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Impact of the Credit Crisis on the Market Infrastructures in the Americas

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The credit crisis that started with the problems in the subprime mortgage market in the United States in 2007, and has continued throughout 2008 and 2009, has been complex due to the introduction of sophisticated assets whose risks were not always fully understood by the investment community. The asset-backed securities, which were composed of risky mortgages, were packaged and sold to banks, investors, and pension funds worldwide in the form of debt securities. Although these highly rated securities were considered relatively safe and provided good returns compared to more conventional asset classes, they were not as safe as the ratings suggested, because their value was closely tied to movements in house prices which declined sharply in 2007. Initially, the effects of the crisis were restricted to a shortage of liquidity in money markets and the effective closure of certain capital markets that affected credit availability between banks. However, the effects of the crisis have now spread to the real sector of the economy.

Although the crisis started in the US, it rapidly moved to other markets throughout the world until it became what is now regarded as the worst financial crisis in history after the Great Depression of the 1930's. Despite well developed market infrastructures in most investable markets, price volatility, liquidity issues and a credit squeeze caused a fall in market capitalisations and indices, and a rise in market defaults due to the bankruptcy of some financial institutions.

This article attempts to analyse the impact of these events on capital market infrastructures and the responses of these institutions in the Americas region.

As expected, the US market has been badly hit by the crisis. Several financial institutions had to be bailed out by the government such as AIG, Freddie Mac, Fannie Mae and Citigroup while others had to be acquired by their peers such as Bear Stearns and Merrill Lynch. Probably, the event that caused the greatest disruption in the market, in particular at the market infrastructure level, was the default of Lehman Brothers which filed for Chapter 11 bankruptcy protection on 15 September 2008. As a result, Lehman shares tumbled over 90% on that day. The Dow Jones closed down just over 500 points on 15 September 2008, which was, at the time, the largest drop in a single day since the days following the attacks on 11 September 2001.

Given the size of the exposure, and the fact that Lehman was a leading participant in the Depository Trust and Clearing Corporation's (DTCC) activities and OTC derivatives business, DTCC had to close out over USD 500 billion in market participants' exposure. The Fixed Income Clearing Corporation's (FICC) Mortgage-backed Securities Division (MBSD) handled the liquidation of a gross position of USD 329 billion in par value of Lehman's book of "to be announced" mortgage-backed securities trades that were outstanding at the time of its bankruptcy. Working with all the dealers, banks and other firms with which Lehman had conducted trades, and acting as a "CCP for a day," FICC MBSD was able to net down and resolve almost 90% of the forward trades. Over the following few weeks, FICC gradually sold the remaining net obligations into the market with no losses assessed against MBSD members' clearing deposits and with no observed market impact.

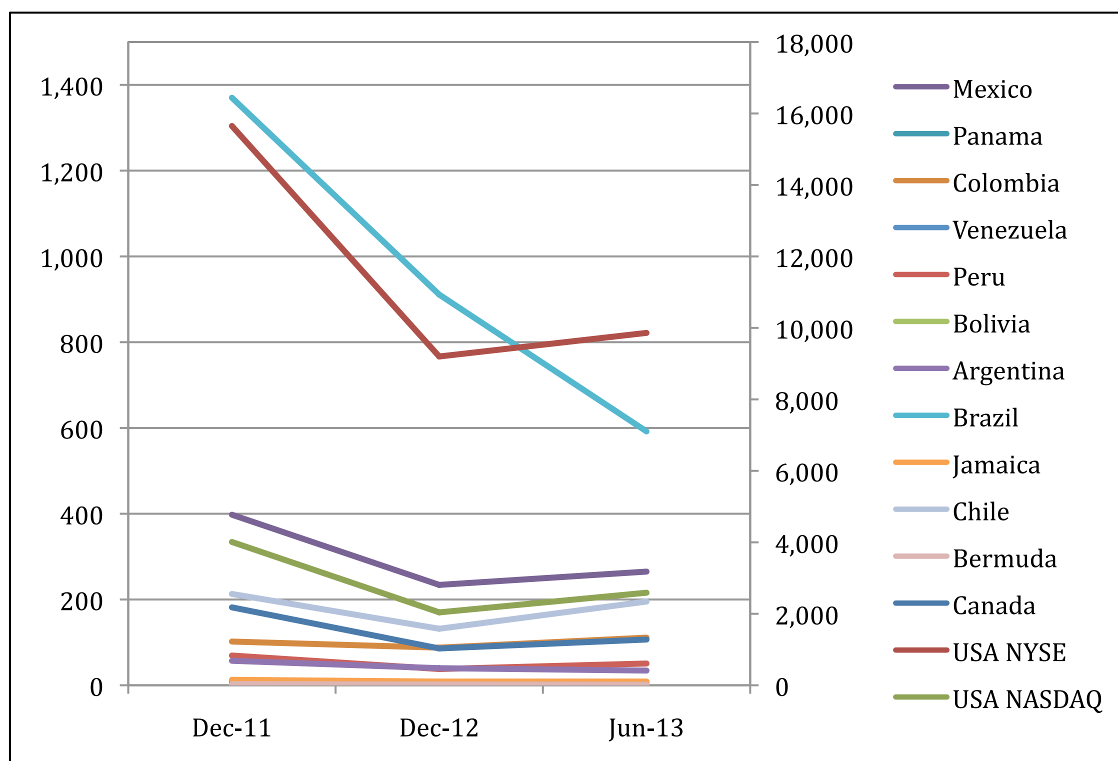
The National Securities Clearing Corporation (NSCC), which is responsible for clearing and settlement of virtually all broker-to-broker trades in the U.S. in equities and corporate and municipal debt securities, faced a total exposure of approximately USD 5.85 billion from Lehman Brothers at the time its accounts were closed. DTCC reported that there was no impact to its retained earnings (i.e. DTCC was not required to use its reserves to meet these obligations) or to market participants' clearing fund deposits as a result of closing out these pending trade obligations. The impact of the market turmoil and the drop in asset prices was visible, however, in the financial results reported by DTCC during 2008. Revenues at DTCC fell by around 17% mainly caused by lower trading services, custody services, network services and interest income, which in turn caused a net loss of nearly USD 20 million.

Due to the crisis, DTCC was required to process four consecutive days of record high equity trading volume, which reached 209 million transactions in a single day on 10 October 2008 with no major market disruptions.

Canada, despite being closely tied to the US market did not see any major impacts caused by the crisis given that Lehman was not a direct participant at CDS Clearing and Depository Services Inc (CDS Clearing). However, due to the collapse of the Asset-Backed Commercial Paper (ABCP) market in August 2007, CDS had to create a restructuring and conversion plan. In the end, a total of 809 securities held at CDSX (CDS Clearing's settlement system) were identified and readied for interest payments to their holders. These 809 securities were also converted in 55 series of notes using the rights and warrants functionality within CDSX. The new notes are called Master Assets Vehicles (MAVs) and are divided into three subsets MAV1, MAV2 and MAV3.

A second impact of the credit crisis was seen in the sudden increase in trading volumes at the Toronto Stock Exchange (TSX) which impacted the settlement of trades at CDS Clearing. For one week in September 2008, on four out of five days, exchange trades exceeded the one million mark and on 18 September 2008, over 1.5 million exchange trades were processed (against a peak of 1.05 million trades processed in August 2007). As a result, CDS Clearing encountered some delays in the distribution of trade messages on the heaviest day. Their response included an increase in the systems capacity and the tests performed by the IT teams.

In emerging markets in the Americas region, the impact of the crisis has been more visible for stock exchanges compared to central securities depositories (CSDs) due to lower market capitalisations high volatility experienced as investors withdrew funds from riskier assets to transfer them to safer investments. However, the region was generally less affected by the crisis than others given that no banks had to be bailed out by the government. As can be seen from the chart, market capitalisations fell in all markets between December 2007 and December 2008 although a recovery has been experienced to June 2009 for most.



Figures in USD billion
Canada, USA NYSE and USA NASDAQ in right axis

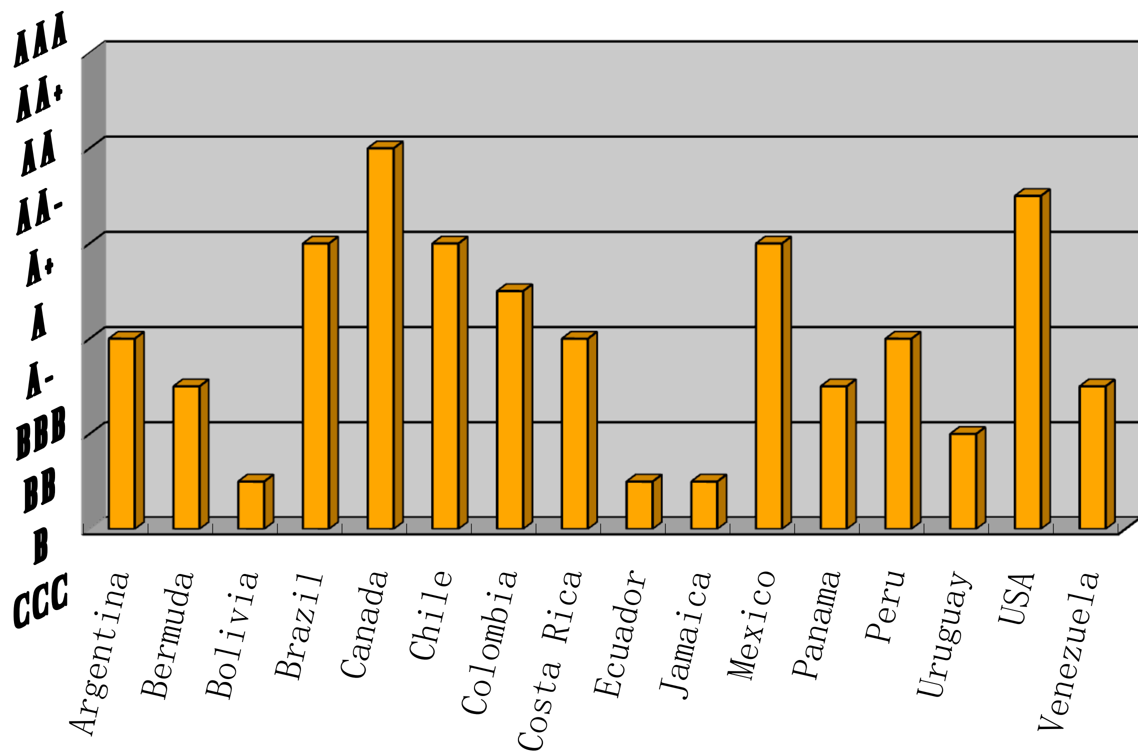
The post-trade infrastructure has not been particularly affected although the impact varies depending on the fee structure arranged by depositories and clearing houses. Those CSDs that rely more heavily on custody fees have been less affected since despite a drop in asset values, these are less vulnerable to sudden changes. Another feature of the emerging markets in the Americas is that a large part of their investable assets come from fixed income securities whose value was not that affected by the crisis. Those depositories that depend more on clearing and settlement fees that are variable with trading volumes suffer to a greater degree although this has not been as great as some CSDs in other regions.

A good example would be DECEVAL, the Colombian CSD for equities and corporate debt, which saw an increase in operational revenues in 2008 of 23% compared to 2007 while net income increased by 27% during the same period. The results can be explained by the fee structure, in which safekeeping fees represent 38% of the total, custody fees 24%, while settlement services only represent 11.4% of service revenues.

Similarly, CBLC, the Brazilian CSD for equities and corporate debt, reported that they did not see any major impact on either their revenues or net income as a result of the crisis. Although separate financial accounts for CBLC are not available as they are part of a holding company (BM&FBOVESPA), representatives of CBLC confirmed that the credit crisis had little impact on their operations. CBLC made some changes to their fee structure but this was a result of the corporate restructuring (the integration in the holding company) rather than the crisis specifically.

In Chile, although the market capitalisation was down at the end of 2008 compared to 2007, trading volumes increased. As a result, despite a 5.1% decrease in the value of assets under custody at DCV, the Chilean CSD, there was a 7% increase in total revenue and a 21% increase in net income.

In contrast, the Peruvian capital markets and, in particular, the post trade infrastructure was more adversely affected by the crisis in 2008, which was reflected in a drop in traded volumes of 36.4% compared to the previous year (the largest decrease came from equities trading – 45%) and a decrease in the General index of the stock exchange by 59.8%. These results inevitably had an impact on Cavali, the single Peruvian CSD. Operational income was down by 39% in 2008 mainly due to the lower trading volumes while net income was 46.6% of 2007's. Despite the effects of the crisis, the capital markets infrastructure ratings (CMIRR) in the Americas region have not been downgraded. In fact, some of the projects developed by many entities involved in post-trade processing are designed to mitigate risks and potentially could improve their overall ratings if the implementation of the projects considerably improves one of the risk categories. The current CMIRR ratings are shown in the following chart:



The overall rating is a weighted average of the different risk components including asset commitment risk, liquidity risk, counterparty risk, financial risk, operational risk and asset servicing risk. The CMIRR ratings are assigned to the market infrastructure as a whole, including all CSDs in the market, arrangements for settlement of physical securities, payment systems, local regulations, etc.

Lessons

Some of the lessons learnt by the crisis include the importance of central counterparties to mitigate credit risks in the event of default by a market participant. CCPs are designed to guarantee that covered trades outstanding at the time of a bankruptcy of a participant will be settled on their original terms. CCPs step in between the seller and buyer of each trade to assume the counterparty risk and the responsibility to deliver the securities to the buyer and payment to the seller.

This process is facilitated through the use of sophisticated and functional risk management procedures in order to prevent large market disruptions in the event of a crisis. The best CCPs regularly stress test their clearing funds against a potential largest possible loss using historical and theoretical data. However CCPs are only as effective as their risk models, hence the nature of the models and the range of stress tests need to be carefully scrutinised.

Another lesson being learnt is in the area of market regulation in particular for short sales. Many regulators were forced to implement restrictions on short sale transactions on financial stocks to prevent significant falls in equity prices. Many investors speculated on the continuation of drops, which in turn exacerbated the decrease in asset prices. Many regulators have been reviewing their regulation in this area to prevent similar situations in the future.

Recent Developments

Some of the recent developments or plans announced in the markets include:

- USA: DTCC is looking to improve its CCP services during 2009 by developing a new central counterparty for Mortgage-backed securities (to be operated by FICC) as well as providing novation services for equities in real-time. Currently trades are novated by NSCC at the end of T+0 only.

- Peru and Colombia: The Lima and Colombia Stock Exchanges are currently holding discussions regarding a possible merger. Although no target date has been announced, the goal is to improve the market liquidity by combining the stocks of both exchanges onto a single trading platform.

- Brazil: a corporate restructuring took place during 2008 at the market infrastructure level by combining the derivatives exchange (BM&F), the stock exchange (BOVESPA) and the equities and corporate debt CSD (CBLC) into a single holding company.

- Costa Rica, Panama and El Salvador: The stock exchanges of these three Latin American countries have agreed to integrate. Following a series of meetings, the general managers agreed on the model for the market and business model that they will follow in the future. The action plan envisages the establishment of a company in which all three exchanges will participate on an equal basis.

- Chile: A new clearing and settlement law was approved by the Chilean congress in June 2009. The law introduces the concept of finality, central counterparty and establishes the conditions and requirements for clearing and settlement systems.

- Argentina: Several market restrictions remain in place. The latest restriction announced by the central bank is in respect of securities transactions between local depositories (either Caja de Valores or CRYL) and international central securities depositories/clearing houses, which are only possible if the securities balance has remained in the client's account for a minimum period of three working days from the date the securities were credited in the account.