Premises and Limitations in Defining and Measuring Synergy from M&As

Aevoae George Marian
"Alexandru Ioan Cuza" University of Iasi
aevoae@gmail.com

Abstract

Mergers and acquisitions are performed worldwide mainly because of synergy. Although many invoke the term synergy as the key motivation of why they engage in M&As, research has led us to understand that it is not very clear in terms of what it actually is. In the scientific literature, synergy is mostly defined as being "2+2=5". Thus, we first thought that it can only be a positive effect. But, latter on, we found out that synergy is not only positive, it can be negative as well, known as negative synergy or dyssynergy. The purpose of this paper is to shed some light on what is synergy, how can we quantify and classify it and why acquiring firms tend to pay more for the target firm. We believe that there is a link between the amount of premium paid for a target firm and the expectations for synergy.

Key words: synergy, mergers, acquisitions, dyssynergy.
J.E.L. classification: G34, G35, M21

1. Introduction

Reports show that the worldwide mergers and acquisitions market grew last year by 3.7%. From 47,288 registred operations in 2015 to 49,039 registred in 2016. In Europe, it grew by almost 3%, and in Romania by 6% (IMAA, 2017).

Most of the times merger operations are associated with acquisition operations. It is true that they are known in the scientific literature as mergers and acquisitions, with the acronyme M&As. But, as Qudaiby (2013, p. 181) points out, there is a big difference between merger and acquisition operations. A merger is a transaction involving two or more economic entities in which stock is exchanged and where only one corporation survives and the merged ones cease to exist (Gaughan, 2010; Wheelen and Hunger, 2011; Qudaiby and Khan, 2013). In most of the cases, when a merger occurs, the two companies become one, the name for the corporation becomes composite, and its derived from the two original names. An acquisition is the purchase of a company that is completely absorbed as an operating subsidiary or division of the acquiring corporation (Wheelen and Hunger, 2011, p. 256). Because the main topic of this paper is to present synergy, from now on we will refer to both operations, as causes that conduct to this effect.

As many researchers point out, the main reason of why firms engage into M&As is to grow, and companies grow in order to survive (DePamphilis, 2010; Gaughan, 2010; Qudaiby and Khan, 2013). Mergers and acquisitions are performed with the main purpose of obtaining an economic gain, in the form of synergy. The reasons of why companies engage in M&As can be many. Among them, we hold: increasing domination and influence; acquiring specific resources; gaining a position on a new market; consolidating the position in mature sectors; adapting to technological developments; eliminating an inconvenient competitor; expanding the scale production; limiting the possibility of entering a specific sector. The presented reasons can be related either to an offensive strategy, or to a defensive one.

When two or more companies decide to call on M&A operations, this decision can be seen from two perspectives: strategic and financial. The differences between the two stances lay in the attitude of the buyer. While a strategy-based decision is usually recognized by the higher

price paid for the acquiree by the buyer because the latter feels it can achieve cash flow improvements through a variety of synergies where the combined entity can be more profitable than if they operated separately (Bragg, 2008, p. 186), a financial decision, on the other hand, is simply based on the conviction that a business will gain appreciation value from its internal growth over time.

2. A step forward in understanding synergy

Synergy is defined in the literature as the reaction that occurs when two or more entities, factors, agents, processes, substances or systems function together in a particularly fruitful way, producing a greater effect than the sum of the individual effects could explain (Chatterjee, 1986; Gaughan, 2010; Qudaiby and Khan, 2013).

The concept of synergy has a long history of use in science, especially in several disciplines related to medicine. In psychology, for example, it describes the coordinated action of two or more muscles that work together to produce the same effect on the same joint. In endocrinology, on the other hand, synergy is used either in the additive or complementary sense to describe the combined effect of hormones. Also, in pharmacology, synergy is primarily used in a multiplicative sense (Marieb, 2004). In strong contrast to its use in medicine, the term synergy is not often used in economic literature. Synergy is frequently invoked as a key motivation factor for companies engaging in M&As.

From a mathematical point of view, synergy can be rendered, at least at the theoretical level, by equations of the form: „1+1>2" or „2+2=5". Besides, this mathematical representation is also the most common explanation of the synergy effect in the literature. However, a mathematical equation is a sentence which states that two mathematical expressions are equal, and that they form an identity. Synergy is different in this respect: the value of the whole is higher than the sum of the individual values. Returning to the previous mathematical equation, 2 + 2 is not equal to 4 (the sum of individual values), but equals 5 (we have obtained a higher value due to the synergy effect).

The etymology of the term synergy derives from the Greek prefix „syn" and the word „ergin". Therefore, „synergos" can be translated as „working together" (Hoffman and Woehr, 2006, p. 483). In business literature, the synergy term was first introduced by Ansoff in 1965 in his book *Corporate Strategy*. Two decades later, the discussion about synergistic effects was resumed by Porter in *Competitive Advantage,* in 1985 (Karenfort, 2011).

In order to better explain the concept of synergy, let's take as an example a group of participants who have participated in a very successful group effort. The persons in question can use the term synergy as a way of expressing excitement, motivation, or a high level of cohesiveness that they felt while working together. Outside observers, on the other hand, tend to use the term synergy more directly in connection with the group's performance. Synergy is a gain in performance that is attributable in some way to group interaction (Larson, 2010, p. 13). A group is said to exhibit synergy when it is able to accomplish collectively something that could not reasonably have been achieved by any simple combination of individual member efforts. According to Larson (2010), synergy is an emergent phenomenon, rooted in group interaction.

Going forward, in order to approach the economic field, Sirower (1997) discussed synergy in terms of management, which means competing on a specific market better than anyone ever expected. From this point of view, obtaining economic benefits is a consequence of a competitive advantage over and above what firms already need to survive in their competitive markets. Basically, we can see that, by associating several economic entities, their effectiveness, the quality of achieving the expected positive effect is greater, in some cases, than by looking at each entity individually. On the other hand, synergy, by its effects, implies increasing the economic, financial or commercial efficiency of the new entity as a result of the merger or acquisition (Meier and Schier, 2012, p. 16). By efficiency we understand the ability to maximize the results obtained from a quantity of resources or to minimize the amount of resources for a certain predetermined result. M&As represent a strategic way for enterprises to develop in an external manner (to grow, shrink, change the nature of their business or their competitive position). But, as Meier & Oliver (2012) noted, mergers and acquisitions are not the only external growth strategies, as they can also aim at internal reorganization of a group of companies (e.g. the merger between two companies within the

same group).

As a motive of why companies engage in M&As, the most common argument in the literature is the increase of shareholders' wealth. But who are the shareholders? At a first glance, we may be talking of an increase in the wealth of the shareholders of the absorbing/acquiring company, but studies show that an increase in the wealth of the shareholders of the absorbed/target company is much more probable (Sirower, 1997; Garzella, 2015; Mazzariol and Thomas, 2016).

In addition to positive synergistic effects, the combination of two previously independent entities might also result in negative effects on the income and cost situation, which are commonly referred to as *dyssynergy* or negative synergy (Hoffman and Woehr, 2006). Negative synergy can appear in two ways: first, it generates direct costs, such as legal costs, relocation costs, and costs for integrating and harmonizing IT infrastructure, as well as indirect costs, and has detrimental effects on the income statement (Lechner and Meyer, 2003, p. 315).

Therefore, although the concept of synergy seems to be positive at a first glance, encompassing optimistic premises and promising better results and a growth of stockholders’ wealth, many forget that it can also hold a negative side. This may explain why many lose the acquisition game (Sirower, 1997, p. 20). Kaplan (1997) shows in a study that acquiring firms lose an average of 10% of their investment on announcement and, over time, waiting for synergy, perhaps they will end up losing even more (Magenheim and Mueller, 1988; Sirower, 1997). According to Sirower (1997, p. 24), a bad acquisition is when the acquiring firm does not earn back its cost of capital.

In order to detail the concept of synergy, next we will present two different definitions of synergy, along with the arguments of the authors. We consider them relevant, because they are noted as the first mentions of synergy in economic literature. What makes them even more relevant is the fact that, while they target the same concept, fundamentally they propose two antagonistic approaches of synergy.

2.1 The synergy concept, according to Ansoff

The concept of synergy has been defined by Ansoff as joint effects resulting from the addition of new a product/market (Ansoff and McDonnell, 1988, p. 28). The starting point of Ansoff’s train of thought is the return on investment (ROI), which describes the firm’s annual return as a function of sales, operating costs and investment. Ansoff argues that a firm resulting from M&A operations can realize scale effects leading to a lower level of operating costs and investment as compared to a firm with independent operating units while maintaining the same level of sales (Karenfort, 2011). Hence, synergy effect creates a combined return on the firm’s resources which is greater than the sum of its independent parts (Ansoff and McDonnell, 1988, p. 75).Based on ROI formula, Ansoff distinguishes three types of synergy, namely sales, operating and investment synergy. The sales synergy can occur as a result of common use of distribution channels, sales administration and warehousing as well as shared marketing activities for a complete range of related products. The operating synergy results from the joint use of labor, production factors, learning curve advantages, and bulk purchasing. The latter one, investment synergy, on the other hand, can be achieved from the joint utilization of machinery, raw materials and the transfer of research and development intelligence (Karenfort, 2011). In addition, although not directly apparent from the ROI formula, Ansoff introduces management synergy as a forth synergy type which denotes the capability of the management to apply their capabilities and knowledge in a new industry (Ansoff and McDonnell, 1988, p. 75).

Sales synergies are much more difficult to achieve than cost savings, because the newly-combined companies must now rely on third parties (customers) to boost sales (Bragg, 2008, p. 190).

2.2 The synergy concept of Porter

In contrast to Ansoff, who views synergy in the context of new product/market ventures, Porter considers synergy in the context of business strategy, specifically horizontal strategy which addresses policies and objectives across interrelated business units within the firm’s existing portfolio (Karenfort, 2011). Thus, he takes a critical stance on corporate strategy and the notion of creating value through diversification.

Porter has the opinion that synergy can be realized through the identification and exploitation of interrelationships between related business units. Interrelationships are defined by the author as "tangible opportunities to reduce costs or enhance differentiation in virtually any activity in the value chain"(Porter and Millar, 1985, p. 318). He sees the value chain as a tool to identify and analyze synergistic opportunities. „The value chain disaggregates a firm into its strategically relevant activities, in order to understand the behavior of costs, and also the existing and potential source of differentiation" (Porter and Millar, 1985, p. 33).

The author does not see the failure to achieve the expected value gains in fundamental flaws of the concept but in a poor understanding of synergy, as well as a lack of appropriate tools and improper implementation (Karenfort, 2011). "Ill-defined notions of what constituted synergy underlay many companies' acquisition strategies" (Porter and Millar, 1985, p. 138).

3. Can entities experience different types of synergy?

According to Bragg (2008, p. 186), the most important part of the integration plan centers around the realization of synergies. In his opinion, synergies justify the price paid for the acquiree. The author identifies some synergies that can appear due to M&As and categorized them as resulting from cost savings, revenue increases, capital spending, financial engineering and tax benefits. He also states that the most reliable ones to be achieved are cost savings, because, in his opinion, they are entirely within the control of the buyer (Bragg, 2008, p. 187).

Synergy is often classified as operating synergy, financial synergy, and managerial synergy (Damodaran, 2005; DePamphilis, 2010; Gaughan, 2010).

Operating synergies can be achieved as increases in economic benefits, in the form of enhanced revenues or lower costs (Gaughan, 2010, p. 138). Of the two, Bragg (2008, p. 138) has the opinion that revenue enhancements can be more difficult to achieve. In a survey made by McKinsey (Christofferson, McNish and Sias, 2004), results showed that 70% of mergers failed to achieve their expected revenue synergies. When talking about revenue-enhancing synergies, Bragg (2008, p. 139) refers to pricing power, combination of functional strengths and growth from faster-growing markets or new markets.

A combination of two companies may lead either to greater pricing power, with an impact on revenues, or purchasing power, with an influence on costs and their optimization. Operating synergy comprises both economies of scale and of scope, which can be important determinants of shareholder wealth creation (Houston, James and Ryngaert, 2001; DeLong, 2003).

Financial synergy refers to the impact of mergers and acquisitions on the cost of capital of the acquiring firm or newly formed firm, resulting from a merger or acquisition. The cost of capital is the minimum return on equity required by investors and lenders to induce them to buy a firm's stock or to lend to the firm (DePamphilis, 2010, p. 5). Financial synergies can take different forms and, compared to operational ones, are more focused (Meier and Schier, 2012, p. 14). They refer to the possibility of tax optimization, increasing the leverage capacity of the new entity, diminishing the cost of capital as well as the cost of access to capital markets (Damodaran, 2005; Meier and Schier, 2012). Damodaran (2005, p. 3) has the opinion that financial synergies sometimes show up in the form of higher cash-flows and sometimes take the form of lower discount rates.

Managerial synergy refers to the transfer of knowledge and know-how of the acquirer to the target entity and vice-versa (Meier and Schier, 2012). Such synergies can be particularly important in areas such as research, technological innovation or business. The importance of such synergies can also be felt in the case of the target entity's activity, for example the internationalization of the activity. In this case, they can benefit from the acquirer's experience.

4. A brick stone in how to quantify synergy

Both when referring to synergy and to the execution of M&A operations, we should take into account the value of the entities that come into the latter processes, and different valuation methods can be used for this purpose. Supposing we have two pre-merger enterprises, V_A and V_B, and their individual values combined is lower than their value after the merger, the V_{AB} enterprise. For assessment of an enterprise, market approach and income approach can be applied as evaluation

methods, according to the Valuation Standards. According to ANEVAR (2017), the cost approach cannot normally be applied in this situation, except for start-ups. We use this last method for assessing enterprises when the profit and/or cash flow cannot be reliably determined and if there is adequate market information about the entity's assets. The value of certain types of enterprises (eg investment or holding enterprises) can be obtained by assessing the assets and the liabilities. This is sometimes referred to as the „net asset value approach" or „asset approach" (ANEVAR, 2017).

The market approach provides an indication of the value and involves comparing the value of the enterprise, subject to valuation process, with the value of other enterprises that have been traded on the market.

The income approach also provides an indication of the value of an enterprise by converting future cash flows into a single current value of equity. This approach takes into account the revenues that the enterprise will generate over its useful life and indicates the value through a capitalization process. By capitalization we understand the transformation of income into a capital value by applying an appropriate discount rate of capitalization (ANEVAR, 2017).

The anticipation of synergy allows the acquiring economic entities to bear the costs involved in the acquisition/merger process and to be able to pay the shareholders of the target/absorbed entity a premium for their shares (Gaughan, 2010).

In M&A related operations, the notion of a premium usually appears. A premium is the difference between the estimated real value of a company and the actual price paid to obtain it. The acquiring entity records a premium when there is a difference between the accounting value and the nominal value of a share issued by the acquiring entity to remunerate the intake equity brought by the acquired entity. There is no requirement that a company should pay a premium for acquiring another company and no obligation in calculating it, unless there is a difference between the value of the intake resulting from the merger or acquisition and the value with which the share capital of the company acquired has increased. According to Gaughan (2010, p. 136), the following equation should help in better understanding synergy:

$$\text{NV} = [V_{AB} - (V_A + V_B)] - (P + E)$$

Where as:
NV – net merger/acquisition value; V_{AB} – entity value after merger/acquisition; V_A – value of entity A; V_B – value of entity B; P – the paid premium for B; E – the value of the expenses involved by the process.

In Gaughan's opinion (p.136), synergy may allow the combined firm to appear to have a positive net value (NV).

The equation between square brackets stands for the value of synergy. This effect must be higher than the value of the premium paid for the target firm (entity B) and the expenses related to the process in order to justify forwarding the merger and acquisition process. If the value of the synergy effect is not higher than the sum (P + E), then the acquiring/absorbing entity has overpaid for the target/absorbed entity (Gaughan, 2010).

5. Conclusions

When two or more companies decide to enter in M&A operations, this step is both a challenge and an expectation for future economic benefits. But only the future will say if the bid was right to be made and the answer is the synergistic effect. As presented in the paper, this effect can be positive, but also negative, due to a series of factors, which can influence the result in both directions: windows of opportunity, choice of employees and managers, products range, the match between the expenses and the expected revenues, etc.

Bottom line, synergy can translate into an increase in performance, seen from different points of view: financial, operational, or managerial. Synergy realization is a function of similarity and complementarity between the buyer and the acquiree, which lays in the extent of interaction and coordination post-M&A, in the degree of acceptance from the employees, and in the accounting figures, described either by expected costs, revenues and income, or by target ratios. The real challenge is to quantify this increase into numbers, and the accounting figures could be a possible answer in this direction and a topic for further research.

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