Report
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BVMF I

When Bovespa became a public company in 2007, something unusual happened. The Brazilian exchange, which had always been our "hostess" as the main provider of services for our auxiliary tasks, was accrediting to become object of our end activity. No potential investment had ever before been so close to our day-to-day duties. The familiarity with the business was especially attractive to us here at Dynamo. Years later, in 2011, we would become shareholders of BM&FBovespa (hereinafter, "BVMF", "Company" or "Exchange"). A long-term investment that has already returned an interesting performance for our shareholders. The idea now is to tell this story. As the text was long, and to respect the time of our readers, we chose to divide the task in two parts. In this Report, we present the historical context of BVMF's IPO, describe the main activities of the Company, and cover business attributes and regulatory issues, in order to map the beginning of our investment. In the next Report, we continue the narrative, highlighting an important project – the integration of clearings –, as well as the opportunities for growth and diversification of the Company's revenues, among which is the merger with Cetip. Before concluding, we describe what we believe are the main concerns in this thesis, targets for continuous monitoring in our daily analyses.

In the 1990s, there was a major shift in the landscape of stock exchanges around the world: the so-called "demutualization process". Until then, stock exchanges were basically non-profit civil associations controlled by their owners, the brokerage firms. In demutualization, equity securities are converted into shares and brokers change status from "club members" to shareholders. In most countries, the next step was the listing of the exchanges, transforming them into public companies without controlling shareholders.

The mutual structure worked well in an environment of low competition and while the interests of the owners were homogeneous. A combination of movements such as globalization, deregulation and greater internationalization of financial markets, as well as a dissemination of technological advances, most notably electronic trading platforms, caused a structural shock in that previous equilibrium. National boundaries for financial investment crumbled as transaction costs fell dramatically. Alternative trading environments were beginning to emerge, putting pressure on the revenues of incumbent stock exchanges. The technological upgrade required significant investments. At the same time, the interests of the owners began to diverge. Institutional investors demanded lower costs and greater efficiency in executing their offers. Brokerage firms, however, resisted the changes, committed to maintaining the status quo of their financial services; they were attached to the good-old real-time telephone trading floor. The transformations demanded access to capital and greater decision speeds, which came up against the equity limitations and divergent agendas of the owners.

The demutualization debut occurred with the Stockholm Stock Exchange in 1993, followed by the Australian Stock Exchange, then Toronto, Singapore, Hong Kong, London and Germany. In 1998, the SEC authorized the registration of the exchanges as for-profit entities. Two years later, the Pacific Stock Exchange and the Chicago Mercantile Exchange converted their patents into shares, inaugurating the new corporate reality in the United States. By 2005, virtually all major stock and derivatives exchanges in the world had already been demutualized and became publicly-held companies.

Although it occurred at an unprecedented speed of transformation, the demutualization / listing process involved discussions and pushbacks, mainly with regards to the regulatory side. The exchanges acted as self-regulating organizations and were always seen as an important part of the institutional framework of the capital and financial markets, vectors of economic development. In this light, the role of exchanges acquires the characteristics of a public good. The move to transform them into public companies, conditioned to pursue economic profit as a goal and to maximize value to its shareholders as a rule, generated some mistrust. It introduced an ambiguity that was previously unheard of: the exchanges were regulators and in parallel they became regulated companies. They are responsible for guaranteeing the collective good that is the proper function and safety of the markets, while at the same time they must satisfy the particular interests of their shareholders.

Some arrangements arose to deal with this situation. In certain cases, independent regulatory structures were created, such as the New York Stock Exchange (NYSE) with the formation of the NYSE Regulation, Inc. Most of the time, the stock exchanges themselves have been in charge of regulating the market even after they became corporations. The point here is that the exchanges live off their reputational capital. To be competitive, they depend on creating an environment perceived as transparent, fair and efficient. To regulate only by self-interest would be an autophagy, a disservice to their own standing. In addition, with the expiration of equity titles and along with them trading privileges, the exchanges would achieve greater independence from their members. They would replace the fragmented interests of various groups for the unified goal of creating value for shareholders. As a result, it was believed that that standards of self-regulation as well as investor confidence would improve.

Driven by the new competitive reality and equipped with good arguments to cool off the distrust of supra-regulatory entities, the demutualization / listing wave soon left the more traditional markets and also advanced on the emerging economies. In the first decade of the millennium, major exchanges in India, the Philippines, Pakistan, South Africa, Chile and Brazil announced their intention to migrate to publicly traded companies.

The demutualization of the São Paulo Stock Exchange (Bovespa) occurred in August 2007 and the Commodities and Futures Exchange (BM&F) in September of the same year. In the following months, October and November, the respective IPOs of Bovespa Holding (BOVH3) and BM&F (BMEF3) occurred. In the following year, the two entities were integrated through the incorporation of their shares into the new company called BM&FBovespa S.A. The two listings practically marked the end of the virtuous cycle of initial public offers inaugurated in 2004 in the country. As of May 2008, we would begin to feel the effects of the great financial crisis originated in American real estate mortgage markets. The Ibovespa index would suffer a strong adjustment, and the window of initial offers would practically close. Thus, investors in the IPOs of the exchanges would experience strong appreciation soon after the listing – Bovespa Holding appreciated more than 50% – but the gains were then returned.

Dynamo did not participate in the IPOs of the exchanges. And it was not because we foresaw the near collapse of the capital markets. In fact, we were still struggling to cope with the stretched valuations, in our view, of the cycle of IPOs, in a dynamic dominated by investor optimism invariably pricing an auspicious trajectory of sustained growth for newly listed companies.

In the case of BVMF, investor confidence in the market acquires a self-reinforcement component, since the valuation of listed shares, in addition to new listings, generates fee revenues for the Company. That is, in other traded companies, the expectations of investors anticipate the fundamentals of the businesses; in the case of BVMF, the fundamentals price expectations. The top-line instantly captures investor sentiment. For better or for worse. As the time was one of continued euphoria with the country, the IPO multiples reflected this perception.

Since then, we have closely followed BVMF. A business with very interesting virtues: well protected, in practice a monopoly with relevant barriers to entry, robust and resilient –in the language of our previous Report–, with low capital intensity, high returns and margins, operational leverage, and practically 100 % conversion of both net income to cash flow, and of cash flow to shareholder's return through dividends or share repurchases. Undoubtedly, a desirable set of characteristics for any investor. In order to understand the mechanisms that result in such auspicious effects, we need to step back and quickly describe the Company's main activities.

Exchanges are organized markets that provide environments for the trading and pricing of securities. In addition to this primary function of establishing the locus for buy and sell transactions, the exchanges usually offer their users the infrastructure for the subsequent services necessary for the transactions to take place. These are post-trade activities, commonly divided into clearing and settlement. Clearing is the procedure for calculating the net position of counterparties' rights and obligations and is performed by a clearing house. The clearings also typically act as central counterparties (CCPs), intermediating between the trading parties, by becoming buyers for all sellers and sellers for all buyers, as is the case of BVMF. CCPs substantially increase the security of the system by providing safeguards and possibilities for risk management, ensuring that the default of an investor or intermediary does not spread into the market. By requiring margins and guarantees, the risk of the counterpart in theory is absorbed by these protection mechanisms, significantly reducing the risk of contagion. The shock absorption scheme, known in the technical language as "waterfall", like our immune system, has several levels of defense, absorbing resources in the following order: first of the clients, then of the intermediaries, then the liquidation fund, and finally the equity capital of BVMF. CCPs also increase market transparency by maintaining centralized transaction records, including notional amounts, as well as the identities of counterparties. Hence the explicit preference of regulators for markets organized with CCP arrangements, especially after the great financial crisis that arose from the lack of adequate control in the subprime segments.

In the period between the 'go ahead' transaction order executed on the trading platform, and the point in which the securities are withdrawn from the seller's account and deposited into the buyer's account, the exchange assumes the risk of default of both parties. In the stock market, this exposure is of about three days. In the derivatives market, given the much longer duration of contracts, the risk of exposure also becomes longer. In addition to requiring collateral (margin) from the counterparties, the exchanges need to have a minimum equity to cope with any shortfalls. In the case of BVMF, the Company operates with its own cash cushion of approximately R$ 1 to 1.5 billion to support its central counterparty activities, plus R$ 1 billion for the required clearing buffers.

The next step after clearing is settling, which consists in the transfer of the securities and financial resources, that is, in the actual extinction of the obligations. Upon an authorization from the clearing entity, the settlement occurs effectively within the scope of another entity, the central depository of assets (also "central custodian"). The central depositary is responsible for the centralized custody of assets, control of their effective ownership and updating of corporate events (such as dividend payments). With dematerialization, securities in Brazil are predominantly book-entry, that is, deposit accounts are held in the name of their holders, the final beneficiaries, without the issuing of certificates. In this system, for example, when a stock is bought and sold on the Bovespa electronic trading session, after the clearing step is executed by the respective clearing entity, the depositary will transfer the security from the previous owner's account to the new owner's account, and transfer the monetary value in the opposite direction. In order to ensure the integrity of the assets under its custody, the central depositary performs a series of daily reconciliation processes with issuers and custodians. As it is fundamental to maintain this comprehensive control of the inventory, the movement of each asset and its respective final owners, this function tends to be concentrated in a single entity. In other words, all over the world central depositaries tend to act as monopolists.

In fact, if we look at the competition structures of the exchanges abroad, the number of participants in each stage of the operation tends to decrease in the chronological order of operations: several trading platforms, a few clearings and only one or two central depositories.

From the point of view of industry organization, exchanges are characterized as a two-sided market – as we have seen in the credit card market (Dynamo Reports 77 and 78) – where the producer (market organizer) aims to reach two groups of clients arranged in such a structure that the interaction of both sides produces externalities for each of them. That is, on the supply side, for example, stock exchanges attract companies that want to become public, either to raise capital, promote liquidity to their shares or to become more "institutionalized". On the demand side, investors are eager to buy equity interests in these companies. The network effects, typical of the two-sided market structures, are evident: the more listed companies, the higher the investor willingness to negotiate in this environment; in the same way, the greater the number of participating investors, the greater the propensity of companies to join this platform. Once a certain critical mass is reached, the incumbent platform achieves a substantial advantage. The same occurs in the derivatives market, where participants seek to neutralize risks or make directional bets. The greater the variety of products, instruments and securities, the greater the attractiveness and, consequently, the liquidity of the platform. This in turn generates more attractiveness, increasing the liquidity again, in a self-reinforcing effect.

It is up to the exchanges to ensure the quality of new issuing companies and the credit risk of the investors[1]. Reputation, credibility and security are essential attributes in this business. In modern electronic trading platforms, investments in technology are considerable at the start, but once the operational infrastructure is in place and the appropriate systems developed, additional volume capture occurs with almost no marginal cost. This is why the industry is characterized by large gains in scale and high operational leverage.

In 2011, the market offered us a good opportunity to start building a position in BVMF at an appropriate valuation[2]. At the time, two potential competitors announced intentions to establish stock trading platforms in Brazil. DirectEdge and BATS revealed their strategies to capture significant volumes from BVMF through investments that would mature over a 12 to 18 month horizon. The market quickly reacted and shares of BVMF suffered a sharp fall[3]. The concerns were not totally out of place.

The strategic movements and the competitive/regulatory dynamics of the main international exchanges were reaching Brazil with some lag. Watching what was happening outside would be a good indicator of the trends that could occur here. Sensitive to the greater bargaining power of financial institutions and institutional investors in major markets, regulators in mature economies promoted competition in the order execution segment, cracking a few of the moats previously enjoyed by exchanges. Financial institutions and institutional investors were allowed to internalize their trading, giving rise to the so-called dark pools. The multilateral trading facilities (MTFs) proliferated rapidly. Already in 2011, MTFs accounted for 26% of orders in trading books on European exchanges[4]. These alternative environments have in fact diverted significant volumes from traditional stock exchanges.

Analysts aware of international trends inferred that BVMF's privileged position was threatened and that the reality of foreign competition would soon cross our borders. The stock was suffering. Our opposing view was more benign in favor of BVMF, due to two main factors: i) the Company's business model; ii) the incentives of regulation in Brazil.

BVMF's value proposition is based on a business model that is both diversified (stock and derivative exchanges) and integrated (trading and post-trading execution – clearing, settlement and central depositary). The strength and resilience of the Company reside precisely in this vertical operation and horizontal arrangement. The advancement of digital technologies facilitating the rapid deployment of new trading platforms has been pressuring margins and commoditizing the business of exchanges worldwide. On the other hand, the continued growth of regulatory requirements, especially after the trauma of the last major systemic crisis, and the increased complexity of financial instruments have considerably expanded the relative importance of post-trading activities. What was seen as uninteresting, non-strategic, and low-margin suddenly became core. Trading-focused exchanges, more exposed to technological headwinds, were threatened and tried to dig new roots in the more protected post-trading activities. The diversified and integrated business model, just like BVMF's model, became a benchmark for players in the industry.

Unlike other places, among them the United States, where some post-trading activities occur at the brokerage level (prime brokers), here in Brazil the model is completely vertical. The clearing, settlement and depositary activities take place at the level of the final investor, with brokerage companies only using the infrastructure of stock exchanges and acting as distribution and collection agents[5]. Likewise, custodian financial institutions only represent their clients in the clearing house, they are not allowed to internally settle transac-

1 *Which, in the language of modern online marketplaces, could be called an adequate* ***curation****.*

2 *By coincidence, for reasons analogous to the start of our investment in Cielo and Redecard.*

3 *To be more precise, in addition to the announcement of potential competitors, in 2011, another change negatively impacted the Company's market value: the incidence of the 'IOF tax' on foreign exchange contracts. In this case, the market reacted properly, discounting from the share price the negative impact of this new tax on the company's fundamentals. In fact, part of the volume of this line of business migrated to the banks' proprietary trading through NDF contracts.*

4 *Currently, the ESMA (the European securities and markets authority) recognizes no fewer than 151 MTFs operating in the continent.*

5 *The demutualization/IPO of the exchanges brought a brief financial relief to the former members of the "club". Since then, the brokerage firms, especially the independent ones, have been going through difficult years, with several of them bittering consecutive losses. XP Investimentos is an exception to this rule. Through an open platform strategy, a significant diversification of revenues, and with a calibrated focus in the vicinity of the customer, XP offers a differentiated value proposition, which has been translated into accelerated growth and consistent capture of market share. As the main distribution channel for its products, brokers are vital to BVMF. Encouraging the emergence of new players such as XP should be a priority.*

tions among their clients. That is, in BVMF's clearing systems, the contracts/assets that are traded and owned by investors, as well as the guarantees deposited by them, are segregated and identified individually. The positive effects of this seemingly simple arrangement are remarkable.

The existence of complete information on ownership of assets and positions produces enormous robustness in the system as it provides greater control over leverage, facilitates the necessary transfer of assets in the event of financial fragility of intermediaries, and mitigates the risks of fraud in custody[6]. More interestingly, it establishes an important competitive barrier in favor of BVMF, since a potential new entrant should offer the same integrated solution for its clients, with all the complexity and nuances involved.

As for the regulatory aspects, the regulation in the country also confers interesting protection elements for incumbent agents. The internalization of orders (dark pools), as well as the trading of shares on the stock exchange or in non-organized (over-the-counter, or "OTC") markets by MTFs are all prohibited. Settlement and clearing of shares must be performed through a central counterparty (CCP). Under this arrangement, any potential BVMF competitor in theory would also be required to provide an integrated solution with the same level of rules and transparency. In addition, a more prosaic ingredient contributed over time to BVMF's establishment of a more consolidated position in the self-regulation function: the fact that CVM (the local SEC) does not have enough budget to execute the tasks of verifying, monitoring and fostering more and more complex markets. Hence, the correct comparison between costs for customers in Brazil and abroad should consider all of these services. In this case, the total cost here was (and still is) in line with the main markets abroad. Aware of its privileged competitive position, BVMF has always been careful to share with its customers some of the gains from its operating leverage.

The perception among many customers and market participants was that BVMF offered a system of high security and reliability, at a fair price, but with the need to improve its level of service. Sensitive to the importance of pricing transparency, the Company promoted changes in its fee structure, making it more explicit that its total cost was compatible with the international reality. In parallel was the continued effort to develop and equip the state-of-the-art technology infrastructure. In 2010, BVMF entered into a strategic partnership with CME Group for the joint development of trading platforms, which was implemented in the PUMA system, whose derivative and exchange module would be delivered the following year[7]. In 2011, the project to integrate its clearings was initiated, and the intention to improve the system for recording over-the-counter derivative transactions (Calypso) was announced.

Given these elements, it seemed to us that the traditional trade-offs for the regulator between seeking systemic security and ensuring fairness to the users of the platform, versus promoting greater competition, tended

6 *The memory of the Naji Nahas case of June 1989, when this investor's bad check drove the Rio de Janeiro Stock Exchange (BVRJ) to bankruptcy, likely contributed to the improvement of this regulatory design, so far ahead of international practices at the time of its implementation. By way of illustration only, in the case of clearings, the legal regime that ensures the fundamental prerogative of the shielding of deposited guarantees, rendering them unreachable by acts of liens or judicial foreclosures, was established by the Brazilian Payments System Law of 2002, which consolidated the Central Bank's understanding (Circular 3057/2001) that clearing and settlement activities are considered as "systemically important systems".*

7 *CME Group, Inc is the holding company that controls the Chicago Mercantile Exchange (CME), Nymex, CBOT and COMEX. In addition to the joint development of trading venues, the memorandum of understanding provided for the increase of BVMF's stake in CME to 5%, matching CME's investment in BVMF.*

Dynamo Cougar x IBX x Ibovespa Performance up to December 2016 (in R$)

Period	Dynamo Cougar	IBX	Ibovespa
60 months	88,5%	25,8%	6,1%
36 months	42,8%	16,4%	16,9%
24 months	34,0%	19,7%	11,3%
12 months	18,8%	36,7%	38,9%
Year to date	18,8%	36,7%	38,9%

NAV/Share on December 31 = R$ 612,104574

DYNAMO COUGAR x IBOVESPA
(Performance – Percentage Change in US$ dollars)

Period	DYNAMO COUGAR* Year	DYNAMO COUGAR* Since Sep 1, 1993	IBOVESPA*** Year	IBOVESPA*** Since Sep 1, 1993
1993	38,8%	38,8%	7,7%	7,7%
1994	245,6%	379,5%	62,6%	75,1%
1995	-3,6%	362,2%	-14,0%	50,5%
1996	53,6%	609,8%	53,2%	130,6%
1997	-6,2%	565,5%	34,7%	210,6%
1998	-19,1%	438,1%	-38,5%	91,0%
1999	104,6%	1.001,2%	70,2%	224,9%
2000	3,0%	1.034,5%	-18,3%	165,4%
2001	-6,4%	962,4%	-25,0%	99,0%
2002	-7,9%	878,9%	-45,5%	8,5%
2003	93,9%	1.798,5%	141,3%	161,8%
2004	64,4%	3.020,2%	28,2%	235,7%
2005	41,2%	4.305,5%	44,8%	386,1%
2006	49,8%	6.498,3%	45,5%	607,5%
2007	59,7%	10.436,6%	73,4%	1.126,8%
2008	-47,1%	5.470,1%	-55,4%	446,5%
2009	143,7%	13.472,6%	145,2%	1.239,9%
2010	28,1%	17.282,0%	5,6%	1.331,8%
2011	-4,4%	16.514,5%	-27,3%	929,1%
2012	14,0%	18.844,6%	-1,4%	914,5%
2013	-7,3%	17.456,8%	-26,3%	647,9%
2014	-6,0%	16.401,5%	-14,4%	540,4%
2015	-23,3%	12.560,8%	-41,0%	277,6%

2016	DYNAMO COUGAR* Month	DYNAMO COUGAR* Year	IBOVESPA*** Month	IBOVESPA*** Year
JAN	-5,8%	-5,8%	-10,0%	-10,0%
FEB	4,9%	-1,2%	7,6%	-3,1%
MAR	22,1%	20,7%	30,8%	26,7%
APR	8,3%	30,7%	11,1%	40,7%
MAY	-6,2%	22,6%	-13,7%	21,4%
JUN	17,6%	44,3%	19,1%	44,6%
JUL	4,4%	50,7%	10,2%	59,4%
AUG	-1,7%	48,0%	1,0%	61,0%
SEP	-0,1%	47,9%	0,6%	62,0%
OCT	5,3%	55,8%	13,5%	83,8%
NOV	-12,4%	36,4%	-10,7%	64,2%
DEC	4,4%	42,4%	1,4%	66,5%

Average Net Asset Value for Dynamo Cougar
(Last 12 months): R$ 2.516.799.301

(*) The Dynamo Cougar Fund figures are audited by Price Waterhouse and Coopers and returns net of all costs and fees, except for Adjustment of Performance Fee, if due. (**) Index that includes 100 companies, but excludes banks and state-owned companies. (***) Ibovespa closing.

towards maintaining the status quo. In addition, there were questions of whether the loosening of regulatory requirements abroad could not have led to a disorderly increase in competition, excessively pulverizing the industry's profit pool, and at the end of the day bringing systemic risk by having exchanges demand less and less guarantees and margins in order to attract more participants (race to the bottom).

Our base scenario was that the regulator did not have the incentive to risk weakening the mechanism that had been showing operational efficiency, financial soundness and price equilibrium. On the other hand, while conceptually it might make sense given the potential size of our market, in practice we believed that the intentions of new entrants would face greater difficulties than investors seemed to be pricing. In fact, years later, we learned from one of the parties involved in one of these investments that the decision to abandon the project came after verification among users of BVMF's system that they were satisfied with the service provided and did not signal the least interest in incurring new expenses and investments in order to adapt their systems to eventually join an alternative platform[8].

In respect to the time of our readers and as a prize for those who have persisted so far, we interrupt the narrative for a well-deserved break.

Rio de Janeiro, January 17, 2017.

8 *With the exception of high-frequency investors whose interests were opposed, as they would potentially benefit from "arbitrage" between the platforms.*

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DYNAMO

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