THE THREAT OF INFLATION

June, 2022

Dear investors,

Inflation is back on the economic agenda, both in Brazil and abroad. Although Brazilians are familiar with the subject, most people only understand the impact inflation has on their daily lives: a widespread rise in the prices of consumer goods. Investors, however, should seek a deeper understanding of the impact inflation can have on their investments and design strategies to preserve their wealth in inflationary environments.

We will dedicate this letter to the subject. We will explain the main concepts related to inflation and discuss our view on how to manage investments in the current scenario.

The causes of inflation

The primary cause of inflation is a change in the relationship between the supply of and demand for a good or service. Prices rise when supply decreases or demand increases. Against this backdrop, there are three situations that we can interpret as sources of inflation.

The first is the expansion of the monetary base, that is, an increase in the amount of money circulating in the real economy. In short, it is when the government decides to print money. This causes inflation because a country's currency represents the goods that exist in its real economy. Therefore, if the amount of money suddenly doubled while the amount of goods remained the same, the price of everything should also double.

The second cause is a sudden reduction in the supply of a product because of manufacturing or logistics problems, or for any other reason. In this scenario, the consumers of that product will compete for the reduced quantity available. Those with greater financial capacity, or who place a higher value on the product, will be willing to pay more to secure supply, driving up the market price in general.

The third cause is a sudden increase in demand, linked either to a large-scale event (e.g., the demand for hand sanitizer at the beginning of the COVID-19 pandemic) or to a heated economy, in which several competing businesses seek to grow and compete for the same suppliers.

Having understood the sources of inflation, the next step is to understand how price inflation spreads through the real economy.

How inflation spreads

For convenience, inflation is usually discussed as a single percentage, in the same way as the interest rate, but these two variables behave very differently. In the case of interest rates, the Central Bank announces the benchmark rate it will use in its own trading of government bonds, and the entire market quickly adjusts around this rate. In the case of inflation, the percentage we have in mind comes from surveys that measure the change in the prices of a basket of goods and services. It is a less precise measure.

To make it clearer why it is imprecise, imagine that this method of measuring inflation is similar to spreading a few thermometers around a warehouse and assuming that the temperature inside it is the average of the readings of all those thermometers. If nothing unusual is happening in the warehouse, this is a good measure. Now imagine that a bonfire is lit in the middle of the space. Until the firewood runs out, the thermometers closest to the fire will show much higher temperatures than those farther away. It will take some time for the

fire to go out, for the temperature throughout the warehouse to even out, and for the readings of the various thermometers to all approach the new “warehouse temperature”.

Two concepts are important to take from this analogy: i) inflation does not spread instantly; and ii) it affects different segments of the economy in different ways. Think of the different segments as different locations within the warehouse. On a cold night, you want to be close to the fire, and the average temperature of the place matters little to you. While the average may indicate a bearable temperature, there may be people freezing in the corners of the warehouse and others very comfortable near the fire.

Looking at the real world, the war between Russia and Ukraine suddenly reduced the global supply of oil, since Russia is a major producer and has been subject to embargoes from the entire Western world. As a result, oil became more expensive while its production costs remained the same, widening the profits of other oil producers; in other words, they were the beneficiaries of oil price inflation. Businesses that consume oil on a large scale are in a different position: they may have the power to pass prices on to their own customers, preserving their profitability, or they may be forced to sacrifice profitability to maintain their own demand. However, there is no scenario in which consumers of inflated products benefit.

As a general rule, businesses that are able to raise the prices of what they sell before coming under pressure from their suppliers and seeing their own costs rise are the ones that benefit from an inflationary environment. The key is to have pricing power.

Where current inflation comes from

We are currently going through an inflationary cycle that originated from two major events. The first was the pandemic, which had a twofold effect. At the same time, it disrupted several production chains, reducing the supply of many goods and services, and forced governments around the world (including Brazil’s) to print money to provide aid to those made vulnerable by the *lockdown.* The second was the package of economic sanctions that came into force because of the war between Russia and Ukraine, which restricted the flow of several important commodities, particularly oil.

In this context, inflation is inevitable. The expansion of the monetary base, carried out on a significant scale, is not easily reversible. The sanctions are, in theory, reversible, but wars tend to drag on, and the trauma suffered by the countries that depended most on Russia, and were hurt by the interruption of trade relations with it, has triggered a broad “deglobalization” movement around the world, whose impacts are complex to analyze.

Deglobalization may have inflationary impacts in some parts of the world and deflationary impacts in others. If a country that depends heavily on imports decides to limit the number of suppliers it is willing to deal with, its total import costs can only increase. That country should therefore see higher inflation in its own economy. On the other hand, countries that depend on exports and may see their former customers drifting away will retain their production capacity and see their demand decline, so the prices of their export products should fall.

It is very difficult to analyze in detail how each business will suffer or benefit from inflation over time. It is as if fires were randomly flaring up and dying out in our imaginary warehouse, and we had to choose the best place to sleep throughout the cold night. Therefore, the best alternative is to focus on the microeconomic analysis of each business and seek to understand which businesses have the power to pass on prices.

Pricing power

In essence, this power depends on how essential the product or service offered is and how irreplaceable it is. For example, the demand for drinking water is completely inelastic. We would all die after a few days without water, and the demand for it is cumulative (going one day without drinking water does not reduce the total

demand for the week, since the next day one would need to drink more water than usual to rehydrate). Therefore, if there were a shortage of drinking water in a given place, whoever had water would have almost absolute pricing power (until the government appropriated it in the name of the common good). There is no way to measure this pricing power precisely, but it is a point that can be analyzed qualitatively, as the two examples below show.

We know that there is no viable substitute for oil and that many sectors depend on it entirely. Furthermore, oil inventories are small compared with the volume that is regularly consumed. It is therefore difficult to postpone oil consumption for long because of the current price. That is why oil producers have strong pricing power.

On the other hand, a designer clothing manufacturer could easily be replaced by a manufacturer of cheaper brands if its customers saw their purchasing power reduced. This business would be far more vulnerable in an inflationary environment and would have to choose between losing volume or reducing its prices, sacrificing profitability.

Since nothing in investing is that simple, not every business with pricing power will be a good investment. We are paying attention to this point because of the inflation outlook, but it remains just one of several factors that must be analyzed before any investment.

Alternatives considered

By this pricing-power criterion, one alternative would be to invest in commodity producers, which would certainly protect us against inflation. However, commodity prices are already quite high and, in many cases, the market already factors these new price levels into the valuation of commodity producers. In other words, many of these stocks are not cheap. We do not like the idea of investing in businesses of this kind when they are at the peak of the price cycle of their products, since there is a significant risk that commodity prices will fall in the future and, in that scenario, buying these stocks now could prove to be a poor investment. Therefore, the protection against inflation that commodity businesses provide would only pay off in cases where the share prices of these companies were not inflated by optimistic market expectations. We do not rule out investing in this type of business, but the prices of the companies we have analyzed are not attractive for now.

We would also have other ways of avoiding inflation risk. We could, for example, allocate more capital to fixed income or to real estate funds (although Ártica Long Term is an equity fund, we can allocate up to one third of the fund to other asset classes). Our view on these alternatives follows.

Fixed income does not seem like a good idea to us at the moment. In our 2021 annual letter, we discussed interest rate cycles and stock market performance. In short, periods of high interest rates are the best times to buy stocks, and not to invest in fixed income, since that is when stock prices are most attractive. Protection against inflation is also not as efficient in fixed income, even in floating-rate or hybrid bonds (indexed to the IPCA), because of the risk that the official inflation index is imprecise. Some prominent investors have been saying that "*cash is trash*". They are referring to the risk of erosion of the real value of money, to which we would be exposed if we kept more money in fixed income. In other words, the ideal now is to invest in real assets (including stocks).

Real estate funds appear cheap relative to historical prices, and real estate preserves its value in inflationary environments, but these funds have become attractive mainly because of the rise in interest rates, which is the same reason why stocks are also cheap. Comparing the potential return of this alternative with that of the stocks we have already identified, the stocks seem to offer considerably higher potential returns than real estate funds, so there would be no advantage in allocating capital to this asset class at this time.

Conclusion

We have decided to maintain our strategy of gradually allocating our cash, which is currently close to 10% of the fund's net assets, to good businesses. Pricing power has always been an important criterion for us, since it is strongly correlated with the quality and sustainability of businesses. Therefore, a good portion of our portfolio companies should continue to perform well, even under high inflation. Some of them are exposed to a greater risk of losing demand if inflation is very high for a long period, but this risk is to a large extent offset by the fact that we are buying shares in these businesses at very attractive prices, with an unusually high margin of safety.

We remain confident in our theses, and we express this confidence with our own capital. Ártica's partners and the professionals on our Asset Management team are among the people who have invested the most in Ártica Long Term FIA this year. We intend to continue making new contributions over the coming months, following our traditional strategy of spreading contributions over the period we consider a good time to invest.

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.

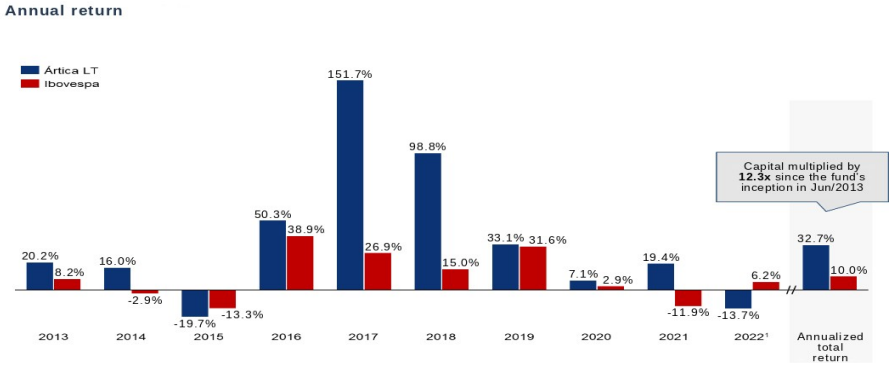
Fund objective

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.

Current net assets	R$164.9 million
12-month average net assets	R$156.1 million
Cumulative return	1,138.6%
12-month return	-14.7%
36-month return	50.1%

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)

Annual return



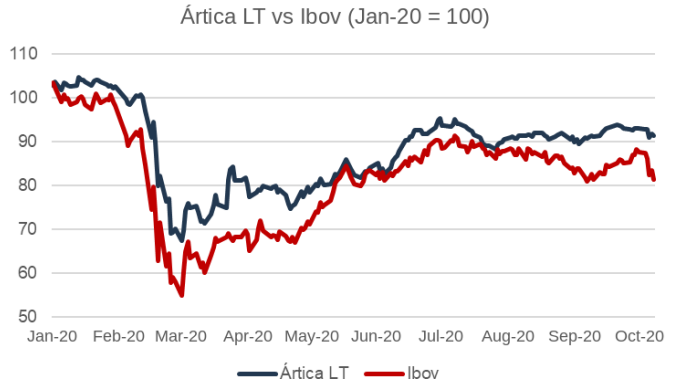
Monthly return

		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%)	(1.3%)	(2.2%)	(1.6%)	(2.7%)	4.1%	19.4%	1,335.2%
	Ibovespa	(3.3%)	(4.4%)	6.0%	1.9%	6.2%	0.5%	(3.9%)	(2.5%)	(6.8%)	(6.7%)	(1.6%)	3.0%	-11.9%	120.2%
2022	Ártica LT	0.5%	(9.2%)	0.4%	(6.1%)	0.3%	-	-	-	-	-	-	-	-13.7%	1,138.6%
	Ibovespa	7.0%	0.9%	6.1%	(10.1%)	3.2%	-	-	-	-	-	-	-	6.2%	133.9%

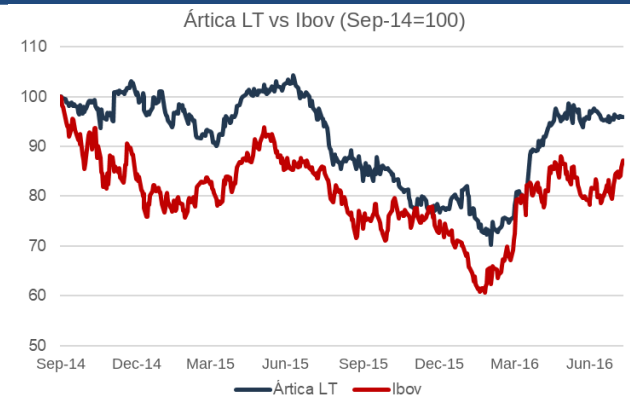
* Ártica LT began on June 27, 2013 as an "investment club" and, on September 27, 2019, it was converted into an "equity investment fund." Returns shown from inception on June 27, 2013 through May 31, 2022

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



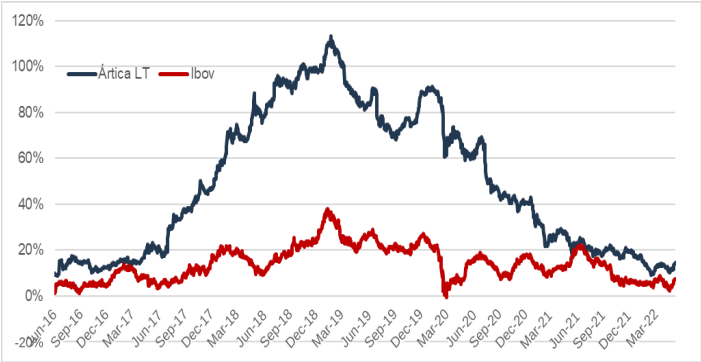
Max drawdown Ártica LT: 34%
Max drawdown Ibovespa: 47%



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

	Ártica LT	Ibovespa
Volatility – since inception	23.4%	25.4%
Sharpe – since inception	1.09	0.19
Correlation (Ártica LT vs Ibov) – since inception	0.38	-
Volatility – 12 months	16.6%	19.5%
Sharpe – 12 months	(1.28)	(1.04)
Correlation (Ártica LT vs Ibov) – 12 months	0.71	-

Rolling 3-year returns



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Gestão de Recursos

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