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Value creation, innovation practice, and competitive advantage: Evidence from the FTSE MIB index

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Value creation, innovation practice, and competitive advantage: evidence from the FTSE MIB Index

Abstract

Purpose

The aim of this paper is to analyse companies listed on the FTSE MIB, the benchmark Stock Market index for the Borsa Italiana, in order to investigate the introduction of different types of open innovation practice as a key factor to develop a competitive advantage to pursue value creation for firms that for over 10 years have regularly paid dividends and beat the yield of the market.

Design/methodology/approach

This research uses a mixed-methods sequential explanatory design. A quantitative study was conducted to determine the firms listed on the FTSE MIB that for more than 10 years have paid dividends and beat the yield of the market. The qualitative analysis was designed to provide insights into the adoption of at least one open innovation practice by the listed companies selected in the quantitative phase.

Findings

This work is based on an empirical analysis undertaken with 40 Italian companies listed on the FTSE MIB. In particular, the authors highlight 16 companies that for more than a decade have regularly paid dividends and, at the same time, have beat the FTSE MIB Index. All of these companies implemented at least one open innovation practice during the period investigated.

Originality/value

This is among the first pioneer research works based on the potential relationship among value creation, innovation practice, and competitive advantage in the Italian market. This study highlights the fact that 16 out of 40 companies listed on the FTSE MIB create more value for shareholders over a long period, and all of these firms adopt different open innovation practices (e.g., partnership and collaboration with external entities; mergers and acquisitions and alliances; investment in start-ups; hackathons and call for ideas; outsourcing R&D) as a key factor to develop a sustainable competitive advantage.

Keywords: value creation; dividend policy; competitive advantage; innovation practice; open innovation; FTSE MIB Index

Paper type: Research paper

Introduction

Corporate finance researchers generally agree that the main objective of a company is the maximisation of value (e.g., Berk and DeMarzo, 2016; Brealey et al., 2015; Damodaran, 2006; Guatri, 1991; Jensen, 2001). In particular, for listed companies, the concept of value refers to the maximisation of the stock price (Damodaran, 2006), which is affected by strategic and financial decisions.

Value creation is influenced by both internal improvement (e.g., research and development [R&D] process) and external development (e.g., mergers and acquisitions [M&As], joint ventures, and open innovation practices), which are processes to create and sustain a competitive advantage (Ferraris et al., 2017). Moreover, innovation has long been identified as an engine of competitiveness and growth.

In this sense, the links between competitive advantage and innovation, which allow to underline the importance of the innovation process for firms' competitiveness, are widely studied in the literature (Chatzoglou and Chatzoudes, 2017; Kuncoro and Suriani, 2018; Reed et al., 2012). During the last decade, new managerial techniques have affected the way of performing innovation.

Until 2000, innovation was reached through so-called 'close innovation', in which the development goals were achieved inside the companies, especially through the R&D process. Since 2000, a new concept of innovation has arisen, *open innovation* (Chesbrough, 2003), which can be defined as a practice that allows companies to develop competitive advantage through internal and external resources in an environment that is steadily evolving and making the competitiveness more difficult.

In particular, on the one hand, many studies have investigated the relationship between competitive advantages and value creation (e.g., Bughin and Copeland, 1997; Damilano et al., 2018; Hawawini et al., 2002; Liu and Mantecon, 2017), highlighting that a sustainable competitive advantage is fundamental for long-term investors due to its role in achieving greater returns than the cost of capital (Barney, 1991; Copeland et al., 1990; Rappaport, 1986). On the other hand, it is recognised in the literature (e.g., Chesbrough et al., 2006; Reed et al., 2012; Vanhaverbeke et al., 2008) that the implementation of open innovation practices is a source for building a competitive advantage for the firm, with many benefits (e.g., the reduction of costs and some types of investment and the improvement of company competitiveness and innovation process).

To the authors' knowledge, although the literature examines individually the concepts of value creation (Windsor, 2017), competitive advantage (Pellicelli, 2014), and open innovation (Bresciani, 2017), no studies consider jointly these three elements.

Therefore, this study examines Italian companies included in the FTSE MIB Index (the benchmark Stock Market index for the Borsa Italiana) to investigate the introduction of different types of open innovation practice as a key factor to develop a competitive advantage to pursue value creation for firms that for over 10 years have regularly paid dividends and beat the yield of the market.

This exploratory study is made around three fundamental concepts: value creation, competitive advantage, and innovation practice (in term form of open innovation). In particular, the aim of this work is to answer the following research questions:

RQ1: Which Italian companies on listed the FTSE MIB are able to create 'value' over time according to the corporate finance principles?

RQ2: How do Italian companies listed on the FTSE MIB, which have shown ‘value creations’ according to the corporate finance principles, pursue the innovation objectives to develop new and sustainable competitive advantages?

Based on the hypothesis that innovation process is a key factor to develop a competitive advantage (e.g., Chathzoglou and Chatzoudes, 2017; Kuncoro and Suriani, 2018) which allows companies to achieve higher returns for the shareholders than their competitors, this is the first study on the Italian Stock that tries to relate value creation, based on dividends policy and the yield of the market, open innovation, and competitive advantage. The contribution of this paper is twofold: (i) we observed that all the firms that have steadily distributed dividends have beaten the yield of the markets; and (ii) we observed that 16 out of the 16 companies analysed implemented at least one open innovation practice during the period investigated.

Referring to the listed companies investigated, the capability to beat the yield of the market and to distribute dividends constantly can be a signal for a competitive advantage that can be achieved also through open innovation.

This work is organised as follows: The first part includes a theoretical foundation about value creation, innovation practice (open innovation) and competitive advantage. In the second part, the methodology adopted in this study is explained, followed by the discussion of results. The last part includes the conclusions and implications of our study.

Theoretical foundation

Value creation

Corporate finance literature widely recognises that the maximization of value is the main objective for all companies, which guides the choice of the fundamental financial decisions within the business (e.g., Blyth et al., 1986; Brealey et al., 2015; Damodaran, 2006; Guatri, 1991; Jensen, 2001). In particular, the concept of value refers to shareholders’ value that represents the stock price (Brealey et al., 2015). Corporate finance models are based on the shareholders’ value objective for three main reasons (Damodaran, 2006; Miglietta et al., 2018):

- the stock price of listed companies is simple to measure and find;
- in the hypothesis of market efficiency, the strategic choices of the company are included in the stock price; also, the value of stocks is able to reflect the management decision and the future strategic developments;
- increasing the share price is a principle on which to decide investments and make financial decisions.

There are some limits to adopting the shareholder value as an objective for the firm. First of all, the potential inefficiency of the financial markets does not allow a correct capital allocation for the investors. Moreover, there are agency problems between managers and owners, as well as between owners and bondholders. Furthermore, it is important to understand that the information about companies and their strategic decisions is not always correct and precise, causing errors in evaluations (Damodaran, 2006).

Value creation can be pursued through the implementation of key decisions (Guatri, 1991):

- strategic decisions;
- economic decisions;
- financial decisions.

Financial decisions are focused on the implementation of an optimal financial structure for the firm. In this respect, one of the elements that can influence the firm's financial structure is the cash returns for the shareholders (Guatri, 1991).

The company's managers have two different alternative mechanisms to distribute excess cash to the shareholders: dividend payout and share repurchase (Brealey et al., 2015; Damodaran, 2006). The dividend policy concerns the decision of how much of the company's earnings will be paid to the shareholders (Miglietta et al., 2017). Meanwhile, share repurchase is a policy that involves how many of its own stocks a company decides to buy back.

The literature about dividends and share repurchase includes different theories. Firstly, it is possible to identify how the decisions within the companies are made:

- the first approach argues that dividends and share repurchase are complementary, and one does not substitute for the other (Jagannathan et al., 2000);
- the second approach affirms that share repurchase replaces dividend payments and vice versa (Grullon and Michaely, 2002).

Both of these theories can have a positive impact on a firm's value (Karpavicius and Yu, 2018).

Furthermore, dividends and share repurchase are studied under a behavioural point of view known as 'signalling theory', in which the investors react positively or negatively to the information released by the company's managers (Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985). Moreover, many scholars have focused on market signals and how the announcement of dividend payments or stock repurchase can positively influence the price of shares (Almeida et al. 2016; Asquith and Mullins, 1986; Bhattacharya, 1979; Vermaelen, 1981).

In addition, focusing only on the dividend policy, there are two main approaches to the correlation between dividend payment and companies' value. First is the classic theory in which the payment of dividends is irrelevant for the shareholders; in this case the company's value is only influenced by the ability to earn money from its business and from risks deriving from the markets (Black and Scholes, 1974; Elton and Gruber, 1970; Jose and Stevens, 1989; Miller and Scholes, 1978; Modigliani and Miller, 1961). The assumptions of this theory, which are made on the basis of the 'efficiency market theory', are as follows:

- personal and corporate income taxes do not exist;
- no transaction cost;
- financial leverage does not influence the cost of capital;
- investors and managers have the same knowledge of company and market information.

This theory has been criticised by many scholars (i.e., bird-in-the-hand theory), who believe that the dividend policy impacts the firm's value in a positive way; the investors are not indifferent to the dividend payment but react positively when a company pays its dividends; and the related policy can influence positively the company's value (DeAngelo and DeAngelo, 2006; Fama and Blahnik, 1968; Graham and Dodd, 1951; Karpavicius, 2014; Karpavicius and Yu, 2018; Lintner, 1956).

Innovation practice: open innovation

The concept of innovation has evolved during the past 20 years. In the 20th century innovation was pursued through a traditional approach, in which the whole process of R&D was developed within the business; this approach is known as *closed innovation*, and the objective is to develop the research project into a product for costumers (Chesbrough, 2003).

In a global contest, the classic process of R&D is not enough anymore to be able to compete in the current markets due to the rise of costs and the presence of new companies from emerging markets in which production costs are lower.

During the previous century, closed innovation was the only way to achieve growth for the firm. Since 2000, a new concept of innovation, known as *open innovation*, has emerged.

Chesbrough defines open innovation as follows: *‘Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology.’*

Innovation can reach the markets in the following ways:

- through final product idea;
- through the rights and patents that protect the value, which permit other companies to acquire the knowledge to exploit these resources under appropriate contracts (e.g., Carrillo, 2007; Huo et al., 2016; Messeni Petruzzelli et al., 2010; Paraponaris, 2003; Park and Kim, 2005; Roth, 2003).

Therefore, with this method, it is possible to increase the value and reduce the cost of the R&D process as well as the time to market.

In the literature, it is recognised that the implementation of open innovation practices, which can represent one of the sources of competitive advantage, have many benefits (e.g., the reduction of costs and some types of investment and the improvement of company competitiveness and innovation process) (Chesbrough et al., 2006; Reed et al., 2012; Vanhaverbeke et al., 2008).

Multiple studies have highlighted three different open innovation models: the ‘outside-in process’ (e.g., Birou and Fawcett, 1994; Fritsch and Lukas, 2001; Gassmann and Enkel, 2004; Handfield et al., 1999), in which companies work together with customers and suppliers to integrate the knowledge learned; the ‘inside-out process’ (e.g., Atuahene-Gima, 1992; Grandstrand et al., 1992; Veuglers and Cassiman, 1999), through which the firms concentrate on outsourcing the company’s knowledge to catch ideas from the market faster than they can through internal development; and the so-called ‘coupled process’ (e.g., Fritsch and Lukas, 2001; Gassmann and Enkel, 2004; Hagedoorn, 1993; Tao and Wu, 1997), in which companies use a mix of the outside/inside processes to obtain external knowledge with the inside-out process to bring ideas to the market.

There are multiple ways to realise open innovation within a business (e.g., Hossain et al., 2016):

- inter-company arrangement, in which the main company delegates to a smaller one the creation of a determined type of innovation (Outsourcing R&D) (Bianchi et al., 2016);
- invest in innovative start-ups that have demonstrated the capacity to develop the most promising innovations, creating a start-up incubator and accelerators;
- partnerships and agreements with universities, research centres, and other external entities to stimulate the innovation process (Lakatos et al., 2015);
- M&As by large corporations of innovative start-ups or other companies (Mawson and Brown, 2017; Shin et al., 2017) and open innovation alliances between two companies (Han et al., 2012);
- ‘hackathons’¹ and programming competitions, in which companies propose to developers and innovators to invent digital solutions in a short time (Soltani et al., 2014).

¹ A hackathon is a contest in which the participants have to develop innovative ideas on a specific subject.

The benefits and risks identified by adopting an open innovation process are reported in Table 1 (e.g., Chesbrough et al., 2006; Enkel et al., 2009; Lee et al., 2010; Ullrich et al., 2016; Vanhaverbeke et al., 2008; Veer et al., 2013):

Table 1: Open innovation: theoretical benefits and risks

Benefits	Risks
<ul style="list-style-type: none"> • Expand the competence of the firm; • integrate skills from different areas and disciplines; • increase the flexibility of the internal organisation; • stimulate creativity and imagination to generate new ideas; • decrease the risks due to the innovative activities that are riskier than a normal process; • reduce and share the costs of development; • decrease the time to market of new products and services; • improve innovation performance. 	<ul style="list-style-type: none"> • Necessity of internal capabilities to valorise and integrate external knowledge; • force a change in internal culture; • time and resources to learn external knowledge and technologies; • knowledge spillover.

Competitive advantage

In literature is well recognised that to compete in an increasingly competitive market, a firm should establish and maintain a competitive advantage (Grant, 2015). Generally, companies have a sustainable competitive advantage when competitors cannot duplicate or is too expensive to imitate the firm's business model. Having a sustainable competitive advantage increases the ability of a firm to generate superior performance compared to its competitors, which allows to maximize the value for the shareholders (Liu and Mantecon, 2018).

Companies usually achieve sustainable competitive advantage through the development of a unique set of skills and knowledge so they can reach their strategic objectives more easily than their own competitors. The set of skills and knowledge refer to unique expertise inside of the firms, such as quality production, innovation, and customer satisfaction (Srivastava et al., 2013).

Moreover, the link between sustainable competitive advantage and stocks performance has been explored by many scholars (e.g., Gjerde et al. 2010; Hawawini et al. 2002; Liu and Mantecon, 2017). Companies with competitive advantage are likely to create a barrier that allows to reduce competition and achieving greater performance than competitors (Kanuri and McLeod, 2016).

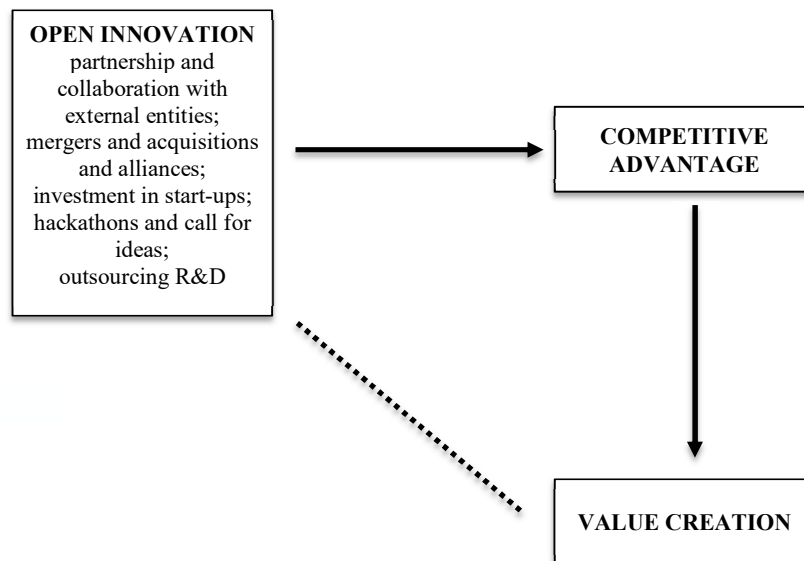
If the company performance is mainly caused by industry specific factors or firm specific characteristics has been widely discussed in strategic literature. Scholars have identified two different approaches to competitive advantages: the "industrial organization model" (Schmalensee, 1985) and the "resource based view theory" (Barney, 1991). According to the "industrial organization model" are the sectors, in which companies choose to operate, that have a higher impact on firm performance over the managers' decisions within the business (Schmalensee, 1985). Meanwhile, the "resourced based view theory" is based on the thought that the company is a set of resources and skills and these are the main determinants underlying company performance (e.g., Barney, 1991; Grant, 2015).

In fact, there are more than one method to achieve a competitive advantage (e.g. creation of patents and brand names, cost and price etc.), but many scholars have focused on innovation as a key factor to generate critical success factors inside the business to develop a sustainable competitive

advantage (e.g., Chathzoglou and Chatzoudes, 2017; Kuncoro and Suriani, 2018; Reed et al., 2012).

In particular, in this study we consider the open innovation as a process of innovation, linking it with value creation as a key factor to develop a competitive advantage that allows to reach a greater value for the shareholders in the long term, as shown in the theoretical framework (Figure1).

Figure1: Open innovation, competitive advantage, and value creation: conceptual model



Methodology

Research design

In order to understand the phenomenon, answer complex research questions, and guarantee well-founded findings, this study is based on a mixed-methods research design (e.g., Creswell, 1999; Edmondson and McManus, 2007; Hanson et al., 2005; Henkel et al., 2014; Jick, 1979; Teddlie and Tashakkori, 2003). These methods can be defined as the ‘analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process’ (Creswell et al., 2003). They developed as an alternative to the dichotomy of quantitative and qualitative traditions in the past 20 years. Indeed, the use of qualitative and quantitative data allows scholars to clarify and generalise results at the same time and gain a deeper perspective on the area of study (Hanson et al., 2005).

In our study, we use a sequential design. The quantitative or qualitative data were collected in an initial phase, followed by the collection of the other data type during a second phase. The sequential implementation of the data collection was explanatory (Creswell et al., 2003), where the collection and investigation of quantitative data were followed by a collection and examination of qualitative data. Evidence from the qualitative analysis component was used to contextualise

the results from the quantitative data. This approach allows for the investigation of the quantitative results in more detail (Ivankova et al., 2006).

This research is based on an empirical study of 40 companies listed on the Italian Stock Market with the aim to identify their capacity to generate value creation according to the corporate finance principles, specifically through dividend payouts and the ability to beat the average yield of the Italian FTSE MIB Index for at least 10 years in a row. For the 16 companies identified through the empirical analysis, we focused on their implementation of open innovation practices as a key element for the value creation to implement and create a competitive advantage, which, in turn, allows the firms to create value over time.

Data collection

The Italian financial market is managed by Borsa Italiana Spa.² In 2007 it merged with the London Stock Exchange to form the London Stock Exchange Group, which, in 2018, is the fourth biggest exchange worldwide. Review of the Borsa Italiana shows the presence of 339 listed companies for an overall capitalisation of 644.3 billion. The weight of Borsa Italiana on the Italian economy is considerable, and it is equal to 37% of the 2017 Italian GDP.

The main Italian index is the FTSE MIB, which includes the 40 companies capturing 80% of the domestic market capitalisation. This index has replaced the S&P Mib since June 2009. The companies are A2a, Atlantia, Azimut Holding, Banca Generali, Banca Mediolanum, Banco Bpm, Bper Banca, Brembo, Buzzi Unicem, Campari, Cnh Industrial, Enel, Eni, Exor, Ferrari, Fiat Chrysler Automobiles, Fincobank, Generali, Intesa Sanpaolo, Italgas, Leonardo, Luxottica, Mediaset, Mediobanca, Moncler, Pirelli & C, Poste Italiane, Prysmian, Recordati, Saipem, Salvatore Ferragamo, Snam, STMicroelectronics, Telecom Italia, Tenaris, Terna, UBI Banca, Unicredit, Unipol, and Unipolsai.

An explorative approach is developed in this study and is structured as follows.

First, we analysed the 40 companies listed on the Italian Stock Market in order to understand if they are able to create value over time. According to the corporate finance principles, we consider two main factors as signals of value creation: cash distribution and maximisation of share price (Damodaran, 2006; Karpavicius and Yu, 2018).

In general, there are two different ways to pay back the shareholders: dividend payout and share repurchase. In this study, we consider the dividend policy as a key element of the value creation, because share repurchase is still an instrument that is not widespread on the Italian market and has only recently been explained (2015) in the balance sheet of the companies with a special negative equity reserve (art. 2424 of the Italian Civil Code). However, the buy back, as for the dividend policy, could be considered an instrument to influence the share value in a positive way, following the hypothesis of the signalling theory and other empirical studies (e.g., Almeida et al. 2016; Bhattacharya, 1979; Lee et al., 2010; Vermaelen, 1981).

For each company within the sample, we analysed the past dividend policy to identify which one was able to steadily pay dividends to their shareholders, and we compare the average annual yield of the companies and the FTSE MIB. The data were collected from Borsa Italiana (Dividends) and Datastream of Thomson Reuters (Yield). The results are shown in Table 2.

² <https://www.borsaitaliana.it/borsaitaliana/ufficio-stampa/comunicati-stampa/2017/reviewdeimercati2017.htm>

Table 2: Companies, dividend payout and average annual yield

N°	Company	Ticker	Industry	Years of consecutive dividend payment	Average annual yield (2009–2017)	FTSE MIB average annual yield
1	A2a	A2A	Utilities	19 years	9.04%	2.41%
2	Atlantia	ATL	Engineering & construction	15 years	10.13%	2.41%
3	Azimut	AZM	Asset Management	14 years	29.00%	2.41%
4	Banca Generali	BGN	Banking	12 years	41.74%	2.41%
5	Brembo	BRE	Automotive	19 years	40.35%	2.41%
6	Buzzi Unicem	BZU	Construction Materials	19 years	11.81%	2.41%
7	Campari	CPR	Consumer Products	17 years	22.62%	2.41%
8	Enel	ENEL	Utilities	19 years	3.71%	2.41%
9	Intesa Sanpaolo	ISP	Banking	19 years	5.62%	2.41%
10	Luxottica	LUX	Retail	18 years	18.53%	2.41%
11	Prysmian	PRY	Electrical equipment	11 years	13.04%	2.41%
12	Recordati	REC	Biotech & Pharma	19 years	31.56%	2.41%
13	Snam	SRG	Utilities	17 years	3.43%	2.41%
14	STMicroelectronics	STM	Semiconductors	19 years	21.63%	2.41%
15	Tenaris	TEN	Iron & Steel	16 years	12.95%	2.41%
16	Terna	TRN	Utilities	15 years	9.44%	2.41%
					Average 17.78%	-

The second column introduces the 16 companies that were able to pay dividends for at least 10 years in a row, while the third column shows the companies' ticker. The fourth column represents the industry in which each company works, with a predominance of utilities companies. In addition, the number of consecutive years of dividend payout are shown in the fifth column. The other 24 companies included in the FTSE MIB Index did not pay dividends for more than five years or did not distribute dividends at all.

Afterwards, for the 16 companies recognised, we analysed the average annual yield of the share price to understand which company is able to maximise its own share price, according to corporate finance principles. In this analysis, it is essential to compare the average yield of each company with a market benchmark, which, in our study, is the FTSE MIB average annual yield. The reference period is another important aspect to highlight, and it is essential to calculate the average annual stock yield. Since the FTSE MIB Index was established in 2009, in this study the time period considered is from 01/01/2009 to 31/12/2017.

The average yield is calculated as the ratio between the summary of the share prices at the end of each year minus the price at the beginning, divided from the price at the beginning; the total summation was divided for the period considered equal to 9.

The formula referring to the calculation is reported below:

$$\frac{\sum_{t=0}^9 \frac{Pt1 - Pt0}{Pt0}}{9}$$

All companies that have paid dividends for at least 10 years were able to beat the average yield of the market. This result, according to the shareholder value as a main objective for a firm, affirms that there are some Italian companies that can constantly create value for their shareholders over time, as addressed in RQ1 of our study. Moreover, an investment in a portfolio including all of these companies would have led to an average annual return equal to 17.78%, which is 15.31% more than the yield of the market.

Based on theory, one of the main elements to boost the value of a company is the competitive advantage (Damilano et al., 2018; Hawawini et al., 2002). The competitive advantage allows firms to compete successfully in the market and to constantly generate higher performance than their competitors (Kay, 1993; Pellicelli, 2014). The link between competitive advantage and innovation practices is intense, as mentioned in the theoretical part (Chathzoglou and Chatzoudes, 2017). Under this point of view, for those companies that have showed value creation, we analysed how they reach their innovation objectives. In particular, we focused on the so-called ‘open innovation’ practices that are implemented through different methodologies within the firm’s business:

- outsourcing of the R&D process;
- direct investments in start-ups;
- M&As and alliances between companies;
- partnership and collaboration with universities;
- hackathons.

To find information about open innovation, we used as data sources the companies’ annual report, articles, websites, and other public information. To understand the implementation of open innovation practices, a data collection instrument was used to improve the precision and generalisation of the outcomes (Mari, 1994), also allowing to meet the triangulation principle (Woodside and Wilson, 2003). Data triangulation is useful to confirm information coming from different sources (Olsen, 2004).

Analysis and discussion of the results

This section provides a brief profile for each of the 16 companies that have adopted at least one open innovation practice, and analyses the features of its model in comparison to information from the literature. All of these practices have a key role for the companies to continue to develop a sustainable competitive advantage that, as we shown in the theoretical part, is fundamental to generate value for the shareholder over time. We consider five open innovation practices (partnership and collaboration with external entities; mergers and acquisitions and alliances; investment in start-ups; hackathons and call for ideas; outsourcing R&D) which have been analysed in detail following the triangulation principle.

A2a, founded in 2008 after the merger with AEM Spa, ASM Spa, and AMSA, is an Italian multi-utility company. A2a adopts different open innovation practices:

- “Smart city Lab” is a structure for R&D with the goal of achieving the development of innovative IoT (Internet of Things) technologies;
- “Sharing cities” is an EU research project involving six cities (Milano, Londra, Lisbona, Bordeaux, Burgas, and Varsavia) and 34 companies with the objective of overcoming the fundamental environmental challenges of a city involving its citizens. In particular, the open innovation is implemented through the collaboration of entities outside the companies;
- M&As operation in the field of photovoltaics and other renewable energies;
- A2a has launched a start-ups incubator called “Open Italy”, with the aim to encourage collaborations between small business and large companies;
- finally, A2a proposes Hackatons like “Connected City Hackathon” to let people and small companies to develop new ideas on different topics.

Atlantia, founded in 2002, is an Italian company that manages highways worldwide as well as Roman airports. The open innovation practices are implemented through M&A operations and collaborations. In particular, in 2018, Atlantia has finalized the acquisition of Getlink, which manages the Channel Tunnel with over 20 million passengers per year. Another important operation, involved Atlantia and ACS in partnership to acquire Abertis, this partnership allows the two companies to manage the Spanish highways and consequently increase the market share. Other Atlantia’s collaborations involve Italian Universities like “Polytechnic University of Turin” and “Polytechnic University of Milan” and many others.

Azimut Holding, founded in 1988, is an Italian asset management company. The innovation objectives are pursued through two different approaches: collaboration with universities and investments in innovative start-ups. The University of Brescia is one of the main collaborations, it organizes masters and specialized courses. Further, Azimut has invested in “SiamoSoci”, a project that allows to connect innovative Italian start-ups with new potential investors to achieve a sustainable and lasting development.

Banca Generali, founded in 1998, is an Italian private bank specialized in the management of family assets through a network of financial advisors. It manages over 47.5 billion Euro. As other Italian banks (e.g. Intesa Sanpaolo) do, it focuses on the development of innovation specifically through Open Innovation practices. First, M&As are adopted by the Generali to increase the market share through strategic synergies (e.g. Valeur and Nextam). Also it organizes hackathon (e.g. Diversity & Inclusion) to develop new ideas about: engagement, human resources and new ways of working. Further, Generali collaborates with universities (e.g. Bocconi) and companies (e.g. Saxo Bank) with the aim to become the first private bank in terms of value, innovation and sustainability. Finally, it wants to generate an ecosystem that allows the development of new innovative start-ups on the Italian territory.

Brembo, founded in 1961, is a firm specialised in the development and production of brakes and it’s the leader of the market worldwide. It adopts open innovation practices especially through networks and joint works projects with other players in the automotive sector. Its main projects include:

- “Rebrake”, it’s a project financed by European Union in collaboration with Royal Institute of Technology of Stokholm and University of Trento, it is the first project concerning the production of braking systems that allow to decrease pollution of fine dust during braking.

- “Life-Cral”: launched by the European Union, the project is coordinated by Brembo and aims to develop an innovative production line, which allows to produce aluminum and magnesium components, starting from recycling or with high impurities but maintaining a high final quality of the product.
- “Lowbrasys”, the plan is to develop a new generation of technologies, materials and measures that can improve the impact of vehicles on health and the environment, through an innovative braking system able to reduce the emission of micro and nano particles.

Moreover, Brembo has also a partnership with the Milan Polytechnic, and in 2014 it founded the “Accademia del Freno”, the aim of this partnership is to prepare new brake system specialists, training future professionals in the sector. In addition, Brembo has engaged in strategic acquisition, especially in China (e.g. Asimco), and it will continue to do so in the future.

Buzzi Unicem, founded in 1999, is an Italian company that operates in the concrete production sector. Buzzi pursues open innovation especially through strategic acquisitions and partnership with external entities.

Buzzi, in 2017, started to collaborate with other companies in a project to capture the CO₂ from the cement production process. The project is called ‘Cleanker’ and is included in the programme called ‘Horizon 2020’, through which the European Commission supports the more promising research, development, innovation, and technology transfer activities in Europe.

The strategic M&As (e.g. Portlandzementwerke Seibel and Söhne, Cementizillo, etc.) are carried out all over the world with the aim to increase the market share.

Campari, founded in 1860, works in the alcoholic beverage sector and is one of the leaders in the market with over 50 of its own brands. In particular, innovation is achieved through M&A operations and collaborations with other companies.

From 1995 to 2016, Campari made over 26 acquisitions, with a constant increase in revenues and profits that allowed average returns for the shareholders equal to 20% per year. The most iconic brand’s acquisitions were: Cynar, Crodino and Lemonsoda (1995), Cinzano from Diageo (1999), Sky vodka (2001), Aperol and AperolSoda (2003), Averna (2014), Grand Marnier (2016), Bulldog London Dry Gin (2017).

Moreover, Campari, in 2018, has started a worldwide collaboration with the objective to sell his products through “Tmall” the Alibaba’s marketplace, so as to expand its presence in the Chinese market.

Enel, founded in 1962, is a utility company and one of the biggest firms in the energy industry. Enel demonstrates excellence in terms of open innovation, adopting many correlated practices:

- the “Enel Innovation Hub” has the aim to innovate the energy market, working together with innovative start-ups;
- collaboration with different entities within many projects (e.g. World Energy for Universities, Smart Cities etc.) like universities (e.g., Polytechnic University of Turin” and “Polytechnic University of Milan), research centers (e.g., Huaneng Clean Energy Research Institute), companies (e.g., Intesa Sanpaolo, Coca Cola and General Electric), cities, and countries;
- moreover, Enel uses Hackathons competitions (e.g., Cyber Security Hackton) to develop new and sustainable initiatives on different topics;
- finally, Enel increases its market share through strategic acquisitions, like Eletropaulo, in 2018, the major power distribution company in Brazil.

Intesa Sanpaolo, founded in 2007, is the second bank in this study. In 2017 it opened the 'Innovation Center' to allow universities, start-ups, and researchers to develop ideas for the 4.0 industry and circular economy. Moreover, it makes arrangements with companies like ENEL and IREN to invest in innovative projects in the energy industry and renewable sector. Like other Italian companies, Intesa Sanpaolo is making acquisitions, particularly other small Italian banks. Finally, it sponsors some hackathons like 'ROBOTHON', a contest to create a robot in 48 hours.

Luxottica, founded in 1961, is an Italian company active in the eyewear industry. It is the world's largest company in the eyewear market with 27.7 billion capitalisations. Acquisitions have always been part of the group to achieve innovation and improve the company's competitive advantages. In 2018 Luxottica merged with Essilor.

Luxottica collaborate with other companies, like Google for the Google Glass. The two companies have formed a specialized team, made up of designers and engineers, to create smart glasses under the brand of Oakley and Ray-Ban. Moreover, it formed a strategic alliance with Intel Corporation to develop new wearable technologies. Finally, it organizes Hackthons known as "Hackathon Luxottica" in collaboration with H-Farm, an Italian start-ups incubator.

Prysmian, founded in 2005, is the largest manufacturer of cables, electric power transmission, and telecommunication cables in the world. In 2018 Prysmian achieved the General Cable (the fourth firm in the sector) acquisition, making it the biggest group in the cable sector. Furthermore, open innovation is pursued through collaboration with universities (e.g., Bocconi, Universidade De Sao Paulo-Brasil etc.), firms (e.g., CEB, Adecco, etc.) and research centers around the world. Moreover, Prysmian founded 'The Academy' with Bocconi University to expand the innovation chain and host R&D activities.

Recordati, founded in 1926, is an Italian pharmaceutical company. Through many acquisitions, Recordati has been able to increase its internal knowledge and products portfolio with new brands. Some R&D activities are outsourced; for example, in 2017 Recordati signed an agreement with Mimetech to develop a new product for neurotrophic keratitis disease. Recordati has a strong track record in generating value through partnerships with universities and other companies, and is committed to build future value together with local or global partners, through R&D collaborations.

Snam, founded in 1941, is an Italian company specialised in the transportation, storage, and regasification of methane. It performs strategic acquisitions to build up its competitive advantage in the methane sector. It usually holds a hackathon to develop new ideas ('CallForIdeas') with external resources. Moreover, Snam collaborates with start-ups, where it works like an incubator, with an innovative platform known as "Snam Up" with the aim to support new ideas and innovative projects to develop new business opportunities. Furthermore, Snam also collaborates with LUISS University on many projects to develop human resources and new innovative ideas.

Finally, Snam makes acquisitions worldwide (e.g., Trans Austria Gasleitung, Desfa, etc.) to pursue an international strategy that allows to consolidate its competitive position on EU

STMicroelectronics, founded in 1987, is an Italian–French company operating in the semiconductors sector. Open innovation is implemented through different methodologies,

particularly partnership and collaboration with small- and medium-sized Italian companies to develop networks to stimulate the development of new process technologies consistent with the 4.0 industry. Like the other companies mentioned above, STMicroelectronics makes strategic acquisitions (e.g. Atollic) in the semiconductors and software sectors. Moreover, it has launched a corporate venture capital fund, known as “ST new ventures”, to invest in such innovative startups with the aim to invest in new companies, which operate in the emerging markets.

Tenaris, founded in 2002, is the largest operator in the steel pipes markets. Tenaris has multiple partnerships and collaborations with universities (e.g., University of Sheffield, MIT, etc.) and other companies (e.g., PetroSkills, Rosetta Stone, etc.) with a view to share knowledge, spread new ideas, and work together on specific business projects.

Like other firms, Tenaris makes strategic acquisitions in worldwide markets (e.g., Saudi Steel Pipe Company).

Terna, founded in 1999, is a company that manages the Italian electrical networks. Open innovation practices are implemented in multiple ways:

- partnership and collaboration with universities, research centers, and peers, urging industrial players and start-ups to stay in step with innovation;
- ‘Next Energy’ is a project that includes different initiatives organised by Terna and its partners (Call of Growths, Call for Ideas, Call of Talents) to develop new ideas and knowledge;
- strategic acquisitions, especially in South America (Brazil).

The information found shows, according to the triangulation model, that all companies of our sample integrate some open innovation practices, as shown in Table 3.

Table 3: Open innovation implementation within the firm business

Company	Partnership and collaboration with external entities	M&As and open alliances	Start-ups investment	Hackathons and call for ideas	Outsourcing R&D
A2a	X	X	X	X	
Atlantia	X	X			
Azimut	X		X		
Banca Generali	X	X	X	X	
Brembo	X	X	X		
Buzzi Unicem	X	X			
Campari	X	X			
Enel	X	X	X	X	
Luxottica	X	X		X	
Prysmian	X	X	X		X
Recordati	X	X			X

Snam	X	X	X	X	
STMicroelectronics	X	X	X		X
Tenaris	X	X			
Terna	X	X	X		
Intesa Sanpaolo	X	X	X	X	
Tot.	16	15	10	6	3
%	100%	93,7%	62,5%	37,5%	18,75%

All of the 16 companies have implemented at least one practice of open innovation. One-hundred percent of organizations in our sample have some collaboration with universities and/or external entities. In addition, ninety-four percent of the firms in the sample conducted at least one M&A or some sort of alliance with other companies in the last 10 years. Moreover, few businesses (62,5%) have invested and are investing in innovative start-ups, and six out of the 16 firms have held some kind of contest for innovative ideas, also known as a hackathon. Finally, only three companies have tried to outsource their R&D process.

As we highlighted in the theoretical part, we consider the open innovation as approach, adopted by firms, to successfully develop a competitive advantage that allows to reach greater returns for the shareholders than competitors. The logic, supported by literature, allows to hypothesize an indirect link between open innovation practices and shareholder value. In fact, all firms in the sample constantly beat the yield of the market, distributed dividends and have implemented at least one open innovation practices. We argue that the implementation of open innovation practices represents a source of competitive advantage, which allows to obtain highest returns for the shareholder in the long term.

Conclusions and implications for future lines of research

This is among the first pioneer research works based on the potential relationship among value creation, innovation practice, and competitive advantage. This study highlights the link among value creation, open innovation, and competitive advantage through analysis of companies listed on the FTSE MIB Index.

Returning to the research questions, interesting results emerge.

RQ1: Which Italian companies listed on the FTSE MIB are able to create ‘value’ over time according to the corporate finance principles?

Following the corporate finance principles, we analysed the Italian companies listed on the FTSE MIB through their dividend policy and their capacity to consistently beat the yield of the market. The first finding of our research is that 16 out of 40 companies turned out to be able to create value according to value creation principles (A2a, Atlantia, Azimut, Brembo, Buzzi, Campari, Enel, Luxottica, Prysmian, Recordati, Snam, STMicroelectronics, Tenaris, Terna, Banca Generali, and Intesa SanPaolo). All companies that have beaten the yield of the market have paid dividends for at least 10 years, which is an important element in the relationship among dividend policy, shareholder value, and company’s value. An investment in a portfolio including all of these companies would have led to an average annual return equal to 17.78% (not considering the dividend yield), which is 15.31% more than the yield of the market.

RQ2: How do Italian companies listed on the FTSE MIB, which have shown ‘value creations’ according to the corporate finance principles, pursue the innovation objectives to develop new and sustainable competitive advantages?

The second finding of the research indicates that all of the 16 companies implemented at least one open innovation practice during the period investigated. M&As are the most widespread practice of open innovation according to the recent literature (Mawson and Brown, 2017; Shin et al., 2017) among the 16 companies, and it is important to underline that all of the five practices introduced in the theoretical foundation were adopted at least once.

In conclusion, the results of the research offer some interesting implications for theory and practice. Concerning the theoretical implications, this study associates open innovation practice with value creation and competitive advantage. In the literature, as previously noted, several studies investigate the three issues separately. However, there are no clear references to studies that have analysed the three topics together or explored the possible consequences of an open innovation approach for shareholder value in the benchmark Stock Market index for the Borsa Italiana.

Concerning the practical implications, we analysed the potential relation between sustainable competitive advantage, open innovation practices, and long-term superior financial performance as dimension to forecast future performance persistence, which is particularly relevant for investors and analysts. Moreover, it is interesting to underline how theoretical open innovations were found in practice. This allows us to hypothesize that the companies’ managers know that open innovation provides many advantages, as mentioned in the literature, for the firm, specifically through the aim to build and keep a competitive advantage. In fact, the average yield for the 16 companies (17.78%) can be a useful sign for potential investors looking for a long-term investment.

The main limitation of our study is that we did not prove/test a cause-and-effect relationship among value creation, open innovation practices, and competitive advantages. Future researchers can statistically measure the impact of open innovation on value creation and highlight the quantitative determinants of a firm’s competitive advantage. Moreover, an in-depth analysis can be conducted in other markets concerning the share repurchase in addition to the dividend policy.

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