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Miglietta, N, Battisti, E & Garcia-Perez, A

Author post-print (accepted) deposited by Coventry University's Repository

Original citation & hyperlink:

Miglietta, N, Battisti, E & Garcia-Perez, A 2018, 'Shareholder value and open innovation: evidence from Dividend Champions' *Management Decision*, vol (in press), pp. (in press)

<https://dx.doi.org/10.1108/MD-04-2017-0408>

DOI 10.1108/MD-04-2017-0408

ISSN 0025-1747

Publisher: Emerald

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Journal:	<i>Management Decision</i>
Manuscript ID	MD-04-2017-0408.R2
Manuscript Type:	Original Article
Keywords:	Shareholder value, Dividend Champions, Open innovation practice, Standard & Poor's 500, Stock Market, Acquisitions

Shareholder value and open innovation: evidence from Dividend Champions

Abstract

Purpose – The purpose of this paper is to analyse companies listed on the US Stock Market in order to investigate for the selected companies, called the Dividend Champions, the introduction of an open innovation practice.

Design/methodology/approach – This study is based on a **mixed-methods sequential explanatory design**. This research is based on an empirical analysis undertaken with 65 listed companies in order to examine, in the first phase, the Dividend Champions. These firms have increased their dividend yield for at least the past 40 years. In a second phase, this research studies the application of an open innovation practice for those listed companies that have systematically paid increased dividends for 60 years and have, at the same time, beat the market.

Findings – This study reveals seven listed companies that, for more than 60 years, have regularly paid growing dividends and, at the same time, have beat the yield of the market (i.e. six out of the seven companies). The latter include: American States Water, Dover Corporation, Emerson Electric, Genuine Parts Co., Parker-Hannifin Corporation, and Procter & Gamble Co. All of these corporations have adopted or implemented a practice of open innovation.

Originality/value – To our knowledge, this is among the first pioneer researches, based on **the potential relationship between** shareholder value and open innovation. In particular, this paper highlights the fact that US-listed companies can create more value for shareholders over a long period and, at the same time, beat the market by adopting different open innovation practices.

Keywords Shareholder value, Dividend champions, Open innovation practice, Standard & Poor's 500, Stock market, Acquisitions.

Paper Type: Research paper

Introduction

Scholars of corporate finance generally agree that the objective of a firm is to maximise value (Berk and DeMarzo, 2012; Brealey *et al.*, 2015; Dallochio and Salvi, 2011; Damodaran, 2015; Guatri, 1991; Jensen, 2001; Tardivo *et al.*, 2010). More debated is whether this involves maximising the equity value or the firm's value, which includes, in addition to shareholders, other stakeholders (e.g., bonds and banks). However, most of the theoretical models of corporate finance are built on the assumption that the sole goal in decision-making is to maximise the stock price. This value can only be the objective of listed companies; thus, for those not listed, the goal remains maximising the firm's value (Damodaran, 2015).

The secret of success in financial management is to increase value, and managers add value when the company can earn a higher return than shareholders can earn for themselves (Brealey *et al.*, 2015). From this point of view, the main strategies that define value are based on internal developments (i.e., connected to the exploration and choice of strategic and operational opportunities within the present company) and external developments (e.g. mergers and acquisitions, joint ventures and open innovation). Among these, open innovation

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3 is a paradigm that enables organisations to be more competitive and it is an even more
4 important aspect for firms to maximise their value and better contend in the market.

5 Open innovation can be summarised as an approach that enriches firms'
6 innovativeness (Ferraris *et al.*, 2017a); therefore it allows them to acquire competitive
7 advantage. However, it is limited to companies with special products or industry features. In
8 particular, it is 'the use of purposive inflows and outflows of knowledge to accelerate internal
9 innovation and expand the markets for external use of innovation, respectively' (Chesbrough,
10 2006). Furthermore, this approach leverages both internal and external resources, even where
11 technology is functional to produce not only economic but also social impacts (Chesbrough
12 and Di Minin, 2014).

13 In the current competitive economic scenario, open innovation does not run according
14 to the R&D management structure, but postulates a complete review of the company's
15 strategy (Bresciani, 2016). For this reason, it only yields meaningful results when the
16 processes are completely revised, when they become familiar with the appropriateness of the
17 results of innovation, and when the focus is on the human factor, or the ability to motivate the
18 participation of collaborators, users and customers and value their contribution in terms of
19 innovation (Di Minin, 2016).

20 In literature, there are many benefits associated with adopting an open innovation
21 model (e.g. the decrease of costs and some types of investment, the improvement of firm
22 competitiveness and innovation performance) that represent sources of competitive advantage
23 (Reed *et al.*, 2012), designed as bases to create value. In this sense, our study examines listed
24 companies that, for more than 60 years, have systematically paid growing dividends and, at
25 the same time, have beaten the markets (i.e., the Standard & Poor's (S&P's) 500). We have
26 investigated the introduction of an open innovation practice in order to expand the existing
27 relationship in literature between corporate finance and innovation, particularly with
28 reference to those companies that have created more value for shareholders over a long
29 period. To our knowledge, this is among the first pioneer contributions based on shareholder
30 value and open innovation, analysing companies listed on the US Stock Market.

31 Specifically, the contribution of this paper is threefold: (1) we identify some US-listed
32 companies, called Dividend Champions, which have systematically distributed growing
33 dividends for over 40 years; (2) we highlight that six of the seven companies (i.e., American
34 States Water, Dover Corporation, Emerson Electric, Genuine Parts Co., Parker-Hannifin
35 Corporation, and Procter & Gamble Co.) have regularly paid growing dividends for more
36 than 60 consecutive years and, at the same time, have beaten the yield of the market; and (3)
37 we observe that all 6 companies have adopted or implemented a practice of open innovation,
38 promoting an external development that essentially has contributed to the shareholder value
39 of the company.

40 This paper is organised as follows. Firstly, a literature review examines shareholder
41 value and open innovation practice. The methodology is then presented, followed by a
42 discussion of the results of this study. Lastly, we conclude the work with some conclusions,
43 implications and future lines of research.

44 **Theoretical background**

45 *Shareholder value*

46 The objective of shareholder value is generally accepted in both practice and theory (e.g.
47 Brealey *et al.*, 2015; Damodaran, 2015; Ferrero, 1991; Tardivo *et al.*, 2012; Vernimmen *et*
48 *al.*, 2011).

In particular, shareholder value can be used to refer to: the market capitalization of a listed company; the idea that the main aim for a firm is to enhance the wealth of its shareholders by paying dividends; and the more detailed notion that planned actions by management and the returns to shareholders should go one better than some benchmarks, such as the cost of capital concept. Essentially, the idea is that shareholders' money should be used to earn a higher yield than they could earn themselves by investing in other assets having the same level of risk (Rappaport, 1986).

Moreover, the reasons for its diffusion are connected to the following aspects (Damodaran, 2015):

- The stock price is a parameter immediately and constantly observed to judge the work of a listed company.
- In a rational and efficient market, stock prices reflect the long-term effects of corporate policies.
- Maximizing stock price provides a clear criterion by which to make investment and financing decisions.

However, any inefficiency in the financial markets could result in the misallocation of resources and cause managers to make wrong choices. In this scenario, managers should put their interests in the background, giving priority to those of shareholders; fundraisers are protected by attempts to expropriate by shareholders; there are no social costs; and the management does not try to deceive the financial markets about the company's future prospects. If these conditions occur, then stock price maximization does not produce negative side effects and can therefore be adopted by management as a guiding objective in managing the company, as maximizing share prices means increasing the value of equity, the value of the company and social welfare. In a truly efficient market, maximizing the stock price would be the same as maximizing shareholder value. In this case, the stock price reflects the strategy shown in the spreadsheet and so there is no discrepancy between long-term and short-term shareholder value. Nevertheless, if the market is not efficient, stocks could be overestimated or underestimated in the spreadsheet forecast.

Therefore, referring to a corporation, the shareholder value can be calculated using the following formula (e.g. Blyth *et al.*, 1986; Guatri, 1991; Ross *et al.*, 1997) that considers the value created measured by monetary return:

$$R = \Delta W + D_{iv} - \Delta C$$

where:

R = value created measured by monetary return.

$\Delta W = P_{t+n} - P_t$ where P represents the share price.

D_{iv} = is the sum of dividend paid in the period.

ΔC = new invested capital.

Open innovation practice

As previously introduced, open innovation can be summarised as an approach that enriches firms' innovativeness, therefore, allowing them to acquire competitive advantage; however, it is limited to companies with special products or industry features (Chesbrough, 2003, 2006). The paradigm of open innovation, according to Chesbrough (2006), is that:

Ideas can still originate from inside the firm's research process, but some of those ideas may seep out of the firm, either in the research stage or later in the development stage [...]. Ideas can start outside the firm's own labs and can move inside. There are many potential ideas outside the firm. The boundaries are dotted, reflecting the

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3 interface between what is done inside the firm and what is accessed from outside the
4 firm.

5
6 In the literature, there are three different models of open innovation: (1) the outside-in
7 process; (2) the inside-out process; and (3) the coupled process.

8 In the outside-in process, firms decide to invest in collaboration with suppliers and
9 clients and integrate the external knowledge gained (Birou and Fawcett, 1994; Clark, 1989;
10 Dröge *et al.*, 2000; Enkel *et al.*, 2009; Fritsch and Lukas, 2001; Handfield *et al.*, 1999;
11 Prahalad and Ramaswamy, 2000; Ragatz *et al.*, 2002). In the inside-out process,
12 organisations focus on externalising the firm's knowledge and innovation to bring ideas to
13 the market earlier than is possible through internal development (Grandstrand *et al.*, 1992;
14 Haour, 1992; Mangematin and Nesta, 1999; Ulset, 1996; Veugelers and Cassiman, 1999;
15 West and Bogers, 2014). In the coupled process, companies cooperate with other firms to
16 gain external knowledge (outside-in process) and to bring ideas to market (inside-out process)
17 (Fritsch and Lukas, 2001; Gassmann and Enkel, 2004; Littler *et al.*, 1998; Pisano, 1990; Tao
18 and Wu, 1997; West and Bogers, 2014).

19 Besides implementing core processes to enable integration of external knowledge, to
20 exploit ideas outside the firm or to co-operate within joint innovation processes, the company
21 needs certain capabilities to effectively apply the open innovation approach (Scuotto *et al.*,
22 2017). In particular, for each of the core processes, a different capability is needed. In any
23 case, the goal is to create value while reducing the costs, the timing related to the R&D
24 process and the time to market (Santoro *et al.*, 2017). However, it is not easy to apply
25 (Chesbrough, 2006).

26
27 When companies turn internal innovation activities toward collaborating with external
28 elements, they face extra challenges in managing their knowledge (Bican *et al.*, 2017;
29 Meissner and Carayannis, 2017; Wang and Han, 2011). In this sense, also, the knowledge
30 assumes a pivotal role in the open innovation paradigm. From this point of view, Natalicchio
31 *et al.* (2017) emphasise the most relevant knowledge management practices to sustain open
32 innovation activities, on the basis of the inbound, outbound and coupled open innovation
33 processes. Specifically, open innovation activities require a broad level of collaborative,
34 original efforts and effective knowledge management models for the firms (Žemaitis, 2013).

35
36 The concrete ways in which open innovation can be realised are multiple (Hossain *et al.*, 2016), such as:

- 37
38 • Inter-company agreements, whereby an undertaking delegates to another, usually
39 smaller company, the creation of certain innovations or the production of specific
40 artefacts.
- 41
42 • Subsidising start-up competitions, with the commitment to invest (directly or
43 indirectly) in those that have developed the most promising innovations.
- 44
45 • Hackathon, the programming competition for which companies are asking developers
46 and innovators to invent innovative digital solutions within 24 hours in a particular
47 industry.
- 48
49 • The acquisition, by large corporations, of innovative start-ups or other companies in
50 order to integrate digital talents into their own organisation and discover some of the
51 smaller companies' major innovations.
- 52
53 • Creating start-up accelerators that are directly or indirectly managed by large
54 companies, thus, sharing and circulating innovative ideas.
- 55
56 • Partnership with universities, research centres and incubators to innovate on specific
57 topics.

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59 The benefits of open innovation include: (1) expanding the company's competence base; (2)
60 integrating skills that lead to heterogeneous areas and disciplines; (3) increasing the

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3 flexibility of the internal organisation for innovation; (4) stimulating creativity and the ability
4 to generate new ideas; (5) decreasing or sharing the risks associated with innovative
5 activities; (6) reducing or sharing the costs of the innovation process; (7) containing the time-
6 to-market of new products and services; (8) improving innovation performance; and (9)
7 improving the internal learning capacity through the transfer of external knowledge and
8 learning routines (e.g. Chesbrough *et al.*, 2006; Ferraris *et al.*, 2017b; Lee *et al.*, 2010;
9 Ullrich *et al.*, 2016; Vanhaverbeke *et al.*, 2008). Also, in the contexts of organisation
10 ambidexterity, Vrontis *et al.* (2017) emphasise that the open innovation paradigm highlights
11 external knowledge sources that improves innovation, learning and firm performance.
12

13 However, there are also risks associated with open innovation (e.g. Enkel *et al.*, 2009;
14 Ullrich *et al.*, 2016; Veer *et al.*, 2013). It requires internal capabilities, such as absorptive
15 capacity to exploit and integrate external knowledge and technologies to those developed
16 internally. It requires a shift in a firm's internal culture towards innovation in order to avoid
17 the 'not invented here' syndrome (i.e., employees and managers must embrace open
18 innovation through a culture open to external ideas and innovation in this regard). It involves
19 some risks related to dispersion of internal knowledge and competences in the external
20 environment (i.e., knowledge spill-over), and it requires the allocation of time and resources
21 to search and integrate external knowledge and technologies.
22

23 **Methodology**

24 *Research design*

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28 This study, in order to gather a complete understanding of the phenomenon and to guarantee
29 well-founded conclusions, is based on a mixed-methods research design (Creswell, 1999;
30 Teddlie and Tashakkori, 2003; Edmondson and McManus, 2007; Henkel *et al.*, 2014;
31 Johnson and Onwuegbuzie, 2004). It may be defined as the 'analysis of both quantitative and
32 qualitative data in a single study in which the data are collected concurrently or sequentially,
33 are given a priority, and involve the integration of the data at one or more stages in the
34 process' (Creswell *et al.*, 2003).
35

36 Using both forms of data (i.e., qualitative and quantitative) allows scholars to explain,
37 interpret and generalise results at the same time and achieve a deeper perspective of the
38 phenomenon of interest (Hanson *et al.*, 2005). In particular, in our analysis, the sequential
39 implementation of the data collection was explanatory (Creswell, 2003; Ivankova *et al.*,
40 2006), where the collection and examination of quantitative datum (in order to examine the
41 Dividend Champions Companies) was followed by a collection and analysis of qualitative
42 information (in order to observe the adoption or not of an open innovation practice).
43

44 Our research is based on an empirical analysis, undertaken with 65 companies listed
45 on the US Stock Market in order to examine, in the first phase of our study, the companies
46 named Dividend Champions. These firms have seen a growing dividend yield for more than
47 40 years. In a second phase, for listed companies that have systematically increased dividends
48 for 60 years and have, at the same time, beaten the market (i.e., the S&P's 500), we studied
49 the adoption of an open innovation practice.
50

51 *Data collection procedure*

52
53 This research developed according to the following phases. Firstly, we recognised the US
54 market as the world's largest stock market, in terms of size and representativeness. Secondly,
55 we identified companies, called Dividend Champions, which have systematically distributed
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3 **increasing dividends** for a significant period of 40 years. In this phase, we recognised 65
4 companies (see Figure 1). The average number of years over which companies have
5 distributed dividends is about 48 years. From the sample, we extracted seven companies that
6 distributed, systematically, growing dividends for more than 60 consecutive years. Those
7 corporations are: (1) American States Water (utility); (2) Dover Corporation (industrial
8 goods); (3) Emerson Electric (industrial goods); (4) Genuine Parts Co. (services); (5)
9 Northwest Natural Gas (utility); (6) Parker-Hannifin Corporation (industrial goods); and (7)
10 Procter & Gamble Co. (consumer goods). Of the sample companies, 43 per cent belong to the
11 industrial goods sector, 29 per cent belong to the utility sector, 14 per cent belong to the
12 consumer goods sector and 14 per cent belong to the services sector.

13
14 Thirdly, referring to those corporations, we observed dividends distributed from
15 01/01/1990 to 01/01/2017 and calculated the shareholder value (see Figure 2) according to
16 the formula of Guatri (1991) and Ross *et al.* (1997). Fourthly, from the same period (i.e.,
17 from 01/01/1990 to 01/01/201), the shareholder value was compared with the same yield of
18 the markets identified in the S&P's 500. **Based on the analysis, six of the seven companies**
19 **beat the yield of the market** (see Figure 3). Those six companies were American States
20 Water, Dover Corporation, Emerson Electric, Genuine Parts Co., Parker-Hannifin
21 Corporation and Procter & Gamble Co.

22 Fifthly, **for the six selected companies, we investigated the adoption of an open**
23 **innovation practice.** In order to guarantee the adoption of an open innovation model, we used
24 data collection tools to increase precision, generalise the results data (Mari, 1994), and help
25 respond effectively to the triangulation principle (Woodside and Wilson, 2003). For this
26 principle, the detection of a complex reality involves the activation and comparison of
27 multiple levels of observation to allow for a multi-perspective reconstruction of the object of
28 analysis (Castoldi, 2009). The different sources analysed are annual reports, company
29 websites, professional articles and corporate information.
30
31

32 **Analysis and discussion of the results**

33
34 **Open innovation is an important way to increase value and it is increasingly used by firms. In**
35 **this sense, there are different forms and ways in which an enterprise can use an open**
36 **innovation.**

37
38 The following section is structured as follows. For each listed firm selected, after a
39 brief presentation of the company's profile, we have researched if companies have adopted an
40 open innovation model. If they have adopted an open innovation model, we have tried to
41 analyse the main features by comparing them with existing literature.
42

43 **Company profile:** American States Water (AWR), founded in 1929, is the parent of
44 Golden State Water Company and American States Utility Services, Inc. Through its utility
45 subsidiary (Golden State Water Company), American States Water provides a water service
46 to about 259,000 clients throughout ten counties in northern, coastal and southern California.
47 The company also distributes electricity to about 24,000 customers in the Big Bear
48 recreational area of California. By way of its contracted services subsidiary (American States
49 Utility Services, Inc.), the company provides operations, maintenance and construction
50 management services for water and wastewater systems located on military bases. Its mission
51 is a commitment to maximizing shareholder value through a mixture of capital appreciation
52 and cash dividends.
53

54 **Open innovation practice used:** Yes.

55 **Type of practice used:** American States Water has reinforced its expansion process to
56 directly acquire firms through merger and acquisition in order to expand the company's
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3 footprint, take advantage of economies of scale and integrate global R&D resources. For
4 example, in 2015, AWR, through its wholly-owned subsidiary Golden State Water Company,
5 completed the acquisition of Rural Water Company (Rural).
6

7 **Company profile:** Dover Corporation (DOV), founded in 1955, is a diversified global
8 manufacturer. The company delivers innovative equipment and components, speciality
9 systems and support services through four operating segments: energy, engineered systems,
10 fluids, and refrigeration and food equipment. The business philosophy is building the
11 company by acquiring strong businesses with solid fundamentals and market-leading
12 positions. Its mission is a commitment to creating economic value for shareholders and
13 clients through sustainable practices that defend the long-term happiness of the environment.
14

15 **Open innovation practice used:** Yes.

16 **Type of practice used:** Dover Corporation supports the growth plans of its existing
17 businesses through acquisitions that are the right fit strategically and culturally for the
18 continued innovation and growth of the firm. The reasons are connected to increasing the
19 speed of market penetration and global growth, drawing world class talent, and sharing in the
20 best practices and leverage tools and resources.
21

22 **Company profile:** Emerson Electric (EMR), founded in 1890, is a multinational
23 manufacturing corporation which provides solutions to clients by bringing technology and
24 engineering together in the industrial, commercial and consumer markets around the world.
25 The company operates through four segments based on the nature of the products and
26 services rendered: process management, industrial automation, climate technologies, and
27 commercial and residential solutions. In 2015, Emerson announced portfolio repositioning to
28 two core business platforms (automation solutions and commercial and residential solutions)
29 in order to enhance investment opportunities and accelerate value creation for shareholders.
30

31 **Open innovation practice used:** Yes.

32 **Type of practice used:** In 2016, Emerson Electric established a partnership with the
33 University of Dayton, with reference to the Helix Innovation Center, a 40,000 square foot
34 facility located on Dayton's campus focused on providing a collaborative environment for
35 researchers, academia and industry professionals to develop solutions to industry challenges.
36

37 **Company profile:** Genuine Parts Co. (GPC), founded in 1928, is a leading parts
38 distributor with over 2,650 operations and approximately 39,600 employees. The company is
39 a service organization engaged in the distribution of automotive replacement parts, industrial
40 replacement parts, office products and electrical/electronic materials. The Genuine Parts Co.'s
41 segments include automotive, industrial, office products, electrical/electronic materials and
42 other.
43

44 **Open innovation practice used:** Yes.

45 **Type of practice used:** Genuine Parts Co. is reinforcing its internationalization process
46 through acquisitions in order to enter into European markets with critical scale and a leading
47 market position in the automotive aftermarket. In particular, in September 2017, the company
48 acquired Alliance Automotive Group (AAG), the second largest parts distribution company
49 in Europe, to enhance the GPC platform for long-term, sustainable expansion across the
50 global automotive parts industry.
51

52 **Company profile:** Parker-Hannifin Corporation (PH), founded in 1917, manufactures
53 and sells motion and control technologies and systems for various mobile, industrial and
54 aerospace markets worldwide. The company operates in two segments, diversified industrial
55 and aerospace systems. In the early days, the company built pneumatic brake systems for
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3 trucks, trains, buses and industrial machinery, as well as leak-free fittings for the pioneers of
4 aviation.

5 *Open innovation practice used: Yes.*

6 *Type of practice used:* In 2017, the company opened a new state-of-the-art higher
7 manufacturing learning and development centre located at Parker's Corporate Technology
8 Ventures facility in Macedonia, Ohio. The centre will serve as a hub of excellence where
9 engineers can investigate new applications of emerging technologies such as additive
10 manufacturing and collaborative robotics. By creating a single centre near the company's
11 global headquarters in Northeast Ohio, Parker-Hannifin Corporation is providing its
12 operating groups and divisions around the world with access to the latest printers, software
13 and materials accessible.
14

15
16 *Company profile:* Procter & Gamble Co. (PG), founded in 1837, is an American
17 consumer goods corporation. The company focuses on providing branded consumer
18 packaged goods to consumers across the world. The company operates through five
19 segments: beauty, grooming, healthcare, fabric and home care, and baby, feminine and family
20 care.
21

22 *Open innovation practice used: Yes.*

23 *Type of practice used:* Procter & Gamble Co leads the global firms who apply the
24 concept of open innovation effectively. Procter & Gamble Co., as the world's 40th major and
25 84th innovative company, created the website known Connect + Develop (C+D) to
26 support open innovation to assist them to drive employee productivity. In particular, P&G's
27 Connect + Develop program helps beginning partnerships to meet today's needs across the
28 P&G business in relation to technology, product, in-store purchases and e-commerce. Procter
29 & Gamble's open innovation strategy has enabled the production of more than 2,000
30 successful agreements with innovation associates around the world and the website lets
31 innovators link directly to P&G's posted needs.
32

33 **All of the six companies observed have adopted a practice of open innovation.**
34

35 **Conclusions, implications and directions for further research**

36
37 To our knowledge, this is among the first pioneer studies based on the potential relationship
38 between shareholder value and open innovation. Based on the mixed-methods sequential
39 explanatory design, which implies collecting and analysing quantitative and qualitative
40 information, this research revealed seven companies (i.e., collectively, the Dividend
41 Champions) that have systematically distributed growing dividends. Those seven firms paid
42 dividends to shareholders every year for at least 60 years, which places them in a limited
43 group of US corporations to have achieved such result.
44

45 Moreover, six of the seven companies beat the yield of the stock market (i.e., the
46 S&P's 500). Those companies were American States Water, Dover Corporation, Emerson
47 Electric, Genuine Parts Co., Parker-Hannifin Corporation and Procter & Gamble Co.
48

49 The most important result of this research is that all of the six firms, which were
50 analysed, have adopted an open innovation approach, promoting an external development
51 that contributed to the shareholder value of the company. Accordingly, although we cannot
52 prove this relationship with powerful statistical tests, we strongly believe that an open
53 innovation strategy has paved the way towards creating value for the shareholders amongst
54 those listed companies.

55 The results also suggest that each company developed a different open innovation
56 strategy, even though some of them have followed a similar path. More specifically, three
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3 companies (i.e., American States Water, Dover Corporation and Genuine Parts Co.) have
4 recently made acquisitions of both smaller companies with high potential for innovation, and
5 large companies. The latter represent companies already started and structured, with a strong
6 propensity to grow and a great deal of attention to the customer (Öberg, 2016; Shin *et al.*,
7 2017). Two firms (i.e., Emerson Electric and Parker-Hannifin Corporation) established
8 partnerships with universities and research centres that enabled them to carry out the transfer
9 of technology, based on industrial applications, and businesses to make use of the core
10 competencies and knowledge of research centres and universities (Del Giudice and Maggioni,
11 2014). One company (i.e., Procter & Gamble Co.) developed a pioneering open innovation
12 program, through which it develops collaborations with universities, companies, public and
13 private organisations, or researchers to create product innovations through an online platform
14 that provides the company with novel ideas that come from the crowd.
15

16 The preliminary results of our research allow us to provide some theoretical and
17 practical implications. In terms of theoretical implications, this work associates open
18 innovation practice with shareholder value. In the literature, several studies analyse the two
19 issues separately. However, there are no clear references to studies that have analysed the two
20 themes together or explored the possible consequences of an open innovative approach for
21 shareholder value. From this point of view, we have jointly investigated these two issues to
22 expand the relationship in literature between corporate finance and innovation, in the hope of
23 stimulating future research on this emerging and relevant topic. In particular, this paper
24 highlights how the adoption of an open approach to innovation can create more value for
25 shareholders of those companies listed on the US Stock Market.
26

27 In terms of practical implications, this paper suggests to managers to adopt an open
28 innovation approach that, as highlighted in the literature, provides many advantages and also
29 to better select open innovation practices in the actual context (Bellantuono *et al.*, 2013).
30 From this point of view, adopting the open innovation paradigm mitigates the main
31 disadvantages of home-based innovation, such as high costs, need for vertical skills and
32 lengthened time to market. It also offers the company some key benefits (Chesbrough *et al.*,
33 2006; Lee *et al.*, 2010; Ullrich *et al.*, 2016), such as: (1) stimulating business innovation on
34 key business issues with external inputs, in relation to innovative products, services and
35 approaches; (2) giving access to potential technologies in which to invest before competitors;
36 (3) increasing management and internal resources in an increasingly digital and constantly
37 changing market scenario; and (4) investing resources to help develop the ideas and talents of
38 young people.
39

40 The biggest limitation of our study regards the fact that the results of our work cannot
41 prove a cause-and-effect relationship between the adoption of an open innovation model and
42 the steady distribution of dividends for over 60 years. In the future, it might be useful to try to
43 measure, using statistical tools, the impact of open innovation on shareholder value.
44

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Management Decision

Figure 1: Selected companies analyzed

N°	Company Name	Industry	No.'Yrs
1	3M Company	Conglomerate	59
2	ABM Industries Inc.	Business Services	50
3	Altria Group Inc.	Tobacco	47
4	American States Water	Utility-Water	62
5	Archer Daniels Midland	Agriculture	42
6	Automatic Data Proc.	Business Services	42
7	Becton Dickinson & Co.	Medical Instruments	45
8	Black Hills Corp.	Utility-Electric	47
9	C.R. Bard Inc.	Medical Instruments	45
10	California Water Service	Utility-Water	50
11	Carlisle Companies	Rubber and Plastics	40
12	Cincinnati Financial	Insurance	57
13	Coca-Cola Company	Beverages-Non-alcoholic	55
14	Colgate-Palmolive Co.	Personal Products	54
15	Commerce Bancshares	Banking	49
16	Computer Services Inc.	Technology-Services	45
17	Connecticut Water Service	Utility-Water	47
18	Consolidated Edison	Utility-Electric	43
19	Dover Corp.	Machinery	61
20	Emerson Electric	Industrial Equipment	60
21	Farmers & Merchants Bancorp	Banking	52
22	Federal Realty Inv. Trust	REIT-Shopping Centers	49
23	Genuine Parts Co.	Auto Parts	61
24	Gorman-Rupp Company	Machinery	44
25	H.B. Fuller Company	Chemical-Specialty	47
26	Helmerich & Payne Inc.	Oil&Gas	44
27	Hormel Foods Corp.	Food Processing	51
28	Illinois Tool Works	Machinery	42
29	Johnson & Johnson	Drugs/Consumer Prod.	54
30	Kimberly-Clark Corp.	Personal Products	45
31	Lancaster Colony Corp.	Food/Consumer Prod.	54
32	Leggett & Platt Inc.	Furniture/Bldg. Prod.	45
33	Lowe's Companies	Retail-Home Improv.	54
34	McDonald's Corp.	Restaurants	41
35	MGE Energy Inc.	Utility-Electric/Gas	41
36	Middlesex Water Co.	Utility-Water	44
37	MSA Safety Inc.	Medical/Safety Equip.	45
38	National Fuel Gas	Utility-Gas	46
39	Nordson Corp.	Machinery	53
40	Northwest Natural Gas	Utility-Gas	61
41	Nucor Corp.	Steel & Iron	44
42	Parker-Hannifin Corp.	Industrial Equipment	61
43	Pentair Ltd.	Industrial Equipment	41
44	PepsiCo Inc.	Beverages/Snack Food	44
45	PPG Industries Inc.	Conglomerate	45
46	Procter & Gamble Co.	Consumer Products	60
47	RLI Corp.	Insurance	41
48	RPM International Inc.	Chemical-Specialty	43
49	S&P Global Inc.	Publishing	44
50	SJW Corp.	Utility-Water	50
51	Stanley Black & Decker	Tools/Security Products	49
52	Stepan Company	Cleaning Products	49
53	Sysco Corp.	Food-Wholesale	47
54	Target Corp.	Retail-Discout	49
55	Telephone & Data Sys.	Telecommunications	43
56	Tennant Company	Machinery	45
57	Tootsie Roll Industries	Confectioner	50
58	United Bankshares Inc.	Banking	43
59	Universal Corp.	Tobacco	46
60	Vectren Corp.	Utility-Electric/Gas	57
61	VF Corp.	Apparel	44
62	W.W. Grainger Inc.	Electronics-Wholesale	45
63	Walgreens Boots Alliance Inc.	Retail-Drugstores	41
64	Wal-Mart Stores Inc.	Retail-Discout	44
65	WGL Holdings Inc.	Utility-Gas	41

Legend: No.'Yrs: number of consecutive years of growing dividends payment

Figure 2: Share prices analysis and monetary return between 01/01/1990 – 01/01/2017

Company Name	Ticker Symbol	Share Price		Return of 1 share			
		Pt	Pt+n	$\Delta W = Pt - Pt+n$	$\Delta W \%$	Σdt with $0 < t < n$ (*)	$\Sigma dt \%$ with $0 < t < n$
American States Water	AWR	4,63	43,78	39,150	845,57%	14,463	312,37%
Dover Corp.	DOV	7,39	77,75	70,360	952,10%	17,382	235,22%
Emerson Electric	EMR	9,56	58,66	49,100	513,60%	26,509	277,29%
Genuine Parts Co.	GPC	16,72	96,81	80,090	479,01%	36,764	219,88%
Northwest Natural Gas	NWN	16,17	58,90	42,730	264,25%	38,161	236,00%
Parker-Hannifin Corp.	PH	8,15	147,13	138,980	1705,28%	23,282	285,67%
Procter & Gamble Co.	PG	8,00	87,60	79,600	995,00%	32,138	401,72%

Legend: Σd_t

- ✓ AWR from 01/04/1990
- ✓ DOV from 01/01/1990
- ✓ EMR from 01/01/1990
- ✓ GPC from 01/01/1990
- ✓ NWN from 01/04/1990
- ✓ PH from 01/01/1990
- ✓ PG from 01/01/1990

Figure 3: Total monetary return of selected companies Vs S&P 500 index (01/01/1990-01/01/2017)

Company Name	Ticker Symbol	Return of 1 share			
		R	R %	RS&P500 % (*)	R % > RS&P500%?
American States Water	AWR	53,613	1157,94%	588,90%	Yes
Dover Corp.	DOV	87,742	1187,31%	592,50%	Yes
Emerson Electric	EMR	75,609	790,89%	592,50%	Yes
Genuine Parts Co.	GPC	116,854	698,89%	592,50%	Yes
Northwest Natural Gas	NWN	80,891	500,25%	588,90%	No
Parker-Hannifin Corp.	PH	162,262	1990,95%	592,50%	Yes
Procter & Gamble Co.	PG	111,738	1396,72%	592,50%	Yes

Legend: $R_{S\&P500} \%$

Market (S&P 500 - ^GSPC)	Price	
t_n S&P500 01/01/2017	2.278,87	2.278,87
t_0 S&P500 01/01/1990	329,08	
t_0 S&P500 01/04/1990		330,80
ΔW	1.949,79	1.948,07
R%	592,50%	588,90%