COMMUNICATION AFFECTS FINANCIAL DECISIONS AND OUTCOMES

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This file includes as APPENDIX at the end the slides for the presentation

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Abstract

The goal of this essay with practical applications is to address and develop visual models to discuss and ease the understanding of the communication process in finance, taking into account impacts from feedback and the surrounding environment. This work also targets the relationship between a client and a financial practitioner. Besides discussing the visual models, this work describes how these models may be used to improve financial human communication. In the end of this article are key points and suggestions for future work in the field of human behavior, communication, and interaction when implementing financial decisions.

Keywords: behavioral finance, communication, investment decision-making

1   Introducing the context of this work

This work on financial communication and decision-making plunges into the challenges of financial decision-making resulting from human communication and relationships, hence supplementing other works in behavioral finance that scrutinizes how heuristics (i.e. mental "*rules of thumb*") and behavioral biases of individuals (either reasoning influenced by emotions or faulty cognitive reasoning) affect his or her selection of investments and management of portfolios. The motivation to carry out this work stems from pondering to what extent and how would the meaning, the context, and the style of a message during a financial conversation affect current and hereafter financial analysis or decision-making.

The important findings on behavioral finance - such as reported by Statman (2017), Thaler (2016), Pompian (2016), Kahneman (2011), and Zweig (2007) - are about how an individual makes and implements decisions by him- or herself with heuristics and individual cognitive biases, eventually with discretionary, unscientific, and sloppy selection of past data or price patterns. Less emphasis – if any – is given to how the communication and interaction between two or more individuals affect the process of financial decision-making.

It turns out that notorious investors and financial practitioners work regularly together with skilled groups, which help them to form investment opinions and to arrive at asset allocation decisions, even if ultimately several famous financial analysts and portfolio managers convey the impression that he or she worked alone without the support of a group of assistants, employees, or even business partners. This impression may become specially convincing when group leaders and bosses of financial firms make public appearances, deliver announcements, or give interviews, as some available in the books by Schwager (2012), Seabra

(2018) or Bartunek et al. (2016). Although strictly individual accomplishments are feasible, recognition of individual achievements may disregard contributions from group members in teamwork.

Within teamwork, the opinion of the group may not necessarily be the opinion of each or every group member or even the group leader or boss. Furthermore, group behavioral biases are different from individual behavior biases, as listed and explained by Henriques De Brito and Jardim (2020). Human communication affects both individual and group behavior biases, which ultimately affect financial analysis and decisions, albeit differently and even unpredictably. This awareness may be particularly important to contrast individual investors and institutional investors (e.g. pension funds, foundations, endowments, insurance companies, banks), whose investment outcome might be perceived by the market as being from a sole investor, but there is indeed teamwork. The differences between individual and institutional investors are so pronounced that David Swensen, who was at Yale University both a lecturer on portfolio management and a Chief Investment Officer, wrote a book on institutional investment (Swensen, 2009) and a completely different one on personal investment (Swensen, 2005). Furthermore, institutional investors have investment committees with responsibility for the investment performance of retirement funds, endowments, and foundations. Bailey and Richards (2017) provide a detailed account of activities structured and carried out by investment committees in which individual behavior biases may be blurred. Thus, group behavioral biases together with human communication and relationship challenges amid a group affect financial decision-making and portfolio management carried out by investment committees, as explained in the following statement:

> "*A thorough understanding of the behavioral biases of individuals as they interact in a group, such as a committee, requires that the committee chair proactively neutralize both the behavioral and social obstacles that impede a committee's successful achievement of its goals*" (Wood, 2006, page 29).

Work on financial human communication should hence address challenges amid the financial decision-making process resulting from human communication and interaction. A concern is to identify how human interaction triggers, interferes, maintains, or stops financial decision-making and actions, such as asset management decisions and buy-and-sell orders, besides assessing if consequences are broad or restricted. Thus, the research field of behavioral finance may be expanded, noting that Modro et al. (2019) suggest from a literature review that research in the area with focus on investor relations may be more explored.

This work is structured as follows. Section 2 comments human financial communication with two versions of The IEAC Model (The Interest-Expectation-Attitude and Communication Model) and develops The FIEAC Model (The Financial Interest-Expectation-Attitude and Communication Model) which mirrors the prevailing communication between a client and a financial practitioner. Thus, the content in Section 2 aims to discuss

how current communication is affected by previous communication within an ongoing, irreversible process. Section 3 brings issues and challenges on financial human communication with comments on how to improve financial outcomes resulting from individual behavior, human communication, and teamwork altogether. The last section brings a summary of the key points of this work and suggestions for future work.

2   Discussing financial communication with The IEAC Model and The FIEAC Model

This section opens with a brief description and a revisited interpretation of The IEA Model (The Interest-Expectation-Attitude Model) that was originally conceived in a book in Portuguese by Henriques De Brito (2003) and that was subsequently presented in a conference (Henriques De Brito, 2004). The IEA Model is a building block for an enhanced model on international communication (Henriques De Brito, 2005). In the present work, The IEA Model is also a building block for an extended and improved schematic diagram of "*a general communication system*" that was originally suggested by Shannon (1948). This section presents as well The FIEAC Model (The Financial Interest-Expectation-Attitude and Communication Model) that offers a way of visualizing financial communication between a financial professional and a client so as to identify challenges and improve the process.

2.1   The IEA Model as a building block

Figure 1 shows the sketch of The IEA Model. There are several terms with definitions that may quite closely resemble to (but do not exactly match) a loosely meaning as used with daily language. Special attention must be given to the way each term of The IEA Model is defined.
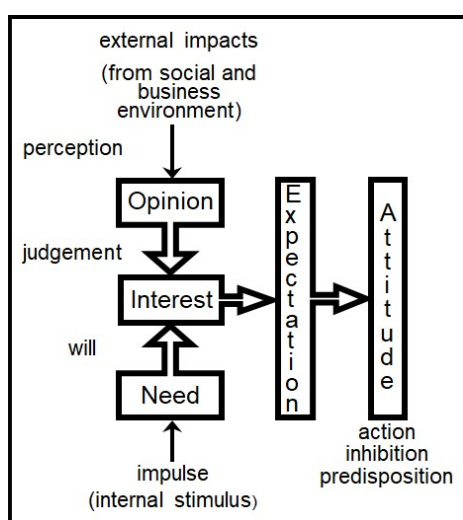
Source: Translated and adapted from Henriques-de-Brito (2003)
Figure 1   The IEA Model (The Interest-Expectation-Attitude Model)

A "***need***" results from a deep physiological or psychological necessity, which makes someone strive to achieve an intrinsic satisfaction, to attenuate a discomfort, or to forestall a threat to survival. For this work,

basic needs may be deemed to be those listed by Abraham Maslow (1943) in his classic paper "*A Theory of Human Motivation*". These basic needs are usually quoted in textbooks on business and administration. It is not an intent of this work to further the debate on whether a hierarchy (or pyramid) of needs exists, once such discussion is irrelevant to convey the terminology for and to explain the application of The IEA Model.

A need alone does not explain a resulting attitude, since there are several possibilities to fulfil a need. As an example, a young person seeking financial security (a basic need according to Maslow) may strive to save as much as possible and also invest conservatively. Another possibility is to accept more risk in the short-term and actively invest with a high return requirement with the expectation of amassing a big amount of money with a successful investment, which could provide financial security in the future. These and other alternatives are scrutinized according to the objectives and constraints (actually "opinions") of that young person. Ultimately, each person will have a particular judgement about which is the best alternative from his or her opinions, embracing heuristics, and incurring in cognitive errors.

Therefore, needs interact with opinions that are formed about a certain issue and stored in the mind. For The IEA Model, an "***opinion***" should be understood as personal knowledge, point of view, belief, feeling, or appraisal that a person has about a particular subject under consideration or alternative to choose. Each person may have different opinions since each one perceives, bears in mind, remembers, and interprets differently external impacts from the social and business environment as depicted in Figure 1. Throughout one's life, opinions are shaped involuntarily or deliberately in such a way that, when necessary, judgements will just 'appear' by means of an unconscious or conscious process with the interaction of "*System 1*" (i.e. an intuitive, fast, effortless 'blink' system) and "*System 2*" (i.e. a reflective, slow, effortful 'think' system), as thoroughly explained in Kahneman (2011), Thaler and Sunstein (2009), and Statman (2017). The deep-rooted personal process of forming, internalizing, and modifying opinions explains why interests and expectations may diverge between people who, consequently, may present different attitudes, albeit triggered by the same need.

Within the framework of The IEA Model, the term "***expectations***" depicted in Figure 1 results from – but is not limited to – a technical forecast, a prediction on probable stages and features of a business cycle, together with the assessment of leading economic indicators that could support such predictions, hunches, or hopes, and 'wishful thinking'. Expectations are indeed relevant to define an "***interest***", which is a current and precise specification of a fulfillment of a "need" blended with an "opinion", considering a given "expectation" of what might occur in the future. Therefore, without any appraisal of worth, relevance or merit, the term "interest" simply denotes the outcome of a personal, private settlement of needs and opinions, leading to an attitude, which may be either a set of procedures, or a simple message.

Given that an "interest" is a refinement of a 'will' together with a 'judgement', an exact and timely formulation of an interest is crucial to determine the attitude that would fulfil a need blended with an opinion. The IEA Model shows that an "***attitude***" may be an action, an inhibition or a predisposition. A person should choose which type of attitude is more suitable amid given circumstances, taking into account "expectations" of opportunities and threats.

Whereas "*action*" corresponds to a change in the current behavior by doing something new or differently, such as buying or selling an quantity of a security at a given price in a precise moment on a certain exchange, "*inhibition*" results from the decision of not changing anything (i.e. '*doing nothing at all*'), such as maintaining a financial position (long or short), remaining in silence, or not moving. Inhibition differs from action because inhibition does not alter what was being done, though in both situations the decision results from formulating an interest considering expectations and, hence, going through a decision-making process. Not deciding to do something is also a decision, since such choice is made after examining alternatives. Thus, an investor with a "*buy-and-hold*" investment strategy is consciously and repeatedly embracing an inhibition to not sell a security.

"*Predisposition*" indicates promptness to follow or to verify a certain issue with more attention. Unlike action and inhibition, which may produce short-term effects quite immediately, predisposition refers to a propensity to have an attitude, which may be taken in the long-run. Over a considerable period of time, the interest in taking an attitude is neither dismissed nor neglected, because the suitability of the attitude is constantly analyzed.

The final output of The IEA Model is "*attitude*" that accordingly results from two different entries. One entry is an endogenous input – triggered by an internal "*impulse*", setting up a need and releasing a "*will*". Another entry is an exogenous (external) input – instantly before "*perception*", giving subsidies to form an "*opinion*" and release a "*judgement*".

2.2   The IEAC Model as a wide-ranging model on communication

Henriques De Brito (2003) connects two IEA Models, each one representing a person engaged in a human communication, as if The IEA Model building block could communicate with another one. This combination is denominated The 'IEA Communication Model' (The IEAC Model).

From The IEAC Model in Figure 2, it can be grasped that a verbal attitude (with words) together with a non-verbal attitude (e.g. gestures, hand signals, handshake, and look in the eyes) forms a message that should be perceived by an interlocutor, who, in turn, may or not react with a new message. This reply is actually a new message and may be a feedback. If properly perceived, a "***feedback***" may inform if and how

a message was understood and accepted, besides subsequently helping to unfold a reply to the interlocutor in an ongoing talk or dialogue, which ultimately leads to the development of new ideas and even wisdom.
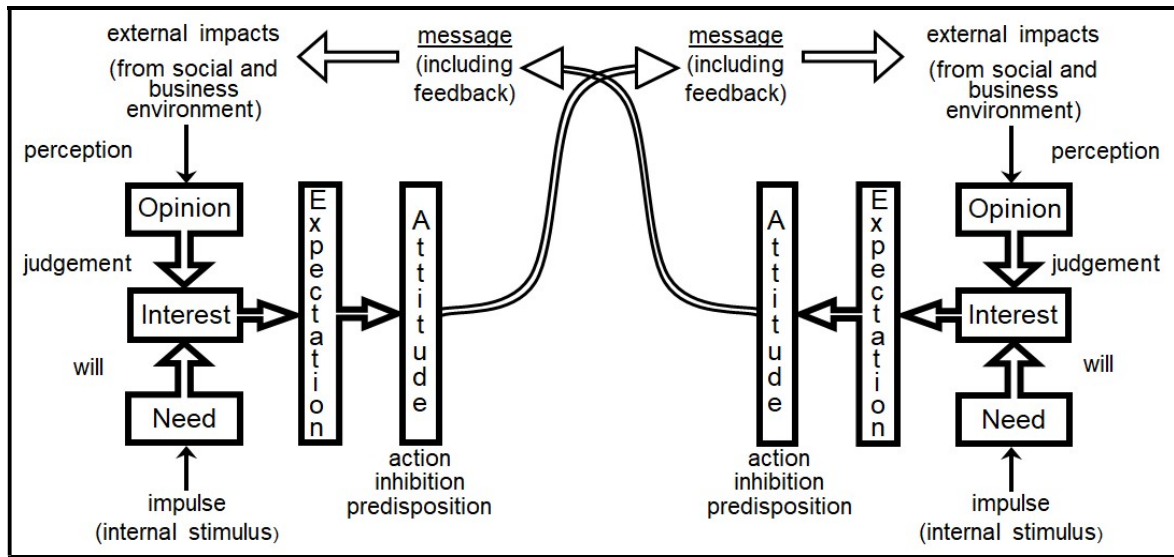

Source: Translated and adapted from Henriques-de-Brito (2003)

Figure 2   Interaction with The IEAC Model (The IEA Communication Model)

The IEAC Model evidences that communication – such as a conversation or a negotiation - will continue, as long the interlocutors have an 'interest' in the relationship, besides expecting a favorable outcome by exchanging information. However, the recollection (or 'opinions') on outcomes of previous meetings as well as the content of current verbal and non-verbal 'feedback' may both change the course of a present conversation or a negotiation by shifting 'judgements' and subsequently halting an interest to continue the exchange of messages. Henriques de Brito (2011) shows how The IEAC Model may analyze environmental cases (including plots in films) in order to improve communication skills and corporate management.

The 'IEA Communication Model' (The 'IEAC Model') is indeed an improved, comprehensive alternative to an existing communication model developed by Shannon (1948), as shown in Figure 3. Weaver (1963) discusses the general setting and scope of communication problems dealt by the engineering aspects of communication and information theory in the classic book "*The Mathematical Theory of Communication*".
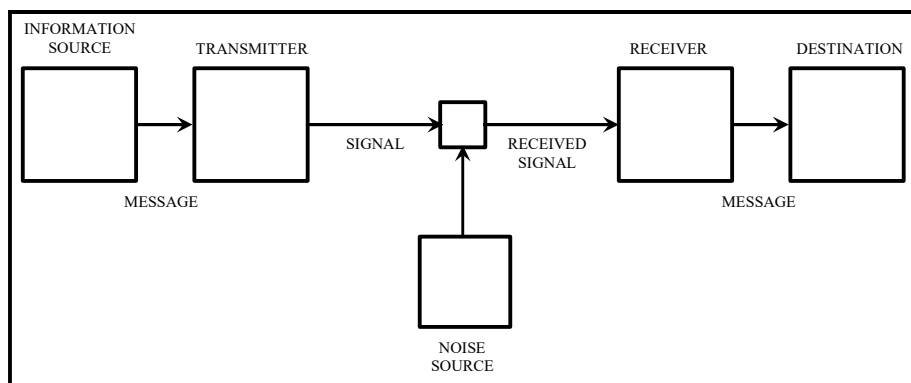

Source: Shannon (1948)

Figure 3   Shannon's schematic diagram of a general communication system

Although the communication model shown in Figure 3 does consider that environmental noises and that

both perception and decoding processes may distort or change the content of a message, illustrations of classic communication models just depict communicators sending and receiving messages, using a certain channel, without clearly pointing out: (a) where exactly does each message arrive and leave between humans communicating with each other; (b) where both perception and the decoding process influence the communication; and (c) how and why may domestic and international relationships differ, even when speakers do have the same needs and use the same language. Illustrations of classic communication models described in textbooks, such as Adler e Rodman (2000, chapter 1) do not seem to visually pinpoint communication as a continuous process to collectively understand meanings (e.g. within a study group), and develop new solutions (e.g. within a negotiation) through 'feedback', which does not appear in Figure 3.

With the nomenclature employed by Shannon in the work "*A Mathematical Theory of Communication*", Figure 4 shows how two linear, unidirectional, and independent messages may be connected so as to form a continuous, on-going flow of messages, which is actually how communication unfolds. Each of the two extreme blocks - either on the left or on the right side of Figure 4 (i.e. two individual IEA Model) - joins within a private and internal procedure the "*destination*" with the "*information source*" (i.e. the "*receiver*" of a previous message is also the "*transmitter*" of a subsequent message) in order to produce a reply which will maintain the conversation, which is actually a 'double communication', since there are countercurrent messages (i.e. action and reaction). The ongoing clockwise loop in Figure 4 addresses the possibility of irreversible deterioration of information (named by Shannon as an increase of entropy), the development of communication, and the extent of the conversation. Thus, Figure 4 extends information theory to the study of the duration and the effectiveness of communication considering external interactions, which goes beyond the assessment of data compression (entropy) and transmission rate of communication (channel capacity).
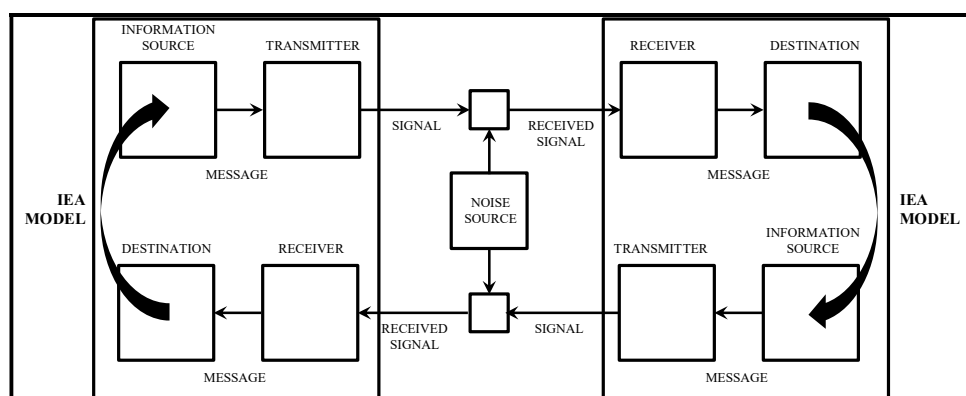
Developed for this work
Figure 4   The IEAC Model using Shannon's nomenclature in Figure 3

Figure 4 may indeed be useful for artificial intelligence ('*AI*') and the so-called "*Turing Test*" to assess whether a machine is able to generate responses that could replicate human language conversations. The seminal question "*Can machines think?*" by Turing (1950) may actually be phrased as "*Can machines reply*

as humans?", regardless of whether a reply is correct. The IEA Model at each extreme of Figure 4 explains why a human reply is usually not perfect or straightforward, being, hence, difficult (at least very challenging) for a machine to replicate the style of a typical human answer. David Crystal clearly writes that:

> *"The stereotype is that people speak in complete sentences, taking well-defined turns, carefully listening to each other, and producing balanced amounts of speech. The reality is that people often share in the sentences they produce, interrupt each other, do not pay attention to everything that is said, and a produce a discourse where the contributions of the parties are widely asymmetrical. Yet such dialogues work".* (Crystal, 2007, chap. 41, pg.265)

After giving an example on how erratic a human conversation or dialogue may evolve, Crystal continues to write:

> "*In textbooks, we are taught that a question is followed immediately by an answer. Here* [in the example given by Crystal in his book] *we have a question followed by a question, a question being self-answered, and a stimulus being separated from its response by other observations. It is, of course, all part of a perfectly normal conversation*". (Crystal, ibidem)

A "*perfectly normal*" conversation is not a conversation well outlined and taught in textbooks, but rather a conversation with imperfections, which makes it possible to identify that the dialogue is human, not perfectly structured, and certainly not computer-like. This '*human touch*' results from the complex process at The IEA Model at each extreme of Figure 4.

"*Fintechs*" attempting to offer online financial services with "*human appearance*" could develop and apply artificial intelligence software comprising techniques on how actual human dialogues and conversation unfold with all imprecisions, interruptions, overlaps, and eventually roughness. Clients may actually expect more than just a '*perfect financial solution*' and might only trust that such solution is suitable for a person if it is presented in a perceived "*human style*". A further discussion on 'AI' is beyond the scope of this work.

Unlike the communication model in Figure 3, the The IEAC Model (Figure 2 or Figure 4) does straightforwardly pinpoint 'feedback' as a relevant input triggering a new message, after the feedback was affected by erratic external impacts ("*noise*"). The environment may provide additional information that modifies feedback originally sent as verbal and non-verbal messages (an '*attitude*') with a blend of words, chatter, gestures, and glances. Feedback may reinforce, mold, or change thoughts. Since positive or negative feedback indicates how a person is integrated in a group, association, or society at large, feedback incentives at least a reflection on whether current behaviors and attitude are suitable and acceptable. Indeed, "*We all learn to respond to incentives, positive or negative, from the outset of life*", according to Levitt and Dubner (2006, chapter 1, page 16). Success relies on natural attitudes leading to positive feedback.

Such 'positive' feedback is not necessarily required to be 'perfect', but must be a 'human' feedback and somehow related to the cultural background ("*Zeitgeist*").

The IEAC Model version in Figure 2 undoubtedly attests that the opinions, interests, and subsequently attitudes of a person cannot be comprehended if detached from the surrounding environment, hence in accordance with the insight: "*Yo soy yo y mi circunstancia*" ("*I am myself and my circumstance*") (Ortega y Gasset, 1914, page 43). The accuracy of the philosophic statement from Ortega y Gasset may also be confirmed by the findings reported by Cavalli-Sforza (2001) in a study of genetic variation combined with language and archaeology about genes, people, and languages dispersed and mingled throughout the world. Furthermore, once humans with a certain culture interact with each other applying languages that are developed with the interaction, there is an additional argument – together with The IEAC Model – sustaining The Whorf-Sapir Hypothesis that was developed by Benjamin Whorf and Edward Sapir (see Nisbett, chapter 6, page 159, and Adler and Rodman, 2000, chapter 3, page 76). According to this hypothesis, the use of a language influences and shapes the 'way-of-thinking' and culture, i.e. beliefs, norms, values, which should also include those mental shortcuts or rules of thumb (i.e. 'heuristics') that produces behavioral biases and cognitive errors studied by behavioral finance.

Our identity (embracing degree of 'financial loss aversion') may be construed as resulting from our interaction with the environment, especially through communication. Our thoughts mirror what and how we previously communicated in addition to our genetic heritage (see more on topic 3.2). Consequently, the study of humans communicating in groups is actually relevant to assess the long run - and more enduring - consequences of human behavior.

2.3   The FIEAC Model as a distinctive model for financial communication

Figure 5 brings The FIEAC Model (The Financial IEA Communication Model), which results from adjustments in The IEAC Model in Figure 2. As shown in Figure 5, the inserts into Figure 2 emphasize the impact of market events and news upon financial content or information that is exchanged between a financial practitioner (in the left) and her or his client (in the right).

The purpose of The FIEAC Model is to mimic the prevailing communication between a client and a financial practitioner. In Figure 5, a financial professional can be a financial advisor, a professional financial planner, a bank manager, a financial analyst, a portfolio manager, a trader (broker or dealer), or another professional offering financial services. A client can be an individual investor, an agent of an institutional investor, or a financial practitioner relying on services provided by a different financial practitioner either within an organization, or as an outsourced contractor. A portfolio manager may obtain information or

recommendation about a security from either a buy-side financial analyst (working in the same financial firm) or a sell-side financial analyst (working elsewhere). In both cases, the portfolio manager is somehow a client of the financial analyst regardless of the existence of a formal payment (i.e. a monetary compensation).

As shown in Figure 5, while a client may state her or his investment objectives and constraints, make requests, send orders (in a quote-driven, order-driven, or brokered market) or indicate satisfaction, a financial practitioner provides in return explanations, financial advices, receipts, results, or performance presentations, whatever is applicable.
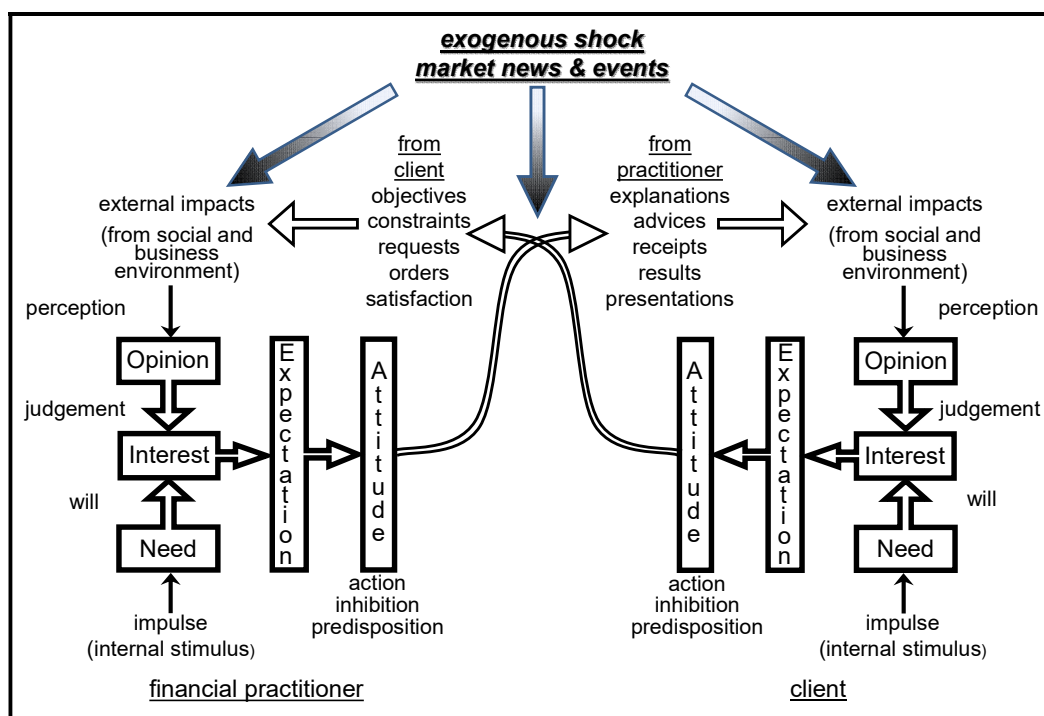
Developed for this work after adjustments to Henriques-de-Brito (2003)
Figure 5   The FIEAC Model (The Financial IEA Communication Model)

Figure 5 is also valuable to illustrate that financial practitioners must strive to understand their clients' needs, opinions, interests, and expectations in order to help them to choose the most suitable attitude and eventually help them to deal better with financial requirements and behavioral biases. Pompian (2011) describes guidelines to identify a behaviorally modified asset allocation for a client, taking into account the type of behavioral bias the client exhibits (either cognitive errors or emotional biases) and the client's level of wealth (or the standard of living risk - SLR). Similarly, Ackert and Deaves (2010, chapter 18, page 319) dedicates the chapter "*Debiasing, Education, and Client Management*" to address the problem of those clients affected by behavioral biases. The authors point out the importance of a financial advisor to correctly know clients' personality types, to accurately identify the existing biases and to be able to educate who presents a bias in order to eventually eliminate unwanted behavior. However, not every client may have access to a proper financial advisor or better financial products, according to the work of Teixeira et al. (2018) that shows the impact of the amount of wealth - and, hence, "*cultural capital*" - upon asset allocation,

besides behavioral features.

The FIEAC Model may be further adapted to consider the communication of a financial practitioner with a regulator (replacing 'client' in Figure 5). The content of the exchanged messages changes, but the same framework explains what triggers and sustains the flow of messages, i.e. the communication. Although the interest of a regulator may originally be to enforce procedures, regulators have also the intent to educate financial practitioners about the objectives of regulation and the potential harmful consequences to everybody of both compliance and regulatory failures. The overarching interest in the communication between regulators and financial practitioners must be societal benefits, including an environment with trust and transparency for analyzing, recommending, selecting, and trading financial assets.

3   Discussions on financial communication and teamwork

The preponderant reason for establishing financial communication will depend on the interest of participants in the communication, as depicted by The FIEAC Model (Figure 5). Indeed, several reasons explain why humans communicate with each other, such as: (1) to exchange information either by teaching or learning news and obtaining knowledge; (2) to find an agreement so as to either avoid or solve a conflict; (3) to sell a good or an idea (advertise); (4) to request information, explanations, and quotations; (5) to place an order; or (6) to just have pleasure with small talk, with no precise goal. All these reasons are also noticeable during financial communication even when people may chat about finance just for pleasure.

This section begins by addressing different ways to exchange messages in order to subsequently discuss challenges for effective financial communication and, thus, to argue on how to improve financial communication by scrutinizing The FIEAC Model (Figure 5).

3.1   On ways to exchange messages

Between a one-on-one (i.e. face-to-face) personal meeting and the delivery of a written document or message (e.g. e-mail), Figure 6 shows several possibilities to send a message, which are empirically ranked based on how the interlocutor perceives the amount of non-verbal content, such as gestures and glances. A perceived increase of the non-verbal content tends to make the message more personal and human.

While a personal meeting may handle human feelings resulting from disappointment, an impersonal way of sending an unpleasant message may eventually cause resentment, which is an undesirable aftermath for future communication. Previous communication will be recalled in such a way that earlier outcomes will influence current communication and eventually agreements, using The FIEAC Model (Figure 5). The selected way to send a message should not trigger adverse ancillary feelings, notably when the content of

the message is bad, while a pleasant way of communication may contribute for a constructive interaction.

Illustration prepared for this work
Figure 6   Different ways of exchanging messages

Technological developments do change the way participants may attend group meetings in order to easily interact with each other. It turns out that in-person face-to-face participation may not be necessary or feasible. A new set of techniques has been developed for groups with virtual attendance aiming to work out financial analysis, recommendations, and decisions, including new methodologies to be used in online courses to teach and learn finance.

Easier internet access with more versatile telecom devices makes social network an increasingly important vehicle for investors and financial practitioners: (a) to share information on investment possibilities; (b) to obtain advice on scenarios affecting portfolio management; (c) to identify and select financial products and services; (d) to search both business and career opportunities; and (e) to display profiles and résumés. Arruda et al. (2014) analyze how the use of social networks in the Brazilian and North American capital markets may affect informational asymmetry and the price of shares. Fraga and Chaves (2019) discuss on how financial institutions may use Facebook to interact with clients. Further study may reveal to what extent social media would replace traditional media as source of financial content and environment for relationships, besides checking if enhanced use of fast-paced communication with social media would affect investor attention, volatility, and market risk, such as Li et al. (2016) advert after researching observations from Twitter. Once social media platforms are not limited to LinkedIn, YouTube, Facebook, and Twitter, Chen et al. (2014) report views exchanged in Seeking Alpha (seekingalpha.com) which is a specific social media platform for investors that may influence expectations on future stock returns and earnings surprises too.

The increasing use of electronic communication networks triggers debates on how humans deal with and react to algorithms - including HFT (High Frequency Trading) and DMA (Direct Market Access). Harris (2015) explains terms, concepts and challenges related to trading and electronic markets. Although the interaction of humans and machines could not be construed to be 'financial human communication', the discussion with Figure 4 mentioned the endeavor to supply financial service with '*human appearance*' in such a way that eventually it would not be possible to detect if a client is "*communicating*" with a flesh and blood person or is actually "*connected*" to an artificial intelligence software delivering financial services.

3.2   Challenges for effective human financial communication

A sincere interest in establishing fruitful effective communication may improve the current situation for a group in an enduring way. Among the challenges for effective financial communication, a list may include challenges related to dealing with: (i) individual diversity, (ii) cross-disciplinary communication, and (iii) cultural differences. Enhanced results from creativity may be a consequence from managing personal differences skillfully and embracing diversity.

Even though each individual is different due to unique life experiences, prejudice (a type of stored opinions in Figure 2, Figure 4, and Figure 5) may enlarge actual differences and affect communication. Each individual may appear to "*really be odd*" due to misconceptions related to gender, sexual orientation, race, ethnicity, socio-economic status, physical abilities, religious and political beliefs, and age.

Aging may affect investor behavior due to accumulated experience (or 'opinions'), risk tolerance (i.e. ability and willingness to take risks), and fluency with the use of new technologies, including social network, for example. Thus, a group - mixing senior and junior financial practitioners - may balance advantages and pitfalls related to each age bracket. This diversification may improve financial decisions and actions.

Several publications discuss how gender diversity should improve communication and results at work, such as books by Misner et al. (2012) and Gray (2002). Specifically, on how gender diversity may relate to financial results, there are books by Frankel (2006) and Cerbasi (2004) bringing evidence of benefits of women participation on financial issues. However, Stewart (2019) explains that there are still hurdles for women:

> "*There are too few women making venture capital (VC) investment decisions and too few women receiving VC investments. As a result, various worthwhile initiatives have sought to increase the presence of women on both sides of the VC equation, especially among those receiving VC funds. But these programs are sometimes criticized for giving money to ventures that actually have very few women associated with them in any impactful way*".
> Stewart (2019)

The color of the skin is definitely not correlated with the quality of financial accomplishments. Besides recalling the scientific evidence that humans have a black ancestral and share a homeland in Africa, as reported in the aforementioned book by Cavalli-Sforza (2001), innumerous Afro-descendants became tycoons, such as the "*African Americans who escaped slavery and became millionaires*", as reported in the book by Wills (2018). Other examples exist, but racial equitableness must improve.

Although there is no human ritual or ceremony that could improve financial performance, religious beliefs may affect the 'desired' style of carrying out financial procedures. A noticeable example is "*Islamic Finance*".

Concepts and procedures of this faith-based finance are described by Hayat e al. (2014). Again, human differences must be understood, respected and considered when establishing communication and making decisions on financial matters.

Groups whose members have different cross disciplinary background may have communication obstacles to overcome. Different experts using the same "*mother tongue*" may express their professional ideas in a peculiar way nonetheless. Thus, the language of an analyst or an investor may differ from the language of a salesperson or a speculator, although both may actually be speaking, say, English.

A different educational background may emphasize the same term differently. For example, design engineers and financial practitioners may understand the term '*risk*' differently. Whereas a financial practitioner would most likely relate '*risk*' to return distribution, using a qualifier – such as '*downside risk*' – to denote a threat of prospective losses, an engineer would likely link '*risk*' directly to a threat of a mishap to be 'completely' avoided. For that engineer, there is basically only 'loss aversion' instead of 'risk aversion', which refers to the fear of an unknown outcome regardless of being a hazard or an opportunity. This particular way of thinking likely unfolds into a more conservative approach, which could temper financial decision-making in investment committees constituted with other members with a tilt to active investment.

Since their birth, citizens from different countries use their "*mother tongues*" with their vocabulary, grammar rules, and phonetics. Moreover, the lasting use of a language may affect, change or result from the way the brain works ("*way-of-thinking*"), according to the Whorf-Sapir Hypothesis (see the end of topic 2.2). Besides affecting the way that a message is sent, the prevailing culture and the history of a nation do also shape the identity of members in a group. 'Opinions' in Figure 2 and Figure 5 are embedded in a person's culture, which, hence, affect how judgements are formed, interests are established, financial decisions are made, messages are phrased, and orders are sent. Henriques De Brito (2005) describes stages of cultural shock with The "PAU Stages" (i.e. Perception, Acceptance, Use) explaining how foreigners undergo a process of cultural assimilation the longer they remain in that foreign country. Indeed, human communication connects people receptive or willing to exchange ideas and thereby communication disseminates culture (including "*Weltanschauung*", using the German word for '*a comprehensive prospect of the world and human life*'). Moreover, communication enhances a feeling of belonging to a group, recalling that Fernando Pessoa stated that "*Minha Pátria é a língua portuguesa*". ("*My homeland is the Portuguese language*").

There are plenty examples of international cultural differences amid financial activities, as the factual case in an American investment bank: "*If you wished to detach yourself from the soul of Salomon Brothers, London was the only place to go. Everywhere else the standards were set by the forty-first floor-in the American branches and also in Tokyo*" (Lewis, 1989, chapter 8, page. 181). Accounts by Schwager (2012),

Correa (2014) and Mukherjea (2014) may shed light on similarities and differences in behavior of financial practitioners in the United States, Brazil and India respectively. Cultural clashes and communication pitfalls may affect expected synergies of mergers and acquisitions (M&A), and, hence, may jeopardize the free cash flow to equity (FCFE) from the resulting M&A. Thus, financial analysts, portfolio managers, corporate managers, and investors should not oversee cultural issues.

There are methodologies available to assess diversity in a group, such as the system suggested by Stewart (2019), who, as previously mentioned, shows concern about measuring the participation of women in a venture capital firm. Stewart (2019) describes a multi-point system called MAPL, which the Canadian Radio-Television and Telecommunications Commission (CRTC) established to define "*Canadian Content*" so that stations could be enforced to dedicate a minimum of 25% of their airtime to "*Canadian Content*". Stewart (2019) suggests also that "*a similar points system*" could work to provide guidance on diversity investing by measuring whether groups of African-Americans or Hispanics would be underrepresented in firms.

Presumably, diversity may enhance creativity and ameliorate decision-making, but how diversity is implemented may be more relevant than identifying how diversified is the group. Different groups could have a similar 'diversification degree' (or index) and statistically different financial performance, which would imply no correlation between performance and the extent of diversity. Would a diversified group necessarily communicate better? Could better communication basically or alone explain higher financial performance? Thus, could there be an accurate and reliable procedure to quantitatively measure and qualitatively appraise how human communication with diversity affects prices of goods and returns of assets?

Although suggesting or developing a 'diversification degree' (or index) goes beyond the scope of this work, such index might have one or more independent variables related to diversity and also to results from surveys on satisfaction related to advice, diagnosis, and expectations. The index could also be affected by the time spent to reach a decision contrasted to the time allocated to the group to make that decision. In addition, expenses, costs, fees, and even fines related to the financial decision-making process contrasted to the budget may be a parameter of the 'diversification degree' (or index) to assess the effectiveness of a group in recommending or making financial decisions. Furthermore, the index should 'somehow' take into account information on how the group is structured and leadership issues. Ultimately the goal is to link features of a diversified group communication to financial performance measures and tangible outcomes.

3.3 Improving human financial communication

Sound communication is crucial to achieve goals and avoid misunderstandings, which usually explain failures of tasks or enterprises. The FIEAC Model (Figure 5) allows ways to identify how to improve financial

communication.

Firstly, nobody should expect that the interlocutor is able to guess or a read a mind. The interlocutor receives a message that should be perceived and understood. Actually, telepathy is supposed to be a way of communicating by extrasensory means. However, the process of telepathy is not - perhaps not yet - fully understood and broadly accepted or applied. Therefore, telepathy may not be listed as a possible way to communicate. Expectations that an interlocutor would be able to employ telepathic techniques may be a cause of misunderstandings. Sound communication requires attention and respect to the counterparty, including not assuming what is "*evident*" and what must be "*clearly and quickly understood*".

Secondly, the use of "*Plain Language*" is strongly recommended in order to not segregate participants in a financial communication and to avoid misunderstandings, although financial experts may wish to encapsulate several facts and concepts in technical acronyms, terms, and expressions in order to speed communication. There are indeed popular proverbs that reinforce the idea that communication may flow quickly, with little effort. An example is: "*a word to the wise is enough*", which has an equivalent meaning of "*a bom entendedor meia palavra basta*" in Portuguese, as if a very concise message would be sufficient and suitable for a very effective communication. However, laypersons may be left confused with the use of legalese, industry abbreviations, acronyms, and jargons. With willingness and diligence apparently complex financial issues can be communicated simply and intelligibly in "*Plain English*", such as explained with examples in the "*Plain English Handbook*", released by the U.S. Securities and Exchange Commission, and very useful because:

> "*Investors need to read and understand disclosure documents to benefit fully from the protections offered by our federal securities laws. Because many investors are neither lawyers, accountants, nor investment bankers, we need to start writing disclosure documents in a language investors can understand: plain English*" (SEC-US, 1998, introduction by A. Levitt, former chairman).

Thirdly, communication requires respect for what the interlocutor is still saying rather than to already concentrate in a reply, rebut, or refute to what the interlocutor is still expressing. Thus, active listening is more than just hearing carefully what the interlocutor says. Furthermore, rephrasing, paraphrasing and employing the 'Socratic Procedure' of asking questions may be more effective than immediately rebutting or refuting a disputable argument tabled by the interlocutor. This message is particularly relevant for a financial advisor talking with a client with less knowledge, experience, and confidence in financial issues.

Fourthly, there is a difference between associative communication (such as during small talk or brainstorming) and sequential communication (such as during a presentation or an argumentation with a

thread of thought), as discussed and exemplified by Henriques De Brito (2005). The seriousness of the exchanged messages, the degree of urgency, the available time for each one to speak, the way the information flows, and the required attention differ between these two types of communication. Thus, a talk with "normal people", especially clients, might be associative, whereas a conversation between colleagues in a working environment may be more sequential (following an agenda) so as to enhance productivity.

Fifthly, the environment may interfere with the message because of external noises, colors, and several other distractors, besides usually being expected or required that the communication style is coherent with the surrounding environment. Therefore, a serious discussion should not happen in a loud, dark, and murky informal setting. Conversely, a formal meeting or a conventional funeral are not an adequate environment for a frivolous chat. Given that "*talking about money*" may be troublesome (even a taboo) for some clients, a financial advisor should prepare a suitable environment that would be pleasant for clients.

Sixthly, the timing of the communication may affect its effectiveness. Who is exhausted or just had a stressful moment would prefer a small talk to a thoughtful discussion on financial issues. The prevailing psychological conditions may not be suitable to aim grave financial decision-making.

Seventhly, non-verbal communication plays an important role in the effectiveness of the message. Communication improves with the capacity to grasp words together with non-verbal content. Verbal and non-verbal communication must be accordant, without perceived contradictions, in order to not affect the reliability of the message. Since verbal and non-verbal content are transmitted differently, albeit perceived quite simultaneously, there are implications when choosing a way to send a message, as listed in Figure 6.

Last but not least, the selected way to send a message should consider the opportunity to develop "*empathy*" with the counterpart, i.e. "*put yourself in someone else's shoes*", which means understanding (without necessarily accepting or agreeing) someone else's point of view, interests, plight or suffering. Empathy may help to grasp better which would be the counterpart's reaction to a decision.

Recalling concepts from 'Game Theory', the final outcome of an implemented strategy may depend on how the counterpart reacts to that strategy (Dixit and Nalebuff, 2008). Once past communication and behavior may affect future decisions and events, as shown with The IEAC Model (Figure 2 or Figure 4) and The FIEAC Model (Figure 5), empathy may be convenient or required for compelling persuasion (i.e. to do something or at least to bear some points in mind). Thus, a one-on-one (i.e. face-to-face) personal meeting is likely the most effective way to develop empathy and to implement effective and lasting financial resolutions, which may be affected by behavioral issues and rational arguments.

4 Final comments and suggestions for future research

This work intends to raise awareness that the meaning, the context, and the style of a financial message do influence financial decisions and outcomes, besides molding both individual and group behavior, including heuristics (i.e. mental "*rules of thumb*") and cognitive biases. Thoughts and subsequent financial decisions are affected by previously developed communication, as well as by recalled assessment of successful or acceptable performance. Therefore, the recollection of the content entrenched from prior communication explain the heuristics that each person embeds and, hence, account for financial behavioral biases and cognitive errors, as studied by behavioral finance. Furthermore, groups behave differently and with other biases and dynamics compared to individuals making financial decisions alone, such as addressed by Henriques De Brito and Jardim (2020). Consequently, this work stresses the relevance of researching, analyzing, and evaluating financial communication carried out by financial analysts, asset managers, traders, corporate officers, managers, employees, and interns with financial duties, and other professional occupations with links to financial activities.

While The IEA Model (Figure 1) may be employed to address how individual heuristics and behavioral biases embedded as opinions affect financial decisions, both The IEAC Model (with the versions in Figure 2 and Figure 4) and The FIEAC Model (Figure 5) are suitable:

➢ to understand the communication process (i.e. how long it will last, why it is irreversible)

➢ to grasp the role of culture and society in building interests, expectations, and attitudes

➢ to identify if and how it is possible to persuade - or dissuade - others to actions or beliefs

➢ to analyze the impact of human communication (and relationships together with behavioral biases) upon financial decisions and outcomes

➢ to apply feedback as a communication tool for financial decisions and even as a trading strategy (i.e. "*feedback trading*" - as studied by Bozza et al. (2019) for cryptocurrencies)

The FIEAC Model (Figure 5) can be particularly useful as a visual checklist to identify opportunities and pitfalls related to financial communication between a financial practitioner and a client, considering that market events and news may affect the communication flow.

Existing research and work on human communication - not necessarily, directly applied to financial issues - may be adjusted, adapted, and employed to address topics such as: preparing and delivering financial reports, presenting investment performance results, and conducting negotiations with focus on financial and trading activities. There are also publications on building networks and on how to manage teamwork which could be useful for finance. Both Knapp et al. (2016) and Kaner et al. (2014) claim that groups may reach sustainable agreements by applying methods that their books outline. With skillful

facilitators and members adhering to certain communication styles and decision-rules within the group, it is worthwhile investigating if and how participatory groups rather than conventional groups would be able to solve financial problems faster and to enhance financial decision-making.

Future research could explore how several financial groups communicate in the practice when analyzing investment alternatives; when making decisions on asset allocation and trading of assets; and when appraising performance of portfolios and stand-alone investments. Such investigation with systematic approach and the use of questionnaires and interviews may highlight similarities and contrast differences between financial institutions and countries.

Moreover, future work may develop indexes to either measure or to be a red flag on the effectiveness of financial communication and team management, taking also into account individual diversity, cross-disciplinary communication, and cultural background.

Another issue to explore is how the internet, electronic communications networks, and electronic trading are affecting financial human communication, comprising online financial learning. Such assessment requires an analysis on how telecommunication devices supplant or overlap face-to-face human interaction and the advantages and drawbacks therewith.

Additional research could employ Figure 4 to develop mathematical models with the attempt of replicating in an analytical way communication issues applied to finance, since information theory applied to portfolio theory is a broad field of research already depicted by Cover and Thomas (2006) in chapter 16 of their book.

Last, but not least, Figure 4 may be useful for developing artificial intelligence software, which would take into account several facets about how human language works, such as thoroughly described by Crystal (2007), for example. Techniques on how actual human dialogues and conversation unfold and may be conceived to be natural are discussed in books on how to write plays (such as described in a classic book by Egri, 1942) and screenplays (such as addressed in Field, 2005). Addressing these topics together with Figure 4 may be useful for "*fintechs*" attempting to offer online financial services with "*human touch*".

Accepting the tenets of behavioral finance is an important step to understand financial decisions and attitudes of individuals by themselves, instead of relying only on the myth of rationality. More thorough research on financial human communication and group behavior related to financial decisions will likely raise the awareness that a group may perform financially better than individuals alone. The development of additional pictorial models may contribute to ease understanding and evidence how concepts and ideas are related. Indeed, an illustration may be the most powerful way to explain challenges and alternatives, as mentioned by Napoleon Bonaparte: "*Un bon croquis vaut mieux qu'un long discours*" [*A good sketch is better than a long speech*].

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Date of last review before submission: 31 July 2020

APPENDIX (slides for the presentation)
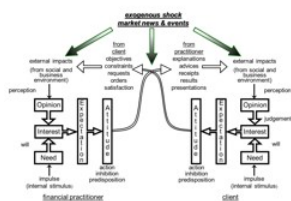
7th Brazilian Behavioral Economics and Finance Meeting

November 09th - 10th, 2020 | Sao Paulo/SP - Brazil

Communication Affects
Financial Decisions and Outcomes

Marcelo Henriques de Brito, Ph.D., CFP®
IBMEC Rio de Janeiro – Centro Universitário IBMEC and Probatus Consultoria Ltda

7th Brazilian Behavioral Economics and Finance Meeting
São Paulo, November 9th, 2020

7th Brazilian Behavioral Economics and Finance Meeting
Goals of this work

➢ address **The IEAC Model** and develop **The FIEAC Model**
  o both are original, visual communication models
  o useful to understand the communication process in finance, considering:
    • the relevance of verbal and nonverbal feedback
    • differences between individual investors and institutional investors
    • professional background and cultural belonging
    • the surrounding environment
    • the relationship between a client and a financial practitioner
  o insights on communication and artificial intelligence (AI) applied to finance, which may be useful to financial advisors and investor relations
➢ use the models to grasp financial communication and teamwork
  o ways to exchange messages (nonverbal content and electronic communication)
  o challenges for effective human financial communication
  o how to improve financial human communication
➢ stress key points and present suggestions for future works
  Marcelo Henriques de Brito, 2020

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Marcelo Henriques de Brito, 2020
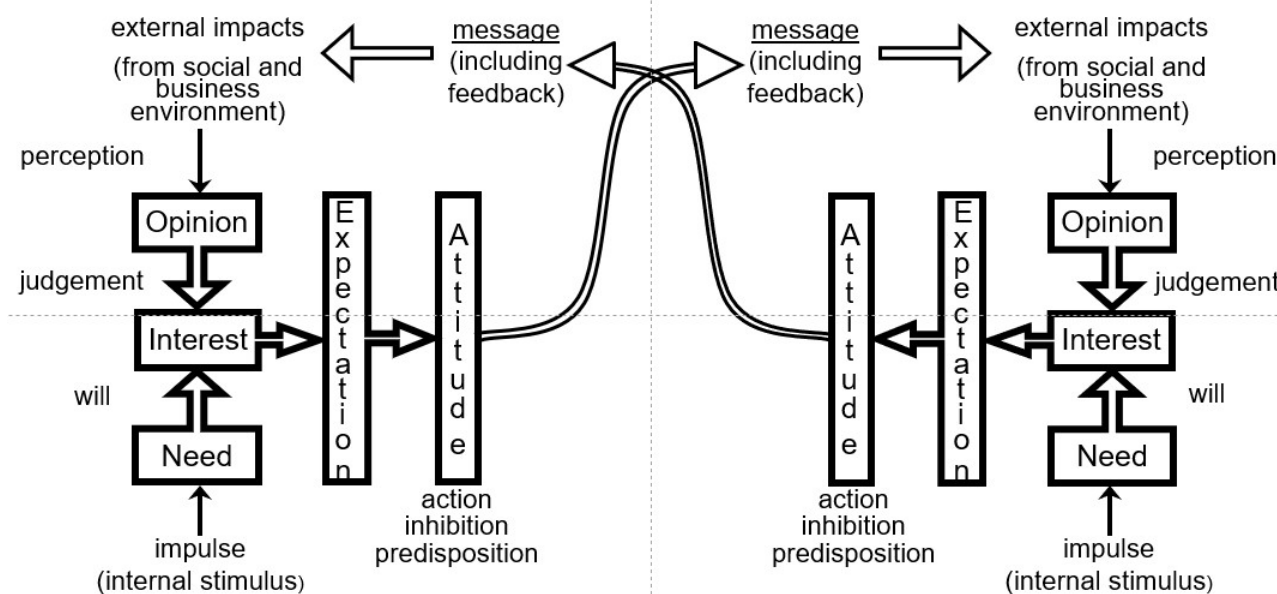
The IEA Model

From Henriques-de-Brito (2003). "Crise e Prosperidade Comercial, Financeira e Política".
Figure 1   The IEA Model (The Interest-Expectation-Attitude Model)

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The IEAC Model

From Henriques-de-Brito (2003). "Crise e Prosperidade Comercial, Financeira e Política"
Figure 2   Interaction with The IEAC Model (The Interest-Expectation-Attitude-Communication Model)

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The IEAC Model brings clarity
to understand the communication process

➢ both internal and external issues do contribute to build a message.

➢ communicators send and receive non-verbal and verbal content, using different and separate parts of the human body.

➢ environmental noises and decoding processes may interfere and even change the content of messages that are being exchanged.

➢ feedback - with both verbal and non-verbal content - is perceived also <u>during</u> and ultimately after a communicator sends a message.

➢ previous communication contributes to introduce (and even cram) opinions (including culture, cognitive biases and heuristics), which will affect future communication, regardless of the language.

➢ domestic and international relationships differ, even when speakers do have the same needs and use the same language.
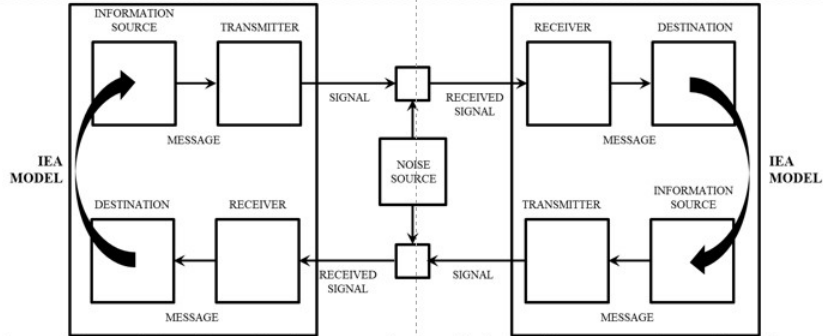
Marcelo Henriques de Brito, 2020
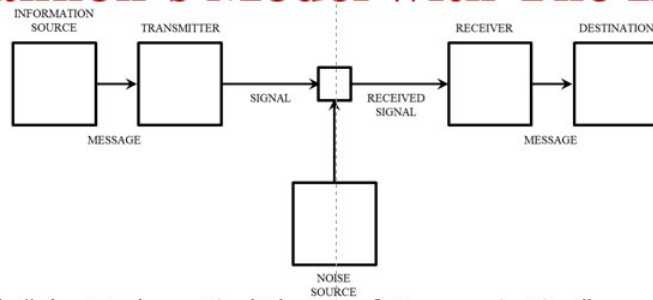
Source: Shannon (1948). "The Mathematical Theory of Communication"
Figure 3   Shannon's schematic diagram of a general communication system
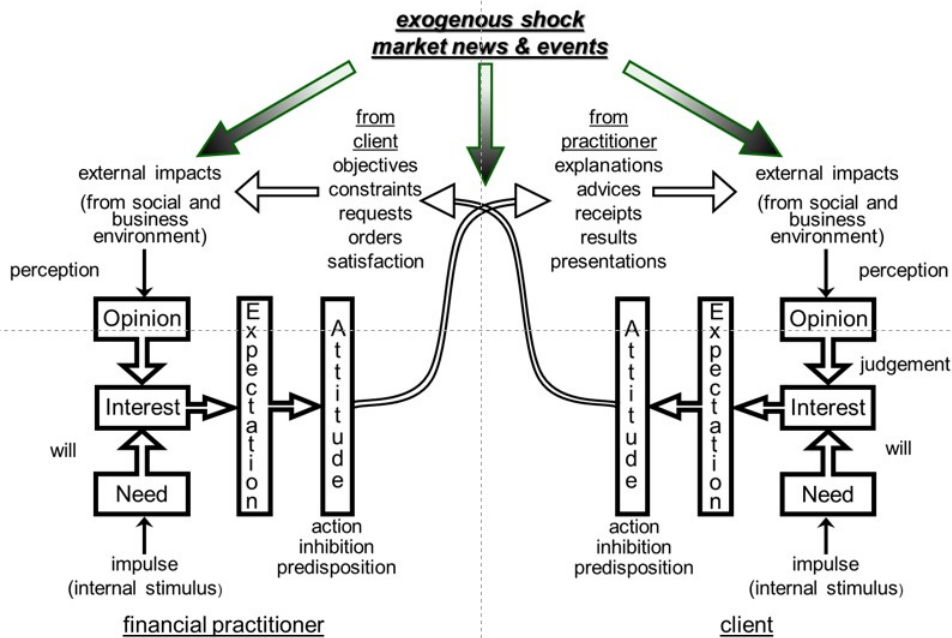

Developed for this work, making "two" Shannon's Models to "communicate" with each other
Figure 4   The IEAC Model using Shannon's nomenclature in Figure 3
Marcelo Henriques de Brito, 2020

Developed for this work after adjustments to Henriques-de-Brito (2003)
Figure 5   The FIEAC Model (The Financial IEA Communication Model)
Marcelo Henriques de Brito, 2020

Financial Communication and Teamwork

- the main reason to establish and sustain a financial communication is the <u>interest</u> of participants in that communication
- the influence of <u>nonverbal content</u> must always be acknowledged

Illustration prepared for this work

Figure 6   Different ways of exchanging messages

- <u>IT systems</u>, financial <u>ALGOs</u>, <u>social media</u> affect communication
- challenges for <u>effective human financial communication</u>:
    - (i) individual diversity
    - (ii) cross disciplinary communication handling background differences
    - (iii) international cultural differences

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Improving Human Financial Communication

1. attention and respect to the counterpart (without any assumptions or preconceptions), including not supposing that the counterpart in a conversation will quickly understand the content, be able to guess absent information, or even attempt to "read one's mind"
2. use "Plain Language" during a financial communication
3. active listening with rephrasing, paraphrasing and employing the 'Socratic Procedure'
4. awareness of the difference between (and related cultural tilt to) associative communication or to sequential communication
5. attention to external noises and the surrounding environment
6. the timing of the communication may affect its effectiveness
7. the role of non verbal communication when sending a message
8. develop "empathy" with the counterpart in a conversation

Marcelo Henriques de Brito, 2020

Final comments and Suggestions for future work

✓ With new, visual communication models (The IEA Model, The IEAC Model and The FIEAC Model), this work shows how the meaning, the context, and the style of a financial message do influence financial decisions and outcomes.

✓ Communication and group behavior applied to financial decision-making should be thoroughly studied by behavioral finance, even to apply robot-advisors and to develop artificial intelligence software to deliver financial services.

✓ Research might quantitatively and qualitatively assess the impact of communication and group behavior (teamwork) upon portfolio management, security analysis and selection, trading, performance evaluation, financial decisions, and building trust, taking into account beliefs and background.

Marcelo Henriques de Brito, 2020

Related Work

- Henriques De Brito, M. (2003). <u>Crise e Prosperidade Comercial, Financeira e Política</u>, Rio de Janeiro: Probatus.
- Henriques De Brito, M. (2004). <u>Breve Estudo do Impacto da Razão e da Emoção nos Negócios</u>. In: VII SEMEAD - Seminários em Administração da FEA/USP, 2004, São Paulo.
- Henriques De Brito, M. (2005). <u>Applying the Interest-Expectation-Attitude Model to International Relationship</u>. In: The III International Conference on Discourse, Communication and the Enterprise (DICOEN 2005), September.
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THANK YOU FOR
YOUR INTEREST IN
AND ATTENTION TO
THIS WORK
**Communication Affects
Financial Decisions and Outcomes**

Marcelo Henriques de Brito, 2020

7ᵗʰ Brazilian Behavioral Economics and Finance Meeting

Marcelo Henriques de Brito

•Education

– Ph.D. degree from École Polytechnique Fédérale de Lausanne EPFL - (Switzerland).

– Degree in Business from "Universidade Mackenzie" (São Paulo), achieving the prize "Prêmio de Mérito Acadêmico em Administração" bestowed by the "Conselho Regional de Administração São Paulo" (CRA-SP)

– Degree in Mechanical Engineering from UFRJ ("Federal University Rio de Janeiro")

– Concluded a 'Technical Course on Accounting' (bookkeeping) and a 'Technical Course to be a Real Estate Agent'.

– Fluency in English, German, French and Spanish, due to language courses and deep-rooted international exposure since childhood. Portuguese is mother tongue.

•Professional

– Work experience with multinationals and Brazilian companies. Runs PROBATUS (www.probatus.com.br).

– Professor on 'International Finance' and 'Financial Planning and Controllership' (both in Portuguese, although 'Strategic Financial Management with Globalisation' was in English) at Ibmec-RJ Business School (www.ibmecrj.br).

– Certified Financial Planner (CFP® - IBCPF) and Brazilian Certified Investment Professional (CNPI - Apimec),

– Approved on the CPA-20 Exam ANBIMA and on the Four-day Examination of FUNENSEG (insurance broker)

– Joins several professional associations and is a director at the traditional Chamber of Commerce of Rio de Janeiro (ACRJ) since 2003. Member of the Board of APIMEC Rio (www.apimecrio.com.br) from 2012 to 2017.

– Author of "Crise e Prosperidade Comercial, Financeira e Política" (Commercial, Financial and Political Crisis and Prosperity, 20003), ISBN 85-89585-01-8, that is aimed at the reader interested in new models in finance and in establishing the existing links between finance, business and domestic and foreign politics (see more information at www.probatus.com.br).

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