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INDICE

6. Synchronistic events and management decisions. A conceptual framework toward an Affect-Cognitive Theory

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Abstract
Despite the increasing trust on the digitalization of organizational activities, here it is strongly assumed that management decision making is still a matter of human being and his biased perceptions. To support this claim, it is considered and theoretically addressed the habitual phenomena of perceiving meaningful coincidences in the daily life and their effect on management decisions. Coincidences are pivotal in scientific discoveries and enterprises' foundations. However, how their perception affects management decisions has been overlooked by management studies. To fill this gap, a conceptual framework based on Jung's synchronicity principle and management cognitive literature has been built. In particular, it shows that affective states felt during the occurrence of meaningful coincidences – also called *synchronistic events* –activate a series of cognitive errors that drive the assignment of a symbolic content to the coincidences, resulting in different risk-oriented management decisions. The proposed theorization advances the behavioral strategy field, enhancing the understanding of the cognitive aspects surrounding management decisions.

Keywords: Synchronicity, Coincidences, Cognition, Heuristics, Affect, Emotion, Sensemaking, Behavioral Strategy.

1. Introduction

In today's organizations, executives are increasingly pushed toward the adoption of a data-driven approach (e.g., Mandinach, 2012) because this would approximate optimal decisions (e.g., Bennett and Hauser, 2013). However, as suggested by a series of scholars (e.g., Kahneman and Tversky, 1979; Gigerenzer and Selten, 2002; Artinger *et al*., 2015; Cristofaro, 2018), behind algorithms there are always limited human beings whose perceptions are continuously biased from internal and external factors. Within this work it is studied a biasing phenomena which can make a strong support for this thesis, thus meaningful coincidences and their impact on management decisions.

Coincidences are "a surprising concurrence of events, perceived as meaningfully related, with no apparent causal connection" (Diaconis and Mosteller, 1989; p.853). These are random events (i.e., not intentionally looked for) that happen frequently and assume meaning for individuals who usually are not great in object reasoning about probability and/or *want* to assign relevance, because of being emotionally attached to them (e.g., Hand, 2014). Those management scholars interested in meaningful coincidences mainly relate them to the change management (Durant, 2002) and leadership topics (Javorski, 1996; Pielstick, 2005; Scharmer, 2009; Cavalli, 2013), only highlighting the importance for organizations in being open to meaningful coincidences so as to sense new thinking and future possibilities that can support creative management of change. Behavioral strategy scholars, despite the academic relevance gained by meaningful coincidences in the last 60 years (Hocoy, 2012), have been more interested in the role of chance (i.e., randomness; Starbuck, 1994) or luck (self-attribution of random events; Friedland, 1992) in management (Liu and De Rond, 2016) – which are different from meaningful coincidences due to the lack of concurrence of unrelated events, to which is assigned a symbolic content and requires to be emotionally attached.

From that, the question "*How do meaningful coincidences influence management decisions?*" (i.e., choices occurring at the low-, middle- and top-management levels; Koontz *et al*., 1980) has been overlooked by management studies, and there are no theorizations on the influence of chance and luck on management decisions that can be applied to them (Falk, 1989; De Rond and Thietart, 2007; Liu and De Rond, 2016). Addressing this lively question is relevant, although unexplored, because meaningful coincidences alter the courses of lives (Brown, 1980) and are at the basis of several scientific discoveries (Griffiths and Tenenbaum, 2007) and enterprises' foundation (e.g., Görling and Rehn, 2008) – mainly because individuals sometimes rely on them to make important decisions (also business ones) (Govier, 2003; Brooks, 2015; Beitman, 2016). Investigating the influence of meaningful coincidences on management decisions means, therefore, shedding light on the perception of executives and its effect, through choices, on firms' performance. Only through this investigation can knowledge be advanced on decisions that today appear as the output of human reasoning irrationality.

In advancing this investigation, the influence of meaningful coincidences on management decisions is studied looking at the recent proposed and encouraged interplay between affective states and cognitive biases

(heuristics and cognitive traps) (Ashkanasy *et al*., 2017; Cristofaro, 2017ab); in fact, affective states are found to play six different functions in decisions, which include shaping their content and depth of thought (Lerner *et al*., 2013; Cristofaro, 2019). In brief, it is proposed to go beyond the verified singular influence of affect and cognition on management choices (e.g., Kahneman and Tversky, 1972; 1979; Tversky and Kahneman, 1973; Gigerenzer and Selten, 2002; Gigerenzer, 2008; Kahneman, 2011; Liu and Maitlis 2014; Artinger *et al*., 2015; Steigenberger, 2015; Healey *et al*., 2018).

To study the influence of meaningful coincidences on management decisions, this work proposes a conceptual framework which is mainly based on the exploration of the *synchronicity* concept of Jung (1952), who first tried building a theoretical framework for understanding meaningful coincidences – also called *synchronistic events* (i.e., they are synonymous) – later developed by other scholars highlighting its properties and the relevance of the emotional element (e.g., Hopcke, 1998). To discover how meaningful coincidences affect management decisions, this framework refers to decision-making and sensemaking literature. Despite the obvious, according to Simon (1947), link between the construction of experiences' meaning – studied in the sensemaking literature (e.g., Weick, 1979; 2005) – and the thinking activity behind a choice – studied in the cognitive literature (e.g., Kahneman and Tversky, 1972; 1979) – there have been few attempts to link the sensemaking and decision making streams. Studying meaning construction and its cognitive effects is pivotal in order to comprehensively understand the psychology of human choices, from the trigger events – episodes that activate organizational agents to construct plausible realities (Weick, 2005) – to the decision made. One of the few attempts to make this connection is the action-oriented problem-solving model (Rudolph *et al*., 2009), which, however, did not consider the specific cognitive mechanisms of each choice and the influence on them of affective states.

This is the first contribution proposing a theoretical framework for understanding the effect of meaningful coincidences on management decisions – pioneering, therefore, the study of a new phenomenon of interest in decision making, beside chance and luck. *Second*, it suggests conceiving the meaning construction, pervaded by elicited emotions, of synchronistic events as inputs for the occurrence of other cognitive errors that drive management decisions, reinforcing the co-evolutionary interpretation of cognitive errors (Abatecola *et al*., 2018) driven by affective states (Cristofaro, 2019a); this answers the call for considering affective states and cognitive errors as concurrently acting in decision making and the inclusion of both the decision-making and sensemaking perspectives in management decision analysis, reinforcing the nascent Affect-Cognitive Theory (Cristofaro, 2019b).

2. Theoretical background

2.1 Decision making deceptions

According to Simon (1947), human behavior is the output of bounded rationality; in practice we are restricted in terms of: *i)* computational capacities, *ii)* access to information, and *iii)* physical constraints (Simon, 1955); these bring three main consequences for human cognition: *a)* incompleteness of information, *b)* difficulty in the anticipation of the consequences of future actions, and *c)* scarce knowledge of all possible human behaviors. From that, the interpretation of reality is subjective and strongly biased; the effect of these distortions on decision making were undertaken by Kahneman and Tversky (1972; 1979) with their "heuristic and bias research program". Through a series of laboratory experiments, they formalized the existence of a set of heuristics in humans, namely, cognitive shortcuts that affect decision-making processes. According to them, decision makers use "rules of thumb" to help them make complex judgments, which are conceived as driven by subjective probability. However, these heuristics were originally assumed to work only in some tasks operated by our mind. Stanovich and West (2002) and Kahneman (2003) – main theorists of the so-called *dual process theory* – defined human cognitive functioning as occurring in two different systems of our mind: System 1, devoted to operating mental processes that are spontaneous, fast and automatic, and System 2 devoted to operating mental processes that are "consciously monitored and deliberately controlled" (Kahneman, 2003, p.698). From this interpretation, System 1 is the first and most to be activated during our daily activities, so we rely on heuristics for the majority of our mental processes.

Regarding the mental functioning of our mind, beside the *default-interventionist* accounts of dual-process theory – the so-called 'cold' cognition – that claim a non-concurrent operation of Systems 1 and 2 (Stanovich and West, 2002; Kahneman, 2003), there is another viewpoint, i.e., the *parallel-competitive* alternatives approach. In particular, the latter advances that Systems 1 and 2 processes can, "under most circumstances" (Pacini and Epstein, 1999; p.972), operate in parallel – the so-called 'hot' cognition. In this approach, fast reasoning and rational judgment do not operate in silos according to the proposed task, but may concur in forming choices (Evans, 2008). Worth noting is that for some supporters of the parallel-competitive alternatives' approach, fast reasoning is mainly studied in terms of intuitive answers (Hodgkinson and Healey, 2015; Healey *et al*., 2018) and they suppose that in case of contrasts between the two Systems one tries to overcome the other for the control of thinking and behavior (Hodgkinson & Sadler-Smith, 2018); others, instead, investigated fast reasoning considering both intuitive and affect responses and suppose that in the case of contrasts between the two Systems, they can compete or collaborate (Epstein *et al*., 1996).

Added to such heuristics – either considered in a positive or negative way and apart from the mental functioning standpoint from which they are approached – are a series of decision traps (Hammond *et al*., 1998), namely cognitive deviations from rationality that always harmfully influence decisions. Heuristics and traps, under the umbrella term "cognitive errors" (or biases), alter *in melius* or *in peius* the decision-making process (Artinger *et al*., 2015). Some of the most studied cognitive biases – i.e., availability heuristic, representativeness heuristic, confirmation bias, bounded awareness bias, risk aversion bias, framing bias, and affect heuristic – are here briefly described to support the understanding of the biases emanating from the perception of synchronistic events.

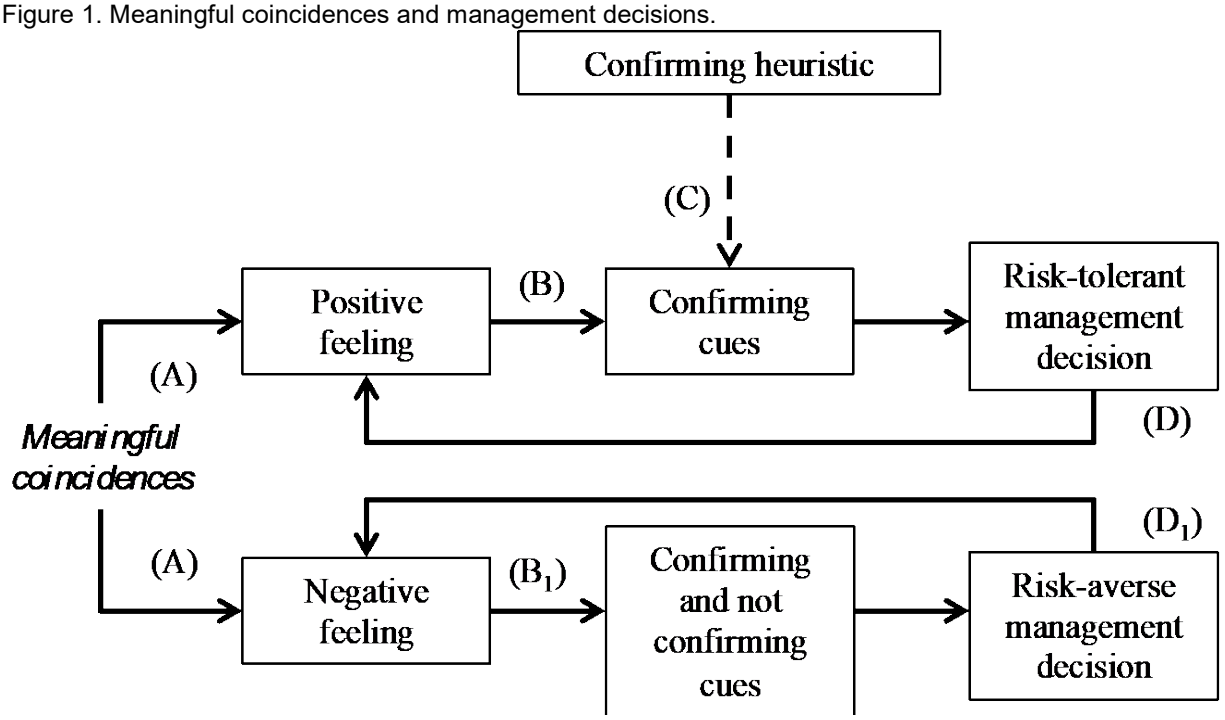
The availability heuristic exists when people assess the probability of a future event on the basis of what past occurrences of that event are readily available in memory, which is invariably incorrect (Tversky and Kahneman, 1973). Availability also applies to recent events; this time effect appears because we tend to recall recent events more easily and, therefore, assume that they are more likely to happen. Relatedly, the representativeness heuristic exists when, in making a judgment about an individual, object, or event, people tend to look for traits corresponding to previously formed stereotypes (Kahneman and Tversky, 1972). Thus, we judge a few elements and automatically classify them into that category and, although this heuristic can be helpful in saving energy and time, stereotypes are just round the corner. Similarly to the introduced heuristics, the confirmation bias appears when people tend to selectively search for supportive information, discarding the opposite; they try to confirm their preconceptions, searching for data that test hypotheses, such as instances in which the variable of interest is present. This bias is linked with the bounded awareness bias by which people, in order to avoid information overload, often unconsciously and automatically filter information (Kahneman, 2011). This could lead to ignoring or neglecting useful, observable, and relevant data outside the range of people's focus. This selective perception can have an effect on the risk aversion bias, which means that risk-averse people tend to search for options with moderate probabilities of gains and small probabilities of losses, while risk-seeking decision makers look for the reverse (Kahneman and Tversky, 1979). Moreover, decision makers' risk preferences are driven by the formulation of the decision problem, how it is framed (i.e., framing bias). Lastly, according to an emotional school of thought, judgments are usually evoked by an affective evaluation happening even before any higher-level reasoning occurs (Zajonc, 1980). This conceptualization has also been developed by Finucane *et al.* (2000), stating that emotions substitute logical reasoning when decision makers have to rapidly assess the risks and benefits of a chosen situation to improve judgmental efficiency; in sum, it is considered the 'mother' of all biases (Cristofaro, 2019a).

The connections among these introduced biases have been depicted in the recent *co-evolving diamond* of heuristics and biases by Abatecola *et al.* (2018), according to which, cognitive errors are "internally generated", i.e., the manifestation of one of them is caused by the occurrence of another/others, which reinforce each other. Within this co-evolutionary interpretation of biases, a pivotal role is played by the affect heuristic; decision makers' feelings determine the weight of outputs in risky decisions (i.e., affect heuristic). Managers who have a negative temperament activate less risky firm strategies, while managers with a positive temperament initiate more risk-oriented strategies. Yet, the framing of a situation choice, i.e., the plausible account, has effects on the risk perception of decision makers, when approaching management decisions, who will elicit a positive or negative feeling, depending on the sense of uncertainty left. Depending on this, the affective states resulting from this process can lead to different search strategies and effort in collecting new information: positive feelings will lead to find confirming evidence and to rely on available information driving to risky decisions, while negative feelings push to build different accounts of reality, driving to risk-averse decisions. If new information appears and positive emotions are felt, they are interpreted according to existing frameworks and categories elicited by the bounded awareness, trying not to deviate from the established thought. This increases the overconfidence of the decision makers to rely more on their own cognitive abilities, thus on mental schemas and related shortcuts.

3. Understanding the impact of meaningful coincidences

To better understand the influence of meaningful coincidences on management decisions, a conceptual framework has been built based on Jung's synchronicity principle and management cognitive literature. First, the spot of two causally unrelated meaningful coincidences usually leads individuals to build a deep meaning around their occurrence (Jung, 1952). This is in line with the sensemaking literature, which says that sensemaking starts when "discrepant events, or surprises, trigger a need for explanation" (Louis, 1980; p.241); "such occurrences, when noticed, interrupt people's ongoing flow, disrupting their understanding of the world and creating uncertainty about how to act" (Maitlis and Christianson, 2014; p.70; see also Corley and Gioia, 2004; Weick, 2005).

Figure 1. Meaningful coincidences and management decisions.



Source: own eleboration.

Perceiving acausal connections between two unrelated events leaves the human being with a sense of uncertainty and reflecting on what is going on (Hopcke, 1998); in these terms, meaningful coincidences work as a *trigger* for the sensemaking activity of the decision maker. The facts faced by individuals are appraised in terms of implications for well-being, leading to the emergence of an affective state (A) (Smith *et al*., 1993; Lazarus, 2006). In sum, meaningful coincidences are here interpreted as a trigger for individual sensemaking, which elicits an affective state that cognitively orients the collection and interpretation of information for decision-making activities. This interpretation is in line with the appraisal/emotion theory (Lerner & Keltner, 2000) and the affect-as-information model (Schwarz and Clore, 2003; Greifeneder *et al*., 2011) that advance the driving function of feelings in interpreting information and that underline the intrinsic attachment of affective states to the lived experience. This is even more true, according to Fiedler (1991), when the judgmental domain is unstructured, novel, or ambiguous (i.e., *malleable*), as in the case of perceiving meaningful coincidences, which requires a construction of the judgment.

The *emotional experience*, therefore, takes place as a consequence of the appraisal of meaningful coincidences, but its valence depends on the affective state attributed or attached to the objects underlying the synchronistic events (Greifeneder *et al*., 2011). However, in synchronistic events, the function of affective states is greater than in standard circumstances, because they *substantiate the meaningfulness of unrelated events* (Hopcke, 1998); indeed, without an emotional link, meaningful coincidences would not be considered by the individual (Jung, 1952). In theorizing the different influences of affective states while making sense of circumstances, Epstein (1994) stated that stimuli of a judgment process activate feelings that "are pleasant, they motivate actions and thoughts anticipated to reproduce the feelings. If the feelings are unpleasant, they motivate actions and thoughts anticipated to avoid the feelings" (p.716). From that, it can be derived that feeling positive affective states, when facing meaningful coincidences, bring to collect confirming cues as to replicate, through the decision to be made, the same affective state in the future (B). Following this conceptualization, Maitlis and colleagues (2013) similarly asserted that when negative emotions are aroused while making sense of a situation, decision makers feel pushed by a search for meaning (Tversky and Kahneman, 1973). This search is directed toward collecting either confirming or not confirming cues to find the most plausible account for the situations (B_1) to avoid, in the future, similar negative affective states.

From what has been said above, when decision makers perceive positive feelings (e.g., excitement) as a reaction to meaningful coincidences, they avoid disconfirming pieces of information and select all subsequent ones to confirm prior assumptions; decision makers are victims of a confirmation bias as an effect of bounded awareness (Simon *et al*., 2000). On these occasions all the pieces of information are inserted into established categories (i.e., representativeness heuristic) reinforcing prior assumptions that rely on the same available information (i.e., availability heuristic) (Abatecola *et al*., 2018) (C). This flow follows the appraisal tendency function of emotions in judgment; indeed, as reported by Lerner and Keltner (2000; p.477), "each emotion

activates a cognitive predisposition to appraise future events in line with the central-appraisal dimensions that triggered the emotion".
Having cues confirmed repeatedly through their collection and having assigned a symbolic content toward continuing on the current path, the decision maker naturally has a low risk perception, orienting to risk tolerant decisions (D) (Finucane *et al*., 2000; Schlösser *et al*., 2013; Delgado-Garcia *et al*., 2015). This is supported by the literature advancing that decision makers with a positive feeling are risk-oriented and in favor of change (Shin *et al*., 2012; Liu and Maitlis, 2014; Steigenberger, 2015). If the PPM feels a positive affective state due to the perception of meaningful coincidences, he/she starts collecting only pieces of information (e.g., performance reports, subordinates' opinions, etc.) oriented to verify the high value of his/her competences (e.g., selecting only the confirming information).
When the decision maker in a negative affective state starts collecting confirming and not confirming cues, the non-corroborating set of information leaves a sense of uncertainty (Cornelissen and Clarke, 2010), because he/she does not feel in control of the situation (Friedland, 1992; 1998). This brings assigning a negative symbolic content to the meaningful coincidences and perceiving a sense of indecisiveness in continuing on the current path (Marks, 1998). Despite emotions characterized by uncertainty appraisals result in a more systematic processing (Tiedens and Linton, 2001), uncertainty influences the risk perception of the decision maker (Schlösser *et al*., 2013) leading to high risk perception of circumstances and related risk-averse management decisions (D_1) (Darke and Freedman, 1997; Lerner and Keltner, 2000; Steigenberger, 2015). This is line with prior results strongly suggesting a direct connection between negative affective states and risk-averse orientation (Gino *et al*. 2012; Liu and Maitlis, 2014).
Whatever the affective state, at the end of the synchronistic sensemaking process the decision maker makes a choice whose related feelings reinforce the initial emotional basis (according to a self-reinforcing process; Abatecola, 2014; Cristofaro, 2019), with the consequence of forming a memory for the next sensemaking activities.. This is also almost supported by Lerner and Keltner (2000), who state: "an emotion's ability to focus cognition may be so strong that the emotion not only directs thoughts relevant to the initial emotion-eliciting event but also to unrelated events. For example, anger triggered in one situation automatically elicits blame cognitions in other situations" (pp.476-477).

4. Conclusions and implications

The proposed conceptual framework, apt in explaining the influence of perceiving meaningful coincidences on management decisions, is the *first* and main contribution of this work to the management literature. In brief, it is proposed that affective states felt during the occurrence of meaningful coincidences (i.e. *synchronistic events*) activate a series of cognitive errors that drive the assignment of a symbolic content to the coincidences, bringing different risk-oriented management decisions.
A second contribution to the literature suggests conceiving meaningful coincidences not only as the output of a number of information processing biases (e.g., not to know the law of large numbers; Diaconis and Mosteller, 1989), but also as inputs, through the elicited affective states, for the occurrence of other cognitive errors that drive management decisions, adding support to the co-evolutionary interpretation of cognitive errors driven by the affect heuristic (Abatecola *et al*., 2018). This theory, therefore, supports the view of the functioning human mind (Systems 1 and 2) as occurring through parallel processes (Hodgkinson & Sadler-Smith, 2018), which may collaborate in forming choices (Evans, 2008) *and opening to an affect-cognitive theory of management decisions*.
Regarding the practical implications of this theory, practitioners should take into consideration that perceiving meaningful coincidences influences their decisions and that they are the concurring product of affective influences and cognitive errors. Despite executives being currently oriented toward the adoption of a data-driven approach (e.g., Mandinach, 2012) because of being considered to approximate optimal decisions (e.g., Bennett and Hauser, 2013), this work highlights the thesis that behind algorithms there are always limited human beings (Cristofaro, 2018). Moreover, the appearance of meaningful coincidences cannot be artificially created within organizations so as to orient the inner risk of management decisions; if possible according to a futuristic view, it will remain difficult to anticipate the affective state that the decision maker can perceive from the displayed artificial synchronistic events.
What can be done to manage in some way the impact of meaningful coincidences on management decisions, is to work on: *i)* the "affective architecture" of the individual/group/firm (Cristofaro, 2019a), thus their emotional composition and affective relationships, and *ii)* the emanated cognitive errors. In the former, shifting from one decision-making path to another is, as proposed by the conceptual framework, a matter of experienced affective states. After this analysis, the organizational context and composition of decisional teams should be oriented toward the main affective state that it wants to emerge for orienting the risk of management decisions; this can be done using some emotional indirect suggestions able to influence decision making, i.e., nudges (Thaler and Sunstein, 2008).
If organizations want to work directly on the occurred cognitive errors, the only way to escape a biased judgment that comes from interpreting simple coincidences as *meaningful*, is to inform judgment with a greater

amount of information and to train decision makers to rely more on indisputable facts rather than on interpretable events (Lee *et al*., 2018). However, if the management decisions, subsequent to the perception of synchronistic events, have already been made, the adoption of Kahneman and colleagues' (2011) checklist is suggested – 12 questions, each aimed at discovering whether a heuristic/trap occurred while making a decision. Moreover, this should be modified by adding a question aimed at investigating the frequency of the perception of meaningful coincidences and the affective state that is usually felt in order to be more effective in biases' recognition.

Regarding the implications for future research, the proposed theoretical model can be used and implemented for a better comprehension of similar phenomena studied in management research, i.e. chance and luck. Despite the interest of scholars in studying these phenomena, no theoretical frameworks have studied the effect of these events on management decisions taking into consideration the role of affective states and cognitive errors (Friedland, 1992; Darke and Freedman, 1997; Liu and De Rond, 2016). A connected question to be answered is: Do chance and luck events influence management decisions in the same manner as meaningful coincidences? Moreover, affective states are here treated, similarly to other conceptual works (Lerner *et al*., 2013; Cristofaro, 2019a), as an umbrella term [comprising emotions (first and second order), mood, feelings, temperament] without giving a clear distinction among them. Future research might extend the understanding of the influence of affective states on meaningful coincidences along this distinction.

Notwithstanding these limitations, the theoretical comprehension offered represents an important starting point for the nascent field of *behavioral strategy* (e.g. Powell *et al*., 2011; Abatecola and Cristofaro, 2018; 2019), enhancing the understanding of the cognitive aspects surrounding management decisions and how to reduce related biases (Lee *et al*., 2018). Moreover, it reinforce the assumption of the nascent Affective-Cognitive Theory of management decisions (Cristofaro, 2019b), better explaining the formation of choices considering the interplay of irrational and rational forces.

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