STOCKS WITH *INSIDER* PURCHASES

August, 2021

Dear investors,

One analysis we consider highly relevant to investment decision-making is assessing the level of purchases by people who know a company's operations and figures from the inside: the *Insiders*. This information is useful both because *insiders* are the ones who know the company best and, in theory, would be able to estimate its fair value more accurately, and because it is always desirable to invest in companies whose main decision-makers are aligned with their shareholders by having their own wealth invested in the business.

In this month's letter, we explore the subject and present some research based on historical data that supports our view.

> *"Insiders might sell their shares for any number of reasons, but they buy them for only one: they think the price will rise"*
>
> Peter Lynch

1. What insider purchases are

Insiders are people with access to a company's key information, such as controlling shareholders, board members and officers. Because they have "privileged" information, they are subject to specific trading rules; for example, they cannot buy or sell shares close to quarterly earnings announcements.

In Brazil, CVM Instruction 358 regulates these transactions and establishes that they may not be carried out in the 15 days preceding the disclosure of companies' financial information or before the disclosure of material facts.

Conceptually, they would be better positioned than the market to assess the value of their company, so purchases made by them could indicate when they believe there are good opportunities.

This information may be of various kinds. Examples include temporary changes in business conditions (e.g., improvements in the industry's competitive dynamics; growth in the volume of orders for new goods; price increases; cost-cutting programs) or a better assessment of the company's true value (e.g., a successful *turnaround* at a loss-making subsidiary; M&A transactions; earnings growth once the development costs of new products come to an end).

2. Research findings on the subject

Returns associated with *Insider* purchases have been analyzed in several academic studies over several decades. In every case, the evidence shows that *Insider* purchases do tend to be good predictors of future stock returns.

The table below shows the results of five studies conducted in the US in the 1950s, 1960s and 1970s. In every case, the companies selected for the study were those whose volume of *insider* purchases significantly exceeded the volume of *Insider* sales. The studies also considered a strategy of investing in the stock shortly after the *insider* purchase was disclosed.

Table 1 – Returns of stocks bought shortly after insider purchases[1]

Study author	Period	Annualized investment return	
		Stocks with *insider* purchases	Market index
Rogoff	1958	49.6%	29.7%
Glass	1961-1965	21.2%	9.5%
Devere	1960-1965	24.3%	6.1%
Jaffe	1962-1965	14.7%	7.3%
Zweig	1974-1976	45.8%	15.3%

Some of the best-known studies on *Insider* transactions were conducted in the 1970s, 1980s and 1990s by Nejat Seyhun, a professor at the University of Michigan. Based on his studies, Seyhun published a book on the subject: *"Investment Intelligence from Insider Trading"*.

In the book, the author presents some interesting conclusions drawn from his studies:

a. Insider purchases have greater predictive value than insider sales

The table below shows stock returns compared with market indices in the 12 months following the disclosure of an *insider* purchase or sale. In the study, the author selected only transactions with no conflicting transactions in the previous three months (that is, a company with an *insider* purchase that had an *insider* sale in the preceding three months was excluded from the sample; the same applies to companies with *insider* sales).

Table 2 – Stock returns 12 months after *insider* purchases or sales[2]

Type of transaction	Number of samples (# of months with an *insider* buy or sell signal)	Performance over the following 12 months relative to the market
Insider purchases	38,473	7.5%
Insider sales	46,871	-6.1%

Besides confirming the results of the earlier studies, the table also shows that *insider* purchases have greater predictive value than *insider* sales. The reason is that a sale may be motivated by many factors unrelated to the stock's

[1] The studies referred to in the table are listed below and were compiled in a paper by *Tweedy*, *Browne Company LLC*:
(1) Donald T. Rogoff, "The Forecasting Properties of Insider Transactions," Michigan State University, 1964;
(2) Gary S. Glass, "Extensive Insider Accumulation as an Indicator of Near Term Stock Price Performance," Ohio State University, 1966;
(3) Charles W. Devere, Jr., "Relationship Between Insider Trading and Future Performance of NYSE Common Stocks 1960 - 1965", Portland State College, 1968;
(4) Jeffrey F.Jaffe, "Special Information and Insider Trading," Journal of Business, July 1974;
(5) Martin E. Zweig, "Canny Insiders: Their Transactions Give a Clue to Market Performance," Barron's, July 21, 1976.

[2] Source: Nejat Seyhun, "Investment Intelligence from Insider Trading"

fundamentals (e.g., the need to withdraw funds to buy an apartment or a car, or to make a new investment), whereas a purchase will only be made if the *insider* sees an opportunity to make money.

b. The predictive value of insider purchases has not changed over time

The author's studies covered the period from 1975 to 1994. Throughout the entire sample period, *insider* transactions proved to be good predictors of future returns, showing no downward trend whatsoever.

Even more recent studies continue to point in the same direction. A noteworthy paper written in 2011 by Kaspar Dardas, of the European Business School, analyzed *insider* transactions from Jan/2002 to Dec/2009. The study showed that purchases defined as "high conviction"[3] were associated with returns averaging 20.9% above market indices in the 12 months following the disclosure of the purchase.

c. Returns by insider position

A very important point to consider in the analysis is the position held by the *Insiders*. In the reports disclosed by companies listed on B3, there is a distinction between three positions: officers, members of the board of directors and controlling shareholders.

The evidence shows that officers are the ones who trade their companies' shares best, followed by board members and controlling shareholders, as shown in the table below.

Table 3 – Returns by *insider* position[4]

Position	Number of samples (# of months with an *insider* buy or sell signal)	Performance over the following 12 months relative to the market
Officers	78,403	5.0%
Board members	140,824	3.6%
Controlling shareholders	32,976	0.7%

The reason for this distinction is proximity to information. Officers are responsible for the main decisions and are involved in activities that are critical to the company on a daily basis. Board members are somewhat further from the source of information, but take an active part in the company's main strategic decisions. Controlling shareholders, on the other hand, often have access to company information through the officers or board members, which reduces their advantage when trading shares.

d. Returns by company size

An interesting *finding* of the study is that *insider* purchases at small companies have greater predictive power than at large companies, as shown in the table below.

[3] The author defines "high conviction" purchases based on a series of parameters that include the *insider*'s position, the financial volume and the recurrence of the purchase

[4] The number of samples differs from Table 2 because the study in Table 3 does not exclude transactions that had opposite transactions in the previous three months. Source: Nejat Seyhun, "Investment Intelligence from Insider Trading"

Table 4 – Returns by company size[5]

Company market value	Number of samples (# of months with an *insider* buy or sell signal)	Performance over the following 12 months relative to the market
Less than USD 25 MM	89,239	6.2%
USD 25 - 100 MM	80,940	3.1%
USD 100 MM - 1.0 Bn	100,283	2.3%
More than USD 1.0 Bn	38,007	1.7%

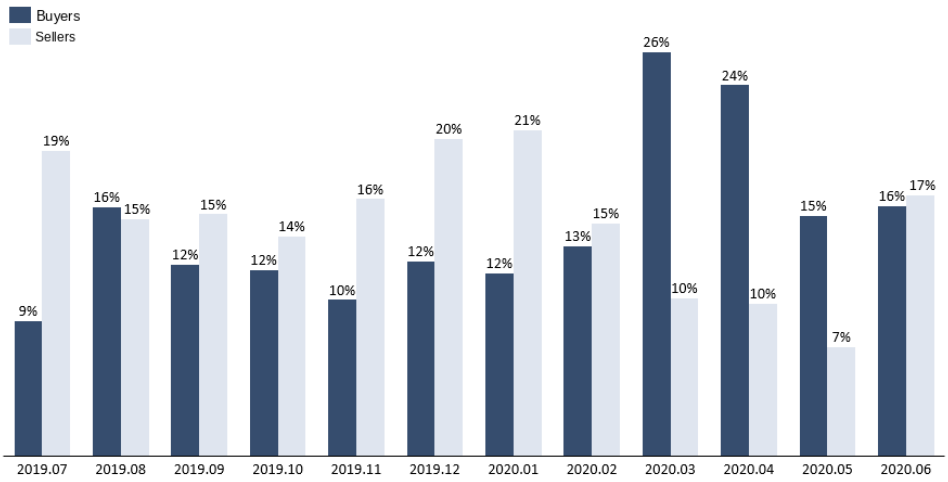
As seen in the table above, *insiders* at small companies are able to achieve gains that exceed those of *insiders* at large companies by an impressive factor of four.

There are two hypotheses to explain this phenomenon. The first is that small companies receive less market coverage, so their market value tends to deviate from their intrinsic value more often, giving *insiders* greater opportunities to profit from such deviations. The second hypothesis is that new events tend to be more significant at small companies than at large ones. For example, a new product about to be launched with expected annual earnings of R$100 MM will have a much greater impact on a company with a market value of R$1.0 Bn than on a company worth R$100.0 Bn.

3. *Insider* transactions in practice

For illustrative purposes, we compiled the *insider* transactions of all listed companies from Jul/19 to Jun/20 (we have a robot for that). The results are shown below:

Chart 1 – % of companies listed on B3 that are net buyers or net sellers of shares



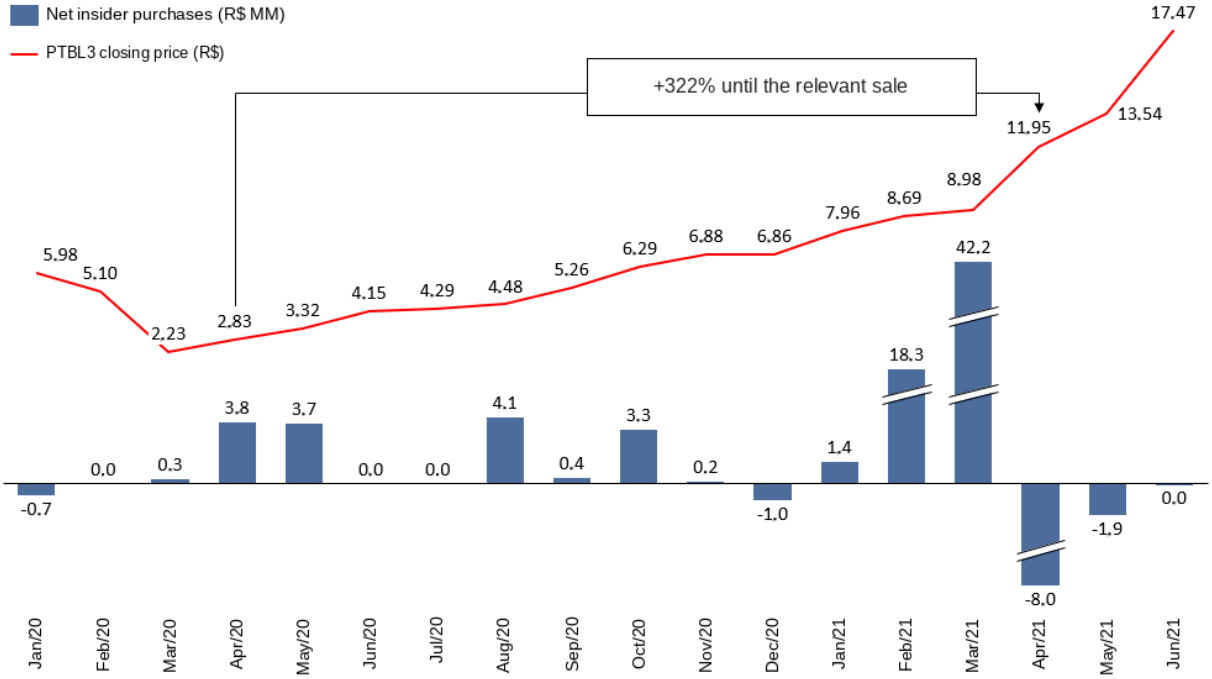
What stands out is that the number of companies with *insider* purchases increased substantially in March and April. In other words, *Insiders* proved to be excellent investors in the early period of the covid-19 pandemic, buying shares precisely at the moments of the steepest declines in the stock market (probably realizing that the market reaction was exaggerated and that the pandemic was not affecting businesses as much as initially feared).

An interesting specific case in 2020 was that of Portobello (ticker PTBL3). Starting in Apr/2020, the company's *Insiders* began buying shares in significant volumes. What stood out was that the company had no history of *insider* purchases and, suddenly, there were purchases by officers, board members and the controlling shareholder alike. Even more significant was that the purchases were repeated for several months, until Mar/21. The result: the stock went from

[5] The number of samples differs from Table 2 because the study in Table 3 does not exclude transactions that had opposite transactions in the previous three months. Source: Nejat Seyhun, "Investment Intelligence from Insider Trading"

R$2.83 when the purchases began to as much as R$12.00 when sales began in Apr/21, an appreciation of more than 4x in one year.

Chart 2 – *Insider* purchases vs. share price appreciation (PTBL4)



As shown above, *insider* transactions can provide good *insights* into potential investment opportunities. That is why we actively monitor these transactions in order to choose the best stocks for our portfolio. Obviously, an investment decision is never based on this criterion alone, but knowing that *insiders* are buying shares of their own companies is a great reinforcement for our theses.

Fund characteristics

ÁRTICA LONG TERM FUNDO DE INVESTIMENTO DE AÇÕES (the "Fund"), managed by Ártica Gestão de Recursos Ltda., is an equity investment fund regulated by CVM Instruction 555/2014. CNPJ: 18.302.338/0001-63

Target audience

The Fund is intended exclusively for qualified investors (under CVM Instruction 555/2014) seeking long-term-focused returns.

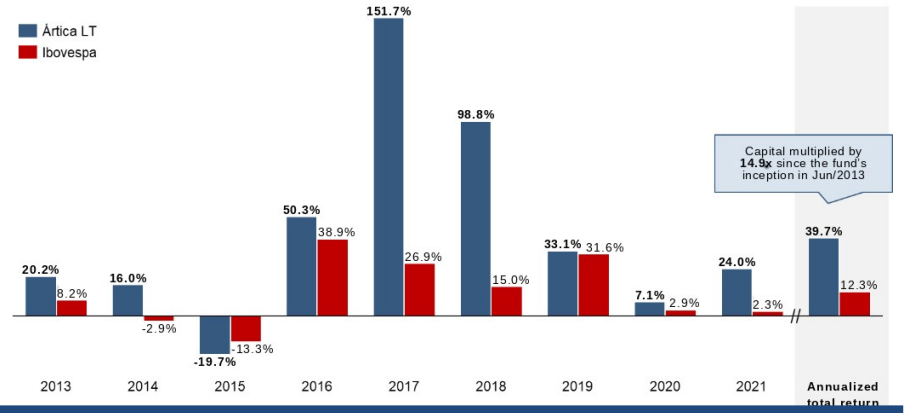
Fund objective

The Fund's objective is to provide its unitholders, over the medium and long term, with capital gains by investing its resources primarily in the stock market, without pursuing a high correlation with any specific equity index available.

ANBIMA classification	Equities (Free)
Manager	Ártica Gestão de Recursos Ltda.
Administrator / custodian	BTG Pactual Serviços Financeiros S.A. DTVM
Minimum investment	R$20.0 thousand
Additional investment	R$1.0 thousand
Minimum balance	R$10.0 thousand
Management fee	2% p.a.
Performance fee	20% of excess return over the Ibovespa (high-water mark)
Subscription conversion	D + 1 (business day)
Redemption conversion	D + 89 (calendar days)
Settlement	D + 1 (after conversion)
Taxation (income tax)	15% of gains upon redemption (no come-cotas)

Current net assets	R$150.1 million
12-month average net assets	R$96.2 million
Cumulative return	1389.8%
12-month return	41.3%
36-month return	77.9%

Annual return



Monthly return

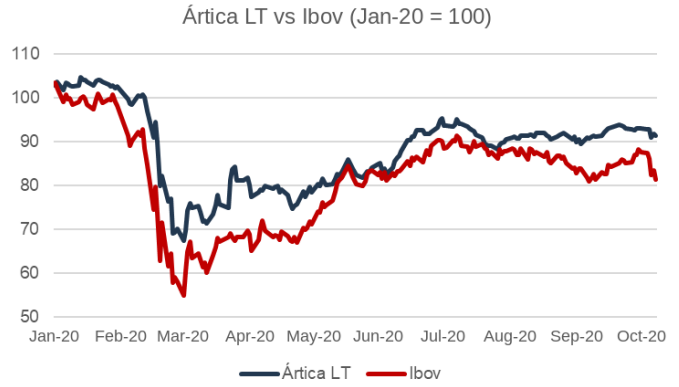
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Cumulative
2013	Ártica LT	-	-	-	-	-	2.2%	6.7%	(5.2%)	8.8%	8.3%	(1.0%)	(0.3%)	20.2%	20.2%
	Ibovespa	-	-	-	-	-	(11.3%)	1.6%	3.7%	4.7%	3.7%	(3.3%)	(1.9%)	8.2%	8.2%
2014	Ártica LT	(4.5%)	2.9%	2.2%	(0.9%)	4.2%	7.7%	1.2%	0.9%	(1.2%)	(1.2%)	6.2%	(1.7%)	16.0%	39.4%
	Ibovespa	(7.5%)	(1.1%)	7.1%	2.4%	(0.8%)	3.8%	5.0%	9.8%	(11.7%)	1.0%	0.2%	(8.6%)	-2.9%	5.0%
2015	Ártica LT	(4.4%)	(3.6%)	3.4%	5.1%	1.3%	(4.2%)	(10.6%)	(2.9%)	0.2%	(8.7%)	0.5%	3.5%	-19.7%	12.0%
	Ibovespa	(6.2%)	10.0%	(0.8%)	9.9%	(6.2%)	0.6%	(4.2%)	(8.3%)	(3.4%)	1.8%	(1.6%)	(3.9%)	-13.3%	-8.9%
2016	Ártica LT	(9.7%)	2.8%	20.9%	4.7%	1.8%	(0.7%)	16.1%	7.8%	(0.3%)	(1.0%)	1.6%	0.6%	50.3%	68.3%
	Ibovespa	(6.8%)	5.9%	17.0%	7.7%	(10.1%)	6.3%	11.2%	1.0%	0.8%	11.2%	(4.7%)	(2.7%)	38.9%	26.5%
2017	Ártica LT	2.0%	3.7%	1.4%	2.6%	20.4%	1.7%	27.9%	9.4%	8.7%	8.9%	14.1%	(1.2%)	151.7%	323.7%
	Ibovespa	7.4%	3.1%	(2.5%)	0.7%	(4.1%)	0.3%	4.8%	7.5%	4.9%	0.0%	(3.2%)	6.2%	26.9%	60.5%
2018	Ártica LT	22.1%	23.9%	0.8%	2.4%	29.7%	(8.4%)	7.9%	5.1%	(7.8%)	6.5%	(4.7%)	0.9%	98.8%	742.3%
	Ibovespa	11.1%	0.5%	0.0%	0.9%	(10.9%)	(5.2%)	8.9%	(3.2%)	3.5%	10.2%	2.4%	(1.8%)	15.0%	84.6%
2019	Ártica LT	10.7%	(1.7%)	(3.4%)	(1.2%)	(5.7%)	(1.5%)	3.6%	1.0%	(7.8%)	14.0%	0.5%	25.0%	33.1%	1021.5%
	Ibovespa	10.8%	(1.9%)	(0.2%)	1.0%	0.7%	4.1%	0.8%	(0.7%)	3.6%	2.4%	1.0%	6.9%	31.6%	142.9%
2020	Ártica LT	2.7%	(4.2%)	(24.8%)	8.0%	0.2%	6.7%	9.9%	(2.9%)	(0.2%)	0.1%	12.2%	4.6%	7.1%	1,101.6%
	Ibovespa	(1.6%)	(8.4%)	(29.9%)	10.3%	8.6%	8.8%	8.3%	(3.4%)	(4.8%)	(0.7%)	15.9%	9.3%	2.9%	150.0%
2021	Ártica LT	(1.1%)	(1.5%)	8.1%	6.3%	7.8%	4.8%	(2.1%)	-	-	-	-	-	24.0%	1,389.8%
	Ibovespa	(3.3%)	(4.4%)	6.0%	1.9%	6.2%	0.5%	(3.9%)	-	-	-	-	-	2.3%	155.8%

* Ártica LT began on June 27, 2013 as an "investment club" and, on September 27, 2019, it was converted into an "equity investment fund." Returns shown from inception on June 27, 2013 through July 31, 2021

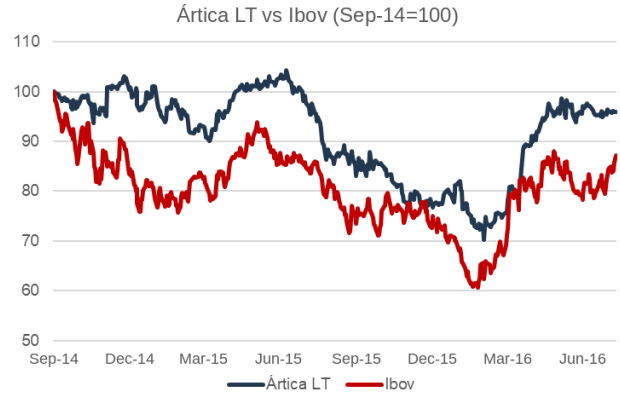
Autorregulação ANBIMA – Gestão de Recursos

This material is intended solely to provide information and transparency regarding the management carried out by Ártica Gestão de Recursos, and does not constitute, and should not be construed as, an offer or solicitation to buy or sell any financial instrument or to participate in any specific business strategy. All opinions contained herein were prepared within the context and conditions prevailing at the time the presentation was edited and may change without notice. They also do not take into account the investment objectives, financial situation or specific needs of any particular investor.

Performance in crisis scenarios



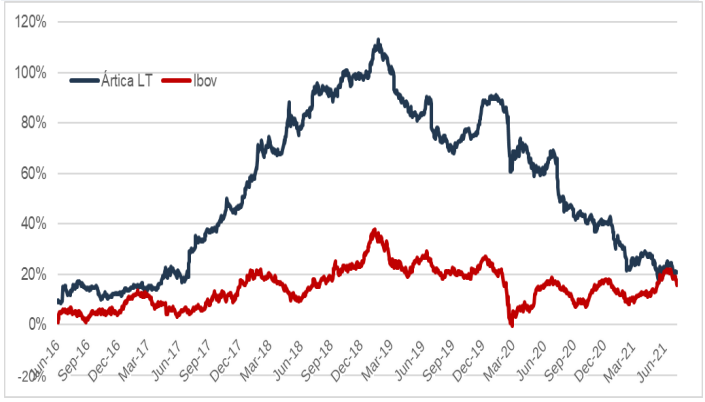
Max drawdown Ártica LT: 34%
Max drawdown Ibovespa: 47%



Max drawdown Ártica LT: 30%
Max drawdown Ibovespa: 39%

	Ártica LT	Ibovespa
Volatility – since inception	23.9%	25.9%
Sharpe – since inception	1.36	0.27
Correlation (Ártica LT vs Ibov) – since inception	0.36	-
Volatility – 12 months	12.0%	20.7%
Sharpe – 12 months	3.29	0.88
Correlation (Ártica LT vs Ibov) – 12 months	0.57	-

Rolling 3-year returns



Autorregulação ANBIMA
Gestão de Recursos

This material is intended solely to provide information and transparency regarding the management carried out by Ártica Gestão de Recursos, and does not constitute, and should not be construed as, an offer or solicitation to buy or sell any financial instrument or to participate in any specific business strategy. All opinions contained herein were prepared within the context and conditions prevailing at the time the presentation was edited and may change without notice. They also do not take into account the investment objectives, financial situation or specific needs of any particular investor.