



## Short Communication

## Share price clustering in Mexico

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## ABSTRACT

In this paper, we test the share price clustering phenomena and its determinants for the Mexican share market. We consider the top-12 listed companies. We observe cases of significant price clustering behaviour in the Mexican share market. Our analysis of the determinants of price clustering reveals that volume and volatility negatively impact price clustering, consistent with theory. However, own price has a negative effect on price clustering. While this is inconsistent with theory, it implies that in Mexico market participants are concerned about finer partitions of price.

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## 1. Introduction

Research on Mexico's share market is thin, with only a handful of studies. Coronel-Brizio, Hernandez-Montoya, Huerta-Quintanilla and Rodriguez-Acach (2008) examine the maturation process of the Mexican stock market using the autocorrelation analysis, detrending fluctuation analysis, volatility analysis, and standard deviation trending analysis. They find strong evidence that supports the fact that the Mexican market has become more efficient over time.

Gonzalez, Spencer, and Waltz (2003) examine the volatility of the Mexican stock market using the GARCH model. They find that volatility has increased in the 1990s but financial liberalisation did not contribute to this rise in volatility.

Brocato and Smith (1992) examine evidence of stock price comovement between the US, Canada, and Mexican stock markets. They find that innovations in the US stock prices have persistent effects in the Canadian and Mexican markets.

Becker, Gelos, and Richards (2000) examine the relative stock market performance of firms with different foreign exchange exposures around the time of the mid-1990s Mexican crisis. They find that exporting firms outperformed the market.

The goal of this paper is to examine the Mexican stock market from a completely different perspective by considering the price clustering

phenomena widely observed in the share price market. The main motivation for the investigation of price clustering behaviour has roots in market efficiency. In an efficient market, one should not expect traders to have any preference for prices ending with a particular digit. This means that prices should be uniform in an efficient market. Where such number preference is present, it renders markets inefficient since the information present in pricing behaviour (such as price clusters) can be used to predict prices. It follows that in the literature on Mexican share prices, this is our first novel contribution.

It should also be noted that the Mexican share market is significantly different from other emerging markets, such as China and India, where traditionally cultural factors and/or terrorism and sporting events have impacts on the performance of the share market. This is not the case for Mexico, hence among emerging markets, Mexico offers a fresh research option.

Our second contribution is that unlike the bulk of the literature on price clustering, we do not model price clustering for the aggregate market. Rather, we analyse the price clustering behaviour for the top-12 listed companies on the Mexican share market. Our work, thus, takes a more micro-level approach to examining price clustering and its determinants. The advantage of this approach is that it allows us to compare the degree of price clustering across a wide range of companies. In this light, the 12 companies considered for Mexico are fairly heterogeneous in terms of their mean share prices and volatility (see Tables 1–3). Hence, it will be interesting to see whether or not share price clustering exists in this heterogeneous set of companies.

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**Table 1**  
Price clustering.

|                   | AMXL MM equity |         | WALMEXV MM equity |         | TELECOA1 MM equity |         | CEMEXCP MM equity |         |
|-------------------|----------------|---------|-------------------|---------|--------------------|---------|-------------------|---------|
|                   | Freq (in %)    | t-value | Freq (in %)       | t-value | Freq (in %)        | t-value | Freq (in %)       | t-value |
| x.00 and x.05     | 0.195          | −0.60   | 0.262             | 7.17**  | 0.253              | 6.21**  | 0.187             | −1.53   |
| Even (incl. x.00) | 0.498          | −0.18   | 0.503             | 0.32    | 0.493              | −0.62   | 0.492             | −0.75   |
| x.00              | 0.095          | −0.78   | 0.124             | 3.67**  | 0.144              | 6.82**  | 0.085             | −2.27*  |
| x.01              | 0.095          | −0.78   | 0.081             | −2.91** | 0.108              | 1.31    | 0.103             | 0.45    |
| x.02              | 0.092          | −1.16   | 0.078             | −3.42** | 0.086              | −2.13*  | 0.111             | 1.67    |
| x.03              | 0.103          | 0.37    | 0.114             | 2.10*   | 0.099              | −0.19   | 0.103             | 0.45    |
| x.04              | 0.114          | 1.98*   | 0.088             | −1.84   | 0.094              | −0.98   | 0.087             | −1.98*  |
| x.05              | 0.100          | −0.02   | 0.138             | 5.89**  | 0.109              | 1.45    | 0.102             | 0.24    |
| x.06              | 0.090          | −1.39   | 0.094             | −0.98   | 0.084              | −2.41*  | 0.106             | 0.88    |
| x.07              | 0.105          | 0.67    | 0.072             | −4.42** | 0.084              | −2.48*  | 0.109             | 1.38    |
| x.08              | 0.107          | 1.06    | 0.120             | 3.10**  | 0.085              | −2.34*  | 0.103             | 0.45    |
| x.09              | 0.100          | 0.06    | 0.092             | −1.20   | 0.106              | 0.95    | 0.092             | −1.27   |
| T                 | 1892           |         | 2167              |         | 2167               |         | 2167              |         |
| Mean              | 12.88          |         | 22.46             |         | 23.32              |         | 18.71             |         |
| Std               | 11.00          |         | 12.01             |         | 14.46              |         | 9.52              |         |
| Max               | 37.15          |         | 49.36             |         | 64.11              |         | 42.50             |         |
| Min               | 1.91           |         | 8.46              |         | 9.28               |         | 7.49              |         |

\* Significance at the 5% level.

\*\* Significance at the 1% level.

Similarly, in considering the determinants of share price clustering, it will be interesting to see if the impact of volume, price and volatility has similar effects regardless of the heterogeneity of companies.

The rest of the paper is organised as follows. In the next section, we provide a brief overview of the Mexican share market. In Section 3, we discuss the conceptual framework that motivates price clustering behaviour and provide a brief review of the literature on share price clustering. In Section 4, we discuss the results, and in the final section, we provide some concluding remarks.

## 2. An overview of Mexico's share market

The Mexican stock exchange, known as Bolsa Mexicana de Valores (BMV), is the second largest stock exchange in Latin America. The total value of the stock exchange is estimated to be over US \$600 billion. The BMV trades debt instruments, federal government development bonds, investment unit bonds, banker acceptance, promissory notes, and commercial paper and development bank bonds. The exchange also trades stocks, debentures, mutual fund

shares, and warrants. Trading is electronic through the BMV-SENTRA Equities system.

The number of listed companies on the Mexican stock exchange in 2007 was 125. Compared with 1988 when there were 194 listed companies, this represents a 55% decline (Standard & Poors, 2008). While the number of listed companies have declined, market capitalisation has increased—from US\$91.7 million in 1988 to US \$397.5 million in 2007. Similarly, over the 1988–2007 period, trading value has increased almost fourfold—from US\$34.2 million in 1988 to US\$116.3 million in 2007 (Standard & Poors, 2008).

Over the period 1988–2007, the turnover ratio has also increased, from 28.6% in 1988 to 31.3% in 2007. The returns have been positive since 2003, amounting to 43.5% in 2003, 46.9% in 2004, 37.8% in 2005, 48.6% in 2006, and while it slowed down substantially, it was still returning investors around 12% in 2007 (Standard & Poors, 2008).

According to data obtained from Standard and Poors (2008), Mexico in 2007 ranked 55th in the world in terms of world stock market turnover ratio. On stock market performance, evaluated in terms of percentage change in price indices, Mexico was ranked 78th in the world, ahead of Taiwan (79th), the UK (82nd), Italy (86th), the USA (87th), Japan (98th), and New Zealand (104th).

**Table 2**  
Price clustering.

|                   | TLEVICO MM equity |         | GMEXICOB MM equity |         | GFINBURO MM equity |         | ELEKTRA* MM equity |         |
|-------------------|-------------------|---------|--------------------|---------|--------------------|---------|--------------------|---------|
|                   | Freq (in %)       | t-value | Freq (in %)        | t-value | Freq (in %)        | t-value | Freq (in %)        | t-value |
| x.00 and x.05     | 0.312             | 13.03** | 0.190              | −1.14   | 0.232              | 3.77**  | 0.594              | 45.81** |
| Even (incl. x.00) | 0.506             | 0.54    | 0.521              | 1.98*   | 0.497              | −0.26   | 0.624              | 11.56** |
| x.00              | 0.171             | 11.05** | 0.101              | 0.17    | 0.135              | 5.49**  | 0.441              | 52.89** |
| x.01              | 0.098             | −0.34   | 0.102              | 0.32    | 0.111              | 1.76    | 0.057              | −6.70** |
| x.02              | 0.084             | −2.41*  | 0.116              | 2.46*   | 0.088              | −1.82   | 0.049              | −7.85   |
| x.03              | 0.081             | −2.91** | 0.105              | 0.74    | 0.089              | −1.68   | 0.053              | −7.28   |
| x.04              | 0.089             | −1.77   | 0.103              | 0.53    | 0.084              | −2.46*  | 0.045              | −8.57   |
| x.05              | 0.141             | 6.32**  | 0.089              | −1.69   | 0.097              | −0.46   | 0.153              | 8.19    |
| x.06              | 0.086             | −2.13*  | 0.108              | 1.25    | 0.087              | −2.04*  | 0.048              | −7.99   |
| x.07              | 0.089             | −1.77   | 0.090              | −1.48   | 0.098              | −0.32   | 0.045              | −8.57   |
| x.08              | 0.075             | −3.85** | 0.093              | −1.12   | 0.103              | 0.40    | 0.041              | −9.21   |
| x.09              | 0.086             | −2.20*  | 0.092              | −1.19   | 0.107              | 1.12    | 0.068              | −4.91   |
| T                 | 2167              |         | 2166               |         | 2164               |         | 2166               |         |
| Mean              | 32.60             |         | 7.81               |         | 14.67              |         | 97.36              |         |
| Std               | 14.79             |         | 7.70               |         | 7.75               |         | 86.63              |         |
| Max               | 68.10             |         | 32.32              |         | 39.50              |         | 442.48             |         |
| Min               | 12.44             |         | 0.92               |         | 5.78               |         | 20.27              |         |

\* Significance at the 5% level.

\*\* Significance at the 1% level.

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