Capital structure and business process management: evidence from ambidextrous organizations

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Abstract

Purpose – The purpose of this paper is to investigate the relationship between capital structure and business process management (BPM) within ambidextrous firms. In particular, referring to the listed companies in the *Mercato Telematico Azionario* (MTA) and *Mercato degli Investment Vehicles* (MIV) markets with large- and mid-sized capitalization, divided into ambidextrous and non-ambidextrous companies, the authors examined the capital structure to fill a gap in the current literature.

Design/methodology/approach – This study uses a mixed-method sequential exploratory design. In particular, a qualitative study was conducted to identify some Italian-listed companies, called ambidextrous firms, which have implemented incremental (exploitative) and radical (explorative) innovations in an ambidexterity perspective of process management. A quantitative study was designed to provide insights into the different degrees of leverage of the listed companies selected by the qualitative analysis.

Findings – The research is based on an empirical analysis undertaken with 69 companies listed on Italian markets (starting from the MTA and MIV Italy 100 – large- and mid-sized capitalization). In particular, the authors highlight 11 companies that, based on the literature, can be defined as ambidextrous organizations. These firms, in each year analyzed (2014, 2015, and 2016), have more leverage than non-ambidextrous ones. Considering that firms today need to constantly revisit their portfolio of debt and equity, ambidextrous organizations could evaluate the largest debt available in order to implement new BPM tools.

Originality/value – To the authors' knowledge, this is the first exploratory study based on capital structure and the simultaneous exploration and exploitation of knowledge (ambidexterity) that also is informed by a BPM perspective. The paper presents evidence from Italian-listed companies that are referred to as ambidextrous and have different degrees of leverage.

Keywords Innovation, Ambidexterity, Capital structure, Finance, Leverage, Business process management

Paper type Research paper

Introduction

It is generally accepted that a company's financial behavior is the result of a complex mix of conditions, both internal and external to the firm; these may affect its investment decisions and its growth opportunities.

In this sense, to survive and develop, organizations must meet two main needs: on the one hand, they must respond effectively to instances of change and innovation from the environment; on the other hand, they are required to preserve the efficiency conditions in conducting their internal processes. In both cases, a company needs an optimal capital

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structure – that is, the best combination of sources of funding that is able to bridge the opportunities offered by the financial market and the structural and functional characteristics of the firm (e.g. Damodaran, 2006; Dallocchio and Salvi, 2011; Tardivo *et al.*, 2012; Brealey *et al.*, 2014).

Historically, companies solved the paradox between efficiency and innovation by prioritizing one of the two objectives and adopting predominantly "mechanical/rigid" or "organic/flexible" forms (Bresciani, 2016). The need to attribute equal importance to efficiency and innovation tended to be restricted to limited phases of business life or confined to sectors with distinct features and needs. Furthermore, in the actual dynamic business context, companies emphasize the importance of business process management (BPM) (Ternai *et al.*, 2016). In particular, BPM has usually been accepted as a valuable approach for supporting innovation and organizational development (Tang *et al.*, 2013), and through process management with constant improvement, the organization can reduce costs, enhance efficiency and strengthen the aptitude to respond to change (Weske *et al.*, 2004). In the last decades, however, the great environmental turmoil and the acceleration of competitive dynamics have created for most companies a sort of imperative to pursue change and exploration paths and efficient resource and knowledge exploitation goals simultaneously. A firm that at the same time engages in a high degree of both efficiency and innovation follows an approach that is frequently referred to as an ambidextrous strategy (Sarkees and Hulland, 2009). The concept of an ambidextrous organization has thus become a matter for scholars and professionals, according to whom the ability to pursue stability and innovation continuously and at the same time becomes the qualifying and constitutive element of the organization itself (Vrontis *et al.*, 2017). In particular, organizational ambidexterity refers to a firm's ability to explore and exploit its internal and external resources simultaneously to meet today's business needs, as well as being adaptive to prospective market changes (O'Reilly and Tushman, 2013; Turner *et al.*, 2015).

To the authors' knowledge, although the literature examines the concept of organizational ambidexterity, highlighting its different forms and diverse aspects (e.g. March, 1991; O'Reilly and Tushman, 2004), no studies explicitly consider the capital structure in ambidextrous firms from the BPM perspective. In this sense, the pioneering research is that of Choi *et al.* (2016), who observe the role of debt as a governance mechanism in balancing exploitation and exploration. Starting from this research, this study examines companies listed on the *Mercato Telematico Azionario* (MTA) and *Mercato degli Investment Vehicles* (MIV) markets that have large- and mid-sized capitalization (i.e. 100 companies). The first part of the study investigates the introduction of incremental (exploitative) and radical (explorative) innovation; the second part analyses the capital structure of each company to expand the relationship between corporate finance and innovation management and fill the gap in the present literature.

The aim is therefore to answer the following research questions:

RQ1. Among the top 100 listed Italian companies for market capitalization, how many are ambidextrous?

RQ2. Does the capital structure (leverage) affect ambidexterity from the BPM perspective?

This research fills the gap in knowledge identified above. Specifically, the contribution of this work is twofold: the paper identifies some Italian-listed companies, referred to as ambidextrous firms, which implemented a radical and incremental innovation during 2016; the authors observe that companies of this type have more debt than non-ambidextrous ones.

The paper is structured as follows. First, a theoretical framework on capital structure, organizational ambidexterity, and BPM within ambidextrous organizations is provided to

identify the gap; the research method is subsequently defined and the findings of an explorative study are presented. The work ends with some conclusions, theoretical and practical implications, and limitations.

Theoretical framework

Capital structure

A corporation is owned by its shareholders; some of the common stock is held directly by individual investors but also by financial institutions (e.g. Ross *et al.*, 1997; Damodaran, 2006; Block and Hirt, 2008; Tardivo *et al.*, 2010; Brealey *et al.*, 2014). One of the main problems of corporate finance is the method of selecting and collecting the sources of funding, which arises in terms of the firm's use of the types of capital. The mix of debt and equity financing varies widely from company to company and from industry to industry (Brealey *et al.*, 2014). Furthermore, the leverage of a firm (i.e. the ratio between financial debt and equity) varies over time for each organization. Financing decisions determine the capital structure of an enterprise, which results in the determination of the minimum cost of financing, understood as the weighted average cost of capital (WACC) (Tardivo *et al.*, 2010; Dallocchio and Salvi, 2011).

The topic of capital structure has received considerable attention from corporate finance researchers (e.g. Ferrero, 1981; Guatri, 1991; Venanzi, 1999; Damodaran, 2006). In particular, the influence that this structure has on value creation or on determining the optimal composition of these sources is a theme that for decades has marked the research of numerous scholars following the so-called traditionalists Modigliani and Miller (1958). In this sense, according to the conventional literature on corporate finance, there is an optimal capital structure that maximizes the firm value (sometimes indicated as the enterprise value) by the wise use of debt and the leverage that it offers (Vernimmen *et al.*, 2011). This allows an organization to minimize its WACC. In particular, to finance its business, a company can use two main macro types of source (e.g. Miglietta, 2004; Berk and DeMarzo, 2008):

- One, represented by equity, grants bearers a residual right to cash flows but guarantees wider involvement in business management.
- The other, represented by debt, is funding from investors or financial intermediaries who obtain the right to receive fixed payments in the form of interest but without being involved in the management of the enterprise.

Debt is always cheaper than equity because it is less risky. A moderate rise in debt will help to decrease the cost of capital, because a more costly resource (equity) is being replaced by a cheaper one (debt). Nevertheless, an increase in debt also raises the risk for shareholders. Consequently, financial markets demand a greater cost of equity the more debt is added to the capital structure. The growth in the expected rate of return on equity deletes part of the reduction in cost arising from the recourse to debt (Vernimmen *et al.*, 2011). The risk weighing on shareholders rises in step with that of debt, leading the market to require a higher return on equity. This process continues until it has canceled out the positive impact of the debt financing. With this degree of leverage, the company, as previously introduced, achieves the optimal capital structure, ensuring the lowest WACC and therefore the highest firm value.

Furthermore, in the literature, some authors underline several aspects that make debt unsuitable for financing innovation (e.g. David *et al.*, 2008; Hall and Lerner, 2010). These authors highlight that debt, even though it is one of the most popular forms of financing among both small technology companies and large companies, is not appropriate for innovation, because innovation is intrinsically risky in nature and generates assets that are firm-specific and non-redeployable to different uses. In this sense, there is much empirical evidence in the literature that shows that leverage is negatively correlated with various measures of innovation

(e.g. O'Brien, 2003; Hall and Lerner, 2010). For example, Loof (2008) affirms that debt financing is negatively correlated with the probability of being an innovative company.

However, David *et al.* (2008) recognize that debt plays an essential role in innovation as it acts as a disciplinary mechanism, and that the effects of debt on innovation depend on the monitoring mechanism adopted by debt holders. For instance, Ibrahim (2010) suggests that debt is not a totally uncommon funding source for many companies engaged in innovation. These latter perspectives call for a broader theoretical consideration of the role of debt in innovative activity, and it is in this connection that the exploitation and exploration framework, typical of ambidextrous firms, provides an interesting key to reading, as will be seen in the following section. From this point of view, Choi *et al.* (2016) show that debt plays an important role in innovative activity by encouraging exploitation.

Organizational ambidexterity

The literature suggests that growing investments in information technology (IT) and information and communication technologies and the exchange and sharing of knowledge sustain companies in tackling the current global and dynamic environment (Scuotto *et al.*, 2017). As previously introduced, a company that balances efficiency and innovation follows an approach that is often referred to as an ambidextrous strategy (Sarkees and Hulland, 2009; Cesaroni and Sentuti, 2016) and, from this point of view, an increasing number of researchers argue that organizational ambidexterity is essential for the sustained competitive advantage of companies (Junni *et al.*, 2013). From this point of view, the realization of ambidexterity is conditioned by the concurrent fulfilment of organizational innovations (Guisado-González *et al.*, 2017). In particular, in an innovation framework, the concept of ambidexterity is used to represent the paradox of exploitation and exploration at the organizational or individual worker level (Lin *et al.*, 2013; Karhu *et al.*, 2016). In this context, organizational ambidexterity is defined as the ability of a company to follow both exploitative (incremental) and explorative (radical) innovation (March, 1991; O'Reilly and Tushman, 2004). In particular:

- Exploitation is intended to expand the present knowledge, seeking greater efficiency and improvements to enable incremental innovation (Atuahene-Gima, 2005).
- Exploration involves the improvement of new knowledge, seeking the variation and novelty needed for more radical innovation (Atuahene-Gima, 2005).

These two aspects refer to the coincident need for businesses not simply to develop their existing products incrementally, but also to adopt radically new product ideas (Andriopoulos and Lewis, 2009).

In this sense, during the last decades, the concept of organizational ambidexterity has attracted growing attention and enormous popularity (Duncan, 1976; March, 1991; Nosella *et al.*, 2012) in strategic (Ghemawat and Ricart Costa, 1993) and organizational theory (Tushman and O'Reilly, 1996; Adler *et al.*, 1999; Raisch and Birkinshaw, 2008; Chebbi *et al.*, 2013). In particular, many studies analyze the relationship between organizational ambidexterity and firm performance (e.g. He and Wong, 2004; Lubatkin *et al.*, 2006; Raisch *et al.*, 2009; Junni *et al.*, 2013; Wei *et al.*, 2014; Vrontis *et al.*, 2017), including in the banking sector (Campanella *et al.*, 2016). In this regard, it has been suggested that IT systems (Capuano *et al.*, 2008), knowledge management (Malhotra, 2005; Kalpič and Bernus, 2006; Yoo *et al.*, 2007; Battisti, 2015), Internet of Things tools (Santoro *et al.*, 2017; Uden and He, 2017) and the "Bank of things" (Del Giudice *et al.*, 2016) can sustain ambidextrous BPM in the banking sector.

From a strategic and organizational point of view, March (1991), in his pioneering study "Exploration and exploitation in organizational learning," observes that companies must choose between structures that simplify exploitation and those that ease exploration. Based on

this, Ghemawat and Ricart Costa (1993) assert that organizations must select between a strategy of dynamic ability to accomplish aims with flexibility and internal efficiency through more inflexible discipline. Vrontis *et al.* (2012) introduce the notion of strategic reflexivity, underlining the need for strategic deployment to become an inherent reflex action for companies seeking fast adaptability to fluctuating external circumstances. Pursuing both goals at the same time would involve mixing organizational elements appropriately for every strategy and thus losing the benefit of the complementarities normally achieved between the different elements of every type of organization (Vrontis *et al.*, 2017).

From an economic point of view, ambidexterity enables a company to improve its competitiveness and performance (Lubatkin *et al.*, 2006). Raisch *et al.* (2009) highlight in particular the importance of organizational ambidexterity for long-term company performance. Furthermore, Fu *et al.* (2016) show that the link between ambidexterity and performance is stronger when companies have greater levels of organizational capital. However, Wei *et al.* (2014) identify different impacts of exploitation and exploration on performance: exploitation has an insignificant effect, whereas exploration has a positive effect on firm performance. Partly in line with this, Vrontis *et al.* (2017) show that organizational ambidexterity in knowledge-intensive firms does not have a significant impact on company performance but does have a positive and significant mediating effect when evaluating non-internal knowledge sourcing.

From a financial point of view, as noted in the previous section in terms of debt and innovation, there are no studies that explicitly consider capital structure and ambidexterity, in addition to considering the BPM prospective. Implicitly, Choi *et al.* (2016), in their pioneering study, examine the role of debt as a governance mechanism in balancing exploitation and exploration.

BPM within ambidextrous organizations

Given the intense changes and greater competition that have recently happened in the economy, firms need to realize both efficiency and flexibility to maintain competitiveness, and IT capability has become progressively essential (Chen *et al.*, 2014). In this sense, the concepts of efficiency and flexibility can be seen from the point of view of exploitation and exploration; in particular, short-term efficiency can be achieved through the exploitation of available resources and long-term flexibility through the exploration of new resources (Benner and Tushman, 2003; Gibson and Birkinshaw, 2004). Companies frequently face trade-offs between incremental or radical change in innovation management and exploitation or exploration in organizational learning (He and Wong, 2004). Heckmann (2015) highlights that considering efficiency and flexibility as a trade-off toward ambidexterity puts emphasis on simultaneously pursuing efficiency through exploitative and flexibility through explorative business process and IT capabilities. It is very likely that ambidextrous firms will need both IT-based tools and systems as well as financial resources (debt and/or equity) in order to transform technological occasions into a new process design and positive business process optimization. From this point of view, emerging studies on management innovation suppose intriguing relationships between novel BPM competencies and organizational ambidexterity (Kohlborn *et al.*, 2014). BPM can be seen as an approach to making a company's workflow more efficient, effective, and capable of adapting to an ever-changing environment (Dumas *et al.*, 2013).

In particular, within an organization there are several company functions (Bianchi, 2007), generally subdivided into characteristics (e.g. research and development, procurement, production, logistics and sales), complementary (e.g. human resources, marketing, administration and finance) and supplementary (e.g. information systems, planning, and control). In order to optimize, monitor and integrate business processes and make the company's business effective, there is a need for a close relationship between the different functions and BPM, even within an ambidextrous organization. Among these functions,

finance today represents a key role in every business because, in a current context characterized by scarce availability of financial resources and liquidity, the choice of the optimal leverage, as introduced above, can represent an important lever of value (Baker and Martin, 2011).

Over the years, the financial function has been assigned tasks that have significantly changed and expanded. Today, instrumental skills can be understood to manage the relationships established between the company and the capital market, or rather the capital structure (Fontana and Caroli, 2017). From this point of view, observing key performance indicators (KPIs) show whether a business is realizing its long-term goals. Among the different indicators, the KPI "financial debt to equity" highlights how effectively a company is using its shareholder investments.

Research method

Research design

This paper aims to analyze the relationship between capital structure and ambidexterity. The authors used a mixed-method design that incorporated the collection of both qualitative and quantitative data (e.g. Jick, 1979; Creswell, 1999; Morse, 2003; Edmondson and McManus, 2007) to understand the phenomenon, to answer the research questions, and to guarantee well-founded conclusions. In the social sciences, mixed methods research has become progressively popular and may be considered an appropriate and stand-alone investigation design (e.g. Creswell *et al.*, 2003; Tashakkori and Teddlie, 2003; Terrell, 2012). In particular, Maxcy (2003) observed that from a mixed methods perspective, it is seen as logical for scholars to choose and use different methods, mixing them as they see the need, applying their results to an unknown reality, wholly or in part. Mixed methods research involves the analysis of quantitative and/or qualitative data in a single work in which the data are collected sequentially and only integrated at later stages in the process of the research (Teddlie and Tashakkori, 2003).

In this study, the sequential implementation of the data collection was exploratory (Creswell *et al.*, 2003), and qualitative data were gathered to explore the phenomenon (to analyze the ambidexterity); subsequently, quantitative data were collected to explain the relationship found in the qualitative data (to analyze the relationship between capital structure and ambidexterity). Specifically, results from both phases in this design were combined during the data interpretation stage (Tashakkori and Teddlie, 2010).

This research is based on an empirical study of 100 companies listed on the Italian stock market with the aim of examining, in the first phase, those that are ambidextrous (*RQ1*). In the second phase, the authors investigate the degree of leverage (intended as a summary measure of the capital structure of a company) of the listed companies (*RQ2*) that were selected by the quantitative analysis.

Sample and data collection

This work follows an explorative approach that includes the conscious collection of a small number of data sources that meet detailed criteria (Miglietta *et al.*, 2017). Specifically, the research developed according to the following main steps.

First of all, the authors selected, with reference to the Italian equities market (MTA) and the market for investment vehicles (MIV), the top 100 listed companies that had large- and mid-size capitalization on September 30, 2017. The MTA is the Italian stock market on which shares, convertible bonds, warrants and option rights are traded; it is committed to large- and mid-sized firms that meet the best international standards. The MIV is Borsa Italiana's regulated market, created with the aim of giving capital, liquidity and visibility to investment vehicles with an important strategic vision.

Second, the 100 companies were divided by their respective sectors to eliminate companies operating mainly in banking, insurance and finance from the sample. A total of 69 Italian firms were selected, representing 69 percent of the population analyzed.

Third, the 69 selected companies were investigated regarding their ambidexterity. As noted in the literature, companies with ambidextrous organization were those considered to have implemented both incremental and radical innovation during 2016 (e.g. March, 1991; O'Reilly and Tushman, 2004; Vrontis *et al.*, 2017). For these reasons, to ensure the individuation of ambidexterity, the authors used different sources on December 31, 2016, such as the companies' annual report, professional articles and companies' websites, to increase the accuracy and generalizability of the results (Mari, 1994) and respond effectively to the triangulation principle (Woodside and Wilson, 2003; Olsen, 2004).

Fourth, the authors examined the degree of leverage (debt on equity) of the 69 listed companies for three years (December 31, 2014, 2015, 2016). To identify the different leverage degrees, we analyzed the financial statement, including the balance sheet, profit and loss statement, statement of changes in equity and notes, of each company. Firms that did not have complete information for the three years (four companies) were excluded. The final sample therefore consisted of 65 companies.

Findings

This section presents the results of the analysis.

With reference to the first research question (Among the top 100 listed Italian companies for market capitalization, how many are ambidextrous?), of the 69 companies identified by the qualitative analysis, 15.94 percent can be considered ambidextrous firms, while 84.06 percent cannot be considered as such (Table I).

The companies classified as ambidextrous implemented both incremental (exploitative) and radical (explorative) innovation during the year 2016. In general, incremental innovations are unrealized through the development of existing products that can be improved. Radical innovations result from developing new solutions that are the direct consequence of the existing knowledge base.

With reference to the second research question (Does the capital structure (leverage) affect ambidexterity from the BPM perspective?), the final sample is composed of 65 firms. As highlighted in the previous paragraph, compared with the sample analyzed in relation to the first research question, the authors did not consider four companies that are not ambidextrous. Therefore, 16.92 percent of enterprises are ambidextrous while 83.08 percent are not (values substantially unaltered compared with those previously obtained). From the analysis of the companies' financial statements for the three years considered (2014, 2015 and 2016), it was found that ambidextrous organizations (Table II) have higher leverage (debt on equity) than non-ambidextrous ones (Table III).

In particular, the results of our research show that:

(1) Non-ambidextrous companies have these levels of leverage:

- D/E: 0.5994 (2016)
- D/E: 0.7389 (2015)
- D/E: 0.9361 (2014)

(2) Ambidextrous companies have these levels of leverage:

- D/E: 0.7582 (2016)
- D/E: 0.8573 (2015)
- D/E: 0.9400 (2014)

Listed companies	Ambidextrous organization	Non-ambidextrous organization
1. A2A		x
2. ACEA		x
3. AMPLIFON		x
4. ANSALDO STS		x
5. ASCOPIAVE		x
6. ASTALDI		x
7. ASTM		x
8. ATLANTIA		x
9. AUTOGRILL		x
10. BENI STABILI		x
11. BIESSE		x
12. BREMBO	x	
13. BRUNELLO CUCINELLI		x
14. BUZZI UNICEM		x
15. CAIRO COMUNICATION		x
16. CAMPARI		x
17. CEMENTIR HOLDING		x
18. CERVED		x
19. DANIELI & C		x
20. DATALOGIC		x
21. DE LONGHI		x
22. DIASORIN		x
23. EI TOWERS		x
24. ENEL		x
25. ENI		x
26. ESPRINET		x
27. FCA	x	
28. FERRARI	x	
29. FILA		x
30. GEOX		x
31. HERA		x
32. IGD		x
33. IMA		x
34. INTERPUMP GROUP		x
35. INWIT		x
36. IREN	x	
37. ITALGAS		x
38. ITALIAONLINE		x
39. LA DORIA		x
40. LEONARDO	x	
41. LUXOTTICA	x	
42. MAIRE TECNIMONT		x
43. MARR		x
44. MEDIASET		x
45. MOLMED		x
46. MONDO TV		x
47. OVS		x
48. PARMALAT		x
49. PIAGGIO		x

Table I.
Ambidextrous and non-ambidextrous organization

(*continued*)

Listed companies	Ambidextrous organization	Non-ambidextrous organization
50. PRYSMIAN	x	
51. RAI WAY		x
52. RCS MEDIAGROUP		x
53. RECORDATI ORD		x
54. REPLY		x
55. SAFILO GROUP		x
56. SAIPEM		x
57. SALINI IMPREGILO		x
58. SALVATORE FERRAGAMO		x
59. SARAS	x	
60. SIAS		x
61. SNAM		x
62. STMICROELECTRONICS		x
63. TECHNOGYM		x
64. TELECOM	x	
65. TENARIS		x
66. TERNA	x	
67. TOD'S		x
68. TREVI FIN IND	x	
69. YOOX NET A PORTER		x

Note: "x" indicate the characteristics analysed

Table I.

Ambidextrous companies	2016 D/E	2015 D/E	2014 D/E	Average
1. BREMBO	0.22	0.23	0.50	0.32
2. FCA	0.84	0.91	1.10	0.95
3. FERRARI	0.30	0.30	0.70	0.43
4. IREN	1.07	1.05	1.15	1.09
5. LEONARDO	0.65	0.76	1.02	0.81
6. LUXOTTICA	0.20	0.18	0.20	0.19
7. PRYSMIAN	0.32	0.49	0.68	0.50
8. SARAS	1.07	1.83	1.63	1.51
9. TELECOM	0.51	0.56	0.55	0.54
10. TERNA	2.25	2.40	2.25	2.30
11. TREVI FIN IND	0.91	0.72	0.56	0.73

Table II. Leverage for ambidextrous companies from 2014 to 2016

On average, during the period observed, the ambidextrous firms made greater use of debt than those that do not pursue exploration and exploitation of knowledge simultaneously. Our result is in line with the evidence obtained by Choi *et al.* (2016); the authors observe that debt has an essential role in innovative activity by stimulating exploitation.

Conclusions, implications and limitations

This paper examined Italian-listed companies that have large- and mid-market capitalization. In particular, it defined, based on the literature, ambidextrous firms as all the companies that implemented incremental (exploitative) and radical (explorative) innovation during 2016. Referring to this type of organization, the paper examined the capital structure (level of leverage) for each firm to expand knowledge about the relationship between corporate finance and innovation management and to fill the gap in the existing literature. From this point

Non-ambidextrous companies	2016 D/E	2015 D/E	2014 D/E	Average
1. A2A	1.15	0.88	1.30	1.11
2. ACEA	1.20	1.25	1.39	1.28
3. AMPLIFON	0.40	0.40	0.56	0.45
4. ANSALDO STS	0.47	0.51	0.51	0.50
5. ASCOPIAVE	0.21	0.27	0.31	0.26
6. ASTALDI	1.56	1.55	1.37	1.49
7. ASTM	0.59	0.51	0.55	0.55
8. ATLANTIA	1.61	1.52	1.27	1.47
9. BENI STABILI	1.20	1.18	1.19	1.19
10. BIESSE	0.03	0.01	0.09	0.04
11. BRUNELLO CUCINELLI	0.17	0.22	0.22	0.20
12. BUZZI UNICEM	0.80	0.70	0.60	0.70
13. CAIRO COMUNICATION	1.02	0.91	0.98	0.97
14. CAMPARI	0.63	0.47	0.61	0.57
15. CEMENTIR HOLDING	0.53	0.19	0.24	0.32
16. CERVED	0.96	0.94	0.80	0.90
17. DANIELI & C	0.51	0.55	0.54	0.53
18. DATALOGIC	0.01	0.07	0.23	0.10
19. DE LONGHI	0.30	0.20	0.11	0.20
20. DIASORIN	0.10	0.45	0.34	0.30
21. EI TOWERS	0.22	0.21	0.16	0.20
22. ENEL	0.71	0.73	0.73	0.72
23. ENI	0.27	0.29	0.20	0.25
24. ESPRINET	0.30	0.60	0.50	0.47
25. FILA	0.94	0.18	0.52	0.55
26. GEOX	0.07	0.19	0.11	0.12
27. HERA	0.99	1.05	1.07	1.04
28. IGD	0.99	0.96	0.99	0.98
29. IMA	0.48	0.73	1.84	1.02
30. INTERPUMP GROUP	0.44	0.44	0.48	0.45
31. LA DORIA	0.50	0.65	0.73	0.63
32. MAIRE TECNIMONT	0.25	1.00	3.95	1.73
33. MARR	0.62	0.60	0.69	0.64
34. MEDIASET	0.59	0.37	0.37	0.44
35. MOLMED	0.88	0.93	0.94	0.92
36. MONDO TV	0.01	0.00	0.11	0.04
37. OVS	0.30	0.28	0.65	0.41
38. PARMALAT	0.10	0.10	0.10	0.10
39. PIAGGIO	1.24	1.23	1.19	1.22
40. RAI WAY	0.05	0.26	0.42	0.24
41. RCS MEDIAGROUP	3.60	4.60	1.76	3.32
42. RECORDATI ORD	1.26	4.90	5.30	3.82
43. REPLY	0.01	0.09	0.06	0.05
44. SAFILO GROUP	0.05	0.09	0.16	0.10
45. SAIPEM	0.30	1.53	1.06	0.96
46. SALINI IMPREGILO	0.25	0.02	2.20	0.82
47. SALVATORE FERRAGAMO	0.01	0.01	0.09	0.04
48.SIAS	0.76	0.78	0.85	0.80
49. SNAM	1.70	1.81	1.90	1.80
50. STMICROELECTRONICS	0.02	0.04	0.01	0.02
51. TECHNOGYM	0.89	0.87	6.50	2.75
52. TENARIS	0.04	1.41	1.50	0.98
53. TOD'S	0.03	0.15	0.16	0.11
54. YOOX NET A PORTER	0.05	0.03	0.04	0.04

Table III.
Leverage for non-ambidextrous companies from 2014 to 2016

of view, the authors used a combined qualitative/quantitative approach (mixed-method sequential exploratory design) and were able to answer the two main research questions proposed in the introduction.

The first finding of the research is that about 16 percent of the firms analyzed are ambidextrous (*RQ1*). These companies have generally implemented a hybrid organizational model that involves creating an independent division over the rest of the enterprise and freeing the dependence of customers and shareholders in terms of investment and growth constraints in a large market. Therefore, these firms can devote themselves to the development and commercialization of a new technology and consequently to a new product.

The second finding indicates that ambidextrous organizations have higher leverage than non-ambidextrous ones (*RQ2*). As we observed in the literature, the debate on the use of debt to support investment in innovation is particularly heterogeneous. Some authors (e.g. David *et al.*, 2008; Loof, 2008; Hall and Lerner, 2010) underline how debt does not support investment in innovation and companies should minimize their reliance on debt financing. However, other authors (Ibrahim, 2010; Choi *et al.*, 2016) suggest that debt is not necessarily negative for innovation because it can also act as an effective mechanism to correct, in some cases, the company's general innovation trajectory. Referring to MTA and MIV large- and mid-sized capitalization, our results show that leverage affects ambidexterity.

As previously introduced, it is possible to affirm that there are relationships between the various functions of a company and BPM within an ambidextrous organization. In particular, one of the tasks of the finance function is to define the capital structure of the company, which can be summarized, for the purposes of our analysis, by the level of leverage, and the BPM is based on different KPIs, including the "financial debt on equity."

Based on our preliminary analysis, it can be asserted that companies that have developed both incremental and radical innovation have a capital structure characterized by a greater debt level than non-ambidextrous companies. Considering that companies need to constantly revisit their portfolio of debt and equity to finance assets, operations and future growth, the ambidextrous companies could evaluate the largest debt available in order to implement new BPM tools. In particular, these tools can be considered as firm software, which offers many layers of functionality in producing real and improved business processes (van Greunen *et al.*, 2010), in order to support real enterprise problems.

Furthermore, in the contemporary business context, it can be affirmed that an ambidextrous organization, which shows at the same time exploitative and explorative strengths, requires investments that can also be financed with debt to grow and survive, obligating the managers to exploit the knowledge within the existing company boundaries by imposing cash flow obligations and individual costs in the event of failure.

The results of the research offer some interesting implications for theory and practice. Concerning the theoretical implications, from the point of view of corporate finance, the literature on the subject debates the costs and benefits of debt financing (e.g. Miglietta, 2004; Shivdasani and Zenner, 2005; Damodaran, 2006; Dallocchio and Salvi, 2011). Likewise, from the point of view of innovation management, the literature highlights the different forms and prospects of ambidexterity (e.g. Birkinshaw and Gibson, 2004; O'Reilly and Tushman, 2013). In this sense, the authors connect the capital structure to ambidextrous organizations from the BPM perspective and, to the authors' knowledge, this is the first exploratory study based on these topics. In particular, although the construct of organizational ambidexterity is extensively investigated (e.g. March, 1991; O'Reilly and Tushman, 2004; Atuahene-Gima, 2005; Sarkees and Hulland, 2009; Vrontis *et al.*, 2017), actual qualitative or quantitative studies on the capital structure-ambidexterity link remain limited; however, organizational ambidexterity is increasingly significant for the sustained competitive advantage of enterprises (Junni *et al.*, 2013).

Regarding the practical implications, this research is useful for managers at different levels (finance, R&D, corporate), and for entrepreneurs or top management members who

intend to stimulate the ambidextrous nature of their organization to achieve both exploitative and explorative outcomes or to adopt new BPM tools (e.g. enterprise resource planning or knowledge management system). Furthermore, business process orientation is advantageous for firms because it has a positive influence on organizational performance (Škrinjar *et al.*, 2008), which is also affected by the degree of leverage. In particular, managers should consider some operational indications and organizational design, including the following: adopting an ambivalent leadership style that combines and alternates aspects related to the contractual setting of the relationship with visionary and unconventional elements; outsourcing a partner to one of the two functions (exploration or exploitation) while maintaining close coordination and a trust relationship with the partner; easily and flexibly moving resources between exploratory and exploitative projects; and implementing BPM software or platforms. In evaluating the different sources of funding to be used in innovative projects, managers should also take into account that debt can play an essential role in innovative activity by stimulating exploitation and indirectly forcing managers to pay more attention to cash flows.

This study nevertheless also presents some limitations. The sample represents firms from different sectors and therefore with potentially different uses of debt or type of debt (bank debt, convertible debt, venture debt, bond). This does not allow generalization of the results in absolute terms, although the sample selected represents a good part of the total market capitalization of Italian-listed companies. Moreover, in our explorative research, we do not take into account the weight or the number of radical and incremental innovations of the companies analyzed because, for example, in order to maximize the value of the firm, shareholders could induce debt growth to contain too much exploration while encouraging greater exploitation.

It is noted that the work cannot prove a cause-and-effect relationship between leverage and ambidexterity. Future researchers may find it useful to measure statistically the impact of capital structure on ambidexterity.

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