Copernican Journal of Finance & Accounting

2024, volume 13, issue 2

e-ISSN 2300-3065
p-ISSN 2300-1240

Ben Flah, I. (2024). Real Options Approach to the Pre-Closing Process of a Merger and Acquisition: An Exploratory Study in the French Context. Copernican Journal of Finance & Accounting, 13(2), 47–62. http://dx.doi.org/10.12775/CJFA.2024.007

Ines Ben Flah*
University of Tunis

Real Options Approach to the Pre-Closing Process of a Merger and Acquisition: An Exploratory Study in the French Context

Keywords: real options, mergers and acquisitions, pre-closing process, exploratory study.

J E L Classification: D81, G13, G34.

Abstract: The research objective of the article is to understand the real options' generating process during the various stages of the mergers and acquisitions (M&A) projects. In fact, the significant increase in the number of publications on M&A using the real option method from the mid 1990's to today contrasts with the low average rate of its utilization by managers. In Europe, only 6% of CFOs in large companies claim to use the real options method in their capital budgeting process (Horn, Kjærland, Molnár & Steen, 2015). This is due to a lack of familiarity with this method. On this basis, we will resume the main theoretical work concerning the optional approach in M&A. The applied research method aims to enrich and complete this literature by identifying the different types of real options related to M&A projects based on a qualitative and exploratory research study and carried out with experts involved in the French M&A market (investment bankers, merger and acquisition consultants, strategy advisor, financial transaction services manager and accounting experts). By analyzing the discourse of these experts, the outcome of the research identifies real options in all the phases leading up to the closing of an M&A operation. The main conclusions of this re-

Date of submission: February 15, 2024; date of acceptance: May 17, 2024.

* Contact information: inesbf@hotmail.fr, Higher Institute of Management, GEF-2ALab, University of Tunis, 41, La liberté Street, Bouchoucha City, 2000, Bardo, Tunis, Tunisia, phone: +216-22802118; ORCID ID: https://orcid.org/0009-0001-6708-8305.

search highlight the qualitative role of real options in managing the pre-closing process of a M&A by breaking down each stage of this process into a multitude of options.

Introduction

The M&A activity is important for the development of the companies. Associated with the external growth policies, it is essentially driven by the following motivations: realization of synergies, increase in market shares, and achievement of economies of scale. In reality, the errors in the development of the target company evaluation strategies and its potential to create value as well as the choice of the opportune timing for investment would impair the core of the M&A operations. Due to the presence of asymmetric information, it has become more difficult to obtain market data such as the various sources of risk arising from the tumultuous global economic situation which the acquirer has to face from the early stages of the targeting until signing the closing documents.

The growing volume and complexity of domestic and international M&A has increasingly led to the use of real option valuations. Traditional M&A valuation methods (such as the discounted cash flow method) are no longer sufficient due to the uncertainties associated with determining the time period, estimating cash flows and determining a risk-adjusted discount rate (Arsic, 2013). Among to the corporate finance literature, the net present value of future cash flows is driven by the size, timing, and uncertainty of those cash flows (Loukianova, Nikulin &Vedernikov, 2017; Feldman & Hernandez, 2022; Benninga & Mofkadi, 2022). The acquirer must identify hidden opportunities and try to change them into real options and then take the decision to use them.

The research methodology and the course of the research process

The article uses qualitative analysis of semi-structured interviews with M&A experts in France. This approach enables us to identify the real options present in the phases preceding the signing of the deal closing.

The first section presents a recent literature on the M&A optional approach. We also conduct a qualitative exploratory study based on M&A experts discourse analysis. The main purpose of this research is to identify the real options in different stages of the M&A process. The second section discusses the outcome of the research.

Overview of real options in the M&A projects

The concept of real options emerged in the late 1970s (Myers, 1977). Decision-makers can appreciate the possibility of modifying decisions at a later date and actively seeking out future development opportunities offered by these external growth projects. In the last ten years, real options have been aligned with major issues in the field of finance, such as climate and ecological challenges, renewable energy projects as well as in the conceptualization of decision-making in several areas.

In this context, we cite the applicability of real options in the evaluation of corporate pro-environmental investments (Dziawgo, 2014). Real options are also identified in a company that produces electricity and in the case of transferable units for greenhouse gas emissions (Jankowski, 2013). The same study also addresses the case of the timing option in a nuclear power plant.

With regard to M&A, real option arguments are suitable to understand the possible determinants of the takeover premia (Barbopoulos, Cheng, Cheng & Marshall, 2019). Real options theory is used to explain the amounts demanded as control premiums in M&A transactions. Control premiums depend on the nature of the real options available to the acquirer and the target. The control premium is estimated to be high when the acquiring company and the target company have real options. An acquirer who analyses his M&A project in terms of real options is willing to pay higher acquisition premiums for real options embedded in the target company. The reason is the presence of synergies valued when using real options.

Synergy is a combination of the assets of two firms that create more value together than separately (Agliardi, Zadeh & Koussis, 2016; Reuer & Sakhartov, 2021; Feldman & Hernandez, 2022; Čirjevskis, 2023). M&A projects contain two categories of collaborative synergies associated with real growth options (Hao, Jiangfeng, Yanan & Ziming, 2019). The first category of growth options comes in the form of explicit synergy, defined as synergy between two companies, deriving from the exchange of tangible and intangible assets or market information between acquirer and target. The second category of real options corresponds to tacit synergies (Hao et al., 2019; Čirjevskis, 2023). These are defined as a synthesis of cross-border resources to integrate, reconfigure and develop new core activities (new core competencies or new modes of strategic thinking).

M&A projects provide fertile ground for the application of real options theory (Leiblein, Reuer, Larsen & Pedersen, 2022). They identify the types of collaborative synergies and show the extent to which sequential international acquisition adds value to the market. Later, the notion of compound real options is introduced to measure the increase of the acquiring company's market value thanks to the presence of collaborative synergies and also highlights the existence of sequential compound real options for different levels of volatility (Čirjevskis, 2023). In an uncertain context, making sequential acquisitions is likened to exercising real options for growth (Barney, Helfat, Kaul, Ketchen, David, Chatain & Singh, 2023).

The real options approach enables managers to gradually receive information about the investment context, redefine the scope of the M&A project and invest only if and when it proves profitable (Chi, Trigeorgis & Tsekrekos, 2019). At each stage, therefore, the investment can be re-evaluated in terms of whether it should be increased, postponed or abandoned (Benninga & Mofkadi, 2022).

Recently, stochastic real options models are used to determine the right time to invest in an M&A project and also to explain the emergence of merger waves (Hagel, 2023). The uncertainty using geometric Brownian motion is modeled. Firm's decision to engage in acquisitions is considered as an optimal stopping problem, where firms have an option at every instant to either continue at their current state or to stop the process, pay for the acquisition and receive the benefits of it. Even in a scenario where the impact of uncertainty is excluded, there might be value in postponing the acquisition (Hagel, 2023). An increase in cash-flow uncertainty can increase the value of waiting. The decision to delay the acquisition is generally guided by the analysis of costs and benefits linked to waiting time. Thus, the timing option creates a learning effect which is more important when the acquisition has several growth options (Collan & Kinnunen, 2008).

The abandonment option enhances the ability to abandon the M&A project in the case of deterioration in the economic conditions. The exercise of the abandonment option may generate costs for both the acquirer and the target company. Indeed, the exercise of the abandonment option by the acquirer may be related to the fact that the target company has decided to sell to another buyer while she was in exclusive negotiations with another. In this case, the target company undertakes to pay the latter a penalty, commonly known as the break-up fees. However, if the target company grants exclusive negotiations to the acquirer but he is unable to obtain financing for the operation, he will exercise his abandonment option by paying a penalty to the target company. The abandonment option gives the holder the right to sell or stop completely or partially the activities of the target (Collan & Kinnunen, 2008; Arsic, 2013).

The significant increase in the number of publications on M&A approach by the real options method since the mid-1990s, contrasts with their low use by businesses. The main limitation to the option theory uses in the M&A management is that the literature review on the subject is often based on theoretical considerations only. To enrich the existing literature on the subject and understand the role of a real option in the context of M&A, we have chosen to proceed with the exploration, by meeting experts involved in the French M&A and ask them what are the real options emerging in all the phases leading up to the closing and what they consist of.

We choose to conduct a qualitative study. The privileged research protocol is the semi-structured interview. It allows us to interview individuals that constitute our sample on the behaviors and practices and to identify the main elements of a decision-making process (Thiétart, 2003).

To define the sample size, we have adopted the principle of saturation. Once this one achieved, we stopped collecting data. It does not seek to determine the required number of respondents, but to justify the optimal sample size based on its ability to achieve theoretical saturation. We interviewed 31 M&A experts and reached saturation at the end of twenty second interview. Looking for variety or diversity of respondents is mainly based on three parameters which we considered important:

- The company's specialty (or work) involved in the management of M&A projects. To do this, we interviewed experts operating in French consulting firms specializing in M&A, transmissions, takeovers and divestment of companies in investment banks and in Big Four audit firms;
- The functions of interviewed was also an important selection criterion. We interviewed people directly involved in the management of M & A projects: Advisors, Accounting Experts, Strategy Advisors, Investment Bankers and Financial Transaction Services Managers;
- The third and last criterion is the knowledge of the real options method by the experts interviewed.

The 31 experts we interviewed are divided as follows: Consulting firms specialized in the M&A, takeover, transmission, and transfer of businesses. 46% of respondents operate in consulting firms specializing in M&A, transmissions, transfers and takeovers. 27% of experts operating in investment banks and more specifically in the M&A departments. The remaining 27% of our sample work in the 'Big Four' audit firms. All the experts we interviewed work in companies based in France. Interviews were conducted between March 2019 and November 2019 and ranged from 1 hour and 10 minutes to 2 hours, an average of 90 minutes.

Table 1. Detailed interview guide

Q1. The stages of a M&A project – How do you divide the merger and acquisition process? – Give us the steps leading to the closing of a merger and acquisition project
Q2. Optional approach to the target selection phase – What real options are related to the target selection phase? – Can you describe that/those option(s)?
Q3. Optional approach to the value creation potential assessment phase: – What real options are related to the value creation potential assessment phase? – Can you describe that/those option(s)?
Q4. Optional approach to the formulation of the letter of intent for acquisition phase – What real options are related to the formulation of the letter of intent for acquisition phase? – Can you describe that/those option(s)?
Q5. Optional approach to the acquisition audits phase: – What real options are related to the acquisition audits phase? – Can you describe that/those option(s)?
– Do you have something to add?

Source: author's own elaboration.

In order to ensure greater clarity on the verbatim all the interviews we conducted were coded.

The experts' discourse processing was done by using the NVIVO software. The thematic content analysis, therefore, is to cut and classify the collected speeches by units of meaning or themes. These meaning units will be grouped into homogeneous categories (Grawitz, 2001). We, then, proceed with the coding process, where we cut the text content into units of analysis, and then classify them into categories defined according to our research object.

To ensure the objectivity of our interviews coding, a double coding is recommended. The results of the second coding are almost identical to those of our own coding. Indeed, we have achieved a degree of inter-coders agreement equal to 0.86. This is an agreement rate between the two encoders on the classification of units identified by the two coders as codable.

It is obtained by the following formula:

$$K = (n \times 2) / (i + j) \qquad (1)$$

where:

i – is the number of codes used by the first encoder,
j – is the number of codes used by the second encoder,
n – the number of inter-encoder arrangements.

A satisfactory inter-coders reliability rate *K* of Kruskal is defined over 80% (Allard-Poesi, 2003), we can confirm the relevance of our coding.

Results and conclusions of the research process

According to the experts interviewed, the implementation of an M&A project involves four stages. The target selection phase where a preliminary assessment of the target is conducted. The second phase is about the value creation potential assessment that can be generated following the rapprochement between the acquirer and the target.

The third phase concerns the formulation of the letter of intent for acquisition and ultimately a final phase of the acquisition audits.

Table 2. The stages of an M&A project

Sub-category	Citation frequency	% Of the citation frequency in the category
The target selection phase	28	22.95%
The value creation potential assessment phase	34	27.87%
The formulation of the letter of intent for acquisition phase	21	17.21%
The acquisition audits phase	39	31.97%
Total	122	100%

Source: author's own elaboration.

Cited 28 times by the experts interviewed, the target-selection phase is the first step in the M&A process. This is an exploratory research phase of the potential targets' candidate for the rapprochement. This phase involves defining the target criteria of adequacy with the goals of the acquirer, the degree of attractiveness as well as the rejection criteria of the operation.

The first step in the target selection comes after the signing of a confidentiality agreement with potential acquirers (industrial or financial) with the pre-selected targets. Thus, this phase begins with the receipt of an information memorandum from the target. It is the seller's presentation document that allows the potential acquirer to deepen his knowledge of the target activity. At this level, a preliminary assessment is made. It allows the calculation of the target value, excluding potential synergies.

The M&A process extends to the value creation potential evaluation phase. It was cited like 34 times. At this stage, the acquirer calculates the potential revenue synergies and costs, determines his shareholders value creation and identifies a target acquisition price range (or of the exchange rate). The negotiation of the target purchase price involves negotiating the sharing of the present value of anticipated synergies.

Referring to the speech of our respondents, the formulation of the letter of intent for acquisition is a third step in the establishment of an M&A project. This phase has been cited 21 times by respondents. During this phase, the acquirer expresses his intention to acquire a particular target.

In general, it is the target whose objectives are similar to its own (strategic orientations, economic, financial goals, cultural, organizational, etc.) and whose purchase price is deemed relevant given its potential to create value.

He then proceeds with the formulation of an indicative offer that gives him the right to enter into period of exclusive negotiations with the target. The acquirer, who has already expressed interest in buying the target, will need to collect more information about it. He thus will proceed with the acquisition audits.

Mentioned 39 times, the acquisition audits implementation phase has just finalized the establishment of the M&A project and the transition to the transaction's closing. At the acquisition audits stage, the acquirer validates the terms of his offer and verifies the lifting of suspensive conditions to the transaction completion, especially in terms of delays to obtain financing as well as the completion deadline of the acquisition audits.

The goal is to confirm the adequacy of the characteristics of the target with the acquirer's project.

Real options in the target selection phase

This category contains 7 subcategories representing the options identified by the experts in the target selection phase.

Table 3. Real options in the category real options in the target selection phase

Sub-category	Citation frequency	% Of the citation frequency in the category
Abandonment option	52	32.1%
Strategic defensive options	34	20.99%
Real options related to the market knowledge	20	12.34%
Real options related to the positioning strategy	18	11.11%
The option to enter into dialogue with a particular target	15	9.26%
Option to continue	13	8.025%
The option of acquiring several potential targets	10	6.18%
Total	162	100%

Source: author's own elaboration.

After the receipt of the potential target's presentation documents, the acquirer has a first option which is the acquisition of several potential targets (6.18% of the citations in the category of real options in phase selection of the target). From a first "lap of the track ", he chooses the target for what he would like further analysis. In optional terms, the exercise of the option to acquire several potential targets gives the acquirer the right to exercise a second option, which is the entering into dialogue with a particular target (9.26% of citations).

The combination of these two options is therefore a sequential investment option which is a flexibility option. The exercise of the option to enter into dialogue with a particular target allows the acquirer to define adaptation opportunities needed to maintain his position in the changing economic environment and over his competitors. This is the strategic defensive option. It received 20.99% of respondents' citations.

The possession of such options gives the acquirer the right to purchase the target future cash flows in order to avoid a major competitor to acquire an extra competitive advantage that can question his own business. This option is particularly interesting in oligopolistic sectors where the M&A are used as a response to the behavior of (or more) competitor (s), or simple anticipation of a similar scenario. Indeed, it is often under real or anticipated threat, that a competitor acquires a rival.

For the acquirer, an M&A operation can be a way to avoid being himself the subject of a hostile bid. In some cases, a firm is acquired in order to avoid being subject to a hostile takeover from his competitors. In general, the strategic defensive options are developed when the acquirer wants to avoid risk of outbidding that can push him to buy the target at a high price. Indeed, the implementation of tenders and auctions accentuates the pressure on the acquirer as potentially some of his competitors were contacted to participate in this operation.

The exercise of strategic defensive options can lead to mergers between competing firms. This makes it possible to find situations close to the initial state of concentration of sectors and markets. Strategic defensive options are growth options. Moreover, one of the objectives of M&A activity is to take a position on new markets that will bring new opportunities to develop the current activities.

In optional terms, these are the options related to the positioning strategy (11.11% of citations). The strategic growth options give the acquirer the right, but not the obligation, to quickly take market share from competitors in geographic areas essential to the development of his business.

Given the degree of market knowledge, the acquirer has the opportunity to strengthen his dominance or influence in this market. These options are related to the market knowledge and considered as strategic growth options. They represent 12.34% of total citations. The will to proceed with external growth can be summarized as the acquirer's ability, after signing the closing documents, to change the market conditions in order to strengthen his power with the other players to the detriment of his main competitors. These are aggressive competitive practices to be put into place as a result of the exercise of options related to the market knowledge.

At the end of the target selection phase, the acquirer has the right to continue to invest in the next phases of the target acquisition project. This is the option to continue that we classify as a flexibility option (8.025% of citations).

Real options in the value creation potential assessment phase

This category is divided into three sub-categories, the abandonment option, the synergies options and the option to continue.

Table 4. Real options in the category real options in the value creation potential assessment phase

Sub-category	Citation frequency	% Of the citation frequency in the category
Synergies options	63	58.88%
Abandonment option	29	27.10%
Option to continue	15	14.02%
Total	107	100%

Source: author's own elaboration.

When assessing the value creation potential, the acquirer has essentially synergies options. Mentioned 63 times, these options represent 58.88% of citations of the category of real options in the value creation potential assessment phase. It is the strategic growth options that enhance the opportunities to implement additional projects if and only if the acquisition is successful. After the value creation potential assessment phase, the acquirer is faced with two options: the continuing option and the abandonment option. The continuing option values the opportunity to continue investing in the target acquisition process and move on, therefore, to the formulation of the letter of intent for acquisition phase. This option, which is mentioned 15 times by respondents, received 14.02% of the citations.

However, the abandonment option values the opportunity to stop the acquisition project in case of failure of negotiations of the purchase price or when the potential synergies are deemed insufficient. The abandonment option represents 27.1% of citations. This option is exercised when the anticipated synergy effects are considered low or when the purchase price is perceived as very high. This prevents, the latter, from engaging in subsequent phases of the acquisition process and making an investment that has no economic potential. The option to continue and the abandonment option are flexibility options.

Real options during the formulation of the letter of intent for acquisition phase

This category contains only one sub-category, that is the timing option. It therefore account for 100% in terms of citation frequency. At this point in the M&A process, the timing option corresponds to the possibility of changing the target acquisition timeline.

This is particularly true when the acquirer has the opportunity to wait for the arrival of new information before making a decision on whether or not to develop the next phase of the M&A process which is the acquisition audits. The timing option can be classified into the category of flexibility options.

Real options in the acquisition audits phase

The real options category in the acquisition audits phase is divided into 7 sub-categories.

Table 5. Real options in the category real options in the acquisition audit phase

Sub-category	Citation frequency	% Of the citation frequency in the category
Acquisition price revision option	57	26.14%
Abandonment option	46	21.1%
Option to continue	34	15.59%
Timing option	34	15.59%
Profitability forecasts option	22	10.9%
Option to review the content of the letter of intent for Acquisition	17	7.79%
Option to review the growth options	8	3.69%
Total	218	100%

Source: author's own elaboration.

The options related to the acquisition audits phase are flexibility options. The conduct of audits as well as the access to the data room put the acquirer in front of numerous options. M&A experts mention in 57 times that there is an acquisition price revision option in the acquisition audits phase. It represents 26.14% of the citation frequency in the option category in the acquisition audits phase. The abandonment option places value in management flexibility as regards to the possibility of abandoning the M&A process before spending the acquisition cost on the closing date. The abandonment option was invoked 46 times, thereby occupying 21.1% of the citation frequency.

Next, is the option to continue, which represents 15.59% of citations by respondents. It is a flexibility option whose role corresponds to the move to closing and the transfer securities of the target company to the acquirer shareholders.

Timing option appears when the inconsistencies revealed by the acquisition audits reports persist and that the acquirer waits for their resolutions in the very near future. Under this scenario, timing option allows the postponement of the scheduled closing date. It then constitutes an alternative for the abandonment option. The timing option following the acquisition presents 15.59% of the citations. It corresponds to flexibility option. The acquisition audits costs, thus constitutes the exercise price of the timing option.

The acquisition price revision option grants the right for the acquirer, and not the obligation, to review the transaction price (or parity of exchange price) if the acquisition audits provide an adverse information relative to profitability forecast (10.9% of the citations), to the content of the letter of intent for Acquisition (7.79% of the citations) and to the growth options (3.69% of the citations). These options value the acquirer's ability to adapt his original estimate of the acquisition price, his payment terms, and the sources of profit according to the quality of information collected during the acquisition audits.

This article pursues three major objectives. First, we have outlined the main theoretical works of the M&A project approached by the real option method. Traditional discounted cash flow techniques fail to account for management's ability to react to new information and make decisions that affect the outcome of a project. However, real options can be costly to obtain, complex to value, and dependent on highly problematic assumptions.

Real options should not be considered unless they are clearly identifiable, management has the time and resources to exploit them, and they would add significantly to the value of the underlying investment decision. But no article seeks to go beyond principal categories of options that are addressed in a recurring manner in literature (such as growth options, dropout options, and timing options). Our article also allows us to complete this part of financial literature, by exploring new options categories.

To do so, our second objective was to conduct an exploratory study based on the discourse analysis of M&A French experts, no other research showed interest in identifying the real options emerging from M&A projects, directly from experts' comments. The options identification helped us highlight the qualitative role of real options in improving the M&A management.

We achieve our third objective by proposing a new reading of the M&A perclosing process through the prism of real options. Indeed, the closing phase, which corresponds to the payment of the transaction price, is preceded by several stages in which the acquirer does a great deal of work in terms of valuation, re-evaluation of the target and choice of the right timing for completion of the transaction. We believe that these phases can be managed using the real options method, which values the managerial flexibility offered to the buyer at each phase of the project. To the best of our knowledge, no previous study has looked at the decomposition of the pre-closing process of an M&A project into a chain of real options.

Until now, researches have been confined to identifying and valuing the real options present in an M&A project beyond its implementation. The idea of conceiving each stage of the process leading up to closing as a portfolio of real options held on other option portfolios is a first in the world of finance. We thus generate multi-sequential compound real options portfolios.

Our work contains certain limitations. The size of our sample, limited to 31 experts, is open to criticism. We can hope, in future research, to enlarge the study sample. The results obtained could lead to the emergence of new categories of real options. In further research, we can empirically validate the relevance of the options identified by valuing them using models adapted to the complex options. These are not simple options, but rather portfolios of compound multi-sequence options. Setting the parameters of these options requires gathering information from the acquirer's and target's teams. This information is often strictly confidential, especially before the deal is announced and closed.

References

Agliardi, E., Zadeh, A.A., & Koussis, N. (2016). Leverage changes and growth options in mergers and acquisitions. *Journal of Empirical Finance*, 37, 37-58. https://doi.org/10.1016/j.jempfin.2016.02.004.

Allard-Poesi, F. (2003). Coding data. In Y. Giordano (Eds.). *Conducting a Research Project: A Qualitative Perspective*, Management & Society, Paris.

Arsic, V.B. (2013). Possibilities of real options applications to mergers and acquisitions. *Metalurgia International*, 18(5), 205-209.

Barbopoulos, L.G., Cheng, L.T.W., Cheng, Yi., & Marshall, A. (2019). The role of real options in the takeover premia in mergers and acquisitions. *International Review of Economics & Finance*, 61(C), 91-107. https://doi.org/10.1016/j.iref.2019.01.006.

Barney, J.B., Helfat, C.E., Kaul, A., Ketchen, Jr., David, J., Chatain, O., & Singh, H. (2023). Renewing the resource-based view: New contexts, new concepts and new methods. *Strategic Management Journal*, 44(6), 1357-1390. https://doi.org/10.1002/smj.3500.

Benninga, S., & Mofkadi, T. (2022). *Financial Modeling*. Cambridge: The MIT Press.

Chi, T., Li, J., Trigeorgis, L.G., & Tsekrekos, A.E. (2019). Real options theory in international business. *Journal of International Business Studies*, 50(6), 525-553. https://doi.org/10.1057/s41267-019-00222-y.

Čirjevskis, A. (2023). Measuring Value in Development with Advanced Real Options for International Sequential Acquisitions. *Journal of Risk and Financial Management*, 16(9), 404. https://doi.org/10.3390/jrfm16090404.

Collan, M., & Kinnunen, J. (2008). Strategic Level Real Options in Corporate Acquisitions, *Lecture Notes in Management Science,* 1, 168-177.

Dziawgo, E. (2014). Real options in the assessment of the company's pro-ecological investments. *Copernican Journal of Finance & Accounting,* 3(1), 61-71. https://doi.org/10.12775/CJFA.2014.005.

Feldman, E.R., & Hernandez, E. (2022). Synergy in Mergers and Acquisitions: Typology, Life Cycles and Value. *Academy of Management Review*, 47(4), 549-578. https://doi.org/10.5465/amr.2018.0345.

Grawitz, M. (2001). *Social science Methods*. Paris: Dalloz.

Hagel, M. (2023). Merger waves and timing of acquisitions: real options approach. Master's thesis Aalto University School of Business Economics.

Hao, B., Ye, J., Yanan, F., & Cai, Z. (2019). Explicit and tacit synergies between alliance firms and radical innovation: The moderating roles of interfirm technological diversity and environmental technological dynamism. *R& D Management*, 50(11), 1-15. https://doi.org/10.111/radm.12390.

Horn, A., Kjærland, F., Molnár, P., & Steen, B.W. (2015). The Use of Real Options Theory in Scandinavia's Largest Companies. *International Review of Financial Analysis*, 41, 74-81. https://doi.org/10.1016/j.irfa.2015.05.026.

Jankowski, P. (2013). The impact of the greenhouse gas emission allowances trading system on the enterprise value. *Copernican Journal of Finance & Accounting,* 2(1), 79-89. https://doi.org/10.12775/CJFA.2013.006.

Leiblein, M.J., Reuer, J.J., Larsen, M.M., & Pedersen, T. (2022). When are global decisions strategic*? Global Strategy Journal*, 12(4), 714–737. https://doi.org/10.1002/gsj.1451.

Loukianova, A., Nikulin, E., & Vedernikov, A. (2017). Valuing synergies in strategic mergers and acquisitions using the real options approach. *Investment Management and Financial Innovations*, 14(1), 236-247. https://doi.org/10.21511/imfi.14(1-1).2017.10.

Myers, S.C. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5(2), 147-175. https://doi.org/10.1016/0304-405X(77)90015-0.

Reuer, J.J., & Sakhartov, A.V. (2021). Economies of Scope and Optimal Due Diligence in Corporate Acquisitions. *Home Organization Science*, 32(4), 1100-1119. https://doi.org/10.1287/orsc.2020.1417.

Thiétart, R.A. (2003). *Research Methods in Management.* Paris: Dunod.