Report
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BVMF II

In the previous Report, we described the context of the demutualization and IPO of BVMF, following the trend of the main exchanges in the world. We then described the main areas of activity of the Company, as well as its unique value proposition, based on a diversified and integrated business model. We concluded by laying out the foundations of our initial investment, when we had a more benign view than the market in relation to the defensive aspects of the business, especially in relation to regulatory stability and exposure to competition. After a deserved break for our reader, we now return to the second part of our narrative.

Besides this contrarian flavor, at the beginning of our investment (2011) some important internal projects were already planned at BVMF. They would reinforce the superior competitive position of the Company. Among these projects, the clearing integration project (named *IPN*) stands out.

BVMF had, since the combination of the equities and derivatives exchanges in 2008, been managing four clearing houses: i) equity and private fixed income (formerly *CBLC*); ii) financial derivatives and commodities; (iii) interbank market for spot FX transactions; and (iv) federal government bonds. This multiplicity resulted in obvious inefficiencies: four risk management systems, four back-office processes, four distinct IT architectures, four pools of collaterals, and so on. Ever since the merger, the integration of the clearings was already being considered, but the implementation only began in 2011. The Company does not disclose precisely how much has been spent on this project since then, but it is known that *IPN* consumed most of the accumulated capex of R$ 1.6 billion in this period. In August 2014, the first version (V1) was delivered, it included the derivative module and the new CORE risk system. The final migration of the second version (V2), the equity module, is expected in March 2017.

The unification of the clearing houses promises to bring interesting repercussions for market participants, among which we can highlight: i) cost reduction, with standardization of rules, unification of systems and greater automation of processes; ii) greater efficiency in cash management, by offsetting the debits and credits of the different markets in a single net balance. A daily liquidity savings of about R$ 500 million is expected, based on historical flows; iii) fewer collateral (margin) requirements, with the implementation of a new risk system, which considers a portfolio view for each participant, and is capable of recognizing risks and compensating between the different asset classes. In this case, around R$ 20 billion is expected to be unlocked in the first phase of the project[1] and another R$ 10 to 15 billion in the second phase; iv) upgrade to state-of-the-art IT architecture, improving system robustness and increasing total throughput.

In addition to these direct benefits to users, the integration of clearings further strengthens BVMF's privileged competitive position. An eventual entrant proposing to establish an alternative trading environment for a new product, for example fixed-income index futures or foreign exchange swaps, will not be able to offer netting of margins and collateral to its customers if they also trade in other markets, which substantially compromises the value proposition. Some participants question BVMF because of the slow speed of implementation of this project, which has undergone successive revisions on the dates of its "go live" versions. Comprehensiveness, complexity, parsimony, and prudence are words that have figured in the Company's official list of justifications. The fact is that while the integration took place,

1 *It was estimated at the end of 2015 that, in the absence of implementation of this stage, the margin required for the top 50 clients of BVMF would increase from R$ 60 billion to R$ 80 billion.*

the Company could not provide clearing services to third parties, making life difficult for an eventual competitor.

A promising aspect in this investment case is the Company's growth potential. BVMF has already shown an interesting revenue diversification, although sometimes the market still insists on associating the Company's operating performance linearly with the Ibovespa – which, by the way, gives us opportunities to adjust the size of our investment. A few elements explain this phenomenon of diversification: i) the consistent increase in turnover velocity due to the growth of a more trading-intensive investor (such as high frequency traders), which has partially compensated for the erratic share price performances[2]; ii) update of the pricing policy, through which post-trading services gained share in the overall prices charged to participants; iii) the increase in relevance of BM&F, through, for example, interest rate and foreign exchange futures.

Another interesting trend of revenue growth for exchanges concerns data monetization (market data). In countries such as the United States, where the greater fragmentation of markets has brought more asymmetries and accentuated the value of information for participants, there is even talk of a "directional change" in the stock-exchange business model, where transaction-based revenues would be replaced by "recurrent subscriptions", that is, a regular sale of real-time data packages. Around here, we have not yet seen such transformation, but the fact is that this revenue line should gain share in BVMF's consolidated revenues. And this is in the context of a country where the penetration of financial products is low and the capital markets are still incipient when compared to other economies in the world.

There is considerable potential for volume growth in existing contracts and services. International experience indicates that exogenous ingredients such as greater levels of individual education/financial sophistication, demographic trends such as population aging and the consequent need for better management of household savings, as well as a healthier institutional environment, producing stable economic growth, all act as tailwinds that hoist the sails of a more sustainable development of the capital markets. All this conspires in favor of not only an increase in the valuations of existing assets, but also of new public offerings, as well as of the emergence of new risk and liability management needs, strengthening the equities and derivative markets.

Indeed, making a critical assessment of the Company's results over recent years, we see that the revenue line fell short of both our initial expectations and analysts' consensus at the time. That is, BVMF did not deliver the expected growth, mainly due to this particularly adverse external environment during the period. As a consequence, operating results were under pressure and EBITDA remained practically stable over the last five years. If, on the one hand, the lack of growth frustrated expectations, on the other, it proved the resilience of the Company's business model. Since, again, over a very troubled period, BVMF continued to generate enough free cash flow to remunerate its shareholders, and to finance the heavier investment programs that are important to consolidate its hegemony in the market. The Company therefore took advantage of the relative drought to work hard on improving its sails (equipment, systems, integration of clearings) and now seems well positioned to capture the propulsion potential when and if new virtuous regimes of winds re-blow.

Another lesson of this period was the Company's understanding that it cannot depend in such umbilical way on the alignment of external elements to move forward. It is necessary to develop its own driving force, notably through the development of new financial products, capturing demand and stimulating new market niches. Hence the new features in *Tesouro Direto* (direct channel for treasury bond trading for retail investors), fixed-income ETFs, non-sponsored BDRs, inflation-linked (*IPCA*) coupon futures, listing of real estate investment funds, asset lending, stock lending, are all examples of new products that have already been launched or that figure on the pipeline of future releases.

This set of initiatives tends to unleash repressed demands, expanding BVMF's revenue lines. When developed as internally designed contracts, they have the added advantage of becoming intellectual property for the Company. Unlike shares, which are corporate

2 *In the equities market, BVMF charges a percentage of the traded volume. The volume is simply the multiplication of the price of the traded asset by the number of transactions. As a result of this product, the higher volume of transactions has partially offset the weaker performance of asset prices over the last few years.*

property authorized for trading on third-party platforms – such as ADRs, share receipts of Brazilian companies traded on American stock exchanges – an NTN-B future contract, for example, is not fungible and will hardly be negotiated by third parties. International experience shows that the same type of contract is rarely traded with reasonable liquidity in another trading environment. In industry jargon: 'contracts do not usually steal liquidity', that is, the proposition of competing with third party contracts is usually not justified.

Further diversification in the product portfolio has brought additional benefits. Today, 22% of BVMF's revenue is already linked to the US dollar. This is an interesting hedge, since historically the abrupt movements of falling asset prices in the domestic market are usually accompanied by adjustments in the exchange rate. That is, a dollar-denominated revenue base acts as a shock-absorbing mattress in such difficult times. Another interesting trend that was observed is the diminishing of the relative importance of banks in the Company's revenues. In local currency interest-rate contracts, for example, financial institutions fell from 60.5% of total revenues in January 2004 to 17.7% in October 2016. As a group and as major clients of BVMF, financial institutions have always posed a potential competitive threat to the Company. Even without the stated intention of establishing an alternative platform, it was feared that, in a potential exercise of this bargaining power, BVMF's product development agenda could be captured by the priorities and interests of the banks. With the gradual dilution of their share of total revenues, the intensity of this potential conflict is reduced, in theory. On the other hand, the more successful BVMF is in improving its services and launching new products, the greater the potential threat to the business of financial institutions, given the disintermediation of services and banking products that this may generate. That said, this subject deserves even more attention in the context of the Company's transaction with Cetip, as we will see below.

In February of last year, BVMF announced its intention to acquire all the shares of Cetip. Founded in 1984, demutualised in 2008 and listed on the São Paulo Stock Exchange (Bovespa) since 2009, Cetip is the largest privately held depository of fixed-income securities and largest private asset clearinghouse in the country. It has an integrated model in the registry, custody and settlement of fixed-income assets and over-the-counter (OTC) derivatives, and offers a platform for electronic trading for the secondary market of public and private securities. Cetip also has a profitable business unit focused on vehicle financing, centralizing records, custody, and vehicle liens. Although its business segments were more complementary than they were similar, Cetip represented the greatest competitive threat to BVMF. The two were in a Cold War and had been arming themselves through high investments in technological infrastructure, which in theory would enable them to eventually invade each other's markets. In fact, BVMF advanced its troops when it launched its own OTC fixed-income platform, which prompted ICE (Intercontinental Exchange), Cetip's largest shareholder, to adopt a more active position to defend the company's business lines, while at the same time trying to counteract BVMF's move. In this context, the previously tried-and-tested combination of forces was already on investors' radars and made a lot of strategic sense for both companies.

BVMF's proposal in this deal consists in remunerating the shareholders of Cetip with part in cash, and part in shares. The cash portion of approximately R$ 8 billion will be financed by the proceeds from the sale of BVMF's stake in CME (R$ 5.5 billion), as well as new issuances of R$ 3 billion in debentures and U$ 125 million in loans. As the combined companies can generate EBITDA of around R$ 2.6 billion in 2017 and their heaviest cycle of capex will be behind them, the operation does not generate excessive leverage. In this regard, the timing of the divestment in CME was very precise: it captured the appreciation of CME's market value, as well as gains from the devaluation of the Real, enabling funding for an important part of the transaction with Cetip, in addition to unlocking substantial value for BVMF's shareholders, since the stake in the American company was poorly priced by the market.

The price offered for Cetip is not a bargain (about 18x earnings, 2017E), but the effects of a possible competitive war could have been much more costly for BVMF. Tax gains with amortization of goodwill and with 'interest on equity' (tax-deductible shareholder distributions) are relevant, in addition to some operational synergies. Some of these synergies (30%) will be returned to customers, and a pricing committee where banks will have the majority of seats will be established, which highlights the resilience of these stakeholders, much more relevant to Cetip's business than BVMF's. The integration of cultures and distinct systems will also be a challenge. In the recent past, Cetip has pleased its clients by being an agile and efficient service provider – characteristics that must be preserved and disseminated, even within a larger structure such as BVMF-Cetip. As we have seen in several other mergers, the experience of integrating the technologies and cultures of Bovespa and BM&F was not the best, and the process dragged on for longer than appropriate. We hope the lessons have been learned. This is an aspect that should be closely monitored.

The market value of BVMF before the merger of Cetip was R$ 30 billion. The Company had a little less than R$ 9 billion of net cash and generated almost R$ 2 billion of recurring cash-flow per year. After the merger, with the respective issuance of shares and payment in cash, the market value increases to R$ 35 billion and the recurring free cash-flow generation of the combined companies remains at approximately R$ 2 billion since the decrease in financial income is offset by Cetip's cash flows. By deducting the present value of the tax benefit of goodwill from the market value, we arrive at the valuation of 16x expected earnings for 2017. With this level of cash flows, BVMF-Cetip should undergo a rapid deleveraging in the next few years and/or increase its payout level from 80% in 2016 to close to 100%, generating a dividend yield close to 6%. In other words, the valuation of the combined companies seems reasonable and the final result of the Cetip deal appears promising for BVMF shareholders: the revenue lines diversify further into segments with high growth potential, diluting the dependence on the volatile behavior of the market and reducing the probability that a new entrant will significantly harm BVMF-Cetip's business. The more comprehensive your product portfolio is, the more extensive the level of integration of back-office activities, and the stronger BVMF's competitive position becomes.

From the regulators' standpoint, the transaction seems to make sense because it facilitates the migration of Cetip's over-the-counter derivative operations to a CCP structure, eliminates the potential risk of establishing incentives for a regulatory "race to the bottom", and favors market supervision by consolidating operations into a single participant. In a first technical opinion, *CADE* (Brazil's antitrust agency) noted that the horizontal overlap between the two companies' activities would be negligible, acknowledged the potential efficiency gains for the system, and found no reason to forbid the transaction. On the other hand, it admitted that the merger would potentially raise the competitive barriers for a new entrant, which led to the suggestion that the eventual approval be accompanied by possible "remedies"[3], such as, most likely, the granting of access for third parties to the central depository, under the category of 'essential facility'. It is always difficult to anticipate the final content of such antitrust decisions, but in this case it does not seem that tougher restrictions such as price regulation are likely to be imposed.

From a people perspective, Cetip has a competent executive team, which can bring interesting complementarity and diversity to BVMF's structure. The integration process could serve as a catalyst for the Company to reinforce the goal of pursuing a more pronounced corporate culture, which should translate, for example, into a more effective program for the training and promotion of internal staff. Discussions on these issues would be particularly timely as one begins to think in a more structured way about the succession of the current CEO, who was BM&F's CEO from 1999 to 2008 and since then has been at the helm of BVMF. Along the way, BVMF seems to have succumbed to a frequent temptation among companies with no controlling shareholders, which is to distribute generous compensation packages to their executives. In this case, a stock option plan with an exercise price 50% below the market price, as well as a profit sharing program without adequate sensitivity to the achievement of performance targets, were included. As a result of the interaction of some investors, including Dynamo, the Company has shown a willingness to promote improvements in order to restore a better balance of incentives. This openness to dialogue reflects good-faith and maturity on the part of current managers and board members.

With the change from a consortium regime to a corporation, the Company's Board of Directors acquires an even greater importance. In addition to its functions and responsibilities, which are well known and well defined in our corporate legislation (*Lei das S.A.*), the Board assumes the role of trusted party in navigating the Company's very peculiar threefold mandate: pursue profits, exercise self-regulation, and

3 *The so-called remedies are the restrictions, mitigations or possible compensations that the competent bodies impose on the participants in the approval of the concentration acts.*

promote the development of the capital markets. The conflicts are permanent and it seems to us that the presence of long-term shareholders on the Board can contribute to the discussions about how to best address this delicate balance.

Attentive to the risks that can affect our investments, we continue to monitor some blinking indicators. In addition to those mentioned above – succession/CEO, integration with Cetip, banks' position, *CADE* remedies –, *CARF* (the Administrative Board of Tax Appeals) still holds discussions on the tax benefit of goodwill amortization on the merger that gave rise to BVMF, in addition to the tax treatment of stock option plans. The first, and more relevant discussion, should result in a loss at that forum, but given the possibility of an appeal, and a delayed final decision, in addition to a possible refinancing of the amount due (through the *REFIS* program), the practical effect at present value tends to be reduced. Another specific and difficult issue concerns the possibility of extinction of 'interest on equity' payments, which would mean a significant increase in the effective federal tax rate.

Finally, a note about a development that is still remote, but worthy of caution given the potential severity of its impact. Watchful of the threats of technological disruption that are already present in diverse sectors, we added the progress of the digital technologies that may collide with our investments to our watch list. In the case of exchanges, it is the technology known as blockchain that has been receiving attention from the most experienced players, such as the Australian Stock Exchange (ASX), and BVMF itself, among others. We do not have the technical knowledge required nor the pretension of describing the workings of this complicated platform under construction – which originated in and lies at the heart of the functioning of the virtual currency known as bitcoin. Jumping to the end, blockchain technologies aim to transform itself into a universal and decentralized database that stores the record of all assets and transactions executed among market participants. It is an open platform where information is added in digital ledgers and validated through some form of consensus process predefined by its users, based on cryptographic technologies and clever incentives. This would eliminate asymmetries of exchanges and dissolve the lack of trust among market participants[4]. More relevant to our purpose in this Report, the blockchain would result in a complete disintermediation between counterparts. Entities such as clearing houses and central depositaries would simply become obsolete. Registration and custody activities would be even more easily displaced, imposing strong threats to Cetip, where these segments are very relevant. Hence it is in the interest of exchanges, BVMF – and ours – to follow this matter closely.

As we have said, the blockchain is still rehearsing its first steps and faces considerable challenges – technological, regulatory, legal, socioeconomic, cultural, psychological. We know that complex processes with not-yet-mastered structures and distant goals can deviate along the way, resulting in different arrangements from the ones initially designed. In this context, we could even imagine configurations that would benefit incumbent stock markets, for example, if we do not require complete disintermediation and we have to admit the existence of an entity to manage the network. This entity could be public/open or private/permissioned. In this case, the exchanges that participated in the process from the

4 *And so we would be faced with a typically Northian arrangement (in the language of Dynamo Report 89 on the work of Douglass North), in a contemporary/digital version of the institutions, as researcher Bettina Warburg noted so well in: https://www.ted.com/talks/bettina_warburg_how_the_blockchain_will_radically_transform_the_economy#t-567470*

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.

beginning would become strong candidates for this role. The disruption would eventually turn into opportunity. In terms of our investment, it is worth noting that a group of BVMF executives are closely following the developments of this technology, aware of the repercussions that may affect their business model. As long-term investors, we appreciate this kind of proactive mindset, meeting the future wherever it is, rather than going against it, until it invariably arrives.

BVMF is an investment with very interesting fundamentals, and not at all simple. It requires continuous monitoring and sobriety to distinguish signals from noise. Technological innovations and regulatory revisions are rapidly transforming the industry landscape in the world. Trading platforms have become vulnerable. Clearing and settlement operations have become more complex and subject to greater scrutiny by regulators. The value has shifted according to the chronology of the services provided. The benefits of network effects and scale also flowed to post-trading activities. The time came to endorse the arrangement of the industry in Brazil, where regulators preferred to preserve the stability of the system and the incumbent chose not to abuse its monopoly status. The vertical model of BVMF proved to be a winner and is now being pursued by the other players abroad. Finally, the integration of the clearings and the acquisition of Cetip are correct strategic decisions, in order to make BVMF's business even more robust and resilient.

Rio de Janeiro, January 17, 2017.

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DYNAMO

DYNAMO ADMINISTRAÇÃO DE RECURSOS LTDA.
Av. Ataulfo de Paiva, 1235 / 6° andar. Leblon. 22440-034. Rio. RJ. Brazil. Phone: (55 21) 2512-9394. Fax: (55 21) 2512-5720

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