WHAT IF THE STOCK MARKET KEEPS FALLING?

May, 2022

Dear investors,

In April, the IBOV fell 10.1%. Before that, the index had risen 17% from the beginning of the year to its peak on April 1. The price of our Ártica LT FIA units also fell 6.1% last month and has fluctuated considerably since the beginning of the year, so we will dedicate this letter to a topic that could not be more timely: falling stock prices.

We have mentioned on other occasions that we go through periods of falling prices in a more positive mood than the market in general. Our reasons for this stance seem almost obvious once understood, but they receive so little attention that we imagined our readers would benefit from a more detailed presentation.

The multiples paradox

When we buy stocks, there are only two ways to get any money back: i) receiving dividends (or interest on equity); and ii) selling the shares. The amount of dividends distributed depends on how much profit the company generates over time, and the price at which the shares can be sold depends not only on the profit generated, but also on the market's expectations for the future growth and profitability of the business which, in simplified terms, we will assume to be represented by the ratio between the *valuation* attributed to the company and its net income, that is, the company's P/E (Price / Earnings) multiple.

So, to achieve good returns, we should want our companies to generate as much profit as possible and their P/E multiples to rise as much as possible, right? Think for a minute about the flaw in this reasoning...

Considering only the return on a specific investment, this logic works perfectly. However, what we seek is not the maximum return on a specific investment, but rather the maximum return on our entire wealth over the course of our lives. With this objective in mind, we still want our portfolio companies to generate as much profit as possible, but the second factor is reversed: the lower the Price / Earnings multiple becomes, the better, assuming that the reason for the decline is not linked to a setback at the portfolio company. We will explain why.

The cheaper, the better

At first, when we begin buying shares of a given company, we should obviously want the share price to be as low as possible relative to the company's ability to generate future financial results (in simplified terms, the lowest possible P/E multiple). As long as we have capital available to buy more shares, this logic holds and we should want the share price to fall while we are buying.

This point causes some psychological discomfort for many investors, since watching the stock being bought fall creates the feeling that the first purchases were made at a high price. However, assuming that the first purchase decision already considered the price attractive in light of the company's expected cash generation, the decline in the share price makes the investment opportunity even more attractive and should be welcomed by investors.

Having settled the point that buyers prefer low P/E multiples, the next argument is more subtle. Even after allocating all of the available capital, and therefore being unable to keep buying, a long-term investor should still consider himself a potential buyer and prefer low P/E multiples, since the portfolio companies will pay dividends over time and the dividends received will need to be reinvested by buying more shares.

In general, when the *valuation* multiples of listed companies are below average, it is a good time to invest in stocks, since the expected return on purchases made at attractive prices is, naturally, above average.

For the skeptics

If you are not convinced, consider the following example, in which an investor buys 100 shares of two identical companies that differ in only one detail: the *valuation* of Company A rises 50% right after the purchase, and that of Company B falls 50%.

	Company A	Company B
Net income per share in Year 0	R$10	
Earnings growth rate	5% per year	
Dividend payout policy	70% of net income paid as dividends	
Amount initially invested	R$10,000 (in each company)	
Shares purchased	100 (in each company)	
Purchase price	R$100	
P/E multiple at purchase	10.0x	
P/E multiple after purchase	15.0x	5.0x
Investment value after purchase	R$15,000	R$5,000

Assuming that the *valuation* multiple, changed right after the purchase, will remain the same forever, and that the investor will use the dividends received to buy more shares of the company that paid them, let us look at how the investor's wealth evolves in each of the companies.

	Start	Year 5	Year 10	Year 15	Year 20	Year 25
Company A						
Net income	10.0	12.5	15.5	19.4	24.1	30.1
Dividends	7.0	8.7	10.9	13.5	16.9	21.0
P/E multiple	15x	15x	15x	15x	15x	15x
Share price	150.00	186.93	232.95	290.29	361.76	450.82
Number of shares	100	126	158	198	249	313
Investment value	15,000	23,481	36,757	57,539	90,071	140,997
Company B						
Net income	10.0	12.5	15.5	19.4	24.1	30.1
Dividends	7.0	8.7	10.9	13.5	16.9	21.0
P/E multiple	5x	5x	5x	5x	5x	5x
Share price	50.00	62.31	77.65	96.76	120.59	150.27
Number of shares	100	193	371	714	1,374	2,646
Investment value	5,000	11,997	28,786	69,070	165,727	397,648
Value B / Value A	33%	51%	78%	120%	184%	282%

Although, with Company B, the investor starts with a 50% loss and a position worth one third of the shares in Company A, he is able to buy more shares of Company B with the dividends it distributes, because of its much

lower *valuation*. Over time, Company B becomes an increasingly better investment and overtakes Company A.

It is remarkable that, even with such a sharp difference in multiples, in the long run the benefit of buying more shares at attractive multiples, using the business's own dividends, outweighs the benefit of a higher *valuation* multiple.

The secret is to buy cheap

The conclusion of the analyses above is obvious: buying cheap is good. But there is a less obvious extension to this statement: buying cheap is good always, regardless of future price movements. If the stock becomes even cheaper, we fall into the Company B example. Furthermore, it is not feasible to predict short-term price movements, which makes any buying or selling policy based on an opinion about market price movements over a horizon of months rather ineffective. For these reasons, we have adopted the practice of buying stocks whenever we find good businesses at attractive prices, ignoring the prevailing "market mood".

Note that there is a vital point of attention in this approach. To buy cheap stocks, one needs to know which prices are cheap. We are using the P/E multiple in the examples in this letter, but it is a vague reference point for the *valuation* of a business. Assessing what a company is worth is always more complex than looking at the historical P/E multiple and comparing it with the current one. In essence, each investor must estimate what the financial results of each company will be in the long run and discount the cash flow generated by each business at a rate of return he considers appropriate; only then will he have a reference value against which the share price can be compared and judged cheap or expensive.

With a good purchase price secured, the investment will only deliver a poor return if the future of the portfolio company is worse than estimated at the time of purchase. The instantaneous price of a stock receives exaggerated attention, owing to our tendency to want to quantify the value of our investments at all times, but it only matters at the time of sale, and selling is not mandatory. We can hold the shares in the portfolio for as long as is convenient for us.

If stocks become expensive

When a portfolio company reaches high *valuation* levels, we begin to consider the possibility of selling it. However, the reason for selling should not be the share price itself, but rather the opportunity to reallocate the capital invested to businesses with better expected returns. In other words, it only makes sense to sell when we identify an investment opportunity with an additional expected return sufficient to cover the transaction costs of this reallocation of resources.

Note that this need to reallocate capital invested in a company that has become expensive is a good problem to have, since the reallocation is entirely optional. If we do nothing, the expected return should still be roughly what was estimated when the shares were bought, assuming that the business has not undergone major changes.

That is why we place so much emphasis on the importance of buying good companies at attractive prices. The quality of the business ensures that it is durable and profitable, and the low purchase price ensures a good return regardless of what the *valuation* multiples turn out to be in the future.

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.

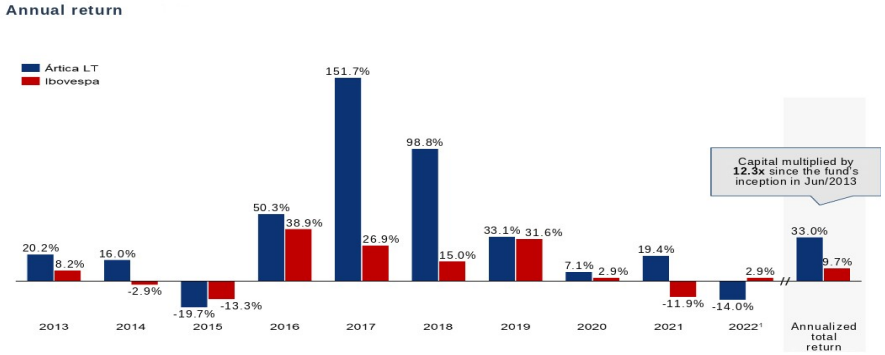
Fund objective

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$160.3 million
12-month average net assets	R$153.6 million
Cumulative return	1,134.0%
12-month return	-8.3%
36-month return	41.1%

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

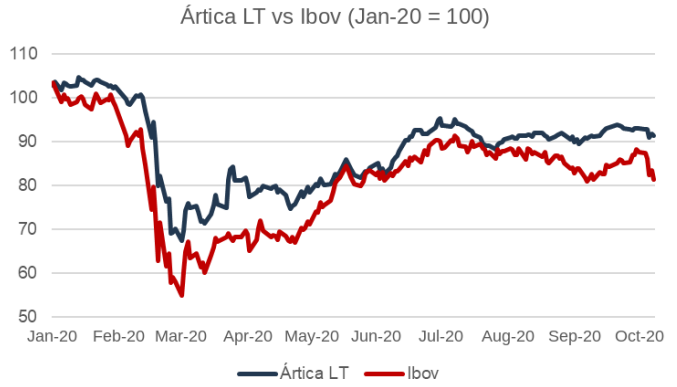
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Cumulative
2013	Ártica LT	-	-	-	-	-	2.2%	6.7%	(5.2%)	8.8%	8.3%	(1.0%)	(0.3%)	20.2%	20.2%
	Ibovespa	-	-	-	-	-	(11.3%)	1.6%	3.7%	4.7%	3.7%	(3.3%)	(1.9%)	8.2%	8.2%
2014	Ártica LT	(4.5%)	2.9%	2.2%	(0.9%)	4.2%	7.7%	1.2%	0.9%	(1.2%)	(1.2%)	6.2%	(1.7%)	16.0%	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%)	-	-	-	-	-	-	-	-	-14.0%	1,134%
	Ibovespa	7.0%	0.9%	6.1%	(10.1%)	-	-	-	-	-	-	-	-	2.9%	126.6%

* 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 April 30, 2022

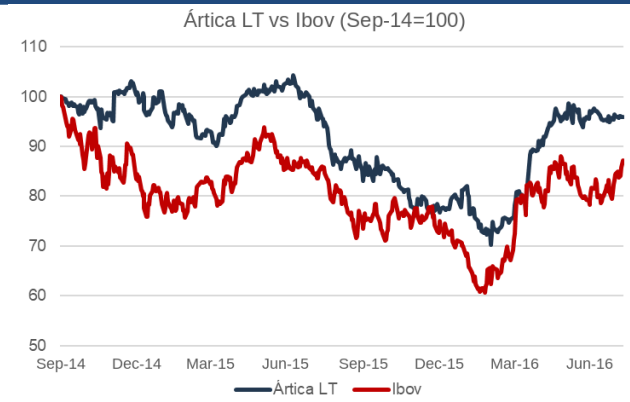
Autorregulação ANBIMA Gestão de Recursos

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



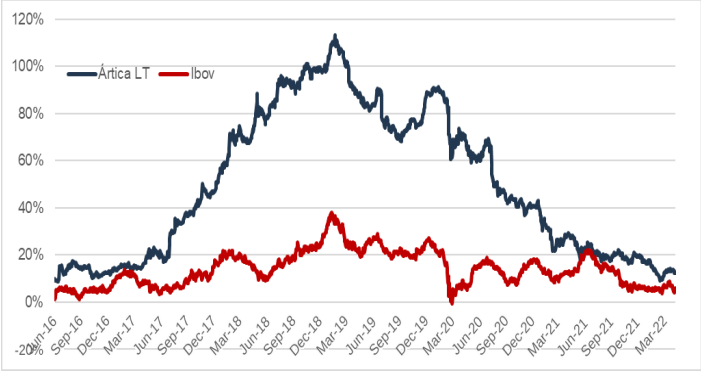
Max drawdown Ártica LT: 34%
Max drawdown Ibovespa: 47%



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

	Ártica LT	Ibovespa
Volatility – since inception	23.4%	25.6%
Sharpe – since inception	1.11	0.21
Correlation (Ártica LT vs Ibov) – since inception	0.38	-
Volatility – 12 months	16.0%	19.1%
Sharpe – 12 months	(0.84)	(0.05)
Correlation (Ártica LT vs Ibov) – 12 months	0.71	-

Rolling 3-year returns



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