Part 1: The Political Crisis

Following news that President Temer had been recorded having a compromising conversation in which he had agreed to buy Eduardo Cunha's[1] silence, the country was once again plunged into uncertainty about the direction economic policy would take and how the reforms would progress. After a decade during which the march of folly of successive PT (Worker's Party) governments had made a complete mess of public accounts, leading to the largest economic depression the country had ever seen, President Temer managed to blaze a path forward, pushing Brazil's political forces along the tough road to eliminate historical distortions that have condemned us to low growth and backsliding. Even though, once published, the recordings have failed to prove the President had said what had been reported, the political touch-paper had been lit and the future of Temer's administration and his reform agenda was on the line. No-one is sure how the crisis will unfold. There is a wide range of equally possible outcomes, a situation that is likely to ensure the market remains volatile in the short term.

Despite this uncertainty, we believe certain scenarios that could help continue the reforms in the short/medium term are plausible and that 2018 election risks might be reduced. Right now, it seems like there is a widespread belief that the Temer administration is over! Market players, politicians and the media are already speculating about the "day after" and who might replace Temer. Commentators and pundits appear to believe that the mechanisms available to impeach the President are lengthy processes (even using the "TSE solution", which could be appealed) and which, if initiated, would create further uncertainty and economic chaos. This also means any more immediate solution would need the President's support. Even so, analysts appear to believe that current circumstances might lead the president to resign, or respond passively to a negative verdict from the TSE, opening the way for a replacement who would continue the reforms. This means any news that might further weaken the President has been ignored by the market, which believes anything that weakens him points towards a swifter departure.

Some people are of the opinion that current "circumstances" will result in Temer's resignation, but we believe this fails to take into account the President's own position. Why would a 76-year-old politician in the final act of his public career, who feels he has been the victim of a trap, take a decision that would forever brand him as "corrupt", knowing that those negotiating his departure intend to replace him with someone who would push ahead with his agenda which, if successfully implemented, could lead him to leave a much more dignified legacy?! Resignation?! We believe anyone betting on this outcome

[1] Former Speaker of the Lower House, currently in prison.

expects the President to unexpectedly shed his vanity and pride, show superhuman generosity or express a complete lack of desire to take the fight to the enemy. In our opinion, Temer is not resigned to his fate. In the past two decades, we have had two presidents who were extremely popular while in power. They were both elected in the first round of voting: a brilliant and inspiring intellectual capable of uniting Brazil's best minds around him; and a communicator with the rare ability to speak to the masses. However, Temer was the only one with the courage and determination to challenge the forces dragging Brazil down and face down the private interests of Brazil's most powerful and vocal government organizations - unions, judges, prosecutors and others in privileged public positions. The President's background and his more recent history reveal someone who, in circumstances such as these, is likely to gird themselves for a long and arduous battle for redemption. If this rather simple observation is correct, the most likely scenario is that Temer will remain in power until at least the end of 2017. Many investors currently believe this would be a negative outcome, as it could undermine approval for reforms within the parliamentary calendar prior to the 2018 elections. In our opinion, this also seems a slightly rash conclusion. We believe that if the President can sidestep any further slings and arrows, politicians will quickly realize Temer is not leaving of his own accord and they don't have effective mechanisms to achieve a short-term resolution. In this case, it seems plausible that our honorable representatives will try to regroup around the President, either because of what their inaction will cost society at such a delicate time or because they risk losing federal government support during an election year. Speculation aside, there is clearly much more uncertainty about how to move ahead with the reforms Brazil so urgently needs to find a path to growth in a state of normalcy. We believe this uncertainty mainly involves the possibility of the reforms being further diluted and the timing for their implementation, which will have a bigger impact on short rather than long-term outlooks.

Analyzing the effect current events will have on Brazil's long-term outlook, we believe that inverting the current political cycle, the way anti-corruption initiatives are sweeping away some of the dead wood and the ongoing efforts to strengthen Brazil's institutions are more important than whether or not President Temer stays in power. We are therefore very concerned by the events forming the backdrop to the current political crisis. Not only have we seen politicians' suspect and inappropriate behavior exposed, recent events have also shown that top representatives from the office of the Federal Attorney General and the Judiciary have behaved regrettably and possibly illegally. Theoretically, these people should be custodians of the Constitution and the laws that support our fledgling democracy. Under a pretext of fighting back against corruption, the deal that the Attorney General brokered with the Batista brothers and was approved by a single STF justice appears to be the most shocking and obvious example in recent history of state-sponsored impunity. Is the public interest in combating corruption being used as a smokescreen to promote individual political agendas and protect the interests of certain organizations that are against reforms that will reduce their privileges? There are unanswered question

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

about what really motivated the Attorney General and STF justices during this episode and this has heavily undermined the credibility of the institutions they represent. This game is still being played and we need a big turnaround or Brazil will lose out.

Part 2: The time for equities

In our most recent letter from January 2017, we looked at the various cycles we are exposed to, highlighting the inflection point in the political cycle that occurred after impeachment at the start of 2016, the inflection in the short-term interest rate cycle in the second half of 2016 when the Bacen adopted a looser monetary policy and the inflection point in the economic activity cycle, which appeared to be occurring right then, at the start of 2017. Since then, the government has continued to forge ahead with its reform agenda; it has approved labor reforms in the Lower House and made headway on Social Security reform, following approval of the House special committee report. Figures have confirmed inflation is trending lower and the Bacen has therefore intensified its monetary loosening policy. In terms of activity, the green shoots that began to suggest a possible economic recovery have gained greater consistency.

In addition to the cycle inflections, another issue highlighted in our previous letter was the significant potential many of Brazil's listed companies have to boost profits. We believe profits could grow because of a combination of the economic cycle inflection point, the enormous operational leverage companies have and the favorable competitive environment. After years of weak activity and pressure from costs with generally lower margins, companies have been looking to increase efficiency. The priority was no longer growth, it was raising productivity. Furthermore, Brazil's recession weakened many companies, leading to a wave of consolidation across many sectors while industry leaders expanded their market share and increased their competitive differentials. With economic activity starting to recover, albeit gradually, industry leaders will likely find the competitive environment to their liking, with opportunities to grow and increase profitability. Up until the start of the year, this was simply a forecast based on our observation of the way competition had developed in several sectors we monitor closely, but we had yet to see any concrete evidence to back it up. Now that listed companies have started publishing their financial statements for the first quarter of the year, we have seen the first actual figures confirming our outlook that profits would rise significantly as the economy recovers.

Out of a universe of approximately 100 companies, 26% reported revenue growth of over 10%, 51% reported a higher EBITDA margin and 44% reported profits that rose more than 20% year on year. Among the companies in our portfolio, average revenue, EBITDA and net profit growth was 2%, 7% and 19% respectively. We believe that strong profit growth is a trend that is likely to intensify over the coming quarters. Among the several current factors that could help financial assets appreciate in Brazil, potential profit growth is one factor that will benefit equities to a disproportionate extent. We therefore

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

believe we are now seeing what could almost be called an “alignment of the stars” for equities in Brazil. Approval of the Social Security reforms is the one element that may be missing to consolidate this highly favorable scenario for the Brazilian stock market.

Part 3: Our investment in Tupy S.A.

Above, we highlighted the potential for many listed companies in Brazil to accelerate profits now that the economic recovery has started. This is a generic expectation and if it were used as the main factor for selecting a portfolio of stocks, it would clearly lead us to choose stocks from companies in domestic sectors presenting more elasticity to GDP growth. This rationale does not apply directly to our investment in Tupy, currently one of our biggest positions, which we increased in May in order to take advantage of the drop in share prices after the audio recordings of President Temer were released. As the company has two thirds of its production base in Brazil and generates approximately 80% of its sales revenues abroad, it is likely to benefit in the very short term in a scenario of slow domestic demand, with less competition for its production factors and a depreciated BRL, which increases its prices in local currency and boosts its margins. In other words, in the very short term, the scenario likely to support the company’s results does not coincide with our baseline scenario for the Brazilian economy prior to the political crisis that began to unfold two weeks ago.

Why maintain this level of exposure then?

There are two simple reasons for this apparent paradox. The first is linked to our ongoing efforts to build a portfolio that is as efficient as possible, based on investments we have selected to maximize risk-adjusted returns. In this case, diversification in relation not only to idiosyncratic (specific) risks but also in relation to risk factors that our investments may be directly or indirectly exposed to is a fundamental part of our investment process. Here, the fact that Tupy is not exposed to the same risk factors as the majority of companies in our portfolio brings a significant element of diversification, improving our risk-adjusted potential return. The second reason is linked to the way our investment process works and how we propose to deliver better returns for our investors in the long-term. **We strongly believe in understanding and exploiting out differentials; we believe in acting purposefully, in teamwork, in persistence and in determination.** We believe that our differentials are linked to understanding and analyzing market structures, competitive dynamics and specific characteristics of companies that determine their competitive advantages and ability to generate returns for shareholders – which is normally called a “bottom-up approach”. Our goal is to use this differential to identify companies and exceptional investment opportunities that have been neglected by the market. As such, the decisions we take as part of our investment process reflect what we believe to be our mission and our differentials. We believe that by being consistent and persistent, we will offer our investors better long-term results. In Tupy’s case, we see specific factors that make its stock extremely attractive. These elements are

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

neglected by many investors who use a “top-down” analysis in an attempt to understand how macroeconomic variables could impact equities performance.

The opportunity – risk versus return profile

Tupy combines three characteristics that we value highly in our investments and normally provide opportunities with an excellent risk-adjusted return.

1 - Strong cash generation -Tupy is producing a large amount of cash that could be transformed into significant dividend payments for shareholders, given its low level of debt and the fact there is no pressing need to invest in production capacity. We expect to obtain an annualized return of approximately 23% from our investment in Tupy stock over the next three years, of which approximately R$ 730 million, or 44% of this expected return, could come from dividend payments, significantly limiting our downside in this position.

2 - Unattractive sector - Tupy is a manufacturing company that operates in the auto parts industry. It focuses on producing cast iron engine blocks and cylinder heads for internal combustion engines (mainly diesel engines). This is an industry at the end of its life cycle, which is considered old-fashioned and at risk of technological disruption with the growth of electric vehicles. At first glance, the industry could not be any less attractive. However, these characteristics mean there is normally little enthusiasm for the industry and analysts and investors usually avoid being excessively optimistic about it, unlike other “fashionable” sectors and companies. This lack of appeal reflects in the low price of the company’s shares. This means we can “pay less” for the cash flow the company is likely to generate over the next few years, reducing the risk of our investment.

3 - Size and liquidity – Tupy is an industry leader in the Western Hemisphere with an overall market share of approximately 25%, and a 50% market share in the Americas. This gives it a certain amount of resilience and the competitive advantages of a multinational leader in its sector. However, with R$ 3.5 billion in revenues and R$ 2.1 billion market value, Tupy is classified as a midsize firm in the universe of Brazil’s listed companies. This means the level of coverage from sell-side and buy-side analysts is relatively low, creating opportunity for information asymmetry and therefore less efficient market pricing. This type of environment usually creates highly rewarding conditions for investors willing to spend some time and shoe leather analyzing these investment opportunities in greater depth. We have been monitoring Tupy's evolution for approximately 13 years and set up the first peripheral position in our portfolio four years ago. Throughout this period, we have gathered a large amount of information about various aspects of the company and its industry across different periods and cycles, which we believe is an extremely valuable platform for our investment decision and opportunity analysis process.

Company Characteristics

As discussed previously, Tupy is a market leader in the cast iron engine block and cylinder head industry in the Western Hemisphere. Its products are customarily used to make diesel engines for commercial vehicles. Tupy, alongisde WEG, is one of the few Brazilian companies in the value added industrial sector that has managed to remain competitive on the global market after the BRL appreciated for nine years, between 2002 and 2011. In addition to adopting the right commercial strategy, which, based on rules of pass-through cost increases in its contracts, has reduced the impact from input cost pressures on company margins, the company's relatively stable performance during this challenging period says a lot about the characteristics of its business and its competitive advantages. Unlike most companies in the auto parts industry, Tupy operates in a segment of the market with high barriers to entry and switching costs.

Before detailing the characteristics that made the Tupy investment attractive, we will briefly describe some of the technical aspects impacting the industry's fundamentals, competitive dynamic and future outlook. As discussed above, the main market for Tupy's products is the diesel engine market. The main difference between the way Otto cycle engines operate, using low volatility fuels such as ethanol and gasoline, and the way diesel engines operate is that the former burn a mixture of air and fuel aspirated into the engine's combustion chamber that is ignited by a spark produced by the vehicle's electrical system. Diesel cycle engines burn fuel injected into the combustion chamber under pressure by compressing the aspirated air and thereby increasing the chamber's internal temperature. This different modus operandi means diesel cycle engines burn fuel more completely and have higher thermal efficiency than Otto cycle engines. For this to happen, the internal compression rates prior to burning the fuel in diesel engines can be up to twice as high as the compression rates in Otto engines, while internal pressure inside the combustion chamber can be up to three times higher. The higher internal pressure means a larger force is applied to the piston head, which is transferred to a crankshaft and is transformed into greater torque (rotational force). The power of an engine, which is a determining factor in its performance, is a product of the torque and the speed of rotation. Therefore, as they produce more torque, diesel cycle engines are capable of producing a similar level of power as Otto cycle engines at lower rotations, which means they are ideal for use in commercial vehicles whose main measure of performance is their ability to transport cargoes at slower speeds than passenger vehicles. As they use much higher internal pressures, the structural parts of diesel cycle engines need to be made of materials that can support significant mechanical stress, such as cast iron. Engine blocks in Otto Cycle engines used by passenger vehicles can be made of aluminum, a lighter and less resistant material, whose foundry process has more modular characteristics than the cast iron foundry production process.

Barriers to Entry

The barrier to entry in Tupy's business area is based on the characteristics of the product it produces and the current point in the industry cycle. Tupy's main products, engine blocks and cylinder heads, can have more than 100 different dimensions that need to be controlled and are one of the most complex parts produced using a cast iron foundry process. Furthermore, they are structurally the most important parts of the overall engine, which, in turn, is the heart of any vehicle. These are critical parts whose performance needs to be fault free and whose supply process needs to be highly reliable for vehicle manufacturers. As a result, companies operating in this market segment face a long learning curve which favors the incumbents, who already have significant experience and have built up a reputation with their clientele. In addition to the product’s high complexity and importance, the current point in the industry's evolutionary cycle has created a significant barrier to entry for new competitors.

The industry’s current level of installed capacity was created to meet demand for both commercial vehicles (trucks, buses, agricultural machinery, civil construction machinery and the mining sector) that use diesel cycle engines, as well as the market for passenger vehicles, which mainly use Otto cycle engines. However, over the past several decades, the industry has lost much of its demand from the passenger vehicle segment to aluminum engine block manufacturers in developed markets (Europe and the USA) and over the past few years in Brazil. As discussed previously, aluminum engine blocks are lighter and use a modular manufacturing process, which makes it easier to bring additional production capacity online. The fact that a large number of passenger vehicles have migrated to aluminum engine blocks generated significant idle capacity at companies producing cast iron engine blocks, like Tupy. Today, the industry currently has approximately 50% idle capacity worldwide and much of its output is focused on commercial vehicles that use diesel engines which, for the technical reasons discussed previously, cannot use aluminum engine blocks. If, on one hand, the industry’s idle capacity has risen over time and has put pressure on its “pricing power” and, as a result, companies’ ability to generate profits, it has created a significant barrier to entry for new market entrants. The size of investment needed to add production capacity is incompatible with current price levels practiced by the industry, which means that the return on capital invested will be lower than the cost of capital, discouraging further investment in additional capacity. Estimates show that adding greenfield capacity will only be economically feasible if prices are between 30% and 40% higher than those the industry currently practices.

The combination of an industry with low volume growth and significant idle capacity will eliminate the need for market participants to invest in additional production capacity for quite a few years. This means Tupy has a significant ability to generate cash, something which is central to our view of the attractiveness of this investment.

Switching Cost

The complexity of the development phase and the characteristics of the production phase generate high switching costs for Tupy’s customers, reducing their bargaining power and leading to robust, long-lasting

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

relationships with the company and contracts that last on average for four years and are normally renewed for the entire product lifecycle. Before going into production, the product development phase is a joint effort involving both the customer's and Tupy's engineering teams, which can last between 18 and 24 months, given the complexity of the product and the importance of the engine structure. Following this phase, the customer invests approximately US$ 2-3 million in machine tools to produce the parts (mainly dies and molding boxes to produce the sand molds). These tools are customized to meet the specific requirements of the production line where they will be used and are not interchangeable between suppliers. As a result, even if a manufacturer switches its own production lines, this means manufacturing new machine tools. When the first parts have been produced, the pressure, stress and fatigue testing phase begins using dynos. This phase can involve approximately US$ 2 million per part in additional preoperational costs. In addition to the time teams spend on a customer, the preproduction phase of a particular engine block involves costs of approximately US$ 4-5 million per part, which we can compare with Tupy's average contract value of US$6 million/year. We believe that the economic incentive a competitor would have to offer a Tupy customer and convince it to switch supplier would involve offering a discount of approximately 17% on Tupy's prices. The necessary discount is normally higher than the average EBITDA margin of the industry's most efficient manufacturer, which in this case is Tupy. Therefore, in contracts involving lower production volumes, it becomes extremely expensive for a Tupy customer to maintain more than one supplier for a particular part, or to switch supplier once a contract has been signed.

Competition

Tupy has approximately a 25% market share of the cast iron engine block and cylinder head market in the Western Hemisphere, alongside Teksid, from the Fiat Chrysler group, with 17% and German company Fritz Winter, with 11%. The remainder of the market is divided between smaller players and carmakers' in-house foundries. In the Americas market, Tupy has a 50% market share and exports mainly to the USA. Because of the physical characteristics (weight and volume) and prices involved, engine blocks and cylinder heads are not parts that "travel well". In other words, long-distance transportation costs are very high compared with the product's final price. Therefore, competition ends up being determined on a regional basis and there is a clear separation between the Western and Asian markets.

Tupy's direct competition is mainly from specialized companies operating in this niche market, but with lower scales of production. In addition to the specialized players, some carmakers also have in-house foundries capable of producing engine blocks. We have noted a trend towards outsourcing as carmakers try to focus their activities on development and marketing, limiting their manufacturing activities to assembling the end product. The most recent evidence of this trend came in 2016, when GM decided to shut down its in-house engine block and cylinder head manufacturing facilities in the USA and outsource production to Tupy.

Technology

Making engine blocks from cast iron does not involve what would be considered cutting-edge technology. After all, these products have been made for more than a century using a process of pouring liquid metal into a sand mold that has been around for millennia. Even so, the complexity of the end product, the need to maintain strict parameters for part dimensions and physical properties, as well as the significant variation in production input properties, require highly specific technical knowledge. Tupy is considered a benchmark in this area and has spent for decades investing to train specialist workers at a technical school the company set up in Joinville in 1959 and the University created in 1998. By training a highly specialized technical staff, the company now leads research and development efforts in new metallurgical techniques and high performance alloys. One example of this differential was the development of products using compacted graphite iron (CGI), an alloy that presents very high performance physical properties allowing manufacturers to produce products with lower mass, thinner walls and higher mechanical resistance. The company has been increasing the percentage of products made using CGI, which currently represent 15% of its revenues. Developing these products has had two significant outcomes for Tupy. First, it has expanded the company's potential market into areas dominated by aluminum engine blocks. With CGI, Tupy has started serving the engine segment for high-performance passenger vehicles such as those made by Porsche, Maseratti, Audi, etc. and the SUV segment, with vehicles such as the Range Rover and F-150. A recent example of its increased competitiveness in the segment came in 2016, when Ford adopted Tupy's CGI engine block in one of its F-150 models, which, up until then, had used aluminum engine blocks. The second effect on the company has been to further increase its technical/technological differentials in relation to competitors, which has significantly helped increase its pricing power.

Recent Results and the Outlook for Recovery

One of the reasons that currently makes investing in Tupy stock particularly interesting is the fact the company recently reported what are historically very poor results. This has created a significant opportunity for stock to regain ground as results get back on a trajectory that converges with historical standards. Although it has a very diverse portfolio of contracts, between 2014 and 2016, several disparate factors coincided to cause a simultaneous drop in demand from several market sectors Tupy served. This drop in volume mainly came from the off-road vehicle segment in the USA and passenger and commercial vehicles in Brazil.

In Brazil, which represents approximately 20% of its revenues, the company saw a significant drop in both the passenger vehicle segment, which represents just 5% of total revenues, as well as the commercial vehicle segment, which represents 7% of total revenues. The passenger vehicle segment, which is not an area the company focuses on, had already seen volumes slump as a result of incentives

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

under the Inovar-Auto program, which speeded up the switch to aluminum engine blocks in Brazilian passenger vehicles from 2012. To a large extent, this has already occurred in the more developed US and European markets. In this segment, we believe the drop in volume is the result of structural changes from which the company is unlikely to recover. Looking at commercial vehicles, the company suffered from the abrupt economic slowdown in Brazil and excess fleet capacity caused by years of policies incentivizing easier finance from the BNDES in order to purchase trucks. This excess capacity, alongside the slowdown in activity, resulted in an impressive drop in commercial vehicle output in Brazil, which fell from approximately 187,000 vehicles in 2013 to 61,000 vehicles in 2016. As cargo transport vehicle fleets currently have significant idle capacity, we do not believe that domestic output will return to 2011 – 2013 levels in the medium-term. Even so, it is reasonable to expect that output could return to a level of around 120,000 to 130,000 vehicles/year over a five-year horizon, simply to avoid increasing average fleet age.

In the off-road segment, which represents approximately 22% of company revenues, the bulk of demand is from the farm, US heavy construction and mining sectors. This segment was impacted by a simultaneous drop of approximately 60% in farm machinery volumes and over 45% in mining machinery volumes between 2014 and 2016. This was caused by the drop in grain prices in 2014 in 2015, when the US produced a bumper crop, driving down investment in agricultural machinery, and the Chinese economic slowdown, which saw mining companies reduce their machinery investments. We do not expect to see a significant recovery in the mining sector in the short/medium term. However, it is reasonable to expect demand for agricultural machinery to recover, given its historical growth curve. In addition to farming and mining machinery, the off-road segment also serves the market for heavy construction machinery, demand for which is dependent on the scale of US real estate and infrastructure construction. Ongoing growth in the US real estate market has been supporting demand for machinery in recent years. At the moment, we expect to see US infrastructure expenditure to accelerate, which could significantly increase demand in this segment. Some leading indicators are already pointing in this direction. Caterpillar, a heavy construction machine manufacturer and one of the main customers for the Tupy factory located in Ramos Arizpe, in Mexico, has significantly increased order volumes based on the positive outlook for US demand in 2017. The recently announced results for the first quarter of 2017 reported the first year-on-year volume recovery in over 24 months, showing that this segment of the market may also have reached an inflection point. This positive outlook has also been noted in recent results from Cummins, another major Tupy customer.

Risks

Tupy's products are used in various segments of the economy, limiting its exposure to risk factors that could have an impact on one specific sector. The risk of more intense competition is fairly limited by high barriers to entry and switching costs. Although there is a trend to switch to aluminum in the

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

passenger car sector, the industry has already incurred much of the costs involved, somewhat limiting its marginal impact. The nature of the company's manufacturing business brings with it employment and environmental risks, as it does for all companies in similar industries. We therefore believe that the main long-term risk for the company is the risk of technology disruption, with internal combustion engines being completely replaced by other more efficient and cleaner propulsion technologies. The world is clearly closer than ever to realizing the prophecy of Sheik Yamani, former Saudi Arabia Oil minister, in 1973: "The Stone Age did not end because we lacked stones. The oil age will end well before we run out of oil".

Development of technologies to generate clean, renewable energy has enjoyed significant support over the past decade and this has cut the cost of producing alternative sources of energy, such as solar and wind power. As these renewable sources of energy increase their share of the global energy generating matrix, the use of electric vehicles, which are still accessible to only a few people, will become, from an energy standpoint, the most efficient mode of transport and will help reduce fossil fuel consumption. In parallel, the development of increasingly efficient energy storage technologies (for example, batteries, or hydrogen cells) will help reduce costs and increase the autonomy of electric vehicles.

Elon Musk, the man who created PayPal, Space X and Tesla Motors, often says that at some point, every means of transport on earth will use electrical propulsion, except rocket launches, which face significant restrictions imposed by Newton's law. It is indeed quite likely that this will occur. The big question is: "How soon? 5, 15, 30 or 50 years?" When new technologies are introduced, it is often normal for their "disruptive" power to be overestimated in the short term and underestimated in the long-term. Even so, it is difficult to estimate how long it will take for the internal combustion engine to completely die out. What we can safely say is that the switching process will be quicker for some applications than others. For passenger vehicles, most of which use Otto cycle engines, replacement is likely to be faster, over a 5 to 15 year horizon, on developed markets. Engine replacement in commercial vehicles, which is Tupy's main market, is likely to take longer because of issues such as autonomy and construction of recharging infrastructure. The fact that significant investment is needed to adapt energy generation and distribution infrastructure and build recharging stations is likely to further delay the process of substituting conventional for electric vehicles on less developed markets. When we see pictures of grain being transported in Mato Grosso, one of the world's biggest soybean and corn production centers, with trucks spilling some of the grain on Brazil's poorly paved roads, this leads us to believe the process could take quite some time here.

Even although we cannot say how long it will take for the risk of disruption to take effect, we believe that the company's significant ability to generate cash in the short term means its stock represents an excellent investment opportunity. Uncertainty about the long-term outlook for this industry makes it

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

even less likely current players, or new entrants, will introduce additional production capacity and this is likely to dampen competition over the next several years.

The fact the industry is in the final phase of its life cycle has created a favorable combination for market participants. They will enjoy a healthy competitive environment and significant ability to convert results into cash for shareholders because of their low CAPEX requirements. However, the combination of factors making this investment case so attractive is also the source of the biggest short/medium term risk – the capital allocation risk. Given all of Tupy's characteristics we have described so far, the company is a perfect match for the analysis BCG proposed in the 70s as a classic example of a “Cash Cow”. It could be an excellent investment for shareholders following a disciplined “milking strategy” mainly focused on distributing cash to shareholders. Although much easier to execute and posing fewer risks to company shareholders than a diversified growth strategy, disciplined implementation of the milking strategy could bar management’s natural desire to look for growth. Executives normally want to manage larger and better-known companies, preferably empires, which guarantee their personal prestige and are capable of offering massive compensation packages. At Tupy, management will be tempted to pursue alternative methods of diversification in order to try and “reinvent” the company, because, without a new strategy, it is fated to follow the destiny of an industry approaching the end of its life cycle. The ability to generate significant amounts of cash means management will be able to consider growing through mergers and acquisitions or expanding through greenfield investments in new markets for the company, such as Asia.

In order to mitigate this potential agency cost, we need to align shareholder and management interests using a compensation scheme that offers the company’s executives the correct incentives. Additionally, effective governance will be required, preferably including highly active and closely involved shareholders maintaining the alignment between management and shareholders. We have not seen either of these elements at Tupy yet and believe that governance changes could significantly reduce investor’s perceptions of this type of risk.

We have a positive opinion of management’s approach to the commercial and operational side of the company. Until recently, the company appeared to maintain an excessively conservative and comfortable capital structure for management, which had been holding back possible shareholder dividend payments in order to retain the option that significant cash reserves offered for future mergers and acquisitions. Tupy recently announced it was significantly increasing shareholder dividends, which we believe is a step in the right direction.

Investment attractiveness

Because of the characteristics of Tupy and the industry within which it operates, as well as the potential for demand to recover in some of the segments the company serves, it has everything to be a strong

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

cash generator. The fact its stock is being traded at depressed multiples (6x EV/EBITDA 2017, 11x P/L 2017, 1,2x P/VP) both in absolute terms and in relation to similar companies, as well as to its own historical performance, means we are "paying" very little for a relatively secure short-term cash flow. This significantly limits the downside for our investment. In other words, we believe we have a big safety margin in this case. With a limited downside, we believe our investment has the potential to generate highly attractive returns. Over a three-year horizon, we see potential to achieve approximately 23% per annum if the company continues along its current path.

However, one could imagine a highly plausible scenario in which governance changes, management is aligned with shareholders, a clear capital allocation policy is defined and cash is distributed to shareholders, which could make this an extraordinary investment. As such, we believe Allison Transmission, the world's leading producer of automatic transmissions for commercial vehicles, which held an IPO in 2012, is an eloquent example of value creation for shareholders in an investment case with many similar characteristics to Tupy.

Allison Transmission produces products of higher complexity than Tupy, owns many of its own patents, makes significant research and development investments and, as a result, enjoys higher margins than Tupy. Even so, from a risk and outlook perspective, both companies have more similarities than differences. Both companies have relatively low medium-term growth outlooks, low CAPEX requirements and significant capacity to generate cash. Both companies have many customers in common and are exposed to practically the same segments of the commercial vehicle market. Additionally, like Tupy, Allison Transmission's biggest long-term risk is technological disruption from the adoption of electric vehicles. A significant difference for the investment case from a shareholder standpoint is the governance issue. Prior to its IPO, Allison Transmission was controlled by a private equity group and management adheres to a clear and well defined capital allocation policy. This policy prioritizes organic growth, developing differentials based on new technologies and returning capital to shareholders. It is critical to have a governance structure that guarantees a clear, ongoing policy that guides capital allocation decisions in order to reduce investor risk perceptions of the company. This, in our opinion, is one of the main factors that resulted in Allison Transmission's stock price rising significantly higher than Tupy's stock (11x EV/EBITDA, v. 6x EV/EBITDA).

As a result of its capital allocation policy, Allison Transmission returned the equivalent of US$1.6 billion to shareholders in five years, or 38% of the company's market value at the time of its 2012 IPO, making a significant contribution to the return on its shareholders investment.

Even with these differences between the two companies, we believe Tupy presents the same fundamentals that made Allison Transmission a great investment for its shareholders. They obtained a 13% annual return on their investment, in dollars, even though they paid a premium of over 50% in

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br

relation to the current Tupy stock valuation in 2012. Tupy needs to ensure management is aligned around a clear and credible capital allocation policy. As such, it might be that in order to realize the full potential of this investment case, Tupy will have to change its control and governance structure.

Equitas Selection FIC FIA vs Ibovespa vs IBX vs CDI

	Absolute Return (R$)				Annualized Return (R$)			
	Equitas Selection	Ibovespa	IBX	CDI	Equitas Selection	Ibovespa	IBX	CDI
Starting on (06/07/2010)	222.8%	1.0%	33.9%	105.9%	18.5%	0.2%	4.3%	11.1%
36 months	51.8%	22.4%	23.1%	44.0%	14.9%	7.0%	7.2%	12.9%
24 months	48.1%	18.9%	19.2%	29.1%	21.7%	9.0%	9.2%	13.6%
12 months	34.0%	29.4%	29.9%	13.3%				
Year (2017)	17.0%	4.1%	5.1%	4.8%				

Baseline date: 05/31/17

Average PE - Last 12 months - Equitas Selection FIC FIA (R$ thousand): 53,032

Equitas Investment Fund Management Services Ltda.

Tel: 11 3049 3954 Fax: 11 3049 3305
fundos@equitas.com.br
www.equitas.com.br