

THE STOCK MARKET'S HIGHEST RETURNS SINCE 2005

March, 2021

Dear investors,

Despite major short-term challenges, the Brazilian stock market is going through a magnificent period of returns. Since the beginning of 2016, after falling to as low as 38,000 points, the Ibovespa has consistently delivered good results (26% p.a. from 01/17/2016 to 03/01/2021, the closing date of this letter); not even the pandemic, when the index went from 118,000 to 67,000 and back to 118,000 points in less than a year, was able to halt this trend, which has lasted more than five years.

Which factors contributed most to this return? In light of this question, we decided to measure the highest returns on the Brazilian stock market since 2005 and to investigate which companies provided the best returns to investors. For this analysis, we used the concept of *Total Shareholder Return (TSR)*.

TSR breaks down the appreciation of an asset into four components:

1. Distribution of dividends;
2. Net income growth;
3. Expansion of the P/E multiple (Price / Earnings); and
4. Combined effect of items 1, 2 and 3

In short:

$$\text{TSR} = \text{dividends} + \text{net income growth} + \text{P/E expansion} + \text{combined effect}$$

While items 1 and 2 are linked to the company's performance, item 3 represents a change in investors' expectations of earnings growth.

To illustrate the growth expectation implied in the expansion of the P/E multiple, suppose that an investor buys a stock at a P/E of 50x. Let us also assume that the company goes through a period of high growth for 10 years, during which it pays out only the mandatory minimum of 25% of net income as dividends and, after this period of strong growth, its net income stabilizes and it begins to distribute 100% of its earnings. For the investor to obtain a real return (above inflation) of 10% per year in the long run, the company's earnings would have to grow 28% per year above inflation for 10 years! In other words, increase by more than 1,000% over the period. If net income does not grow, the fair multiple to achieve the same rate of return would be 10x P/E. That is, the higher the P/E, the higher the expectation of growth in the company's net income over the coming years. After all, we imagine that no one would buy an asset expecting to wait 50 years to get the investment back.

The table below shows the best-performing companies since 2005:

Table 1 – Highest annual returns on the Brazilian stock market since 2005¹

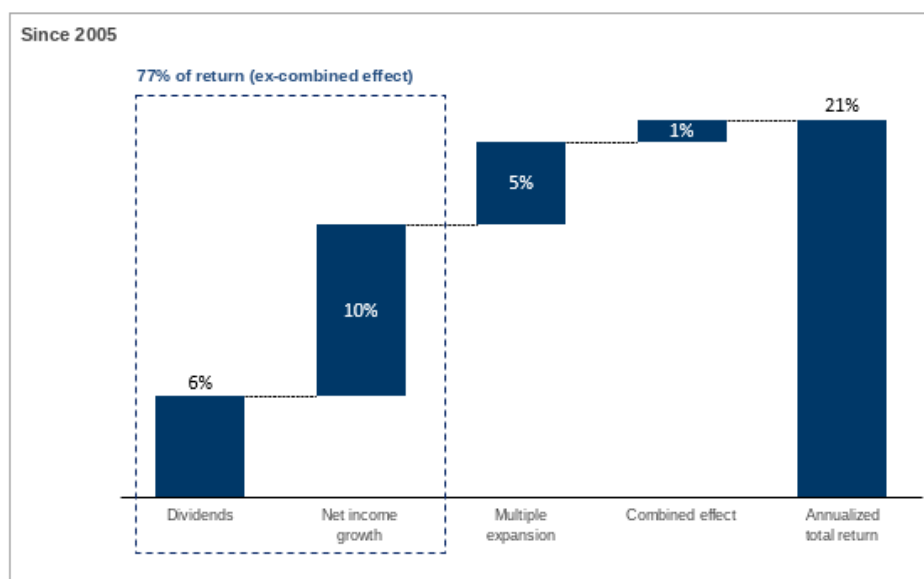
	Company	Annualized return	Dividends	Net income growth	Multiple expansion	Combined effect
1	Whirlpool	31%	12%	16%	1%	2%
2	Localiza	25%	2%	16%	6%	1%
3	Comgás	25%	10%	8%	5%	2%
4	Alpargatas	24%	3%	(1%)	20%	1%
5	Renner	22%	2%	17%	2%	1%
6	Grazziotin	22%	5%	18%	(2%)	0%
7	Ferbasa	20%	6%	(2%)	16%	0%
8	Sanepar	20%	7%	10%	2%	1%
9	Coelce	17%	8%	2%	6%	1%
10	Porto Seguro	17%	5%	11%	0%	1%
11	Sabesp	16%	3%	2%	10%	1%
12	Romi	15%	5%	6%	3%	1%
13	Engie	15%	6%	8%	1%	1%
14	CSN	15%	5%	5%	4%	1%
15	Bradespar	14%	4%	1%	8%	1%

Source: *Econômica*, *Capital IQ*, *Ártica analysis*

As we can see, Whirlpool (WHRL4) is the company with the highest annualized return over the period, delivering a return of 31% p.a. since 2005. This return was made up of 12% p.a. in dividends, 16% p.a. in net income growth, 1% p.a. in multiple expansion and 2% p.a. from the combined effect. It was a consistent, high-quality return. Whirlpool is a company we know well, as it has been in our portfolio since 2013.

Another point worth highlighting is that most of the returns were driven mainly by net income growth and dividends, and the longer the analysis window, the more this tends to hold true. The chart below shows the return composition of the 15 companies listed in the table above:

¹ For the analysis, companies with negative net income in 2005 or 2020 LTM were excluded, since it is not possible to measure their TSR components. In addition, a liquidity filter of >R\$25 thousand/day was applied throughout all years of the analysis. The analysis covers the period from 12/29/2005 to 02/26/2021; therefore, companies that went public after the start of this period are not included in the analysis. Some of the companies presented may have been affected by non-recurring items that inflate or reduce net income in the years analyzed. Such effects were not considered in the table.

Chart 1 – Return composition²

Source: Economática, Capital IQ, Ártica analysis

If we now look at returns since 2018, the results show a different dynamic:

Table 2 – Highest annual returns on the Brazilian stock market since 2018³

Company	Annualized return	Dividends	Net income growth	Multiple expansion	Combined effect
1 Petro Rio	167%	0%	48%	81%	39%
2 Banco Inter	162%	1%	(62%)	591%	(368%)
3 Banco Pan	153%	2%	57%	58%	36%
4 Romi	110%	15%	40%	31%	24%
5 WEG	101%	1%	29%	54%	17%
6 Magazine Luiza	96%	0%	(25%)	161%	(40%)
7 Eneva	94%	0%	(11%)	119%	(13%)
8 CSN	89%	3%	(13%)	110%	(11%)
9 JHSF	81%	4%	61%	9%	8%
10 TOTVS	79%	1%	95%	(9%)	(8%)
11 Sinqia	78%	0%	(28%)	147%	(41%)
12 EMAE	74%	7%	5%	56%	7%
13 Comgás	73%	14%	(7%)	64%	3%
14 Kepler Weber	70%	1%	164%	(37%)	(59%)
15 GNDI	66%	0%	29%	28%	8%

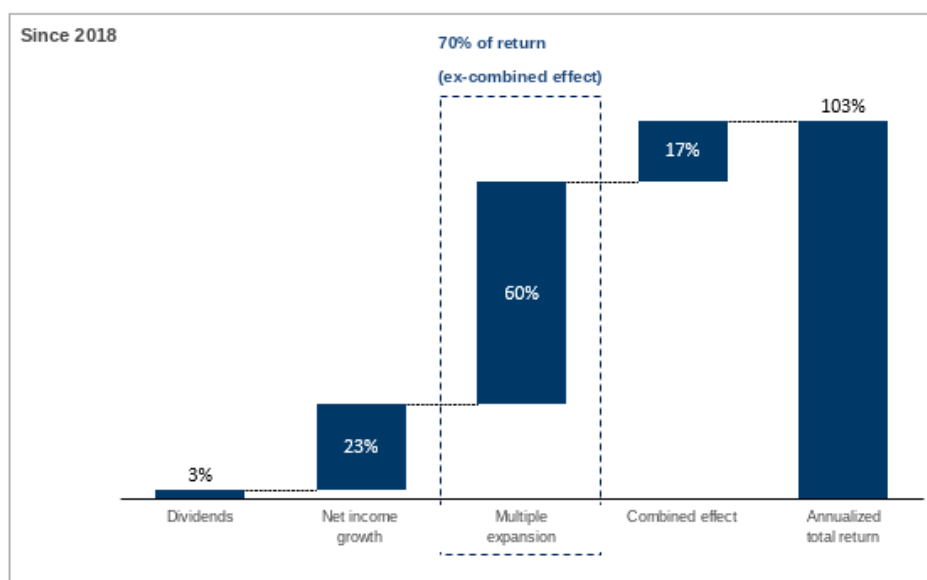
Source: Economática, Capital IQ, Ártica analysis

² Return composition of a theoretical portfolio made up of the 15 assets in Table 1 above, assuming equal weights for each asset.

³ For the analysis, companies with negative net income in 2018 or 2020 LTM were excluded, since it is not possible to measure their TSR components. In addition, a liquidity filter of >R\$100 thousand/day was applied. The analysis covers the period from 12/28/2018 to 02/26/2021; therefore, companies that went public after the start of this period are not included in the analysis. Some of the companies presented may have been affected by non-recurring items that inflate or reduce net income in the years analyzed. Such effects were not considered in the table.

For the companies with the highest returns in recent years, the expansion of the P/E multiple was the factor that contributed most to the annualized return, with some interesting cases, such as Banco Inter, where net income declined, but the multiple expansion effect contributed to a return of 591% p.a.! Chart 2 below illustrates the relevance of the multiple expansion effect in the returns of these companies.

Chart 2 – Return composition⁴



Source: *Econômica*, *Capital IQ*, Ártica analysis

It is important to note that multiple expansion does not necessarily indicate that the company has become expensive. Other reasons may explain the expansion of this factor: (i) there is an expectation of earnings growth or (ii) the company was cheap and went through a repricing.

Although 2020 was not a “typical” year because of the pandemic, the results obtained are similar to those mentioned by great investors in other periods of history:

“[...] in the short run, the market is like a voting machine--tallying up which firms are popular and unpopular. But in the long run, the market is like a weighing machine--assessing the substance of a company”

Ben Graham

The quote above from Benjamin Graham, considered the father of *value investing* and Warren Buffett’s mentor, makes this concept explicit. In the short term, stock market fluctuations may be caused by psychological and emotional factors, which lead “Mr. Market” to make stocks very expensive or very cheap; in the long term, the company’s fundamentals eventually prevail and are reflected in its share price.

In addition to him, John Maynard Keynes, in his work “*The General Theory of Employment, Interest and Money*”, compared the speculative activity of short-term investors to a beauty contest, in which what matters is not judging who is the most beautiful, but rather judging by imagining whom the others will vote for:

⁴ Return composition of a theoretical portfolio made up of the 15 assets in Table 2 above, assuming equal weights for each asset.

"[...] professionals trade stock, not based on their own long-term forecast of companies' assets but on the anticipation of market valuation after a few months a company."

John Maynard Keynes

Keynes, setting aside the merits of the monetary policies he advocated, was an above-average manager, having delivered 16% p.a. in performance between 1922 and 1946, not a bad result considering that it was a very turbulent period for the stock market, with the 1929 crash and World War II between 1939 and 1945.

In the short term, market sentiment prevails; in the long term, what matters most are the fundamentals. We do not believe we can predict market sentiment (in fact, very few investors can do so consistently). We believe we are more skilled at understanding the best business models and the dividends and earnings growth they provide. That is why we focus on investing for the long term.

Fund characteristics

ARCADIA FUNDO DE INVESTIMENTO DE AÇÕES (the "Fund"), managed by Arcádia Participações e Gestão de Recursos Ltda., is an equity investment fund regulated by CVM Instruction 555/2014.

Target audience

The Fund is intended exclusively for qualified investors (under CVM Instruction 554/2015) seeking long-term-focused returns.

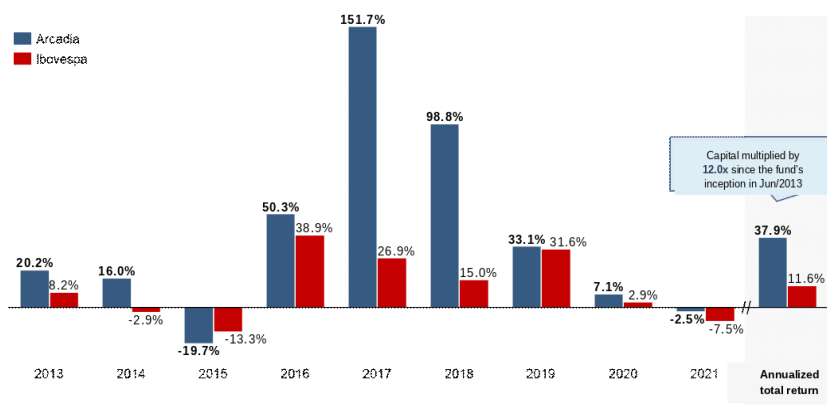
Fund objective

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\$105.7 million
12-month average net assets	R\$85.2 million
Cumulative return	1,071.2%
12-month return	6.2%
36-month return	82.7%
Fund assets held by partners	56.8%

ANBIMA classification	Equities (Free)
Manager	Arcádia Participações e 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

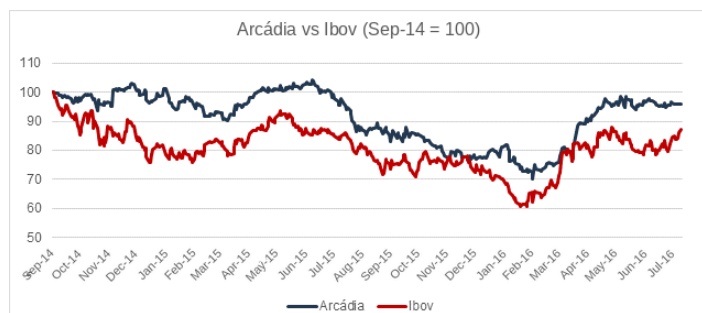
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Cumulative
2013	Arcádia	-	-	-	-	-	2.2%	6.7%	(5.2%)	8.8%	8.3%	(1.0%)	(0.3%)	20.2%	20.2%
	Ibovespa	-	-	-	-	-	(11.3%)	1.6%	3.7%	4.7%	3.7%	(3.3%)	(1.9%)	8.2%	8.2%
2014	Arcádia	(4.5%)	2.9%	2.2%	(0.9%)	4.2%	7.7%	1.2%	0.9%	(1.2%)	(1.2%)	6.2%	(1.7%)	16.0%	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	Arcádia	(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	Arcádia	(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	Arcádia	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	Arcádia	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	Arcádia	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	Arcádia	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	Arcádia	(1.1%)	(1.5%)	-	-	-	-	-	-	-	-	-	-	-2.5%	1,071.2%
	Ibovespa	(3.3%)	(4.4%)	-	-	-	-	-	-	-	-	-	-	-7.5%	131.1%

* Arcádia 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 February 28, 2021



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Additional analysis



Max drawdown Arcádia: 30%

Max drawdown Ibovespa: 39%

	Arcádia	Ibovespa
Volatility – since inception	24.4%	26.3%
Sharpe – since inception	1.25	0.23
Correlation (Arcádia vs Ibov) – since inception	0.36	-
Volatility – 12 months	29.0%	44.3%
Sharpe – 12 months	0.28	0.32
Correlation (Arcádia vs Ibov) – 12 months	0.78	-



Max drawdown Arcádia: 34%

Max drawdown Ibovespa: 47%

Rolling 3-year returns

