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Sector Report | Brazil | Banks & Financial Services

BRAZIL: BANKS & FINANCIAL SERVICES

TO BITCOIN OR NOT TO BITCOIN?

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Net/Net: On August 23 we hosted a meeting between Mercado Bitcoin—the largest bitcoin brokerage company in Latin America—and local investors. Although we believe the potential impact of a broader acceptance of bitcoins to be more of a long-term issue, we acknowledge that "long term" in the technology world can sometimes go by in a flash. On the one hand, we see increasing risk for the business models of acquirers (such as Cielo), while on the other hand we believe Brazilian banks could benefit from the potential advantages of the blockchain—the technology underpinning bitcoins.

- Acquirers and issuer banks (negative): We believe Cielo (CIEL3, current price R$33.28, target price R$34.00, Underperform) could be materially affected by acceptance of bitcoins, as its entire business model could be challenged—net MDR and POS revenue would be at risk, and the same applies for the interchange rate that issuer banks charge. We would add this to the numerous risks we already see for Cielo, which underscores our negative view on this name.
- Card brands (positive): We believe Visa, Mastercard, Elo, and other brands could benefit if the blockchain model can lower transaction, IT, and back-office costs. Visa has already announced some initiatives under way.
- Card suppliers (slightly negative): Valid (VLID3, current price R$29.53, target price R$37.00, Hold) could be negatively affected by acceptance of bitcoins, in our view, although to a much smaller extent, due to the reduced number of physical cards if the bitcoin concept prevails over credit and debit cards. The same applies to POS manufacturers, although none of these are listed companies. However, because of the uncertain timing and significance of bitcoin acceptance, at present we would not take any action on VLID3 related to the outlook for bitcoins.
- Exchanges (slightly positive): At present it is difficult to assess the potential impact on BVMF (BVMF3, current price R$17.54, target price R$17.00, Hold), although we understand that once a particular virtual currency emerges as the most acceptable one ("bitcoins" being on top of the list in terms of awareness and acceptance, although there are around 300 different types of virtual currencies so far), it could be traded in exchanges, thus increasing revenue from FX and derivatives trading. However, we expect that in this virtual world there will be fewer custody and settlement (clearing houses) fees.
- Brazilian banks (positive): The first reading is positive, in our view, due to the potential for significant cost savings, discussed in more detail later in this report. But we think it is too soon for any definitive conclusion and action—and this includes the potential negative impact from a reduced flow of revenue from banks' acquiring subsidiaries and interchange (if the bitcoin concept prevails).

TO BITCOIN OR NOT TO BITCOIN?

We hosted a meeting at Santander headquarters between the CEO of Mercado Bitcoin, Rodrigo Batista, and local investors. The Brazilian-based Mercado Bitcoin is the oldest and largest bitcoin brokerage company in Latin America, with 150,000 clients. In this report we discuss the main highlights of the meeting.

We also note that a vast and rich literature has already been produced about bitcoins (and the technology underpinning them, the blockchain). We can forward our suggestions for the most insightful reports on request.

Finally, we believe that the question in this report's title will eventually be answered with a resounding "Yes, to bitcoin." This suggests that one day we must be ready to face the potential challenges and opportunities we describe in this report for the banks and financial services companies we cover.

POTENTIAL IMPACT ON MEANS OF PAYMENT INDUSTRY

(-) ACQUIRERS AND ISSUER BANKS

Simply put, we believe a future with bitcoin transactions with their low (or no) costs and fees puts at risk the entire business model of credit and debit card companies. Acquirers such as Cielo (through net MDRs and POS revenue) and issuer banks (through interchange fees) potentially could suffer the most, in our view.

Comparing a bitcoin payment with a typical payment by card, we note that the latter has disadvantages, such as:

(i) A merchant receives the money in D+30 (vs. ~10 minutes in a bitcoin transaction);

(ii) Consumers and merchants need card contracts (vs. no contract needed);

(iii) High fees for cards, such as gross MDRs, due to several middlemen—acquirers, brands, issuer banks (vs. no material fees in a bitcoin transaction);

(iv) Local taxes for utilization of cards abroad (vs. no taxes);

(v) IT and back-office costs are needed to process the transactions (vs. the free-of-charge decentralized blockchain).

The risk increases as more and more merchants and suppliers accept bitcoins. As of October 2014, more than 64,000 businesses were reported to accept payments in bitcoins around the world (according to CoinDesk, *State of Bitcoin 2014*, February 26, 2014).

(+) Card Brands

We believe brands such as Visa, Mastercard, Elo, and others could be safer from the bitcoin threat, as, similar to banks, they could benefit from the blockchain concept in order to lower transaction, IT, and back-office costs.

Visa already announced it is taking the first steps, testing a system for sending money over blockchain (other initiatives include micropayments, machine-to-machine transfers, and business-to-business payments). It has teamed up with BTL Group (a digital payments start-up) to adapt its technology for processing interbank transactions. The project is designed to cut costs, speed up settlement time, and reduce credit risk in the market for moving money between banks both domestically and cross-border. In our view, it is definitely a challenge to Swift (banks' interbank payment system).

Potential Impact on Banks

Currently, we believe that banks consider this technology to be in its early stages; however, this has not prevented them from starting to take action.

The one that has received the most attention is the August 2016 announcement by four of the world's biggest banks (Santander, Deutsche Bank, BNY Mellon, and UBS, in addition to the broker ICAP) that they have teamed up to develop a new form of digital cash that they believe will become an industry standard to clear and settle financial trades over blockchain. The team aims for its commercial launch by early 2018.

We also cite Citigroup (which has been working on its own "Citicoin" solution), Goldman Sachs (with its "SETLcoin"), and JP Morgan, all of which have stated that they are working on their own versions of e-currency.

We believe the blockchain concept has the potential to redefine money transactions in the banking world, taking advantage of the power of decentralized computer networks to eliminate difficult, time-consuming, and costly trading among banks. IT, transaction costs, the banks' huge back-offices, capital requirements—all of those could change in a material way, in our view.

A Bit More on Bitcoins

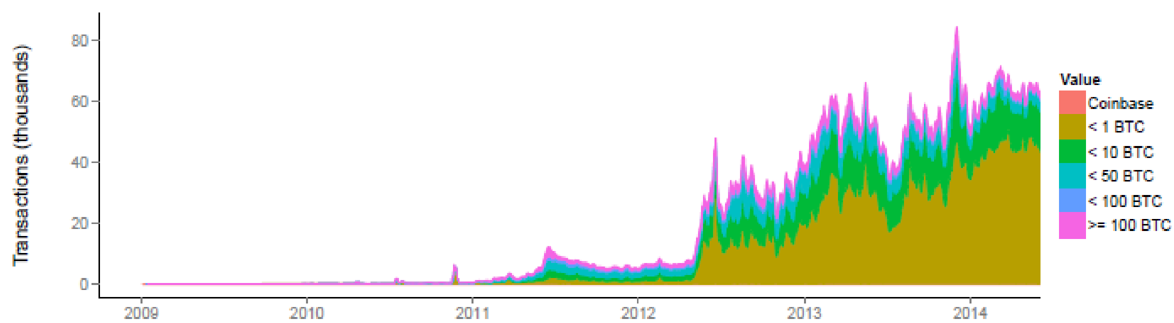
Bitcoins

You can call it e-cash, e-currency, or cryptocurrency. When we mention bitcoins, we are talking about a decentralized digital currency whose implementation involves a combination of cryptography, distributed algorithms, and incentive-driven behavior. It uses peer-to-peer technology to operate with no central authority: transaction management and money issuance are carried out collectively by the network.

Some advantages are the low (near zero) costs in a bitcoin transaction; both parties to the transaction do not need to know each other; payment is fast (on average it takes 10 minutes to process a transaction, as set by the bitcoin algorithm currently in place); there is no need to provide personal data. The bitcoin concept means a virtual cash transaction with anyone, anywhere, in any amount.

Some rough calculations suggest that the user base has doubled every eight months for the past three years, driving transaction volume growth, as shown in Figure 1.

Figure 1. Bitcoins: Transaction Volume in Thousands, 2009 to Mid-2015

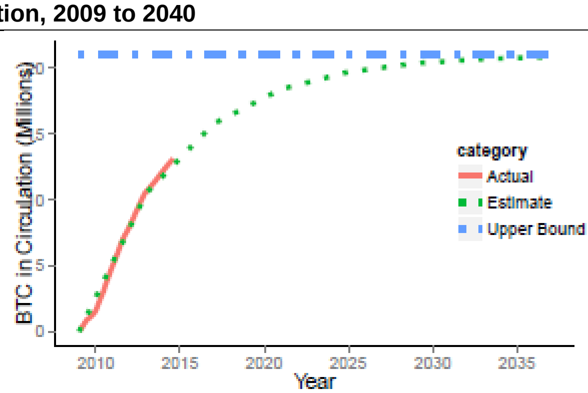


Source: Bitcoin: Technical Background and Data Analysis (Federal Reserve Board).

There is some certainty about the rate of growth of bitcoins, and therefore the number of bitcoins in circulation can be known beforehand, as shown in Figure 2 (which also shows that the growth rate of bitcoins is set to decrease exponentially).

The total number of bitcoins is expected to reach the upper range of 21 million BTC in circulation by the year 2040, according to the U.S. Federal Reserve Board.

Figure 2. Bitcoins in Circulation, 2009 to 2040



Source: *Bitcoin: Technical Background and Data Analysis* (Federal Reserve Board).

Finally, regarding bitcoin protocol, it can be thought of as a set of rules upon which all parties agree. As with all other systems of rules, the bitcoin protocol was not built perfectly from the start and thus needs updating to adapt to a dynamic, real-world environment. The updating uses an open-source model similar to that used for the ongoing development of Linux, an open-source operating system. The process mirrors the consensus-building deployed in the bitcoin protocol itself to come to an agreement on valid transactions.

BLOCKCHAIN

Blockchain is the technology underpinning bitcoin. It is a shared digital database that allows transactions to be recorded and verified electronically over a network of computers without a central ledger. Cryptography is used to protect the data from fraud or hackers.

Because the information in a blockchain is stored in a public, decentralized place, it is accessible and can be audited—and therefore it can be tracked for the purposes of preventing money-laundering.

THE "MINERS"

Each bitcoin transaction is chronologically recorded in a public ledger—the blockchain—by participants in the network. There is a reward for recording transactions in the blockchain, and the participants in the bitcoin system compete (by solving a computationally intensive cryptographic problem) to make records.

This is done by "miners," who have as a financial incentive the new bitcoins that are generated, plus a voluntary transaction fee.

Such "miners" have electricity and hardware costs for executing the proof-of-work computations, and thus they can be normally found in places where such costs are cheaper (countries with cold temperatures, for instance).

LOOKS GOOD . . . BUT IS IT SAFE?

One of the barriers to the implementation of e-cash has been security fears: bitcoins could be used for money-laundering, personal data could be stolen by hackers, etc. Big banks were originally skeptical about bitcoins because of such worries over fraud.

This situation has started to change already. Computer scientists have been addressing the potential threats from bitcoins, while banks are now willing to explore the blockchain concept.

In this regard, we note that in October 2015 the Bank of England concluded that the overall risk that digital currencies could be used for money-laundering purposes is low.

Figure 3. U.K. National Risk Assessment on Money Laundering

National risk assessment on money laundering							
Thematic area	Total vulnerabilities score	Total likelihood score	Structural risk	Structural risk level	Risk with mitigation grading	Overall risk level
Banks	34	6	211	High	158	High
Accountancy service providers	14	9	120	High	90	High
Legal service providers	17	7	112	High	84	High
Money service businesses	18	7	119	High	71	Medium
Trust or company service providers	11	6	64	Medium	64	Medium
Estate agents	11	7	77	Medium	58	Medium
High value dealers	10	6	56	Low	42	Low
Retail betting (unregulated gambling)	10	5	48	Low	36	Low
Casinos (regulated gambling)	10	3	32	Low	24	Low
Cash	21	7	147	High	88	High
New payment methods (e-money)	10	6	60	Medium	45	Medium
Digital currencies	5	3	15	Low	11	Low

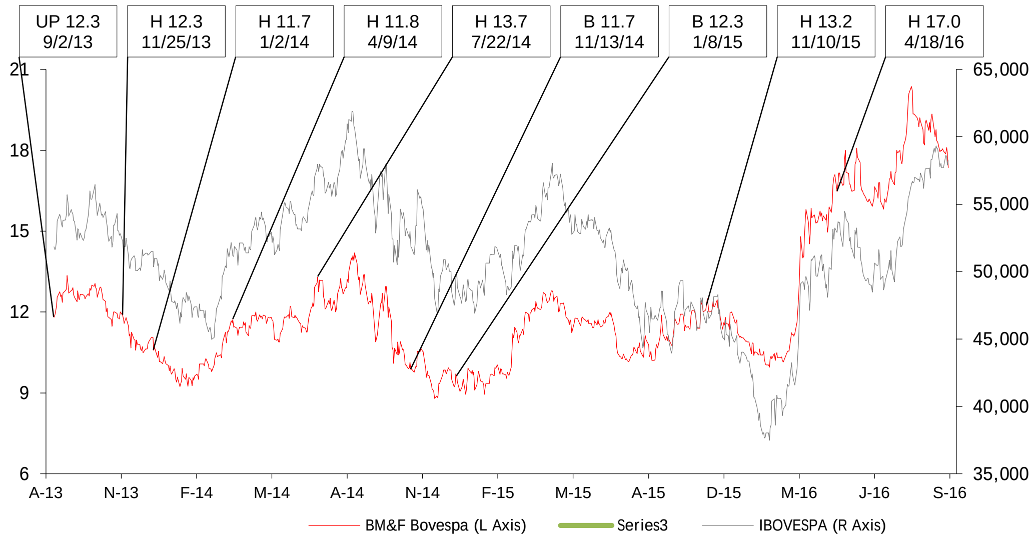
Source: HM Treasury, U.K. national risk assessment of money laundering and terrorist financing, October 2015.

EVENTS ON THE BITCOIN TIMELINE

- January 2009: Bitcoin protocol is released, and the first coins are generated by “miners.”
- July 2010: Mt. Gox launches an exchange to trade bitcoins.
- February 2011: Silk Road, an online marketplace mainly for illegal activities, is founded.
- June 2011: BTC China exchange is founded.
- July 2011: BTC-E, a Bulgarian-based cryptocurrency exchange, is launched.
- August 2011: Bitstamp is founded in Slovenia; in April 2013 it moves to the U.K.
- October 2011: Litecoin is released as a modified version of the original bitcoin code by a former Google employee.
- April 2012: Satoshi Dice, the most popular bitcoin online gambling service, begins operations.

- February 2013: A new anti-money-laundering law causes Dwolla to cancel transactions from Mt. Gox.
- April 2013: Mt. Gox suspends trading for a day, causing the price of the currency to drop sharply.
- March 2013: FinCEN defines its position on virtual currency and outlines a regulatory response.
- May 2013: Satoshi Dice blocks all incoming U.S.-based IP address traffic, citing possible legal concerns.
- September 2013: Federal Reserve Chairman Bernanke sends a letter to Congress on virtual currency.
- October 2013: The FBI shuts down Silk Road, seizing 26, 000 BTC worth approximately USD3.6 million at the time.
- December 2013: Chinese authorities prohibit banks and payment institutions in the country from dealing in bitcoins.
- February 2014: Mt. Gox files for bankruptcy after disclosing the loss of 850,000 BTC valued at almost USD500 million at the time.
- February 2014: Bitstamp (the largest exchange at this time by value of processed transactions) suspends withdrawals for several days after facing a distributed DOS attack.
- March 2014: IRS issues guidance on virtual currencies.
- June 2014: Mining pool temporarily reaches 51% network computing power.
- July 2014: New York regulators propose new rules to govern virtual currency businesses.

BM&F Bovespa – Three-Year Stock Performance (R$)

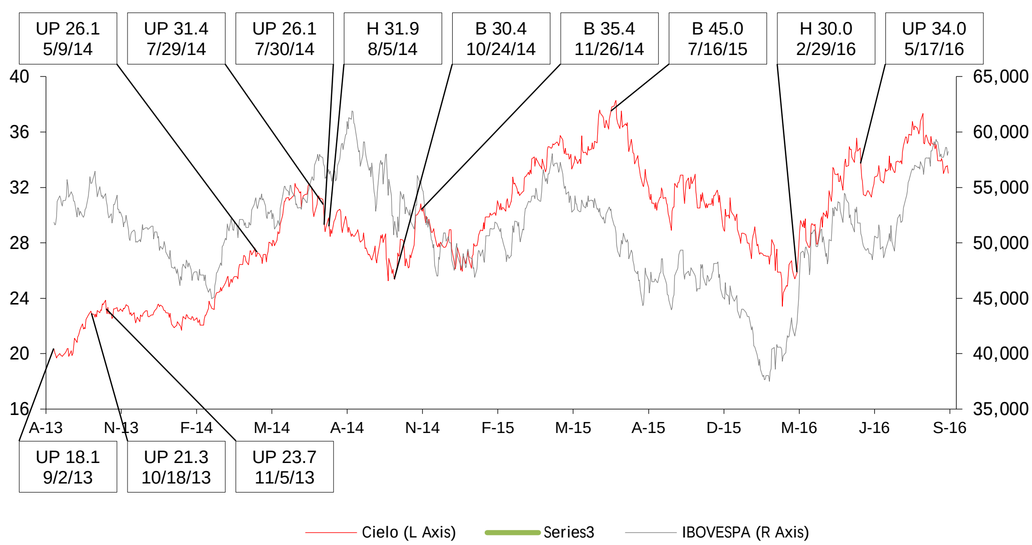


Sources: FactSet and Santander.

Valuation & Risks

Our valuation is based on a two-stage DDM. Risks to the company include trading volume being significantly different than our estimates, competition from foreign exchanges and other trading platforms, as well as regulatory and pricing policy.

Cielo – Three-Year Stock Performance (R$)

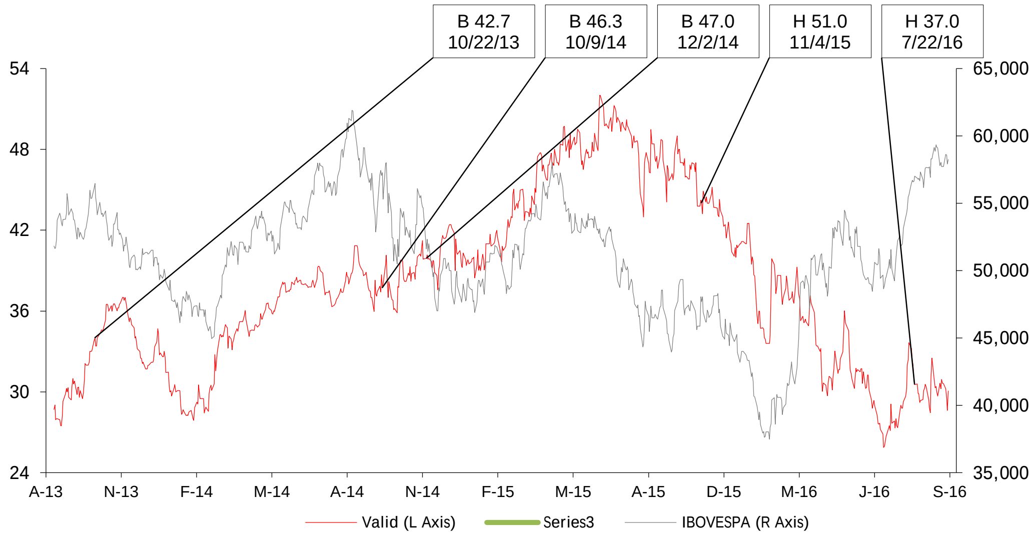


Sources: FactSet and Santander.

Valuation & Risks

Our valuation is based on a two-stage DCF model, with a Gordon Growth Model at perpetuity. Risks are mainly related to ongoing regulatory and legislative initiatives that could affect the profitability of the industry, stronger competition from new entrants and/or existing competitors, and the execution risk related to its prepayment business.

Valid – Three-Year Stock Performance (R$)



Sources: FactSet and Santander.

Valuation & Risks

Our valuation is based on a two-stage DCF, with a Gordon Growth Model at perpetuity.

Main risks are related to (i) execution risk on new acquisitions; (ii) unfavorable market conditions in the several markets Valid operates such as means of payments (cards) in Brazil and in the U.S., telecom, printing, identification systems, and others; and (iii) contract renewal.

Key to Investment Codes

Rating	Definition	% of Companies Covered with This Rating	% of Companies Provided Investment Banking Services in the Past 12 Months
Buy (B)	Expected to outperform the local market benchmark by more than 10%.	46.72	5.41
Hold (H)	Expected to perform within a range of 0% to 10% above the local market benchmark.	43.24	2.70
Underperform	Expected to underperform the local market benchmark.	10.04	1.16
Under Review (U/R)		0.00	0.00

The numbers above reflect our Latin American universe as of Friday, September 02, 2016.

For a discussion, if applicable, of the valuation methods used to determine the price targets included in this report and the risks to achieving these targets, please refer to the latest published research on these stocks. Research is available through your sales representative and other electronic systems.

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