

MERGERS AND ACQUISITIONS IN THE REFLECTION OF SOAP BUBBLES

Slavka T. Nikolić, Maša Bukurov, Dejan Erić, Jelena Stanković

Original scientific paper

Mergers and Acquisitions (M&A) have a long history but unfortunately a very short lifespan. The high degree of their failure opens up old issues and requires new answers. This paper presents an original view on Mergers and Acquisitions applying the scientific method of analogy with soap bubbles, with a special attention devoted to the 'hard' and 'soft' indicators of M&A success. The aim of this paper is to highlight the particular significance of hardly measurable, so-called 'soft' elements of (un)success in M&A and through the analogy with soap bubbles to clarify the reasons of M&A failures. In order to verify the similarities of soap bubbles with real business situations, authors provided relevant analogies strengthened with an analysis of short case studies. Based on the conclusions, decision-makers in this business environment will be able to implement such business strategies in order to create more effective business alliance which will last longer.

Keywords: *analogy; management; mergers and acquisitions (M&A); soap bubbles; strategy; success*

Spajanja i preuzimanja poduzeća u odrazu mjehura od sapunice

Izvorni znanstveni članak

Spajanja i preuzimanja (M&A - Mergers and Acquisitions) imaju dugu povijest, ali nažalost vrlo kratak životni vijek. Visok stupanj njihovog neuspjeha otvara stara pitanja i zahtijeva nove odgovore. Ovaj rad predstavlja izvorni pogled na spajanja i preuzimanja primjenom znanstvene metode analogije s mjehurima od sapunice, gdje je posebna pažnja posvećena "tvrdim" i "mekim" pokazateljima M&A uspjeha. Cilj ovog rada je ukazati na određeni značaj jedva mjerljivih, takozvanih "mekih" elemenata (ne)uspjeha u M&A, a kroz analogije sa mjehurićima od sapunice pojasniti razloge neuspjeha spajanja i preuzimanja. Kako bi potvrdili sličnosti mjehurova od sapunice s realnim poslovnim situacijama, autori su pružili relevantne analogije ojačane analizom kratkih studija slučajeva. Na temelju zaključaka, donositelji odluka u ovakvim poslovnim uvjetima će moći provoditi takve poslovne strategije koje će stvarati učinkovitije poslovne saveze koji će trajati duže.

Ključne riječi: *analogija; mjehuri od sapunice; spajanja i preuzimanja (M&A); strategija; upravljanje; uspjeh*

1 Introduction

During the recent years we have witnessed one of the greatest economic crises ever. The major market players disappeared from the business scene overnight, contrary to the established view that they were 'too big to fall'. The global crisis has shown that in the modern business environment dynamism of change is such that 'neither past is what it used to be', stressing the need to question the success of Mergers and Acquisitions (M&A), particularly the factors that lead to success or failure of these activities. The results of many surveys, analyses and studies indicate that more than a half (sometimes up to 90 %) of these transactions do not achieve the set goals or end up in failure [1, 3].

Reasons and objectives for M&A business strategies and decisions have long been the subject of discussion of numerous authors [3, 4]. Although dozens of different approaches to goals and motives have been defined over time, not even today have all the possible reasons been identified for the failure of this kind of business association. Research motivation for this study stems precisely from the identified problem reflected in a large number of unsuccessful strategies implemented through mergers and acquisitions, as well as theoretical and practical gaps with multiple ambiguities about the forces affecting these failures.

In this paper, special attention is devoted to the so-called 'hard' and 'soft' factors in assessing the success of M&A. On the one hand, the 'hard' factors are easily measurable and can be quantified through natural, physical or financial performance, but the orientation exclusively to these factors can lead to a kind of 'myopia'

and blindness caused by the current results, neglecting strategic and long-term aspects of the performed M&A.

On the other hand, the 'soft' factors are mainly related to people, their relationships, harmonization of organizational culture and their elements. This group of factors is attracting increasing attention of many researchers [2, 5]. The practice and the achieved results of M&A require a kind of harmony and balance of both groups of factors.

The aim of this paper is to highlight the particular significance of these so-called 'soft', hardly measurable indicators of (un)success in M&A through a completely new approach, applying knowledge from natural sciences in the field of economics. Authors used analogy as a commonly accepted method of scientific research [6] to explain the complex relationships between organizations that have access to new business associations, comparing them with soap bubbles. In that manner, the authors explain the business and organizational behaviour of M&A member organizations, making a parallel interpretation with soap bubbles, with all their authentic characteristics and mechanical behaviour in their compounds [7, 8, 9]. A special contribution of this research to the academic and professional community is reflected in the conclusions drawn from the analogy of mergers and acquisitions with soap bubbles that have confirmed the assertion that soft elements of business success (such as personal relationships, ruling cultures forms, professional and personal satisfaction, motivation, organizational cultures, their (in)compatibility and many other factors of harmonization) must be more respected if business alliances with longer life want to be created.

The high degree of failure of M&A seeks explanations and requires significant contribution to the

solution. It is necessary to throw new light on the 'old' problems. This study brings a novelty to the existing literature by using a completely different and new approach in solving the widely known topic, where a soap bubbles provide enough clues to understand the complexity of organizational processes in M&A. Establishing certain analogies between the physical and chemical characteristics of soap bubbles and some M&A activities, a new, original view of the area of Mergers and Acquisitions has been created.

The remainder of the paper is laid out as follows. In the next section, the theoretical concepts of mergers and acquisitions and the specifics of proposed research framework are presented. Section 3 describes research methodology, as well as selected analogy, as the acknowledged scientific method. In Section 4 the analogies of M&A with soap bubbles are explained, while Section 5 presents the representative short case studies. Finally, after presented examples and their analysis, in the last section authors conclude discussion in the context of our theoretical conjecture and offer some directions for future research.

2 Literature review

Mergers and Acquisitions (M&A) represent a very important area of research and attract the attention of experts from various fields - managers, owners, analysts, potential investors, regulatory authorities, politicians etc. In recent decades, a number of M&A is growing, but unfortunately, they can be characterized as poor or unsuccessful examples of business associations. Here are just some of the many cases: Bank of America & Merrill Lynch; Citibank & Travellers Group; Credit Suisse & DLJ; Fortis & ABN Amro; Wachovia & Golden West; Commerzbank & Dresdner Bank; General Electric & Kidder Peabody; Midland Bank & Crocker; AOL & Time Warner; Daimler & Chrysler; Quaker Oats & Snapple; Honeywell & General Electric; Warner Music Group & EMI; UAL & US Airways; Microsoft & SAP; Comcast & Disney; Viacom & MySpace; Yahoo & Facebook; Microsoft & Yahoo; etc.

Determining the efficiency of M&A requires an understanding of the motives and objectives of the business decisions. Search for answers to this question has a long tradition and was in the focus of numerous research studies [3, 4]. Some 40 years ago, it was written about a disputable success of planning of large multinational companies involved in M&A processes and a large number of stakeholders were mentioned as a potential source of failure [3, 10].

From M&A is expected realization of often conflicting, mutually exclusive goals, while many reasons for concluding M&A are inconsistent over time, subject to change, especially in terms of a dynamic environment, full of uncertainties, such as precisely the current environment, often disrupted by the effects of the global crisis. Because of that, factors associated with the character of the environment should not be ignored. They can be characterized as a 'climate' caused by economic situation, trends in financial markets, regulations, tax laws, accounting systems, industry structure etc. [3, 10,

11] and can have a significant impact on the success or failure of M&A.

According to the study and the data provided by Coopers & Lybrands's on the failure of 100 mergers [1], the following most important conclusions have been drawn: (a) causes of failures: target company management attitudes and cultural differences, no existence of post-acquisition integration plans, lack of knowledge of industry or target, poor management of target, no prior acquisition experience for bidding company; and (b) causes of success: detailed post-acquisition integration plans and speed of implementation, clarity of acquisition purpose – clear goals or motives, good cultural fit and high degree of target management and cooperation.

Balmer and Dinnie [12] argue that short-term financial and legal issues are overemphasized, while neglecting strategic thinking and direction of the organization. Lack of communication between most stakeholders during the M&A process also contributes to the failure. The imbalance between management style and organizational culture are common reasons for failure [13], but in practice this attitude has been dramatically ignored. Human resources and changes in ownership structure are a particularly sensitive issue in M&A [14, 15]. Changing the style of management from democratic or entrepreneurial to autocratic may lead to the reduction of organizational creativity and innovation of the newly formed company.

Considering the so-called 'soft' factors of the (un)success of M&A, some authors [2, 5, 14] emphasize the following: cultural fit as an 'internal reaction to external imperatives'; cultural potential - that is framework in which organizations operate, which includes openness to change, innovation, trust, the possibility of integration, communication, direction and leadership.

It is obvious that a strategy is 'a serious game involving a large number of players', but also a large number of often uncoordinated or conflicting interests. Organizations do not operate in a vacuum. Success is not a product of chance, nor the theory of 'spontaneity', but thoughtful, inquiring compliance of the business and the internal and external environment. The aspect of costs should not be neglected as well as the analysis of alternatives and implementation of M&A, but the impression is being imposed that all necessary aspects are not taken into account and that something important eludes from the field of analysis.

3 Research methodology

In searching the answers to (un)success of the M&A, the authors found a strong foothold in the claim that the analogy is the 'core knowledge' [6]. Analogy as one of the most important forms of human thought is an important means of knowledge of the world and commonly accepted method of scientific research. The rules of drawing conclusions by analogy form the basis for the application of analogies in other sciences. Experts in the field of history of science see analogy as the method of scientific knowledge, as well as a tool for the creation and development of scientific theories, a means

by which the empirical knowledge is transferred to general theses and rules [16].

It is obvious that the analogy is the process of identifying the similarities between the two concepts [16], in which the concept of similarity represents the similarity between relations, not similarity between related values. In the quest for scientific answers, a large number of scientists (Maxwell, Rutherford, Einstein, Louis de Broglie, Nikola Tesla) rely on analogies. A number of examples reinforce these views. The movements of the planets and other celestial bodies can be estimated based on the analogy with the atom; analogy between the structure of atoms, schedules and paths that electrons are moving around the nucleus, with the macrocosm; distinct analogy between mechanics and optics, where the Hamilton based his great contribution to the development of methods of classical mechanics. "Quantum theory resulted from the development of atomic concepts, providing a completely new field for the implementation of mechanics and electromagnetic theory in the last century" (Niels Bohr).

In terms of these considerations, believing that it is a significant step in the right direction, the authors of this paper are searching for analogies between Mergers and Acquisitions and soap bubbles.

The rich world of physical and chemical research offers explanations of the basic processes of creation, life and bursting of soap bubbles. Considering the regularity of the emergence, survival and extinction of the soap bubbles, understanding and finding important analogies with decision-making processes, the formation and survival of M&A, the authors suggest basic (strategic) theses for creating a more effective business alliance and their longer duration.

It is known that only certain liquids may form foam, bubbles or films that are sufficiently stable; solution of soap is a classic example of this behaviour [7]. Liquid foams are complex fluids consisting of concentrated dispersions of gas bubbles in the soap [8] and show a complex mechanical behaviour [9]. Liquid bubble is an example of the action of surface tension. Surface tension is a result of the excess of energy in the liquid fractions of the free surface (dividing surface between the liquid and gas phases). The way to reduce the energy of the system is to reduce the surface tension, which is achieved by adding Surface Active Agents, Surfactants (SAA), most commonly to soaps. Effort to build a free surface with less energy is reflected in the tendency towards the formation of the minimum free surface. This results in compression of the gas inside the liquid bubble, and the occurrence of pressure increase in its interior. The pressure difference inside the liquid bubble and the surrounding area is Δp and can be calculated using the following formula:

$$\Delta p = \frac{4\gamma}{r} \text{ (Pa)},$$

where: γ – the surface tension (N/m); r – the radius of the bubble (m).

This means that by reducing the radius of the bubble the pressure inside increases, and vice versa, with the increase in the radius of the bubble, the pressure

difference inside the bubble and the environment is decreasing. Soap bubbles are the liquid bubbles which are more easily formed than water bubbles. The reason for this is the reducing surface tension, which is reduced by 65 % when soap is added in the water [17]. Thus, easier formation and longer duration of bubbles are achieved. Apparently, the gas pressure is higher in the smaller radius bubbles, causing smaller bubbles to show greater instability. When two bubbles of different sizes come in contact, the common segment of double-membrane begins to bend towards the inside of a larger bubble, resulting in reduced pressure in a small bubble.

What Happens when Two Bubbles Meet?

During the meeting of the two bubbles of *the same size*, they will merge into a double bubble. A double bubble is a pair of bubbles that intersect and are separated by a membrane bounded by the intersection [18], while the pressures in both bubbles are identical (Fig. 1). In so doing, bubbles form an intersecting spherical surface, i.e. minimum surface area for a given volume, which is mathematically proven [19] and described in the examples of the meeting of two or more bubbles [18].

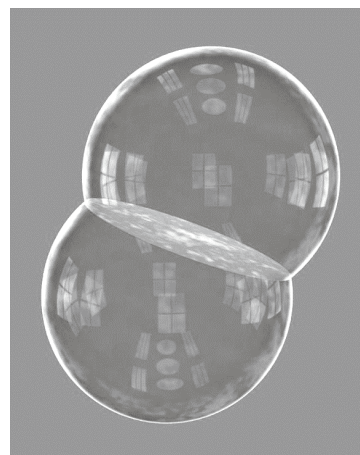


Figure 1 Two bubbles of the same dimensions meet
Source: John M. Sullivan, Technical University of Berlin and University of Illinois at Urbana-Champaign

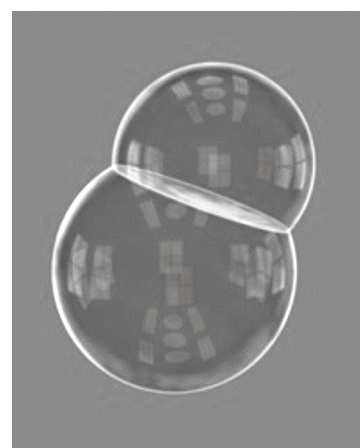


Figure 2 Two bubbles of different dimensions meet
Source: John M. Sullivan, Technical University of Berlin and University of Illinois at Urbana-Champaign

When bubbles of *different sizes* meet (Fig. 2), partition formed between them is convex toward the larger bubble, i.e. to bubble with lower internal pressure,

while a minimum (spherical) surface of the bubble is formed.

If a larger bubble has a radius r_A , and a smaller bubble r_B then the radius of the dividing membrane between the bubbles with the radius r_C (Fig. 3) can be calculated by the formula [17]:

$$\frac{1}{r_C} = \frac{1}{r_B} - \frac{1}{r_A}, \text{ where it is obvious that } r_C > r_A > r_B.$$

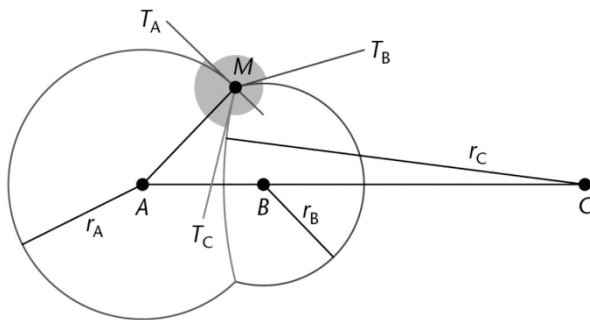


Figure 3 Dividing membrane between the two merged bubbles of different dimensions which with the tangent forms the angle of 120° [17]

The pressure along the membrane p_{AB} is the consequence of the surface tension in the soap and can be calculated as the difference of pressures in the smaller and the bigger bubble [20].

During the interaction, bubbles exhibit complex behaviours, including grouping, merging, deformation, etc. [21]. Bubbles are enlarged by diffusion of gas from smaller bubbles into larger, whereby, due to the effect of gravity, fluid drains out [22, 23]. Due to the pressure difference, gas diffusion between adjacent bubbles leads to enlargement process; gas diffuses through the liquid from smaller to larger bubbles to minimize the surface energy [24], which leads to local accumulation of tension that is relieved by occasional structural changes [8]. These phenomena are of fundamental importance for the stability of bubbles because physical processes such as drainage, creating holes due to the presence of dust and vapour, reduce the life of the bubble [23]. Soap from which the bubble is made of is subject to the drainage and evaporation. In order to stabilize the bubble, special liquid is added to the solvent (SAA) [25]. When the soap is prevented from evaporation and unwanted impurities that may initiate bursting of the bubbles are removed, bubbles can last for a very long time.

When we talk about the stability of bubbles, in addition to the mechanical characteristics, we must take into account the properties of liquid membranes and the gas involved in their formation. Elasticity and viscosity of liquid membranes greatly affect the stability of the bubbles. Elasticity is the result of a reversible increase in interstitial energy at compression of the bubbles. Permeability for gas or facilitated transport of the inner vapour phase, depend on the type of gas and Surface Active Agents (SAA) applied to form bubbles [25]. In addition, Wilkinson, Schayk, Spronken, & van Dierendonck [26] found that the viscosity of the liquid and the surface tension are of crucial importance to the stability of the bubbles. If the viscosity of the liquid

membrane is greater, the drainage of liquids will be slower, thus providing the greater stability of the foam.

It is believed that the multiphase systems are exposed to turbulent conditions of flow. A simple theoretical concept for bursting of the bubbles in turbulent flow was developed by Hinze [27]. He assumed that the bubble deforms under the influence of fluctuating vortex. Attention was not paid to the density of the dispersed phase (solution of soap in water, for example) because it was assumed that the properties of gas have no influence on bubbles bursting. However, in turbulent flows of greater density of the dispersed phase increases the rate of the bubbles bursting [26]. Bursting of bubbles occurs when the destabilizing force acting on the bubble becomes greater than the force of the surface tension which tends to oppose the deformation of the bubble.

4 Mergers and acquisitions as soap bubbles

Without going into further clarification of the occurrence, duration and disappearance of the soap bubbles, the authors define a certain analogy with the status of the organizations and business alliances (Tab. 1), with the aim to facilitate the insight and understanding of the ways of creating a more effective and efficient business alliance.

Regarding these analogies and considering the exposed rules, signposts can be seen on the way of structuring successful M&A. However, analogies confirm the view that the problem of selecting the organizations that are supposed to enter into a business alliance is a particularly sensitive process which should involve the interdisciplinary approach. The logical consequence of this consideration is placing the organization in the focus of various events in the environment, observations in the light of internal and external spheres of action of centrifugal and centripetal forces, formal and informal relationships, factual and fictitious authority, narrower and wider span of control, cooperation and ways of communication, networking and the level of competence. Management is concerned with people and not exclusively with systems, especially people who establish relationships in order to achieve clear objectives of their organization. All that requires critical thinking and understanding of hard elements (physical indicators, the financial data, etc.) but above all soft elements of business success (personal relationships, professional and personal satisfaction, motivation, values of an organization, what it represents, what its people believe). The human factor has increasingly been considered as a strategic resource. Given that people are the heart of any organization, ignoring the ruling cultures forms, formal and informal organizational culture, their (in)compatibility and anticipating potential problems in harmonization, is a reflection of management ignorance or their business arrogance.

The sensitivity of the decision-making process concerning the conclusion of M&A requires not forgetting that man is the last achievement in the field of conflicts and paradoxes and the organization, according to that, is the most complex, stochastic, dynamic, living system. Reviewed analogies should help in uncovering and understanding the whole and its internal relations and, on this basis, understanding of the very process of making business alliances such as Mergers and Acquisitions.

Table 1 The analogies of soap bubbles and M&A

Physical parameters	Effects	Analogies
Surface tension / internal pressure	The pressure inside the bubble is inversely proportional to the radius of the bubble. This causes the larger bubble to have greater stability while smaller bubbles exhibit greater instability because they have higher inner pressure [17, 18, 19]. By reducing the radius of the bubble, the inner pressure increases which is destabilizing [25].	The stability of the organization, its survival in the market, is proportional to its size. Larger organization has the prerequisites for greater stability while small organization shows greater instability, which supports the creation of business alliances and networking through M&A.
	When connecting bubbles of <i>the same</i> size, the bubbles merge forming a flat intersection because the pressures in both bubbles are equal. When connecting bubbles of <i>different</i> sizes, an intersection is formed, which is convex toward the larger bubble because the pressure inside the small bubble is greater than the pressure within the larger bubble [18, 19].	When creating M&A involving organizations of almost equal size (mergers of equal) - strong partnership should be expressed. Reducing the level of autonomy of organizations which form alliance to a minimum, i.e. degree of dependence is even. When creating M&A involving organizations of different sizes, it is necessary to adjust to a larger organization.
	The reduction of surface tension by controlled adding of SAA leads to increased stability of bubbles [17, 25, 28].	In order to have greater chance of survival, M&A is necessary to undertake activities that would lead to an increase in the stability of the newly formed organization, which implies an analogy with the process of lowering 'surface tension'. In this regard, it is necessary to make a series of efforts towards organizational changes that reduce the level of dysfunctional conflict, harmonize organizational culture, increase work motivation etc.
Viscosity	If the viscosity of the liquid membranes is greater, the slower the leakage through the Platoo's channels, thus providing greater stability of the bubbles; the degree of bursting of bubbles decreases with increasing viscosity of the liquids. The higher the viscosity of the fluid, the greater the resistance [25, 26].	Under the viscosity of the M&A we mean the dominant cultural pattern and organizational culture [28]. They also involve different patterns of behaviour, resistance (responsiveness) to change, and so on. The higher viscosity would imply a high inertia, routine, striving toward tightening, etc. A high index of risk and uncertainty avoidance (Uncertainty Avoidance - UAI), a high index of power range (Power Distance - PDI) and a high index of collectivism (Individualism / Collectivism - IDV), requires the organization to be stable in the short term, but unstable in the long run; with very low capacity for change. The problem is further complicated when the dominant cultural patterns and organizational culture support and often reinforce this inertia.
Gravity	Gravity causes drainage of fluids that forms bubbles [22, 23, 28].	In M&A gravity is related to organizational inertia, slowness in decision-making, reactive strategic options, lack of proactive management operation, etc.
Diffusivity	Gas diffusion between adjacent bubbles due to the pressure difference, leads to the process of enlarging; gas diffuses through the liquid from smaller to larger bubbles [22, 23, 24].	Diffusivity in M&A is linked with the connection between people (human relations) which allows cooperation and high scores of social capital as the result of that association and cooperation, there are some of the main prerequisites for increasing productivity, achievement of synergy effects and overall business performance. Better relations among people create preconditions for increasing organizational innovation.
Humidity	Physical processes such as drainage, evaporation, drying, and the presence of dust - reduce the lifetime of the bubble. The higher the humidity, the absence of dust and the like, causes the bubble to live longer.	In the context of M&A, humidity could refer to a group of factors that we call <i>climate</i> . The higher the humidity would imply a more favourable business climate (both external and internal) - both in the environment and in the organization itself. Favourable economic situation, fewer barriers, lower regulatory requirements are external factors that are favourable for M&A activities. Controlled departure of employees carefully guided strategy outsourcing and downsizing, represent elements of favourable organizational climate and require better and longer organization survival.
Elasticity	Increased elasticity of the boundary surface of bubbles contributes to their greater stability [7].	The elasticity of a balloon has many similarities with the flexibility in management. Speed of decision-making, respect for different styles of management, readiness to change, organizational culture that accepts innovation and change, motivation of employees to 'live with the changes', the organization that learns and changes, as well as long-term orientation in time [28].
Density of the dispersed phase	In turbulent flow, the greater density of the dispersed phase (for example, a solution of soap in water) in the bubbles increases the rate of bursting.	Increased density of the dispersed phase is analogous to a larger, i.e. inadequate number of employees, too broad diversification etc. which causes business inefficiency of M&A.
Deformity and bursting of bubbles in a turbulent flow	It is believed that the multiphase systems are exposed to turbulent flow conditions. The bubble deforms under the influence of fluctuating vortex. Bursting of bubbles occurs when the destabilizing force which acts on the bubble becomes greater than the force of surface tension which tends to oppose the deformity of the bubble [26, 27].	Turbulent flow conditions, fluctuating vortices in M&A could be <i>emergencies</i> . Deformity and destabilizing force are reflected in the changes for which there are no key organizational conditions. When destabilizing force becomes greater than the internal force that holds the system together, it is increasingly evident that the organization does not have the necessary capacity for change and then the organization suffers crisis and often fails.

5 Exemplar examples and those which are not

In order to verify the analogy with soap bubbles, several M&A examples have been considered. Taking into account the ambitions of this paper, authors did not fully use all the elements of the case study method, but we stayed on its application as an exploratory tool, trying to include as many different business situations during the formation of M & A as a major determinant of their success [3, 11].

a) The cases of M&A companies of approximately the same size, the so-called mergers of equals - It is about merging of the companies of approximately the same size and power and the analogy with the bubbles of the same dimensions (Fig. 1). In this case, each of the parties to the transaction retains a high degree of autonomy, which would correspond to the existence of a flat intersection wall between bubbles. The cases of unsuccessful (*AOL & Time Warner and Daimler - Benz AG & Chrysler*) and successful (*Astra Zeneca & UK*) business alliance will be discussed.

AOL - Time Warner merger took place in 2000 and is one of the largest M&A in American history, with a total value of about \$350 billion. Some authors consider it as one of the least successful M&A in history [29]. The transaction takes place during the peak of dot.com companies. AOL owned a 55 % stake, while Time Warner 45 % of the newly formed company. In order to ensure equality, the board was formed composed of equal numbers of representatives from both companies. Although labelled as a merger of *equals*, this transaction by many parameters never really was. For example, total revenues in 1999 of AOL amounted to \$4,7 billion, while Time Warner (TW) had \$27,3 billion; AOL's market capitalization (as of January 7, 2001) totalled \$129 billion, TW - \$108 billion; total assets of AOL in 1999 - \$10,3 billion, TW - \$48,4 billion, etc. (*EDGAR Search Results via www.sec.gov*). In addition to financial expectations, both companies have strategic goals to enter into new business and expansion of services. AOL as a young internet company reached a maximum in terms of market price of shares and looked for new business opportunities to create a realistic basis for future growth. On the other hand, Time Warner was trying to expand online presence in the market. Unfortunately, expectations were not met. Incompatibility of organizational cultures has been the source of many misunderstandings which was a problem from the start. Employees in AOL were believed to be too aggressive and arrogant. Synergies are not realized in hardly any business function [29]. During 2001 and 2002 the US economy entered into crisis, which has further aggravated the already unfavourable financial results of the newly formed company. During 2002, AOL had to write off nearly 100 billion losses, while market capitalization fell from 226 down to about \$20 billion [29].

Daimler-Benz AG (Germany) - Chrysler (US) case presents almost classical example of unsuccessful M&A. It is one of the largest mergers in the history of the automobile industry, which was completed in 1998. The whole transaction was deemed to be between 37÷38 billion dollars and was treated as a merger of equals. Relationships between certain financial parameters prior to the realization of the transaction (1997) were as follows: revenues for Daimler - \$68,9 billion and for Chrysler 61,1 billion dollars; assets: Daimler - \$76,1 bill.

Chrysler - \$60,4 bill; profit: Daimler - \$1,7, Chrysler - \$2,8 bill (*EDGAR Search Results via www.sec.gov*). There are many reasons for the failure of this M&A, like different concepts of hierarchy, customer service and lack of coordination and good communication, which led to the lack of mutual trust [2, 3]. The cultural factor, especially in international M&A such as this one, should not be ignored.

Astra - Zeneca - is an example of a very successful merger of companies of approximately equal size. It is a transaction in the pharmaceutical industry which took place in 1999 when the company *Astra AB* based in Sweden merged with the British *Zeneca Group* (which was previously formed through demerging of the company *Imperial Chemical Industries - ICI* 1993). Astra was strong in four main product groups: gastrointestinal, cardiovascular, respiratory and pain control. Zeneca was a major international bioscience group engaged in the research, development, manufacture and marketing of pharmaceuticals (focusing on cancer, cardiovascular, central nervous system, respiratory and anaesthesia), agricultural chemicals and specialty chemicals, and the provision of disease-specific healthcare services. Before the merger the value of sales was as follows: Astra - £5 billion, Zeneca - £ 5,5 billion; value of profits: Astra - £ 2 billion, Zeneca - £1 billion, etc. (*www.astrazeneca.com*)

The success of the newly formed company was seen as a positive movement of many financial parameters and in achieving strategic goals. In fact, most of the performance recorded growth. In mid-2014 the total market capitalization amounted to almost 55 billion pounds (*www.astrazeneca.com*). AstraZeneca has one of the largest research and development (R&D) potentials. In the R&D sector there were employed over 11,000 people and there was a high level of synergy. In addition, the company continued to grow and developed by purchasing and taking over other companies. Some of the most popular are the following: *KuDOS Pharmaceuticals* in 2005, a UK biotech company; In February 2007, *Arrow Therapeutics* in 2007, a company focused on the discovery and development of anti-viral therapies, for \$150 million; in 2010 - *Novex Corp.*, in 2011 - *Beikang Guangdong Pharmaceutical Company*, etc. (*www.astrazeneca.com*). The proof of the success of M&A can be found in the fact that the company's shares were traded on several stock exchanges (stock exchanges in London, New York and the Scandinavian OMX market).

b) The cases of M&A companies that are different sizes and strengths - (Fig. 2). In these M&A, as by the rule, smaller or weaker company must adjust to the stronger one and in process it loses part of its autonomy and adapts to the stronger company. The focus of our analysis will be directed towards the three typical cases, such as *Exxon & Mobil*, *HP & Compaq* and *Thomson & Reuters*. The focus of the research was directed towards hard (financial) and soft (organizational) factors.

Exxon - Mobil is an example of one of the most successful mergers in the oil industry [30]. This transaction took place in 1998 and its value was estimated at about \$59 billion. Exxon was bigger company than Mobil in terms of market capitalization. Ten days before the announcement of the agreement, the value of Exxon amounted to \$175 billion while Mobil's value was \$58,7 billion. After the merger the company has continued to operate successfully during the next few years, and all

major financial indicators (sales, profits, stock prices, market value, etc.) recorded growth. Given that both companies arose from the same company (Standards Oil), the problems of incompatible organizational cultures are reduced to a minimum, enabling strong organizational synergy.

HP - Compaq - took place in 2001 and represented one of the most significant M&A in the computer industry. The total value of the transaction is estimated at about \$25 billion and a new company was to be owned by HP with 64 % and Compaq with 36 % (www.yahoofinance.com). It could have been assumed that culture differences would be a big problem since HP had engineering-driven culture as opposed to the sales-driven culture of Compaq. They failed to overcome their differences in style of management and leadership, which indicated a failure.

Thomson Reuters - is a transaction that took place in 2008. The company was created as a form of horizontal integration of *Thomson Corporation*, originally founded in Toronto and *British Reuters Group*. *Thomson Reuters* today represents one of the leading multinational companies in the field of mass media and information. A year before the transaction, Thomson was larger and financially stronger company by almost all financial parameters; Thomson assets - \$22,8 billion - Reuters - \$4,0 bill; Capital: Thomson - \$13,1 billion, Reuters - \$0,3 bill; Net profit: Thomson - \$4,0 bill- Reuters - \$0,45 billion, and so on. Since its formation, the company had a dual listing - on the Toronto Stock Exchange and the NYSE (before on the NASDAQ, www.nasdaq.com, www.nyse.com). Certain financial parameters (such as sales and stock prices) were rising in the early years. Profit grew somewhat slower and did not record the desired level of growth. However, a few years after the transaction the market capitalization has increased and reached a value of nearly \$40 billion, therefore it can be concluded that desired strategic objectives of the M&A were achieved. To support that, *Thomson Reuters* completed acquisition of several companies (eg. Streamlogics, 2009; Vhaya Technologies, 2009; Hudin Group, 2009; Aegisoft LLC, 2010; Emochila, 2011; Zawya Ltd, 2012). This example indicates to adjustment of the smaller companies to the bigger ones.

There are numerous examples of unsuccessful M&A, where one of the main reasons was nonconforming of organizational cultures. For instance, the *New York Central and Pennsylvania Railroad* (implemented in 1968, completed in bankruptcy just two years later); *Novell and WordPerfect* - in software industry, (implemented in 1994; Novell sold WordPerfect three years later at a cost less than \$1 billion); *Sprint - Nextel* - connected with the year 2005 in the field of mobile telephony; *Ford and Volvo* - in the automotive industry; *Dollar and Thrifty* in rent-a-car; and so on.

5 Concluding remarks

Why were we guided by analogies with soap bubbles in search of signposts on the way to create more effective M&A? Above all, it was done in order to draw attention to the sensitivity of the process of creating business alliances and their fluid character, as evidenced by a large number of M&A ending up in failure. Business situations are, of course, situational but they also end up as human

situations. The organization consists of people so that in determining the size/value of an organization it is necessary to take into account all potential of the employees - what they are and what they could be. The largest number of factors related to potential of employees is called 'soft' factors - their competence, professionalism, innovation, networking, quality of interrelationships and so on. Unfortunately, the harsh financial motives do not always take into account and valorise these aspects in the right way when creating new business combinations through the M&A.

When the destabilizing forces become larger than the internal forces that hold the organization together (a bubble clearly indicates the specificity and the consequences of such a situation), business system slips into a business failure, confirming the idea that each system primarily begins to collapse from within. Organizations are not exempt from this rule. Soap bubbles provide enough clues to understand the complexity of organizational processes, people involved in them and ways of achieving business goals. The fact is that bubbles larger in radius are more stable and that smaller organizations can reduce their internal tensions by making alliances with larger organizations. Bubbles of the same radius exhibit properties of equal give and take, and such organizations, by analogy, build partnerships in which members do not drown their individuality, throwing a new light (or enhance the existing one) on the process of creating M&A.

The business success of the earlier period mainly insists on the so-called *hard* components (physical or natural parameters, financial performance, etc.). However, without adequate consideration and respect of the so-called *soft* elements, such as interpersonal relationships, professional and personal satisfaction, motivation, values, social capital, dominant/governing cultural patterns, organizational culture, values of an organization, what it represents, what its people believe - are crucial to business success in the long run. Such an understanding of business success leads to structuring of the new reporting paradigm, according to which numbers are important components of business life but not the only one. Creativity, innovation, business courage, the value of social capital, the dominant cultural patterns and organizational culture must be considered when deciding on the conclusion of M&A. This approach to the success of M&A does not suggest the principle of compensation but correlation between *soft* and *hard* parameters of success. It is necessary to understand the dynamics of these seemingly dichotomous parameters of business success. Compatible, supporting *soft* elements will provide sufficient preconditions so that *hard* elements reach and exceed set business goals. Analogies with soap bubbles confirm the assertion that the soft elements of business success must be more respected if business alliances with longer lifetime want to be created. The authors share the conviction that this work is the importance step in the right direction. Proposal for the further research refers to the creation of mathematical model of M&A made on the basis of proposed analogy, which would contribute to the development of this topic both in theory and in practice.

6 References

- [1] Carleton, R. J. Cultural Due Diligence. // *Training*. 34, (1997), pp. 67-80.
- [2] Appelbaum, S. H.; Roberts, J.; Shapiro, B. T. Cultural Strategies in M&As: Investigating Ten Case Studies. // *Journal of Executive Education*. 8 1(2013), pp. 33-58.
- [3] Steiner, P. O. *Mergers, Motives, Effects, Policies*. Ann Arbor: University of Michigan, (1975).
- [4] Walter, G. A.; Barney, J. B. Management Objectives in Mergers and Acquisitions. // *Strategic Management Journal*. 11, 1(1990), pp. 79-86. DOI: 10.1002/smj.4250110107
- [5] Weber, Y. Corporate Cultural Fit and Performance in Mergers and Acquisitions. // *Human Relations*. 49, 9(1996), pp. 1181-1195.
- [6] Hofstadter, D. Analogy as the Core of Cognition. // In: Gentner, D.; Holyoak, K. J.; Kokinov, B. N. *The Analogical Mind: Perspectives from Cognitive Science*, Boston: MIT Press. (2001), pp. 499-539.
- [7] Mysels, K. J.; Cox, M. C.; Skewis, J. D. The Measurement of Film Elasticity. // *Journal of Physical Chemistry*. 65, 7(1961), pp. 1107-1111. DOI: 10.1021/j100825a005
- [8] Cohen-Addad, S.; Höhler, R.; Khidas, Y. Origin of the Slow Linear Viscoelastic Response of Aqueous Foams. // *Physical Review Letters*. 93, 2(2004), pp. 028302-1-028302-4. DOI: 10.1103/PhysRevLett.93.028302
- [9] Höhler, R.; Cohen-Addad, S. Review article: Rheology of liquid foams. // *Journal of Physics: Condensed Matter*. 17, (2005), pp. R1041-R1069. DOI: 10.1088/0953-8984/17/41/R01
- [10] Steiner, G. A.; Schöllhammer, H. Pitfalls in Multi-national Long Range Planning. // *Long Range Planning*. 8, 2(1975), pp. 2-12. DOI: 10.1016/0024-6301(75)90001-1
- [11] Kandžija, V.; Filipović, D.; Kandžija, T. Impact of industry structure on success of mergers and acquisitions. // *Technical Gazette*. 21, 1(2014), pp. 17-25.
- [12] Balmer, J. M. T.; Dinnie, K. Corporate identity and corporate communications: the antidote to merger madness. // *Corporate Communications*. 4, 4(1999), pp. 182-197. DOI: 10.1108/13563289910299300
- [13] Lynch, J. G.; Lind, B. Escaping merger and acquisition madness. // *Strategy and Leadership*. 30, 2(2002), pp. 5-12. DOI: 10.1108/10878570210422094
- [14] Buono, A. F.; Bowditch, J. L.; Lewis, J. W. When cultures collide: The anatomy of a merger. // *Human Relations*. 38, (1985), pp. 477-500. DOI: 10.1177/001872678503800506
- [15] Napier, N. K. Mergers and acquisitions, human resource issues and outcomes: A review and suggested typology. // *Journal of Management Studies*. 26, (1989), pp. 271-289. DOI: 10.1111/j.1467-6486.1989.tb00728.x
- [16] Gentner, D. Structure-Mapping: A Theoretical Framework for Analogy. // *Cognitive Science*. 7, 2(1983), pp. 155-170. DOI: 10.1207/s15516709cog0702_3
- [17] Glassner, A. Soap bubbles: Part 2. // *IEEE Computer Graphics and Applications*. 20, 6(2000), pp. 99-109. DOI: 10.1109/38.888023
- [18] Duriković, R. Computer Animation: Animation of Soap Bubble Dynamics, Cluster Formation and Collision. // *Journal of the Applied Mathematics, Statistics and Informatics (JAMSI)*. 1, 2(2005), pp. 1-16.
- [19] Hutchings, M.; Morgan, F.; Ritore, M.; Ros, A. Proof of the Double Bubble Conjecture. // *Research Announcements of the American Mathematical Society*. 6, (2000), pp. 45-49. DOI: 10.1090/S1079-6762-00-00079-2
- [20] Raoufi, A.; Shams, M.; Ebrahimi, R. A Novel CFD Scheme for Collision of Micro-bubbles in Turbulent Flow. // *Engineering Letters*. 16, 3(2008), EL 16 3 02.
- [21] Busaryev, O.; Dey, T. K.; Wang, H.; Ren, Z. Animating Bubble Interactions in a Liquid Foam. // *Cognitive Science*. 7, (2012), pp. 155-170. DOI: 10.1145/2185520.2185559
- [22] Saint-Jalmes, A.; Vera, M. U.; Durian, D. J. Uniform foam production by turbulent mixing: new results on free drainage vs. liquid content. // *European Physical Journal*. B12, (1999), pp. 67-73. DOI: 10.1007/s100510050978
- [23] Vera, M. U.; Durian, D. J. Enhanced Drainage and Coarsening in Aqueous Foams. // *Physical Review Letters*. 88, 8(2002), 088304-1-4. DOI: 10.1103/PhysRevLett.88.088304
- [24] Le Merrer, M.; Cohen-Addad, S.; Höhler, R. Bubble Rearrangement Duration in Foams near the Jamming Point. // *Physical Review Letters*. 108, (2012), 188301. DOI: 10.1103/PhysRevLett.108.188301
- [25] Hanwright, J.; Zhou, J.; Evans, G. M.; Galvin, K. P. Influence of surfactant on gas bubble stability. // *Langmuir*. 21, 11(2005), pp. 4912-4920. DOI: 10.1021/la0502894
- [26] Wilkinson, P. M.; van Schayk, A.; Spronken, J. P. M.; van Dierendonck, L. L. The influence of gas density and liquid properties on bubble breakup. *Chemical Engineering Science*, 48, (1993), pp. 1213-1226. DOI: 10.1016/0009-2509(93)81003-E
- [27] Hinze, J. O. (1955). Fundamentals of the hydrodynamic mechanism of splitting in disperse on processes. // *AICHE Journal*, 1, 289-295. DOI: 10.1002/aic.690010303
- [28] Hofstede, G.; Hofstede, G. J. *Cultures and Organizations – Software of the Mind*. New York: McGraw Hill, (2010).
- [29] McGrath, R. G. 15 year later, lessons from the failed AOL-Time Warner Merger. *Fortune*, January 10, 2015. Available from internet: <http://fortune.com/2015/01/10/15-years-later-lessons-from-the-failed-aol-time-warner-merger/>
- [30] Weston, J. F. The Exxon-Mobil Merger: An Archetype. // *Journal of Applied Finance*. 12, 1(2002), pp. 69-88.

Authors' addresses

Slavka T. Nikolić, PhD, Associate Professor

Faculty of Technical Sciences, University of Novi Sad,
Trg Dositeja Obradovića 6, 21000 Novi Sad, Serbia
E-mail: snikolic@uns.ac.rs

Maša Bukurov, PhD, Associate Professor

Faculty of Technical Sciences, University of Novi Sad,
Trg Dositeja Obradovića 6, 21000 Novi Sad, Serbia
E-mail: mbukurov@uns.ac.rs

Dejan Erić, PhD, Professor

Institute of Economic Sciences and Belgrade Banking Academy,
Zmaj Jovina 12, 11000 Belgrade, Serbia
E-mail: dejan.eric@ien.bg.ac.rs

Jelena Stanković, MSc, Teaching Assistant

Faculty of Technical Sciences, University of Novi Sad,
Trg Dositeja Obradovića 6, 21000 Novi Sad, Serbia
E-mail: stankovicj@uns.ac.rs