

Working Paper N°26
Describing Latin American Capital Markets

Mauro Ferraro¹

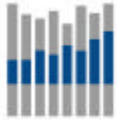
July 2008

Abstract

This paper documents the relevant features of the capital markets in Latin America with a focus in stock and bonds markets. The stock market of Argentina is the shallowest in the region since 2005; while Chile has had the deepest market (market capitalization relative to GDP). Brazilian market presents a rapid growth of its relative size. Also, Peru experienced an interesting growth in the relative size of its market. It is admirable the high growth in the Brazilian market liquidity in the last two years. Argentine market has the smallest volume in the sample in relation to the size of its economy. Besides, a great part of the volume traded of Argentine firms' shares is channeled through North American markets rather than domestic stock exchanges. The Brazilian stock exchange presents the largest number of listed companies in the Latin American region. Besides, stock issues are predominant in the Brazilian market. With respect to bond markets, again Brazil dominates the size of the region market. Nevertheless, in relation to total traded value as percentage of GDP, the Chilean market is by far the most liquid bond market, followed by the Argentine bond market. However, Argentina evidences a high share of government bonds while Peru and Brazil shows a major share of private bond over the total. Finally, Brazil and Chile show the largest number of companies that issue bonds.

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Index

Acronyms.....	3
1. Introduction.....	4
2. Stock Markets.....	4
2.1 Depth.....	4
2.2 Liquidity.....	6
2.3 Concentration.....	10
2.4 Listed companies.....	13
2.5 Returns.....	14
2.6 Volatility.....	14
2.7 Stock Issues.....	16
3. Bond Markets.....	17
3.1. Depth.....	17
3.2. Bond Market Liquidity.....	19
3.3. Yield Curves.....	21
3.4. Listed Private Bond Issuers.....	23
4. Conclusions.....	23
5. References.....	24

Acronyms

ADRs = American Depositary Receipts
BIS = Bank For International Settlements
BOVESPA = Índice de Acciones de la Bolsa de San Pablo – Brasil
FIAB = Federación Iberoamericana de Bolsas
GDP = Gross Domestic Product
IGBVL = Índice de Acciones de la Bolsa de Lima - Perú
IMF = International Monetary Fund
IPO = Initial Public Offerings
IPSA = Índice de Acciones de la Bolsa de Santiago de Chile - Chile
Merval = Índice de Acciones de la Bolsa de Buenos Aires - Argentina
WFE = World Federation of Exchanges

1. Introduction

1.1 The objective of this paper is to document the relevant features of capital markets in Argentina, Brazil, Chile, and Peru with a focus on stocks and bonds markets. In this sense, we will analyze the recent development of these capital markets.:-

1.2 The paper aims at providing information to raise awareness on the need to develop capital markets, thus improving the channels for the efficient allocation of savings into investments, and in a manner that is secure and sustainable over time. This paper is a part of the project of convergence and integration of capital markets in South America conducted by the Center for Financial Stability.

1.3 It is organized as follows. Section 2 summarizes the main features of stock markets. It provides information about depth, liquidity, stock issues, returns, volatility and number of firms with public offering in the four countries. Section 3 provides evidence about the four bond markets showing their depths, liquidity and number of companies listed. Finally, Section 4 summarizes the results. This paper focuses on the performance of the principal stock and bond markets within each country.

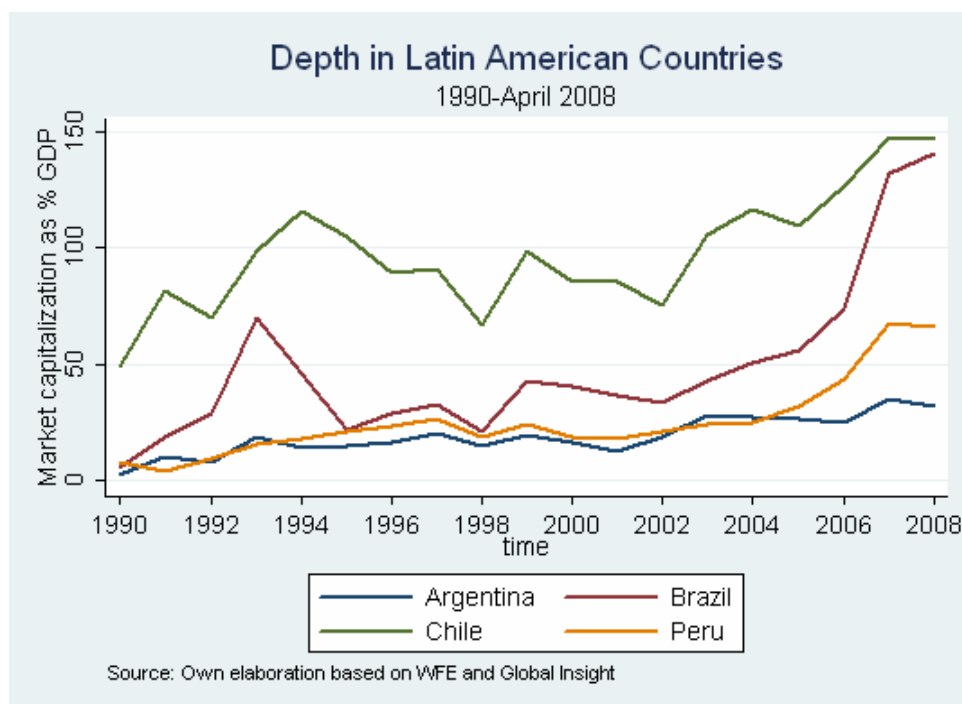
2. Stock Markets

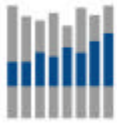
2.1 Depth

2.1.1 Following Ferraro (2007), firstly, it is convenient to begin to characterize the size of the stock market in relation to the size of the economy (i.e., the GDP). This indicator is important given that it gives us an idea about the depth per market. A deep market guarantees that transactions would be executed without affecting market prices.

2.1.2 While the Chilean stock market has been the deepest through out the sample period, the stock market of Argentina is the least dynamic and, since 2005, has become the shallowest in the region. We should emphasize the notable growth of the size of the Brazilian market, which is proximate to attain the depth of the Chilean market. The Peruvian stock market also experienced an admirable growth in its relative size (Figure 1).

Figure 1





Comparison of the depth in our four markets in relation to East Asia markets and developed markets shed lights in terms of the regional markets comparative positions (Figures 2 and 3).

Figure 2

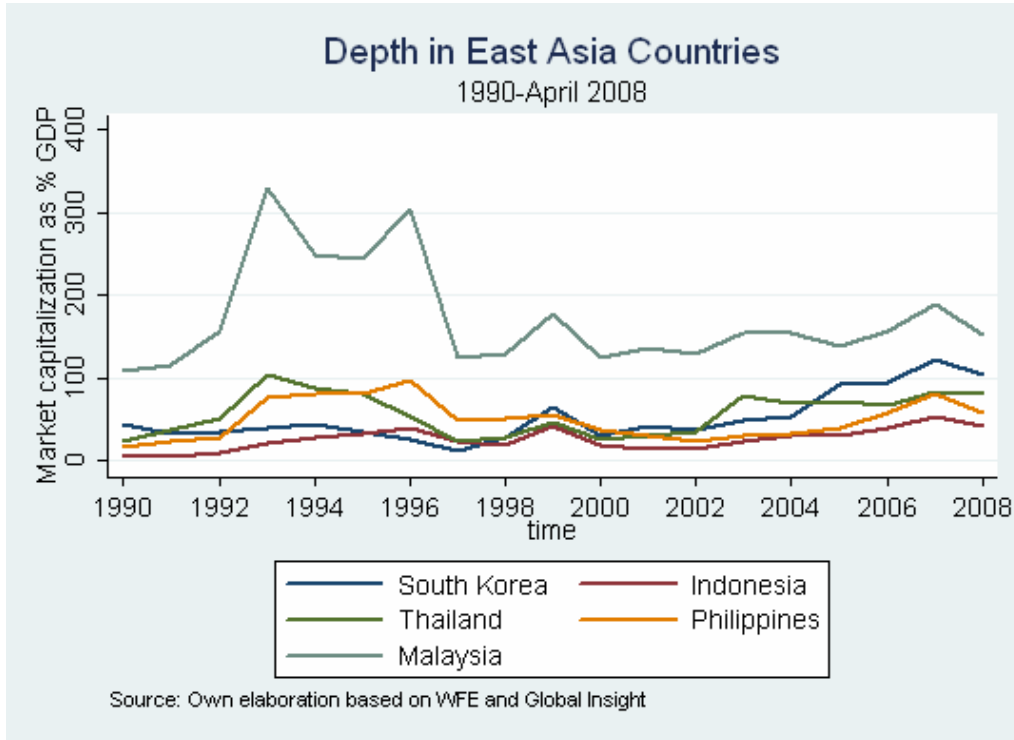
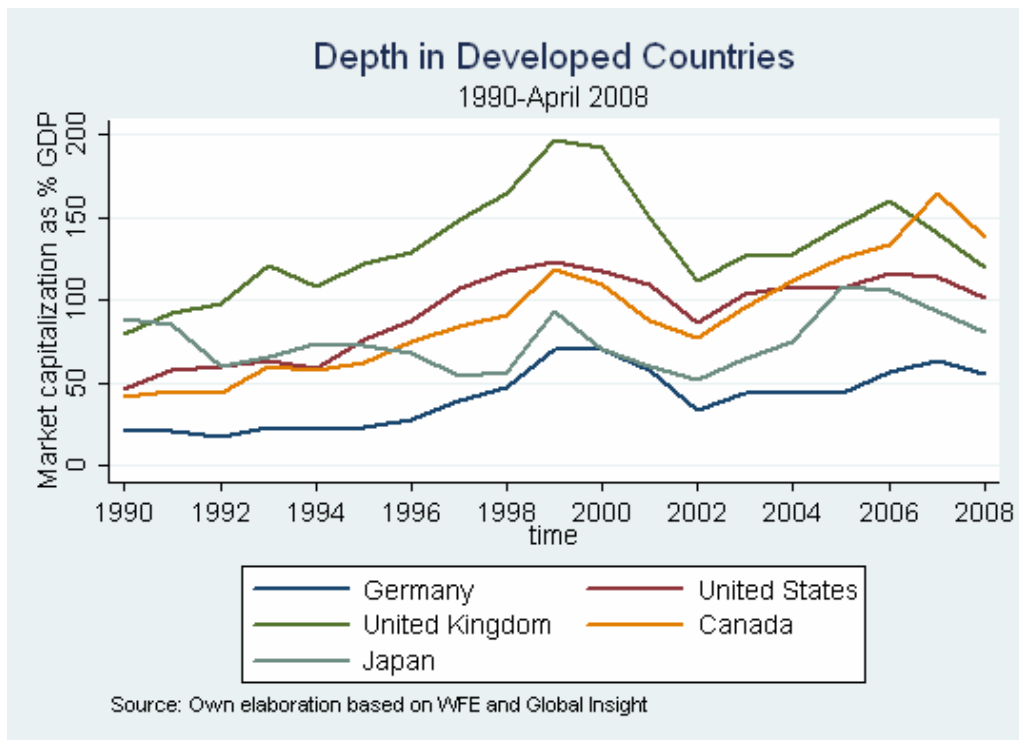


Figure 3

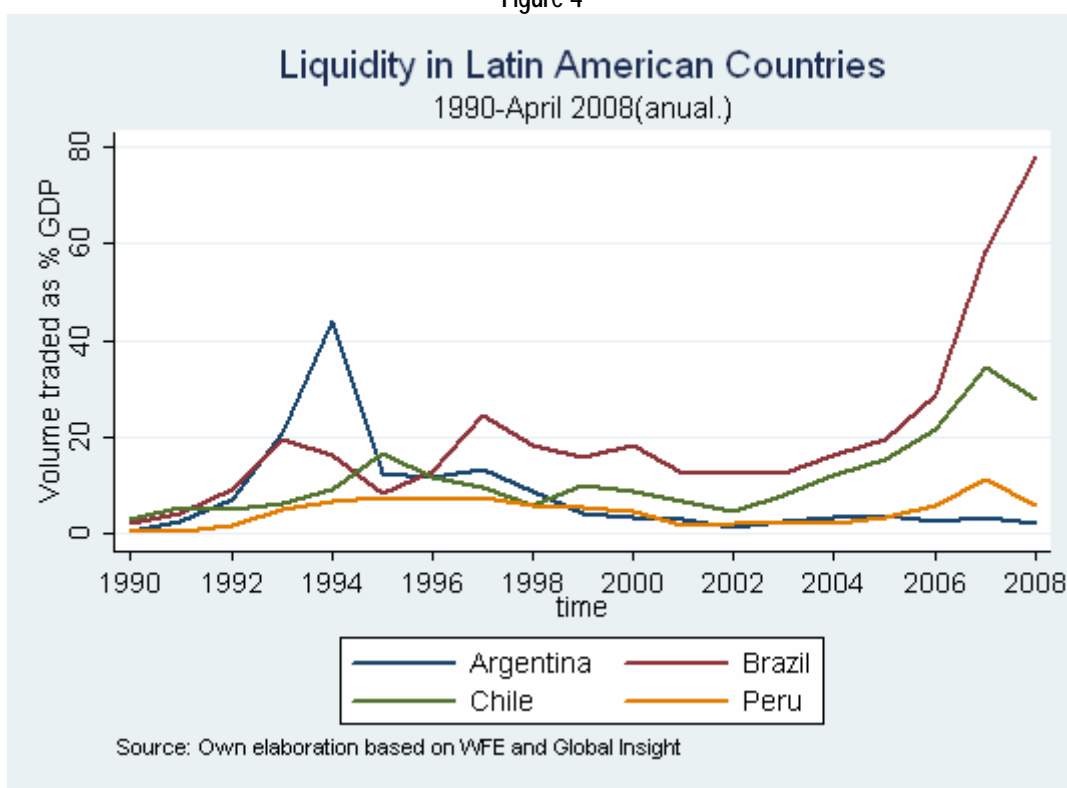


2.1.3 The depth of the Peruvian market is comparable to the average of East Asian markets; while Chile and Brazil fully surpass the depth of these markets. Actually, the depths of these two markets are similar and comparable to the deepest developed markets (Canada, United Kingdom, and United States) while they perform better than other developed markets in the sample.

2.2 Liquidity

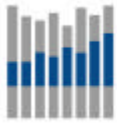
2.2.1 Another relevant variable of the market refers to liquidity. Low market liquidity translates into higher risk due to the possible decrease in value of stocks due to large differences between bids and asks prices in the market as well as for the time required for settlement of each operation. Low liquidity implies there are few buyers and seller trading in the market. In other words, the liquidity is involved with the probability that the executed transaction can settle at the same price as the last settled transaction. One metric used as evidence of market liquidity is the volume traded in relation to the size of the economy.

Figure 4



2.2.2 In the last two years, the highlight in performance on liquidity in regional markets is its impressive growth in the Brazilian market. Once again, the Argentine market is the one that had the smallest volume traded in the sample in relation to the size of its economy (Figure 4).

2.2.3 It is useful to compare the liquidity of each regional market with those observed in East Asian and developed markets (Figures 5 and 6). On the one hand, with the exception of the South Korean market, the liquidity of the Chilean and Brazilian markets are comparable to the values of East Asian markets. Nevertheless, the developed markets present much higher liquidity than our four markets. Only Brazil seems to catch up to the liquidity of the markets of Canada, Germany, and Japan.



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Figure 5

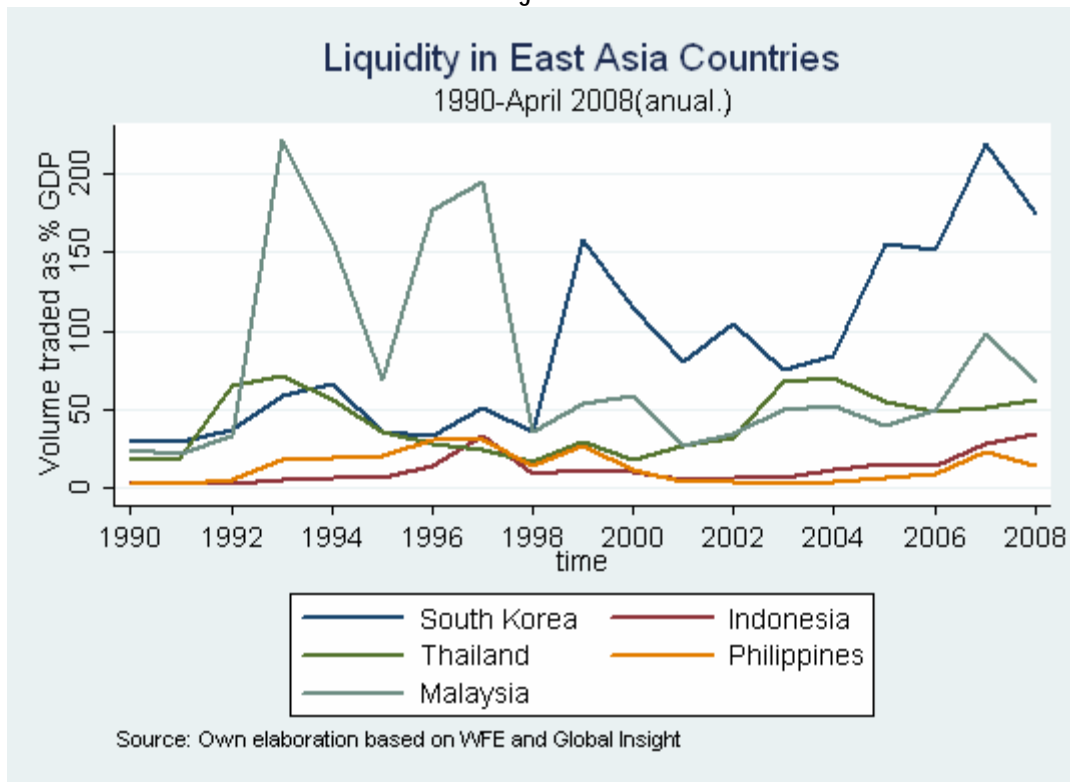
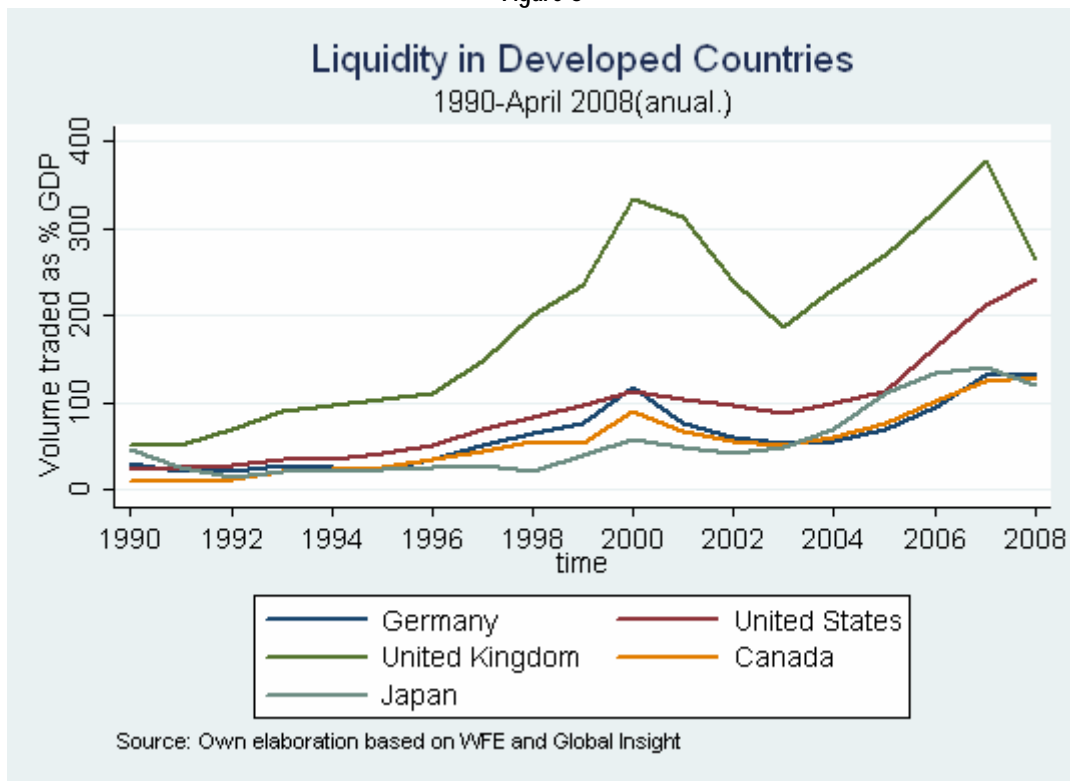


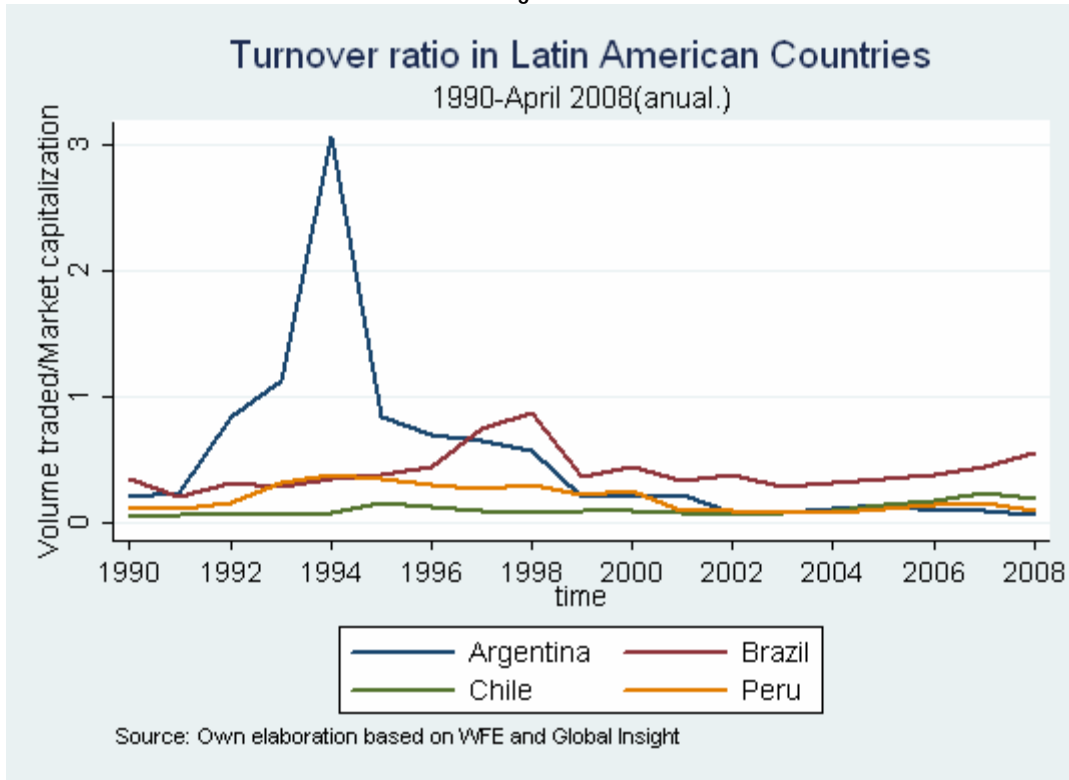
Figure 6



2.2.4 Another measure of liquidity, is the turnover ratio. This indicator shows how many times the stock has rotated with respect to its value during a period of time.

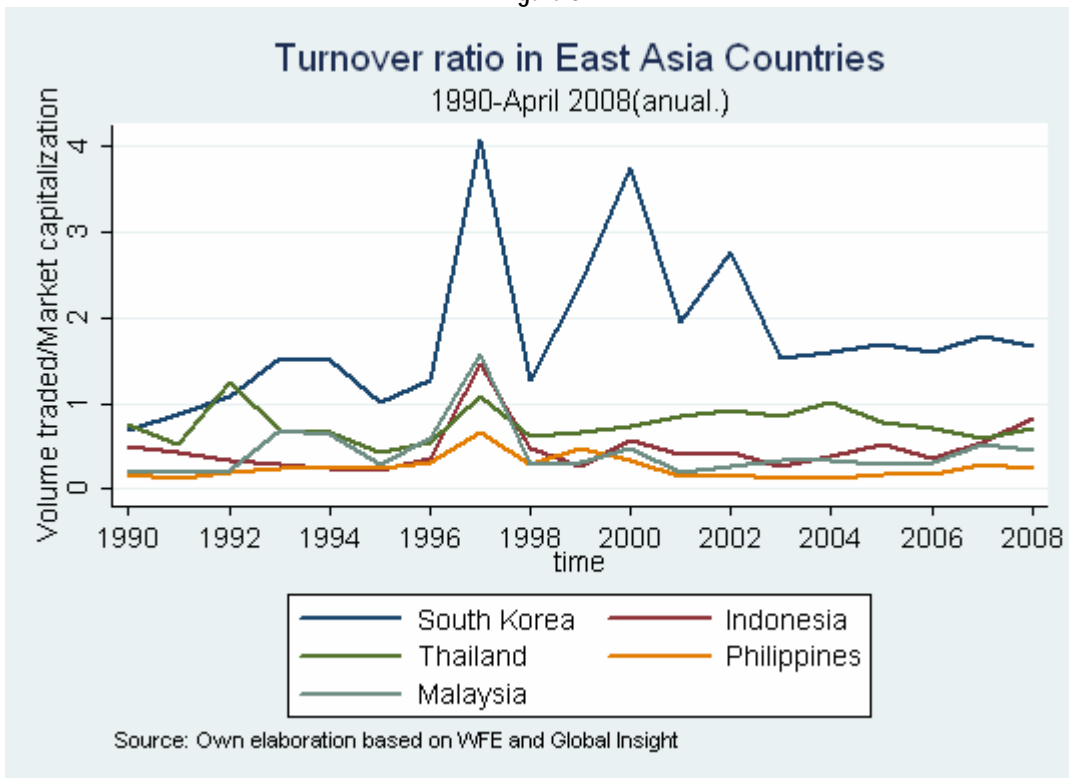
2.2.5 Brazil has the market where the stocks rotated the most in terms of its market value. Besides, it shows an increasing tendency in the last years. Argentina, Chile and Peru have small and stable levels of rotation (Figure 7).

Figure 7



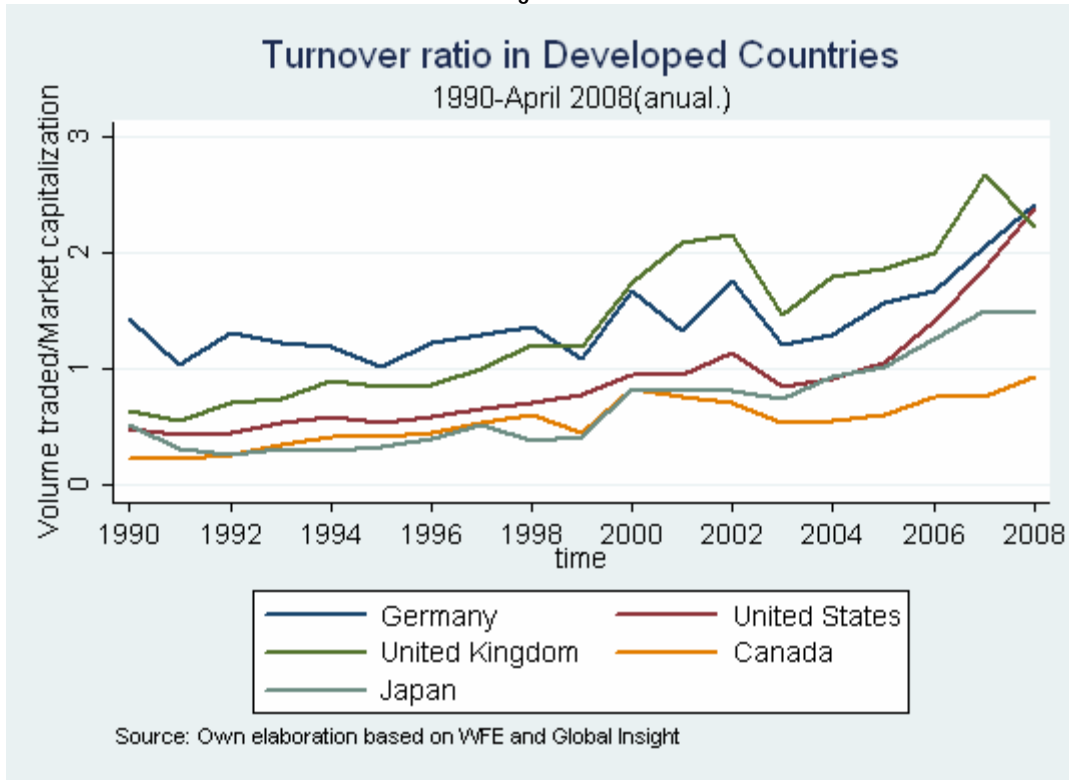
2.2.6 In relation to East Asian markets, Brazil exhibits similar values to those of Indonesia, Malaysia and Thailand (Figure 8).

Figure 8



2.2.7 Furthermore, the turnover ratios in our four markets are far from those in developed markets. However, Brazil is catching up Canada (Figure 9).

Figure 9



2.2.8 Many of the companies that quote their stocks in Latin American local markets are also listed in other international markets like the New York Stock Exchange, the Nasdaq, and the American Stock Exchange. Shares bought in the local market could be negotiated in the North American markets through American Depositary Receipts (ADRs), and vice versa. The foreign markets work like a pool of liquidity for the companies stocks.

2.2.9 As Olivieri and Ferraro (2007) stressed, it is interesting to observe what proportion of the aggregate US dollar volume (domestic plus foreign) operates in the domestic market and how much is in ADRs.

2.2.10 Opposite to what happens in Chile and Brazil, a great part of the volume traded of Argentine firms is channeled through North American markets rather than domestic stock exchanges (Figure 10).

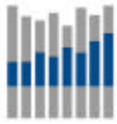
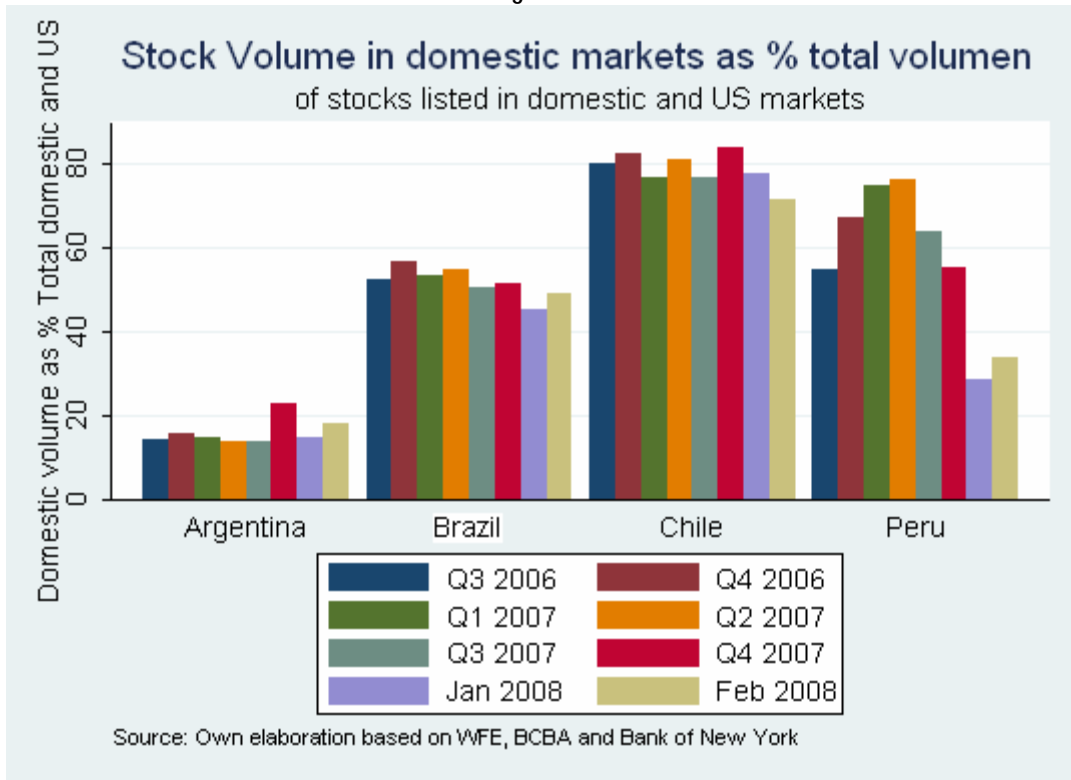


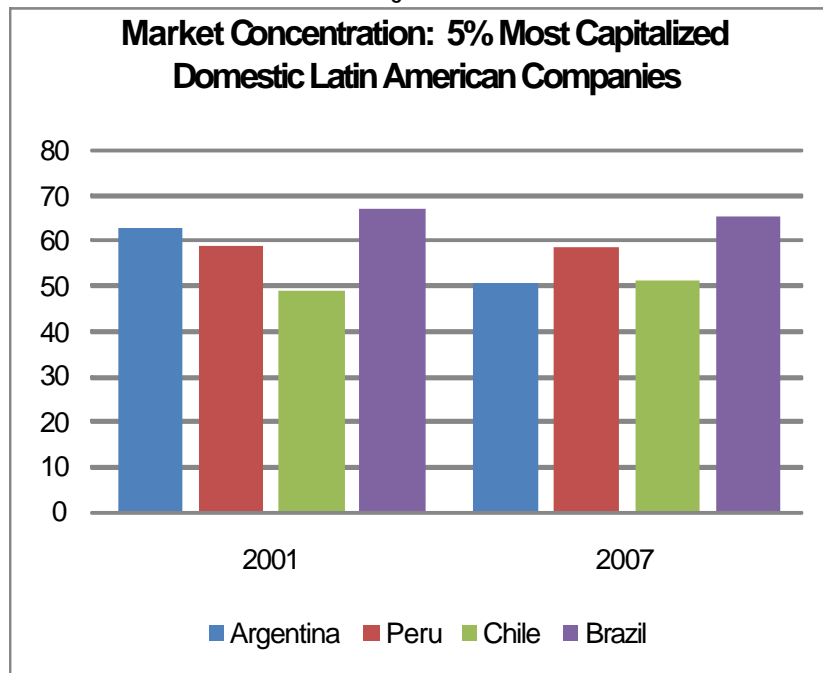
Figure 10



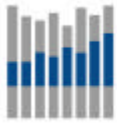
2.3 Concentration

2.3.1 The following figure evidences the market concentration of 5% of the largest companies by market capitalization compared with total domestic market capitalization (Figure 11).

Figure 11

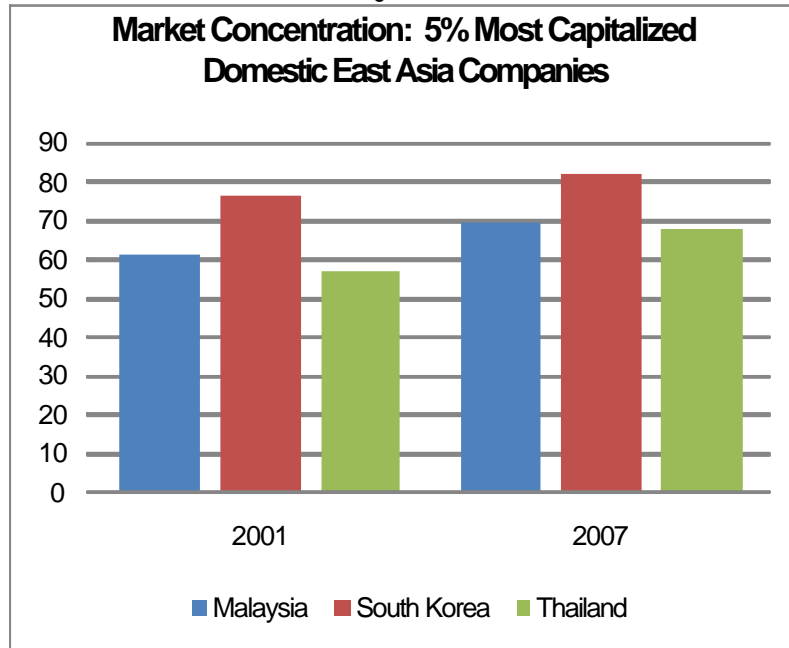


Source: Own elaboration based on WFE.



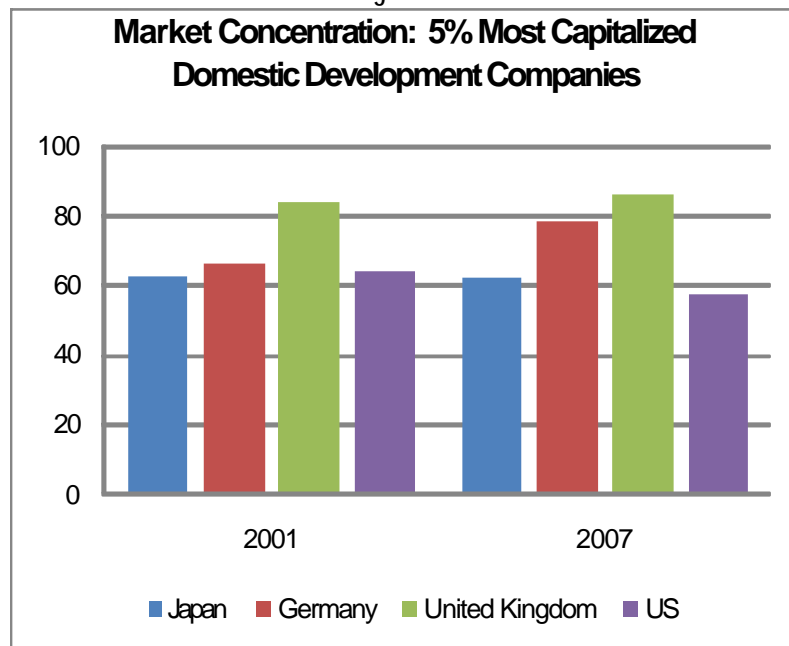
2.3.2 In terms of market value, Argentina and Chile are the least concentrated markets. Furthermore, it is possible to observe a fall in concentration in the Argentine market in 2007 relative to 2001. Taking a sample of developed and East Asian markets, the four markets under analysis exhibit a concentration comparable to those of developed and East Asian markets (Figures 12 and 13).

Figure 12



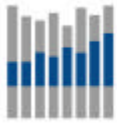
Source: Own elaboration based on WFE.

Figure 13



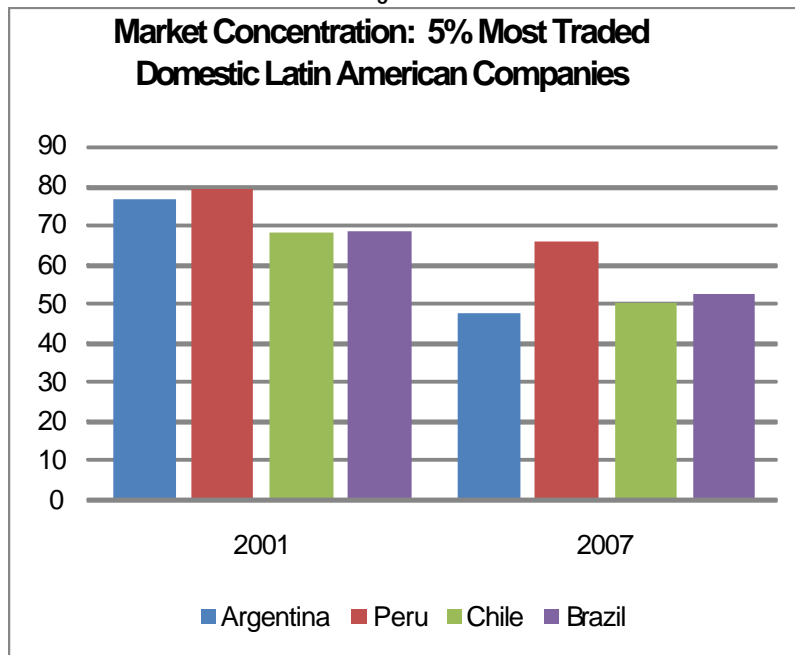
Source: Own elaboration based on WFE.

2.3.3 The next graphs show market concentration of the 5% more liquid companies relative to market volume. There is an obvious tendency to decentralization in the four markets under analysis. In 2007, Argentina had the



least market concentration in the sample (Figure 14).

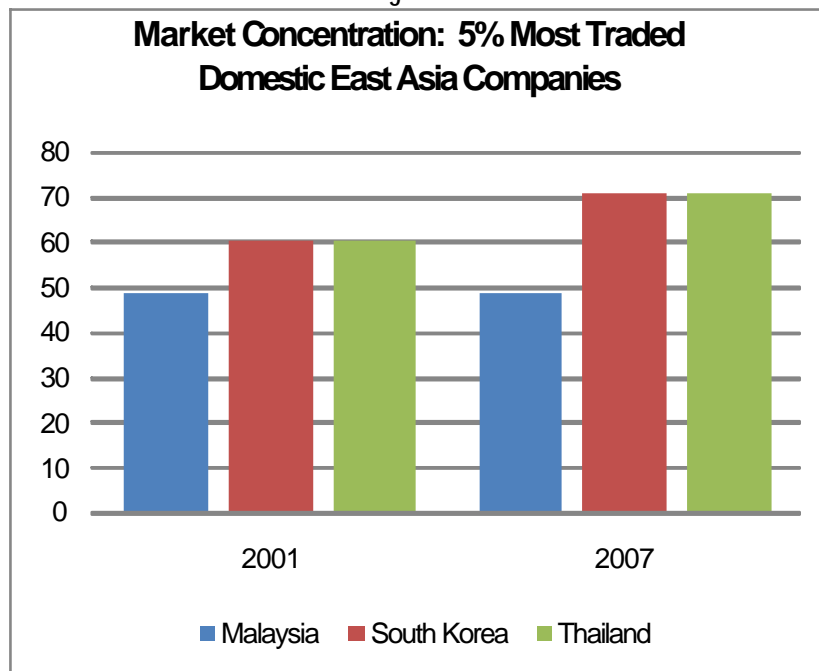
Figure 14



Source: Own elaboration based on WFE.

2.3.4 In relation to a sample of East Asian and developed markets, the volume concentration in our four markets lie within the volume concentration in all these markets with the exception of the United States; which has the least volume concentration (Figures 15 and 16).

Figure 15



Source: Own elaboration based on WFE.

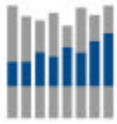
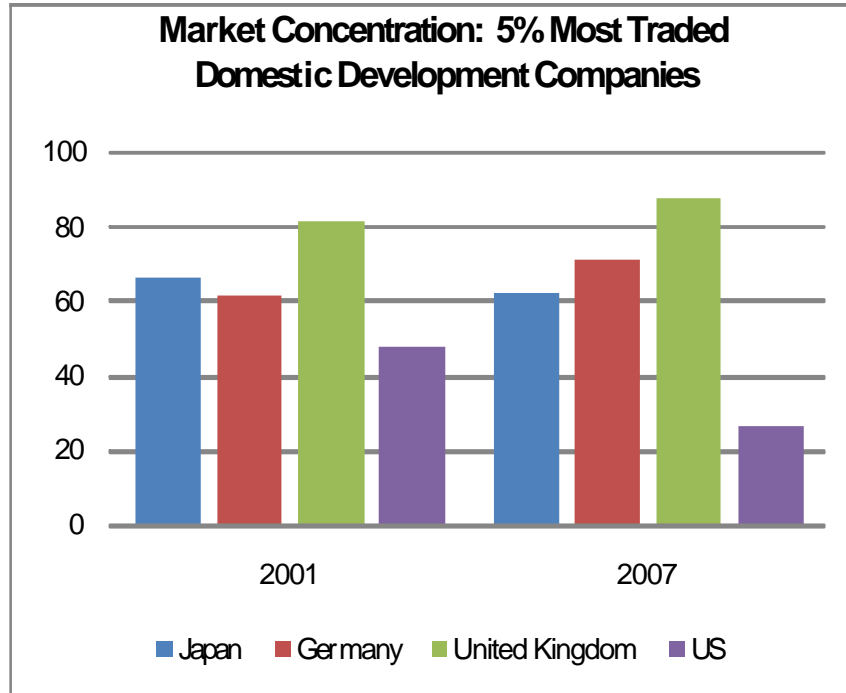


Figure 16



Source: Own elaboration based on WFE.

2.4 Listed companies

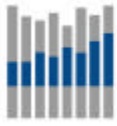
2.4.1 The following table illustrates the number of companies listed in each market as well as the listing and delisting process in the last three years. The main stock exchange of Argentina has the smallest number of companies listed within the subset of examined markets. Nevertheless, it has been adding up new companies in the last three years. On the other hand, although the Chilean market is the second largest in the subset of regional markets, it is experiencing net delisting of companies in the last three years. The Brazilian stock exchange presents the largest number of listed companies in the Latin American region. Besides, this number has been growing in an important way in the last years.

2.4.2 However, the number of listed companies in our four markets is far lower than observed in developed markets (Table 1).

Table 1: Listed Companies in Latin American Stock Exchanges

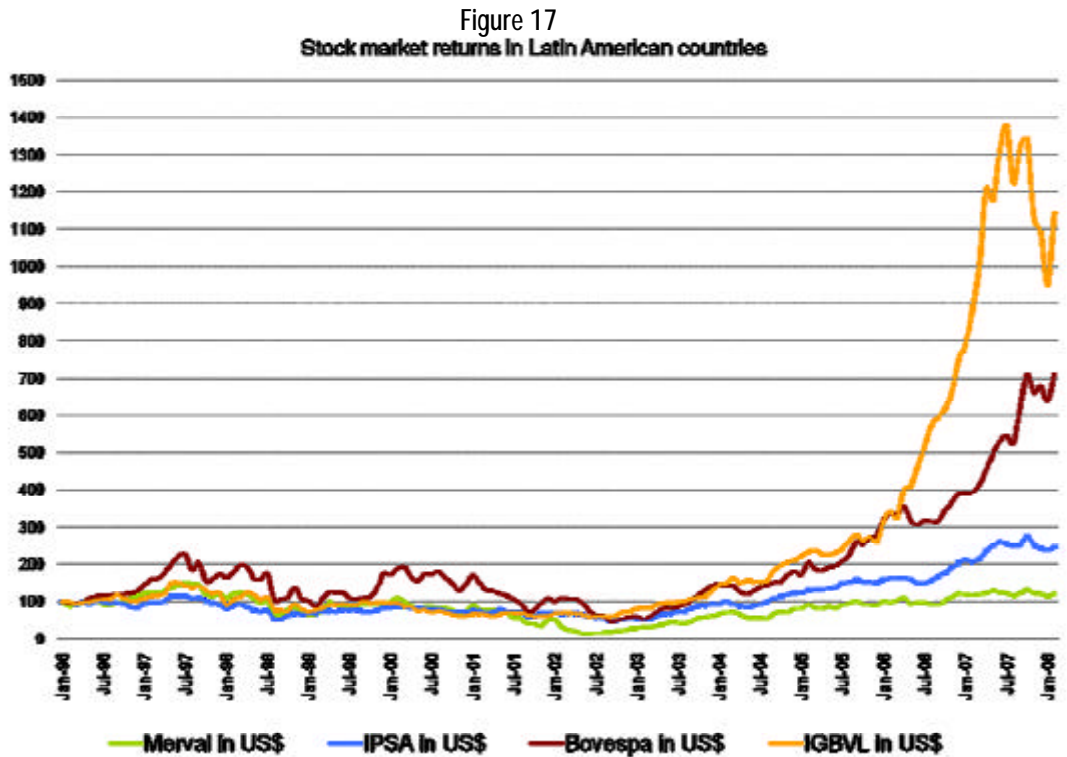
	Number of listed companies			Net Listing and Delisting		
	Total	Domestic	Foreign	Last Year	Last 2 years	Last 3 years
	April 2008					
Buenos Aires	111	106	5	4	5	6
San Pablo	400	391	9	34	45	61
Santiago	239	236	3	7	1	7
Lima	231	192	39	15	8	9
Mexico	357	124	233	26	29	43
Colombia	87	87	0	9	20	10
NYSE	2333	1920	413	52	45	157
Toronto	3864	3785	79	22	188	81
Deutsche Börse	854	757	97	95	57	97
London	3264	2555	709	13	322	95
Euronext	1028	1028	0	174	274	197

Source: Own elaboration based on WFE.



2.5 Returns

2.5.1 The following figure evidences the market price performance (normalized to 100 at January 1996) for the four markets under analysis. The explosion of the return of the Peruvian market is explained, in part, by the dominant role of mining companies in that market; as the boom in the price of commodities benefited them. The Brazilian market performed second in terms of return (Figure 17).



Source: Own elaboration based on Central Bank of Peru and Yahoo Finance.

2.6 Volatility

2.6.1 Another important variable to characterize the markets is volatility. The next boxplots show the dispersion of the monthly returns in each market under analysis for two different five-year periods (Figures 18 and 19).

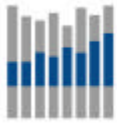


Figure 18

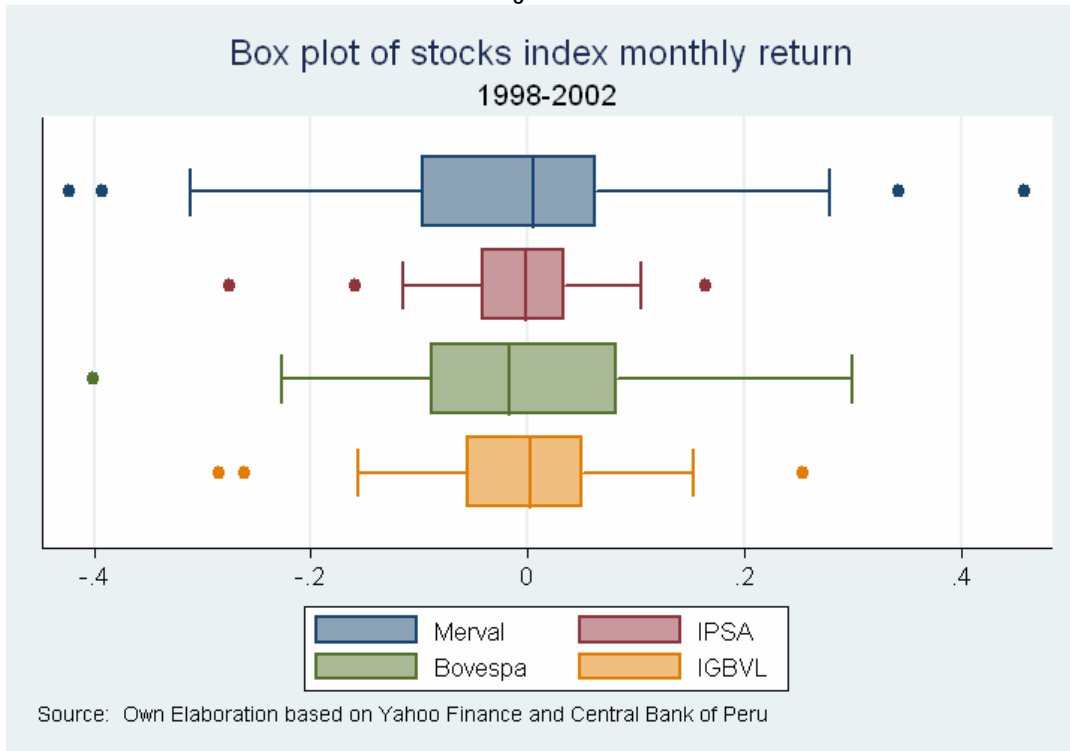
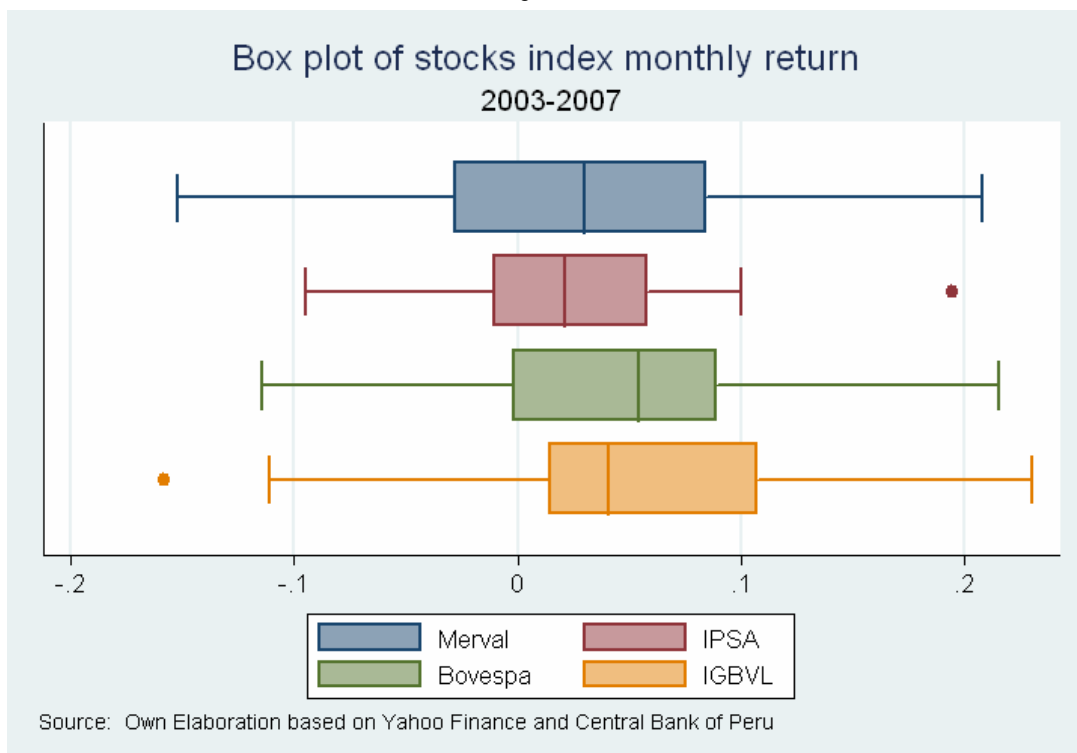


Figure 19



2.6.2 Independent of any assumption of return distribution², during the period 1998-2002, the Argentine stock market was the most volatile in the region followed by the Brazilian market; while the Chilean market exhibited the

² For details view: Bekaert and Harvey (1997), Hull (2002), Wong Dávila (2003), Ross, Westerfield, and Jaffe (2003).

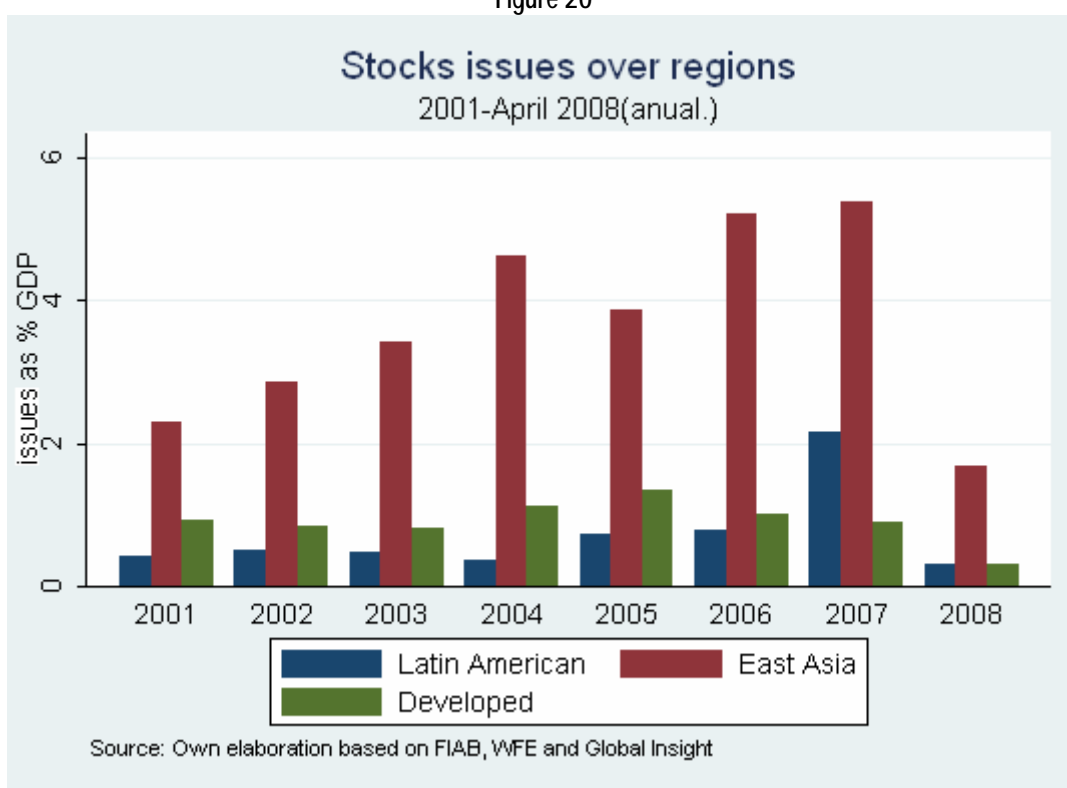
smallest return volatility in the sample.

2.6.3 The situation changed in the last five years. The Peruvian market was incorporated to the group of higher market volatility in the region next to the Brazilian and the Argentine markets; and Chile remains with the lowest volatility. However, it is important to note the increase of volatility in each market in the last five-year period.

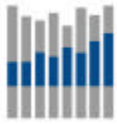
2.7 Stock Issues

2.7.1 Finally, we analyze the primary stock markets. Stock issues include Initial Public Offerings (IPO, from new issuers) and stock issues from existing issuers. In the first place, the value of stocks issued in relation to the size of the economy in Latin American markets has surpassed those in developed countries for the first time in 2007. Nevertheless, the value of stock issued in East Asian markets was larger than in Latin American markets throughout the period (Figure 20).

Figure 20



2.7.2 Regarding the regional markets under analysis, we can observe that the country with the highest level of value of stocks issues relative to GDP was Chile in the early period from 1994 to 2003; since then, Brazil replaced it. The Peruvian market has had the smallest value of stock issued in relation to its GDP since 2007; while Argentina shows an increase in activity in 2007 (Figure 21).



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Figure 21



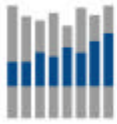
3. Bond Markets

3.1. Depth

3.1.1 This section refers to the corporate bond market, not the private fixed income market. For example, in Argentina, the private fixed income market is far larger than the corporate bond market because financial trust is one of the more popular financial instruments used by companies nowadays.

3.1.2 In order to show the depth of the corporate bond market, we take the value of outstanding debt in each market in relation to the size of the economy. Figures 22, 23 and 24 below evidence the market depth for our four Latin American countries as well as for the East Asian and developed markets³.

³It corresponds to the total outstanding debt equal to the sum of the domestic debt issued in domestic currency by residents to resident investors, and the international debt comprising all issues in foreign currencies issued by residents and non-residents of each country, plus all the issues in domestic currency issued in the domestic market by non-residents. In particular, outstanding debt refers to the gross value of securities net of repayments at the end of each period.



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Figure 22

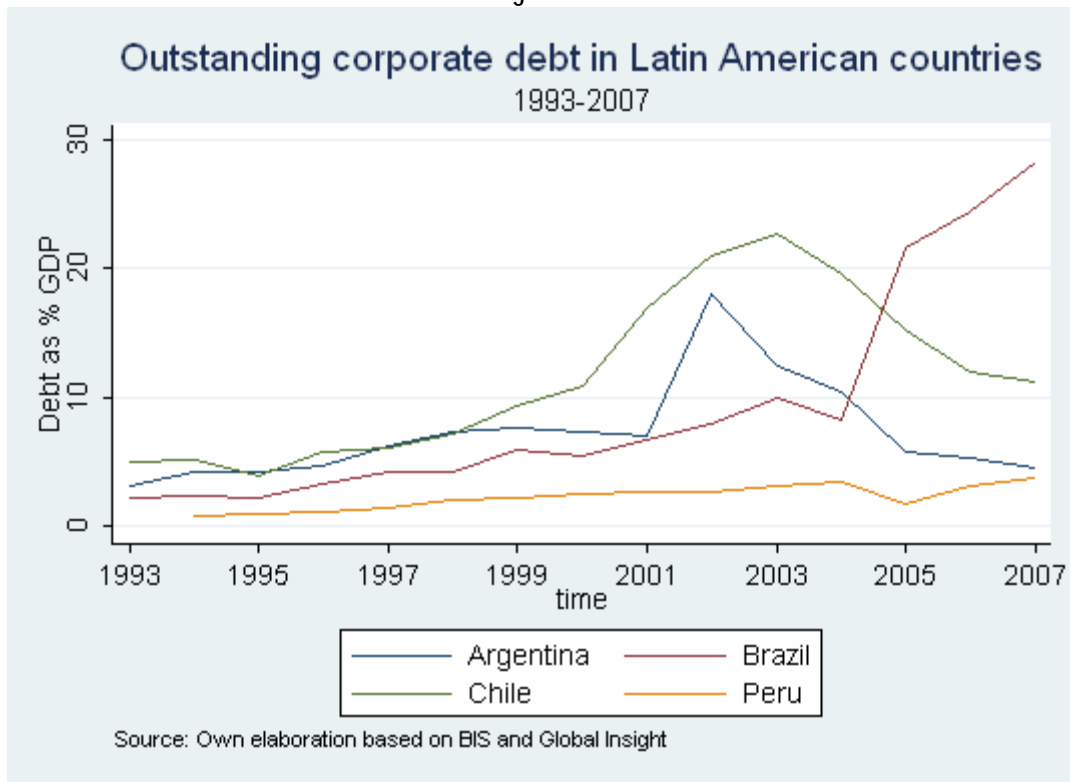


Figure 23



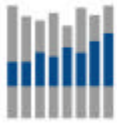
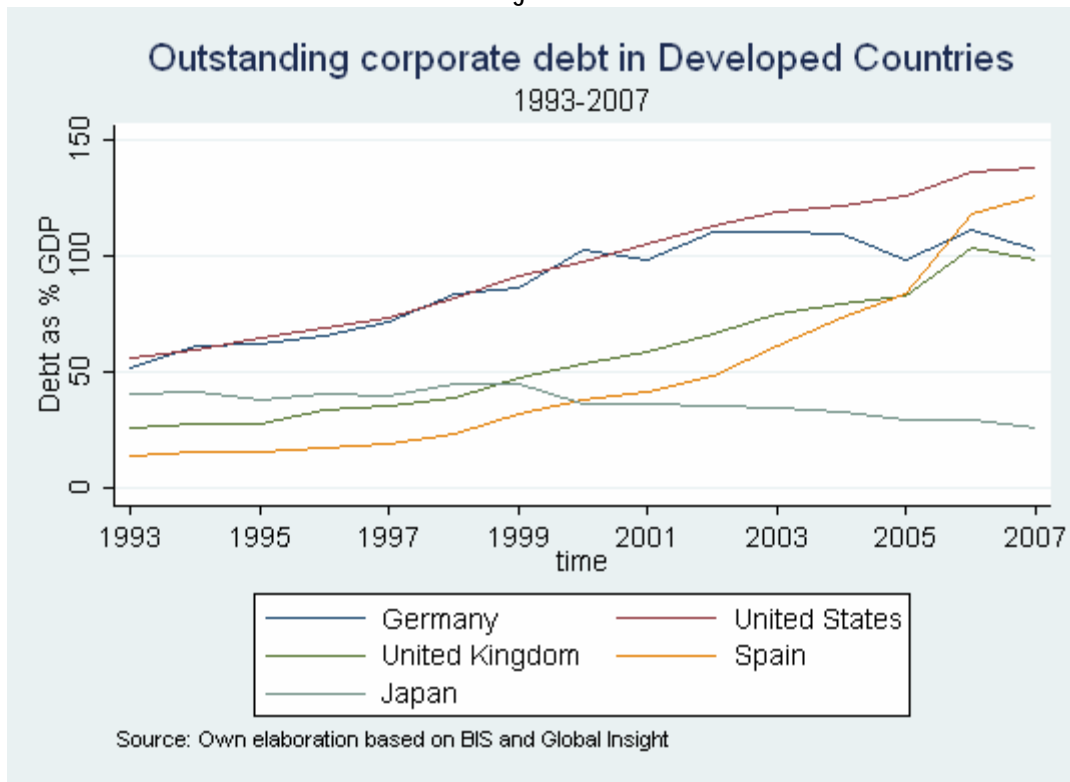


Figure 24



3.1.3 For our sample of Latin America markets, Brazil shows the most dynamic corporate debt market exhibiting continue deepening since the beginning of the period, which has accelerated significantly since 2005. Brazil corporate bond market depth has surpassed that of Japan and it is comparable to the average depth attained by East Asian markets. The Peruvian corporate bond market has also shown a positive trend throughout the period, albeit at a much slower pace, and continues to be the shallowest market. In addition, Argentina and Chile corporate bonds markets have been declining in depth since 2002 and 2003, respectively⁴.

3.2. Bond Market Liquidity

3.2.1 In relation to total volume traded by corporate and public sector (total value of bond trading) as percentage of GDP, it is possible to observe the enormous magnitude of the volume traded respect to GDP in the Chilean marketplace followed by the Argentinean bond market (Figure 25).

⁴ For detail reference see De la Torre and Schmukler (2004); Erb, Claude, Harvey and Viskantas (2000).

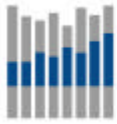
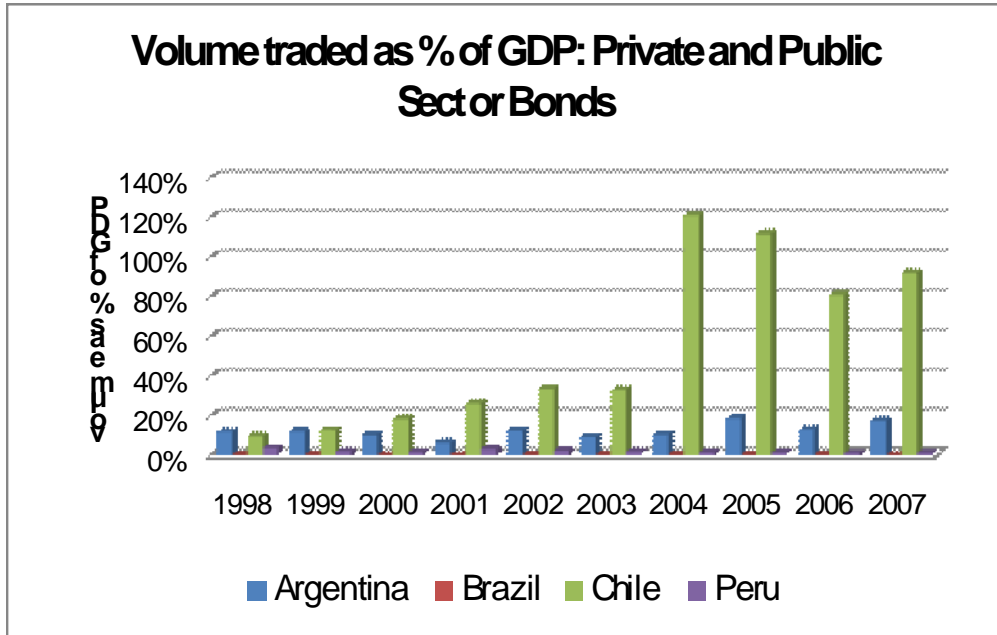


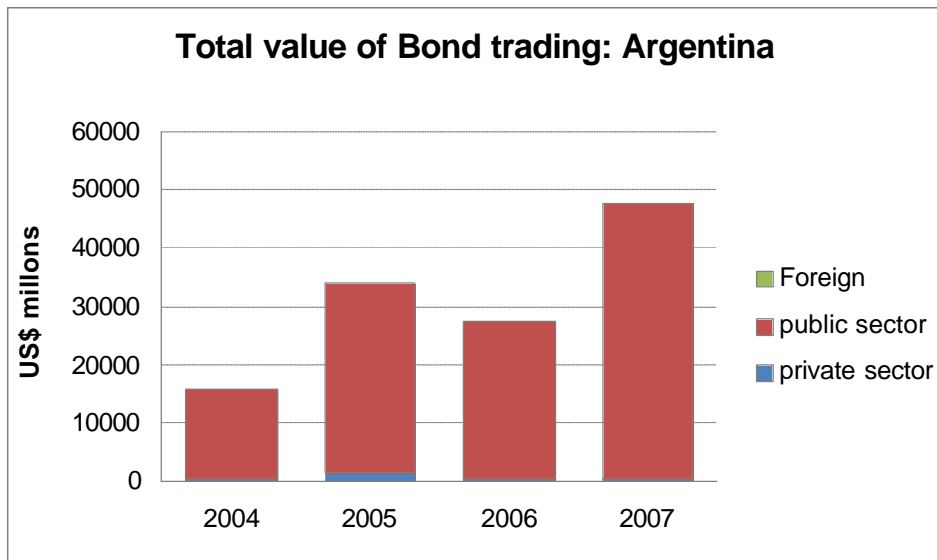
Figure 25



Source: Own elaboration based on WFE and IMF.

3.2.2 Figures 26, 27 and 28 presents the total value of bond trading by type of instruments (in nominal value) within each market. We do not show the bond market of Chile because it does not present disaggregated data to this level. Argentina evidences a high share of government bonds within traded volume. On the other hand, Peru shows a larger participation of private bond than public just like Brazil. In this last market, traded volume has been declining in the last two years.

Figure 26



Source: Own elaboration based on WFE.

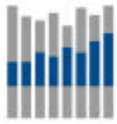
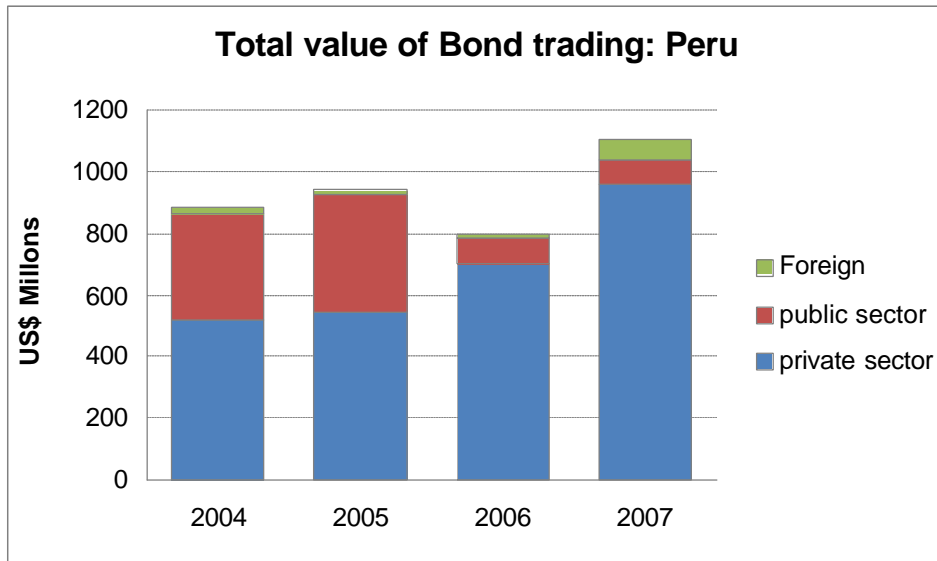
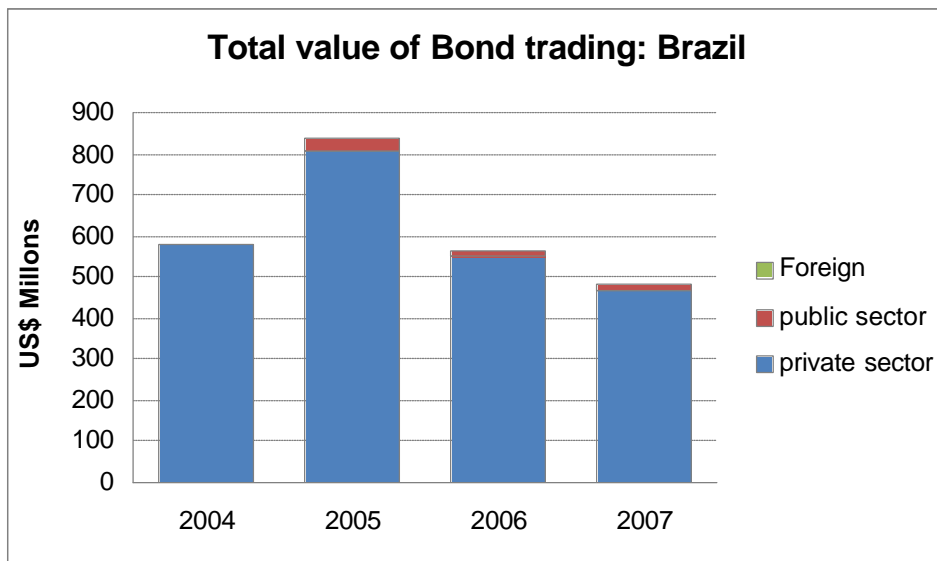


Figure 27



Source: Own elaboration based on WFE.

Figure 28



Source: Own elaboration based on WFE.

3.3. Yield Curves

3.3.1 Figures 29 and 30 show the interest rates according to the term to maturity prevailing in the US dollar sovereign bond markets for instruments issued by each Latin American Government⁵. The group of bonds considered includes a wide range of them. We took two moments in time: December 2007 and April 2008⁶.

⁵ It was used cubic's splines as method of interpolation.

⁶ The bonds selected are in accordance to Bloomberg criteria, except in the case of Argentina. For that market, we followed the criteria of the Instituto Argentino de Mercado de Capitales and the Ministry of Economy. The Argentinean yield curve considers the Discount and Par sovereign bonds issued under New York legislation in 2005. It does not include the Discount and Par bonds issued in US dollars under local legislation. The Bonds included are the following: Argentina (by name): Bonar V, Bonar VII, Boden 2015, Bonar X, Boden 2013, Discount Law NY and Par Law NY; Brazil (by coupon rate and maturity): Brazil 14 1/2

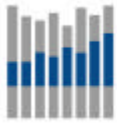


Figure 29

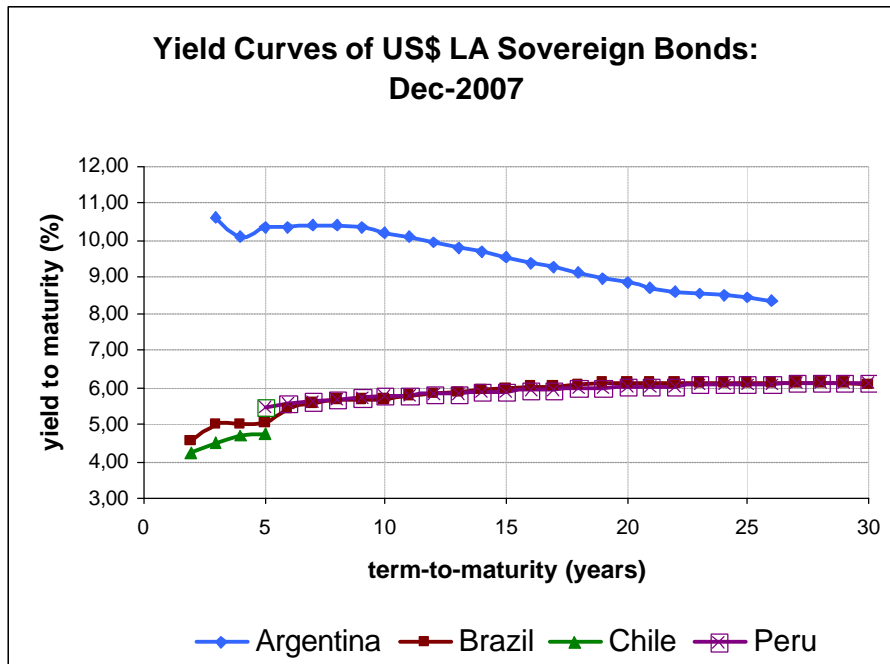
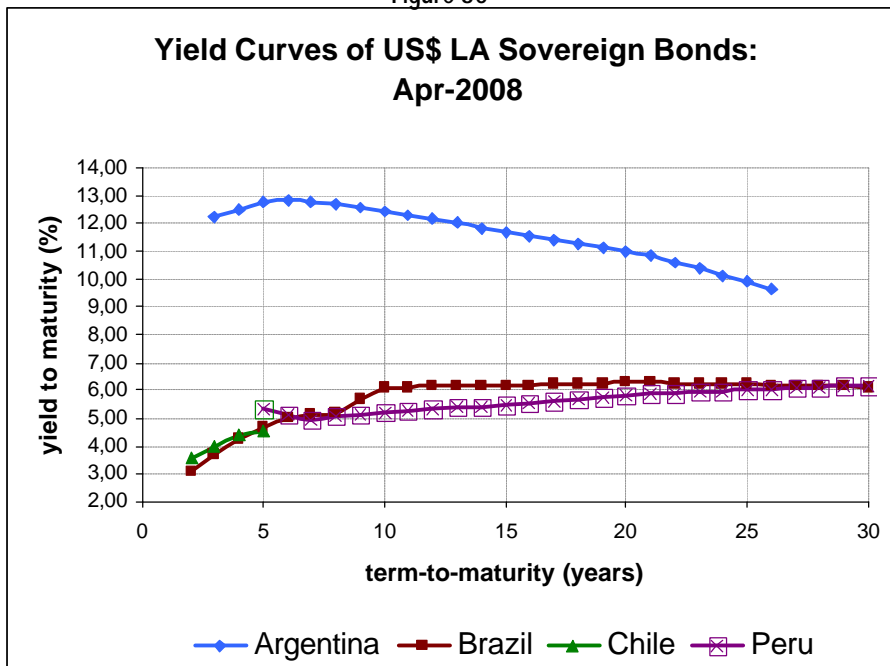


Figure 30



3.3.2 Brazil and Peru have bonds issued with the longest terms to maturity. In March 2000, Brazil issued 30 years bonds with a coupon fixed rate of 12 1/4%, in January 2004, it repeated the 30 years bonds, again in

2009, Brazil 9 1/4 10/2010, Brazil 10 08/2011, Brazil 11 01/2012, Brazil 10 1/4 2013, Brazil 10 1/2 2014, Brazil 7 7/8 03 /2015, Brazil 8 7/8 10/2019, Brazil 8 3/4 02/2025, Brazil 12 1/4 2030, Brazil 8 1/4 01/2034, Brazil 7 1/8 01/2037; Peru (by coupon rate and maturity): Peru 9 1/8 02/2012, Peru 9 7/8 02/2015, Peru 8 3/8 05/2016, Peru 7,35 07/2025, Peru 8 3/4 11/2033, Peru 6,55 03/2037; Chile (by coupon rate and maturity): Chile 6 7/8 04/2009, Chile 7 1/8 01/2012, Chile 5 1/2 01/2013.

January 2006, and so on. Peru issued long-term debt too: the Peruvian bond maturing on 2037 with a coupon rate of 6.55%, a bond maturing in 30 years issued in November 2003, etc. Argentina issued 30 years bonds within its restructured debt process in 2005; which we decided to include in the analysis.

3.3.3 Chile shows a shorter yield curve, Argentina presents an inverted yield curve (i.e., long-term yields are lower than short-term yields). It indicates that the market expects lower interest rates in the future. In addition, the curve lies 800 basic points above for 3 years bonds, and 600 points for 10 years bonds in comparison to other countries curves. Finally, in the last months, there was an upward shift in the Argentine yield curve of about 300 points for the short term and 200 points for the longer term.

3.4. Listed Private Bond Issuers

3.4.1 Table 2 shows the number of private bonds issuers as well as its evolution in the last three years. Once again, the private bond markets of Brazil and Chile show the largest number of issuers within the four countries under analysis. However, Colombia and Mexico are high performers as well. It is remarkable the important evolution of the number of issuers in the Brazilian private bond market. Nevertheless, the four markets under analysis perform well bellow London and Korea private bond markets.

Table 2: Private Bond Issuers in Latin American Bond Markets

	Number of Domestic Private Bond Issuers		Net Listing and Delisting	
	December 2007	Last Year	Last 2 years	Last 3 years
Buenos Aires	113	2	18	20
San Pablo	178	95	110	124
Santiago	125	5	7	13
Lima	65	7	8	9
Mexico	150	8	25	53
Colombia	224	5	20	30
Deutsche Börse	177	8	27	29
London	814	75	109	129
Korea	809	33	51	160

Source: Own elaboration based on WFE.

4. Conclusions

4.1 This paper documented the relevant features of the capital markets in Latin America with a focus in stock and bond markets. The stock market of Argentina is the shallowest in the region since 2005 while the Brazilian stock market presents a rapid growth in depth. Also, Peru experienced an encouraging growth in its stock market depth. In addition, it is admirable the high growth in the Brazilian market liquidity in the last two years. The Argentine stock market is the least liquid. Besides, a great part of the volume traded of Argentine firms' shares is channeled through North American markets rather than domestic stock exchanges. The Brazilian stock exchange presents the largest number of listed companies in the Latin American region. Besides, it exhibits a predominance of stock issues (IPO plus issues of existing firms).

4.2 With respect to the corporate bond market, again Brazil dominates the size of the region markets. Nevertheless, it is possible to observe the enormous magnitude of volume traded (private plus public) respect to GDP in the Chilean marketplace followed by the Argentine bond market. However, Argentina evidences a high share of government bonds while Peru and Brazil shows a major share of private bond over the total. Regarding the number of firms that issues bonds, Brazil and Chile show the largest number of companies.

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