9
Net profit margin (%)	-1.5	-0.4	(!)-5.2	(!)-5.0
ROE (%)	-3.3	-1.0	(!)-12.0	(!)-12.4
Tax burden ratio	N/A*	N/A	N/A	N/A
Interest burden ratio	N/A	N/A	N/A	N/A
Operating profit margin (%)	0.3	1.3	(!)-3.2	(!)-3.1
Asset turnover	1.1	1.2	(!)1.0	(!)0.9
Equity multiplier	2.0	2.0	(!)2.5	(!)2.7
TRADE				
ROA (%)	6.2	3.1	4.0	4.7
Asset turnover	3.1	2.8	(!)2.7	(!)2.6
Net profit margin (%)	2.0	1.1	1.5	1.8
ROE (%)	16	8.2	11.8	13.8
Tax burden ratio	0.8	0.7	0.8	0.9
Interest burden ratio	0.8	0.6	0.7	0.7
Operating profit margin (%)	3.1	2.1	2.6	2.8
Asset turnover	3.1	3.1	(!)2.7	(!)2.6
Equity multiplier	2.6	3.0	3.0	3.0
SERVICES				
ROA (%)	4.9	4.5	(!)3.5	(!)2.8
Asset turnover	0.4	0.3	0.3	0.3
Net profit margin (%)	12.3	14.9	(!)11.8	(!)9.6
ROE (%)	11	10.1	(!)7.6	(!)6.3
Tax burden ratio	0.9	1.0	1.0	1.0
Interest burden ratio	0.6	0.7	(!)0.6	(!)0.5
Operating profit margin (%)	22.1	23	(!)20.0	(!)19.0
Asset turnover	0.4	0.3	0.3	0.3
Equity multiplier	2.3	2.1	2.1	2.2

* Not applicable.

Source: Data based on own calculations based on data contained in e-reports

3. Analysis of target companies' working capital management in the year preceding acquisition

In this section, I present the results gleaned from the examination of the years preceding the acquisition of target companies.

As shown in *Table 5*, the turnover time is lowest in the trade sector, while the industrial and service sectors exhibit figures nearly twice as high due to processing times (in the industrial sector) and the long collection periods for trade receivables. Preceding the M&A transactions, in the industrial and trade sectors, the target companies exhibited turnover times 4 and 9 days shorter relative to the turnover times of the acquiring companies, while in the service sector, target companies exhibited turnover times 28 days longer compared to the acquiring companies.

Table 5.
Developments in target companies' turnover time and components, and the settlement period for trade payables in industry, trade, and the service sector before the concluded acquisitions

(in days)

Name	INDUSTRY	TRADE	SERVICES
1. Storage period	18	32	32
2. Processing time	27	–	–
3. Collection period for trade receivables	41	9	46
4. Operational cash cycle (1 + 2 + 3)	86	41	78
5. Deposit time of liquid assets	6	10	16
6. TURNOVER PERIOD (4 + 5)	92	51	94
7. Settlement time of trade payables	41	44	32

Source: Data based on own calculations based on data contained in e-reports

The financing time is positive in the industrial and service sectors due to the high volume of trade receivables: for industrial sector target companies, the financing times are 45 days, and 46 days for service sector companies. As a result, in the industrial and service sectors, the target companies tend to fund their operations using short-term loans. The calculation of average working capital corroborates this conclusion. In the industrial sector, the average working capital of target companies is HUF –5,299,604 000, and HUF –6,376,760,000 in the service sector, suggesting that their current assets do not provide sufficient coverage for their current liabilities. In the trade sector, target companies' average working capital, albeit positive, was HUF 124,532,000, only a fraction of the average working capital of the acquiring companies.

Target companies would have been able to operate without the influx of any revenues while funding operational expenditures using their monetary assets, liquid and dealing securities, and the collection of their trade receivables for 76 days in the industrial sector, 77 days in the service sector and nearly 32 days in the trade sector.

Table 6 shows that among the three sectors under review only industrial sector target companies exhibited positive ROA and ROE values. Compared to the values of the acquiring companies, target company values were positive and acquiring company values were negative prior to the M&A transactions in the industrial sector. Conversely, acquiring company values were positive and target company values were negative prior to the M&A transactions in the trade and service sectors. By applying the DuPont model, we can conclude that the negative ROA and ROE values in the trade and service sectors were shaped by operational and net loss. Asset turnover was extraordinarily low in the industrial and service sectors: in the service sector, net sales even fell short of total asset value. In the trade sector, the situation was somewhat better, as the return on total assets from net sales revenue was almost three times as high. The equity multipliers target and acquiring companies exceeded 1 in all three sectors in the year preceding the M&A transactions. In the industrial sector, target companies' tax burden and interest burden ratios exhibited positive values, with figures approaching 1. In the trade and service sectors, we do not quantify tax burden and interest burden ratios due to the operational, pre- and after-tax losses.

Table 6.

Developments in the ROA and ROE of target companies in the industrial, trade and service sector and their components in the framework of the DuPont model before and after the M&A transactions under review

Name	INDUSTRY	TRADE	SERVICES
ROA (%)	2.8	-2.5	-4.9
Asset turnover	1.4	2.8	0.8
Net profit margin (%)	2.0	-0.9	-6.2
ROE (%)	9.5	-8.1	-22.2
Tax burden ratio	0.7	N/A*	N/A*
Interest burden ratio	0.6	N/A*	N/A*
Operating profit margin (%)	4.6	-0.5	-1.4
Asset turnover	1.4	2.8	0.8
Equity multiplier	3.5	3.1	4.3

* Not Applicable

Source: Data based on own calculations based on data contained in e-reports

Summarising the findings of the investigations, we can conclude that in the industrial and service sectors, the working capital management of target companies was poorer relative to the acquiring company in the year preceding the acquisitions. In the trade sector, target companies' operational efficiency was better compared to the acquiring companies, as the turnover period for the latter was 60 days compared to 51 days for the former. In other words, the target companies saw a deterioration in their working capital management in the wake of the acquisitions.

4. Summary, conclusions and recommendations

To date, no paper has dealt with the efficiency of the working capital management of acquiring companies within the Hungarian body of research on M&A. This study aims to fill this void, and is representative in terms of the acquisitions subject to authorisation based on the threshold value defined by the GVH. In this paper, I examined the impact of M&A transactions completed in Hungary on the efficiency of working capital management of the acquiring companies. The analysis of the impact of acquisitions covers the years preceding and following acquisitions. I also looked at target companies' working capital management in the year preceding acquisition.

Turnover time and its components, storage time (in the trade and service sectors), processing time (in the industrial sector), the collection time of trade receivables and the deposit time of liquid assets exhibited a rising tendency in the three economic sectors hosting the acquisitions under review, particularly in the second year following the acquisitions. The following measures can improve these elements: (i) Liquid assets (materials purchased, goods and finished products) should not be held in inventory. In order to achieve this, logistics processes must be reviewed, over and above inventory policy, in an effort to minimise inventory costs. The integration phase following acquisition can be linked to the transformation of existing production and inventory systems. (ii) In the industrial and service sectors, it is worth looking at or reviewing customer qualification systems and risk management policies in an effort to reduce the collection period of trade receivables. (iii) In the three sectors under review, the deposit time of liquid assets increased, a positive shift in terms of the companies' liquidity, however, holding (cash) liquid assets is not profitable in and of itself, therefore companies should strive to utilise the sums received from customers for purchasing materials and goods as soon as possible.

The settlement period of trade payables increased in the industrial and service sectors in the years following the acquisitions. *We can conclude that the companies acquiring the target companies strove to resolve the financing of their operations, in addition to reinforcing their negotiating positions, by increasing the settlement period of trade payables due to the slow collection of trade receivables.* The

acquiring companies should negotiate with their suppliers, making the most of their negotiating position stemming from the concluded M&A transactions, in order to establish longer payment deadlines and obtain discounts and rebates.

The calculation of financing time reveals that *in all three sectors, the companies acquiring the target companies have to ensure liquid working capital and leverage in order to maintain smooth operations.*

By calculating ROA and ROE and applying the DuPont model, we can conclude that in the three sectors under review, the deterioration in these two indicators stemmed from *deteriorating operational and net profitability ratios, coupled with the inability of companies to improve the sales revenue generating capacity of assets in the years following acquisition.*

Summing up the findings, I conclude that in the *industrial and service sectors, the working capital management of the acquiring companies exhibited a deterioration, rather than an improvement in efficiency in the wake of the M&A transactions. In the trade sector, acquisitions neither deteriorated nor improved the efficiency of working capital management to a significant degree. Target companies' working capital management in the years preceding the acquisitions was not efficient in any sector relative to that of the acquiring companies (due to lengthy storage times and long collection periods for trade receivables, and higher current liabilities compared to current assets).*

The results for Hungary are similar to the findings of the foreign empirical studies presented in the theoretical section, which identified a decline in efficiency in the wake of the M&A transactions. The period under review in this paper coincides with the years of the economic crisis, the signs of which were apparent not only in the years following the acquisitions, but also in the values of the year preceding them. As the research was conducted from the “perspective of an external analyst”, the time series under review reflects the trends and signs of declining earnings potential and efficiency, but not the specific causes thereof.

In my view, even if efforts were made to reallocate and streamline resources, they did not yield any improvement in (working capital) management. The root causes of failed acquisitions should not only be sought in the years following acquisition, that is the integration period: Prior to making an acquisition decision, I recommend *applying the due diligence procedure including a value analysis of the target companies, which could form one of the methodological bases of M&A finance in Hungary – in a targeted and customised manner.*

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