

## System 3

In the previous Report, we faced the challenge of presenting an uncomfortable observation: the persistence among us of genuine investment mistakes, even after years on the road. With a self-critical approach, we proposed to examine a few elements that help us define ourselves as a firm. Starting by the role of experience/intuition in our activity, we treated the decision process as a purely cognitive one, which is an oversimplification. We made a typical slip of analytic tasks, where the conscious mind interprets the emerging behavior of autonomous/emotional processes as results of cognitive deliberations. It is time to fill this gap.

### Emotions and Decisions

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We have always known that emotions play a fundamental role in our behavior. With the advancement of imaging technologies and a better understanding of the physiological mechanisms of the brain, we now know they also affect our decisions, judgments and even the way we process information.

Emotions are basic because they are “first in line”, the first ones to arise in our minds. Studies have shown that our emotional memories are the most vivid ones, and thus are easier and faster for us to recall than our cognitive ones. Our brains associate emotions and affections to objects and concepts. The moment these objects and concepts are evoked, these emotional tags arise in our minds effortlessly, automatically. Researches with animals in laboratory settings (this mechanism of emotional attachment is typically mammalian) show that the affectionate reactions to external stimuli occur even before the cortex has a chance to refine the responses to such stimuli. Emotional reflexes provide individuals and organisms with an immediate evaluation, even if not an elaborate one, of the behavioral options available for reaching a quick decision. At the same time, they also offer the signals for the activation of attention interruption and redirection mechanisms, enabling the interventions of the more deliberative mechanisms of control. These are the typical cases going on in our feelings of contrariety and anger, soothed after by our efforts of self-contention and rationalization.

Since Damasio’s seminal research (Damasio 1994), we know that individuals with severe emotional deficits – and little cognitive limitations – find it very hard to make decisions, and when they do, they tend to be low-quality ones. “It is not

enough to ‘know’ what should be done; it is also necessary to ‘feel’ it” (Camerer et al 2005).

The two processes, cognitive and emotive, are also connected. Empirical studies show that deliberative thought can block the access to emotional reactions, reducing the overall quality of our judgments. On the other hand, we know very well that emotions can distort our cognitive judgments. Our emotional state exerts a powerful influence over our memories. When we are happy, we remember good things. When we are sad, we remember things that upset us. Emotions also affect how we perceive risk. Anger makes individuals less sensitive to risk. Sadness, more sensitive. Emotions generate the so-called motivated cognitions, better known as wishful thinking, when we persuade ourselves that what we would like to happen is what is effectively going to happen.

The relative weighting between the two mechanisms is uneven. While the conscious control over emotions is usually limited at best, emotions pervade the conscious processes. This is because the physical configuration of our brains at this point in our evolutionary history is such that the connections that leave our emotional systems and reach the cognitive ones are stronger than the other way back (LeDoux 1996).

With the aid of technology and the progress of neuroscience, we are beginning to more fully understand the body-mind, emotion-reason, relationship. With respect to our decision-making process, the results have suggested a more cooperative and complementing relationship, perhaps a less independent one from what was initially imagined. And emotions have gained more relative significance with the discovery of its influence over processes that were strictly thought of as deliberative.

Reason alone is not enough to make ourselves move. Emotions on the other hand, carry within them motivations and, with those, actions. It is even conjectured that the primary objective of our brain’s evolution was to plan and execute movement, as opposed to pure speculative thinking (cf. Daniel Wolpert, Coates 2012). Emotional elements are key ingredients that help us decide, and decide correctly. ‘Sensations’, feelings, tastes and affections can constitute a reliable basis for judging and evaluating investment decisions. Buffett usually says that he looks for owners and managers with strong emotional ties to

their businesses, and applies this rule to his decisions at Berkshire: "After some other mistakes, I learned to go into business only with people whom I like, trust and admire". A recent survey of 720 American senior executives (Fortune 2014) precisely confirms the insight. In increasingly complex business environments, 65% of executives admitted it has been more difficult to base their decisions purely on "functional" factors, such as cost and efficiency. Frequently they need to rely on their gut feelings. The survey concludes: "However, especially when selecting business partners, executives are ultimately less analytical and more emotional. Decision-makers place a high value on trust, reputation, and experience".

On the other hand, we know that these emotional dispositions can bring us trouble if they are not appropriately monitored. As 'skeptics on call', it is towards this darker side of emotive influences we shall turn to. An investment decision we think of as purely analytical might be carried with emotional content, without our knowing. As we have seen, the parts of our brains responsible for emotional impulses are activated since the beginning of the cognitive process. On top of that, after a decision is reached, we begin to create personal involvements. Preferences, affinities, beliefs and sentiments, begin to group around the object of our decision. Not to mention personal interests. Financial rewards, professional goals, prestige, reputation, recognition, popularity, sympathy, power, ascendancy. The personal-interest agenda runs deep. It is responsible for two thirds of our decision mistakes and, for the most part, it operates without our noticing. In general, it is very hard for us to notice the effects of self-interest in our own decisions. Some psychologists believe there is an evolutionary component to this. Since persuasion is a crucial element for social survival, sincere and genuine argumentation become necessary requisites when trying to convince other people. While we have not developed any kind of introspective technique to 'filter' the undesirable emotive elements in our thinking, like a "zero base involvement", it would be worth pondering what other mechanisms could aid us in this defensive task. Further ahead, we will see how we deal with this issue here at Dynamo.

Examples of costly emotional decisions abound in the corporate world. A classic case is that of An Wang. Wang founded Wang Laboratories in 1951, and was at the cutting-edge of important innovations in the digital industry, such as the magnetic memory, electronic calculators, and especially his famous word processor, the Wang WPS. Wang also became notorious for his strong emotional reactions. Attached to his word processor, Wang refused to enter the personal computer business when he had a clear opportunity to do so, even affirming that "the personal computer is the stupidest thing I ever heard of". When IBM successfully launched its PC 5150, Wang could no longer ignore this new market. He launched his version of the PC, but opted to include his own operating system. It is said that Wang "hated IBM". When consumers began to substitute their word processors for PCs, Wang Lab suffered a rapid decline in sales.

Another well-known example is the Iridium project, a mobile communication technology based on satellites. After eleven years of development, the service was launched in 1998, with the goal of reaching 500 thousand users during its first year, when it in fact only reached 20 thousand subscribers. The service was expensive, the mobile device was too big, and it did not work properly indoors. At the time of launch, the mobile networks already showed accelerated development, with a coverage area reaching locations previously reachable only by satellites. Motorola's mistake was to continue to carry the project forward even after its business plan had pointed the possible shortcomings. This is a classic example of 'escalating commitments', an emotional bias grounded in the sunk-cost bias. The project consumed US\$5 billion in investments and was carried out by a sizeable team of fully dedicated engineers and project managers. Not to mention the generous incentive package for the chief executive, Ed Staiano, which in 1996 declared: "If I can make Iridium's dream come true, I'll make a significant amount of money" (cf. Finkelstein and Sanford, 2000). Personal motivations and emotional elements clearly interfered, influencing the decision of not interrupting the project in time, which would have meant avoiding significant losses.

Personal interests and involvements in inappropriate dosages produce undesirable results. We start to 'cheer' for a company, and believe excessively in the executives we interact with. This risk is more dangerous for value investors with a long-term horizon like us. Here, both time and scope of contact with companies are more dilated. Our interaction and acquaintanceship are prolonged. We participate in those matters central to executives and share their concerns. Without our noticing, these emotive ties can manifest subliminally, suggesting motives to invest or resistance to divest.

At the same time, we invest much time and effort in the process of fundamental analysis. It is natural that after such long periods trying to find and validate investment theses we would like to translate this work into an effective action – be it buy or sell – as a means to justify all the effort and deservedly earn a personal reward. The deeper and more rigorous the analysis, the more time is spent, and the higher the propensity to 'do something', even if an appropriate judgment might suggest otherwise.

## Collective Decision

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Dynamo is a partnership, where investment decisions are made in a collective manner. An investment thesis is the result of a collaborative process, where each analyst contributes with his time, experience, knowledge and personal network. At a certain point in the research process, the thesis is submitted to an internal discussion, where everyone is invited and encouraged to share thoughts and opinions. At this moment, those who are not directly involved in the case in question will adopt a more critical and skeptical view towards the thesis. They try to test the assumptions, deconstruct arguments, present potential caveats, suspicions, weaknesses and contrary evidences to the

case. A collective exercise in falsifying, à la Popper. Under this demarcation criterion, the thesis that survives the discussion is elected to overpass the resistance line of internal consensus, thus finding a place in our portfolio.

The dynamics of collective decision making requires the presence of a few ingredients to work well. Without them, individual biases are amplified, instead of cancelled out, and the resulting decision is inferior to that reached by an isolated individual. There are many obstacles in the way of good consensual decision processes: social pressure, polarization, cascades, and groupthink. A diverse set of experiences and independence of opinions are advisable ingredients. Participants should be able to present counterarguments, sustaining their views without being influenced by others. The more experienced individuals should foster the debate, making sure a consensus is not formed too early. A contrarian attitude, like a devil advocate's role, should be taken during and maintained after the discussion, since it is common for individuals to feel more assured of their convictions after a group decision supporting them is reached. This can further reinforce the initial biases.

In this environment of collective discussion, we employ methods that help us reduce the margin of error in our decisions. For example, in the same way that, since the beginnings of Dynamo, we took an active approach towards our investments without realizing we were doing 'corporate governance', we also practice the exercise of imagining everything that could go wrong in the coming future, charting our risk map from the future to the present. This technique is now known as *pre mortem* and is highly recommended in decision-making contexts.

It is not easy to build the right conditions for the collective decision model to work efficiently and, at the same time, let's say, organically. It is a question of culture, it is rooted in the DNA of each company, in the way the partners cultivate confidence, respect and mutual admiration. Ultimately, it is a function of the personalities of the people comprising a group. Personal detachment becomes a necessary ingredient, a permanent disposition to perform diverse functions, always placing the partnership's aims as more important than personal agendas.

It is also vital that the structure of incentives reflects these values. Here at Dynamo, our compensation structure seeks to foster the contribution of each employee to the development of the firm over a period of time. We usually say we have one of the lowest Gini coefficients in the industry, which means we are a partnership where the distribution of individual shares along time really reflects the growth of the company and the necessary dilution of the more senior partners to accommodate the entry of younger partners.

Maintaining this environment of constant discussion, of collective construction and creative destruction, where all – even the younger analysts – actively participate and contribute is not in any sense trivial. It would be impossible to do so in places with hierarchized structures or with a large number of participants. That is why we here at Dynamo are obsessed about "human

resource", treating each one as an onliest talent. People are a constraint factor in our production function. The partnership's growth is conditioned by our ability of investing with quality, that is, at the end of the day it is subject to the structural limitations of this peculiar design of our collective decision process.

Another important element for the well-functioning of any group or team work is the expectation that participants will remain working together, collaborating for many years. This eliminates non-cooperative behaviors, which can eventually show up in groups of people, for example when some do less than others (freeriding), or when people let each other make mistakes in order to 'stand out' among them. We usually say that Dynamo is not a job, it is a 'life project'. Our ambition is that those who become partners wish to stay at the company for a long time. As game theory literature has repeatedly stated, cooperative equilibria are practically impossible in single-round games, but become more and more probable as the number of game repetitions increases.

Using the terminology from our previous Report, our collective decision process works in practice like a kind of 'System 3'. An overlooking system that positions itself as an 'external' observer of the individuals. It monitors the individual mental processes, attempting to detect cognitive and emotional biases. It aggregates dispersed knowledge. It distills individual experiences and viewpoints through the filter of an open discussion, conferring robustness to the emerging decision, hence it is hard to explain it, it is even harder to implement this system perfectly.

And even so, we are not immune to errors. Unfortunately, they will keep on happening. Our objective is to minimize their effects and learn as much as possible from them when they eventually occur. "People become experts by the lessons they

## *DYNAMO COUGAR x IBX x IBOVESPA Performance up to August/2014 (in R\$)*

Period	Dynamo Cougar	IBX	Ibovespa
<b>60 months</b>	138.7%	40.9%	8.5%
<b>36 months</b>	61.2%	33.0%	8.5%
<b>24 months</b>	24.1%	23.1%	7.4%
<b>12 months</b>	14.8%	23.9%	22.6%
<b>Year to date</b>	9.9%	17.9%	19.0%

NAV/Share on August 31 = R\$ 457.427534366

Period	DYNAMOCOUGAR*		IBOVESPA***	
	Year	Since Sep1,1993	Year	Since Sep1,1993
1993	38.8%	38.8%	7.7%	7.7%
1994	245.6%	379.5%	62.6%	75.1%
1995	-3.6%	362.2%	-14.0%	50.5%
1996	53.6%	609.8%	53.2%	130.6%
1997	-6.2%	565.5%	34.7%	210.6%
1998	-19.1%	438.1%	-38.5%	91.0%
1999	104.6%	1,001.2%	70.2%	224.9%
2000	3.0%	1,034.5%	-18.3%	165.4%
2001	-6.4%	962.4%	-25.0%	99.0%
2002	-7.9%	878.9%	-45.5%	8.5%
2003	93.9%	1,798.5%	141.3%	161.8%
2004	64.4%	3,020.2%	28.2%	235.7%
2005	41.2%	4,305.5%	44.8%	386.1%
2006	49.8%	6,498.3%	45.5%	607.5%
2007	59.7%	10,436.6%	73.4%	1,126.8%
2008	-47.1%	5,470.1%	-55.4%	446.5%
2009	143.7%	13,472.6%	145.2%	1,239.9%
2010	28.1%	17,282.0%	5.6%	1,331.8%
2011	-4.4%	16,514.5%	-27.3%	929.1%
2012	14.0%	18,844.6%	-1.4%	914.5%
2013	-7.3%	17,456.8%	-26.3%	647.9%

2014	DYNAMOCOUGAR*		IBOVESPA***	
	Month	Year	Month	Year
JAN	-7.3%	-7.3%	-10.7%	-10.7%
FEB	3.4%	-4.2%	2.8%	-8.2%
MAR	6.9%	2.5%	10.4%	1.3%
APR	3.1%	5.6%	3.6%	5.0%
MAY	-0.2%	5.4%	-0.9%	4.1%
JUN	4.7%	10.4%	5.5%	9.8%
JUL	-1.7%	8.4%	2.0%	12.0%
AUG	6.0%	14.9%	11.1%	24.5%

Average Net Asset Value for Dynamo Cougar  
(Last 12 months): R\$ 2,077,181,105

(\*) The Dynamo Cougar Fund figures are audited by Price Waterhouse and Coopers and returns net of all costs and fees, except for Adjustment of Performance Fee, if due. (\*\*) Index that includes 100 companies, but excludes banks and state-owned companies. (\*\*\*) Ibovespa closing.

draw from their experiences, and by the sophistication of their mental models about how things work" (Klein 2011). The idea is precisely that: to learn from mistakes – both our and other's – and closely monitor the theoretical insights and empirical results from the diverse set of disciplines that contribute to the mosaic of mental models that help us improve our decision process.

There is no doubt in our minds today that much of Dynamo's success derives precisely from our constitution as a group of people who share enormously converging values and professional identities. We are value investors with a long-term horizon. A recipe that has given us a long lifetime, in an industry marked by a high mortality rate. We attempted to verify if this essential quality would have, in itself, any connections with our mistakes. We have seen that emotional factors affect the decision process from scratch, and persist after that, when individual interests and involvements blend into good judgment. Value investors employ diverse strategies, but usually establish a closer relationship with their investments, interacting more intensely and frequently with companies, which can strengthen these attachments.

Having stated these two potential perils to well-functioning of a healthy investment decision process – the 'tricky' role of experience, analyzed in the previous Report, and the 'intrusive' personal involvement analyzed here – the remaining question would be: how could one neutralize them? More care and diligence in the research process certainly helps. But, as we have seen, in the individual realm, deliberative effort competes for scarce resources and can also at times be deceived by the suggestions of the autonomous mechanisms.

The manner in which we prefer to overcome such obstacles is through our process of collective decision. Here, we can say, a 'third' system comes to play. As a superior instance, alien to the electrochemical frenzy of mental processes, it attempts to filter out cognitive biases and individual emotional involvements. After a while practicing and experimenting the model we have described over the last two Reports, today we have the conviction that, with a high level of confidence, we can reinforce our bet on this recipe for the years to come.

Rio de Janeiro, September 15, 2014.

Please visit our website if you would like to compare the performance of Dynamo funds to other indices:

[www.dynamo.com.br](http://www.dynamo.com.br)

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