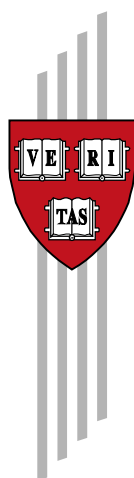


Fool's Gold: Currency Devaluations and Stock Prices of Multinational Companies Operating in Venezuela

Dany Bahar, Carlos Alberto Molina
and Miguel Angel Santos

CID Research Fellow and Graduate Student
Working Paper No. 83
May 2017 (*Revised July 2017*)

Copyright 2017 Bahar, Dany; Molina, Carlos Alberto; Santos,
Miguel Angel; and the President and Fellows of Harvard College



Working Papers

Center for International Development
at Harvard University

Fool's gold: Currency devaluations and stock prices of multinational companies operating in Venezuela

Dany Bahar
The Brookings Institution
Harvard Center for International Development

Carlos Alberto Molina
Instituto de Estudios Superiores en Administracion (IESA)

Miguel Angel Santos
Harvard Center for International Development
Instituto de Estudios Superiores en Administracion (IESA)

Abstract

Devaluations may have an impact on multinational stock prices depending upon the size of the country and whether they are anticipated or not. In an efficient market, predictable devaluations on small countries should not impact stock prices of large multinational companies. We analyze cumulative abnormal returns (CAR) to five devaluations in Venezuela within the context of stiff exchange controls. Our event study covers five years and uses daily stock prices for 110 multinationals with Venezuelan subsidiaries. We find evidence of significant negative cumulative abnormal returns on stock prices on three devaluations, reaching up to 2.10% over the event window. We interpret these results as evidence of market myopia driven by financial statements converted into dollars at highly overvalued official rates, despite subsidiaries not having access to dollars at these prices.

We would like to thank Jeremy Stein, Ricardo Hausmann, Roberto Rigobon, Urbi Garay, Francisco Sáez, Ricardo Villasmil, Asdrubal Oliveros, and Frank Muci for useful comments and suggestions. Participants of the research seminars of the Center for International Development at Harvard University, the Center of Finance Seminar at Instituto de Estudios Superiores en Administracion, and the BALAS 2017 Annual Conference also provided empirical insights that helped in strengthening our reasoning. We also thank Nan Chen for excellent research assistance. The usual disclaimers apply.

Corresponding author: miguel_santos@hks.harvard.edu

JEL classification: G14, G15

Keywords: devaluation, market efficiency, market myopia, multinationals, abnormal returns, exchange controls.

Introduction

In theory, investors and financial analysts are expected to price any present or foreseeable event that would affect a company's value. Yet, there are instances where loss aversion can lead investors to behave in myopic ways. Myopia, a condition of the eye where closer objects appear clearly and distant objects are blurred, applies to investors that are overly fixated in recent or present events at the expense of disregarding events that occurred in the distant past or are relatively likely to occur in the future. While many macroeconomic events are considered unforeseeable shocks, there are others of a more predictable nature that we can reasonably expect to be priced into the valuation of companies. This paper finds evidence of abnormal returns in Multinational Corporations (MNC) with subsidiaries in Venezuela during several foreseeable episodes of currency devaluation during the stiff exchange control regime that has been in place in the country since 2003. Given the existence of a parallel exchange rate market running at huge premiums over the official rates, and the fact that the most affected multinational companies were not even eligible to receive official dollars, we argue these episodes reflect market inefficiencies in the form of myopia.

We are not the first to study the effect of currency devaluations on MNC prices. Models of international asset pricing predict that foreign currency devaluations will have significant impact on asset prices and, to the extent that devaluations affect the real cash flows of firms, security prices will also change (Stulz, 1981; Adler & Dumas, 1984). Glen (2002) studies 24 emerging markets using monthly stock returns and finds significant negative returns in the months before, not after, the devaluation. Patro, Wald, and Wu (2014), using data from stock markets in 27 countries and about 85 announcements of devaluations, find that devaluations were anticipated by the local stock markets with significant negative abnormal returns occurring even one year prior to these announcements. The exchange rate system, relative size of the market, and predictability seem to be the keys in appraising the impact of devaluation on MNC stock prices.

Our main contribution to the literature lies in our study of exchange rate devaluations in a small country (averaging 460% over the five years covered in our study) within the context of stiff exchange controls and a large parallel exchange market premium.¹ In particular, we study a sample of 110 MNC trading at the NYSE and NASDAQ with active subsidiaries in Venezuelan from 2010-2014, and find that the MNC were strongly hit by devaluations in Venezuela, as measured by abnormal returns to their stock valuation. Our results are economically significant. When the multiple official exchange rates of VEB 2.6/USD and VEB 4.30/USD combined resulting in VEB 4.30/USD on December 30, 2011, we find average negative cumulative abnormal returns of 1.74%.² With the addition of a new official exchange rate of VEB 11.30/USD on January 23, 2014, we find average negative cumulative abnormal returns of 1.33% across our sample. Finally, when a third official exchange rate was added less than two months later opening at VEB 51.86/USD, we find average negative cumulative abnormal returns of 1.36%. These strong

¹ Since 2003, the Venezuelan government has imposed a stiff exchange control regime while maintaining multiple fixed exchange rates. These multiple official rates coexist with a parallel exchange market at significant premiums. MNC would be affected by these devaluations as their Venezuelan subsidiaries (and all other Venezuelan firms) to import, for example, should introduce requests to a government agency to purchase U.S. dollars from the Venezuelan Central Bank (VCB) at official rates. From 2003-2014, VCB has announced five devaluations of the Venezuelan currency, the Bolivar Fuerte, following continuous depreciation in the parallel-exchange market rate.

² We use USD for United States dollars throughout the text.

negative returns are remarkable considering that Venezuela is a small country.³ However, what is more interesting is the fact that most companies operating in Venezuela did not have access to the “official” exchange rates. Even if firms are obliged to present financial statements at the official exchange rate, and provisions for exchange losses are discretionary, market analysts should understand that those devaluations should matter little for firms with limited if any access to the subsidized exchange rate. For most companies in Venezuela, the relevant rate would be the parallel exchange market rate, whose behavior follows a steady upward trend throughout the period of study.

The size of Venezuela and the little access to the official exchange rate are reasons to think that the market should not react strongly to Venezuelan official exchange rate devaluations. However, the market appears to be ignoring this. In fact, the impact of the Venezuela official devaluations on the MNC was widely reported in the media as strongly affecting U.S. and European companies’ earnings and stock prices.⁴

Whether the company was eligible to buy dollars at the official exchange rate was public information. Using this differentiation, we restrict our sample to 81 MNC not even registered in the agency to buy dollars at the official exchange rate. In this subsample, we find even stronger negative abnormal returns. We confirm average cumulative abnormal returns of -2.10%, -1.14%, and -1.56% for the three events described above, respectively. These results reinforce our hypothesis that the market is myopic when reacting to Venezuelan official devaluations that should matter little, if any, for large MNCs operating in this small country.

Finally, we repeat our study restricting the sample to MNC that are active in industries that record exports from Venezuela to the U.S. in that same year, and find our results to hold. Exporter firms are more likely to be positively affected by a devaluation (e.g. an income statement effect) while, at the same time, are more likely to be hit as their assets lose value in their balance sheets (e.g., a balance sheet effect). Yet, the overall effect among these firms appears to be negative, hinting that the balance sheet effect is stronger than the income statement effect.

We interpret all of our results as suggestive evidence of market inefficiencies in the form of myopic behavior of investors and international financial analysts. Most of the firms in our sample had no access to the exchange rate being devaluated, and these devaluations had no impact on the rhythm of depreciation of the parallel exchange market (running, on average, from 2010-2014 at premiums of 460%). Thus, the dollar values recorded on the balance sheet of these MNC were artificially inflated, and the negative effects of devaluations in their accounting cannot be considered an economic loss. The loss materialized well in advance of these events.

It is hard to find a rational explanation as to how the stock price of large, fully globalized MNC can suffer losses of the magnitude reported in this paper in response to devaluations from a relatively small country such as Venezuela.

³ Venezuela represents less than 0.40% of the world gross domestic product (GDP) over the previous decade, a figure that is most likely overestimated. Averages are calculated by the authors based on the World Development Indicators from 2004-2014.

⁴ *Market Watch*, January 11, 2010: “Venezuela Currency Devaluation Weighs on Avon, Telefonica,” *Fierce Telecom*, January 11, 2010: “Telefonica’s Stock Drops Amidst Venezuela’s Currency Devaluation,” *The Sydney Morning Herald*, January 12, 2010: “Venezuela Devaluations: U.S. Companies Face Earnings Hit,” *Business News*, February 11, 2013: “Venezuela Devaluation Hits U.S., European Companies,” *CNBC*, February 14, 2013: “Why Venezuela’s Devaluation is Biting: Reports Colgate-Palmolive, Halliburton, Avon, and Merck as Taking a Big Hit on Earnings,” *The New York Times*, July 8, 2014: “Profits Vanish in Venezuela After Currency Devaluation,” *Business News*, February 2, 2015: “U.S. Companies Face Billions in Venezuela Currency Losses, Reuters Analysis Shows,” and *CNN Money*, February 11, 2015: “Venezuela is Causing Havoc on U.S. Companies.”

More particularly, in addition to the existence of myopic investors, we find no other explanation as to how the realization of these devaluations were not “priced-in” in the valuation of MNC operating in Venezuela.

The rest of the paper is organized as follows. Section 1 explains the Venezuelan exchange rate system and explores its intricacies. Section 2 describes the data in our sample of MNC, the selection criteria, and includes the dates of the events studied. Section 3 proposes an empirical framework to estimate the reaction of the MNC’s parents’ stock price to devaluation events affecting their subsidiaries in Venezuela. Section 4 reports the results for the cumulative abnormal returns of the MNC’s parents’ stock. It also contains a robustness check we have developed by running the same event study on the MNC that had positive exports at some point of the period of analysis and, as such, could have benefited from exchange rate devaluations. Section 5 provides our conclusions.

1. The Venezuelan exchange rate system

In February 2003, the Venezuelan government chose to implement an exchange control administered by the Central Bank. Although the initial idea was to protect international reserves in the wake of falling oil prices and political turmoil, the exchange control persisted throughout the prolonged oil bonanza registered from 2004-2014, and remains in place today. Initially, Venezuela designed the system to have a single fixed official exchange rate that would coexist with a parallel (semi-legal) market rate. Companies had to register at the Commission for the Administration of Foreign Currency (CADIVI) and request access to official dollars for importing, servicing foreign debt, or repatriating dividends. It is important to determine whether the company registered at CADIVI and whether public information was available to analysts and the market.

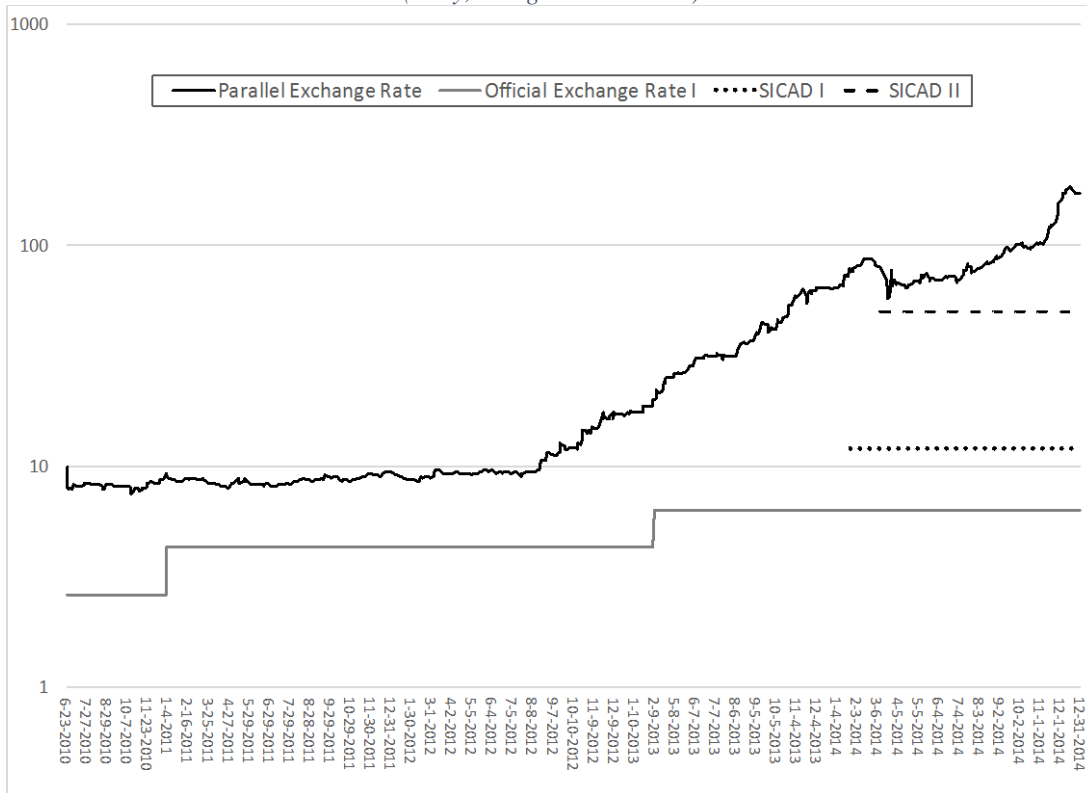
Over the first two years of the exchange control, the official exchange rate was devaluated once a year. From March 2005-January 2010, that rate was fixed at 2.15 Venezuelan bolivars (VEB) per USD, despite inflation running at a compounded annual growth rate of 18.6%. In early 2010, the parallel market became illegal. A massive appreciation ensued inflating the profits of MNC in foreign currency as calculated at the official rates. The problem is that profits were recorded at the official rates, regardless as to whether the company had access to dollars at those prices to repatriate the dividends. Indeed, official authorizations issued by CADIVI to purchase dollars for foreign debt service or dividend repatriation came to a halt in 2008, in the middle of the financial crisis that brought the price of the Venezuelan oil basket from 117.6 (June) to 31.6 dollars per barrel (December) of that year. While prices recovered and averaged more than 100 dollars per barrel in 2011, 2012, and 2013, authorizations and liquidations for dividend repatriations remained close to zero, at least until the last quarter of 2011, when this information was last publicly available. The process led to a massive overestimation of the retained earnings of multinational companies operating in Venezuela, distorting the relative size and importance of the Venezuelan subsidiary within the MNC.

Between early 2010 and 2014, five official devaluations of the official exchange rates occurred. Reuters reported on February 10, 2015 that 40 major U.S. companies had substantial exposure in Venezuela and could collectively take

billions of dollars in write downs.⁵ By then, multiple official exchange rates coexisted with a parallel market, with the ratio between the parallel exchange market rate and the lowest official rate running at a factor of 35.3. Using the ten largest S&P500 companies with operations in Venezuela and switching the calculation of retained earnings in foreign currency from the lowest official exchange rate to the highest would have resulted in estimated losses close to USD 5.8 billion (McLaughlin, 2015).

Figure 1 illustrates the trajectory of the different official and parallel exchange market rates over the period of study (2010-2014) in logarithmic scale. Notice that the parallel exchange market premium over the lowest official exchange rate went from a factor of 1.9 (January 2010) to a factor of 29.3 (December 2014). In 2014, two additional intermediate official rates were introduced (dotted lines). In total, five devaluations occurred from 2010- 2014. We describe these events in the next section.

Figure 1. Venezuela: Multiple exchange rate system (daily, in logarithmic scale)

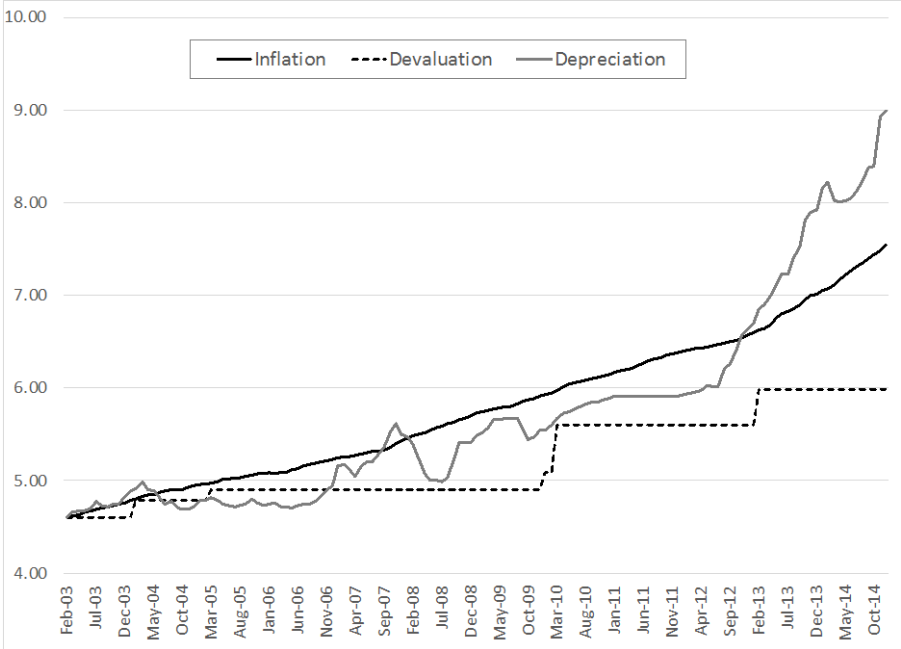


It is important to stress, as evidenced in Figure 1, that these official devaluations did not affect the trend of the parallel exchange rate. The parallel market would only react to changes in the fundamentals including an increased supply of dollars at the official exchange rate, legal restrictions on parallel exchange trading, or inflation.

⁵ *Business News*, February 2, 2015.

The official exchange rate significantly lagged inflation. Figure 2 represents the evolution of inflation, devaluation, and depreciation from the initiation of the exchange control until the end of 2014.⁶ Note that we use a logarithmic scale to depict the accelerated evolution of these rates. To put it another way, from February 2003-December 2014, the cumulative inflation was 1,776%, equivalent to a compounded annual growth rate (CAGR) of 28.1%. Over that same period, the official exchange rate was devaluated 294% (CAGR 12.3%), and the parallel exchange market depreciated 7,899% (CAGR 44.8%). The large differences between these three resulted in enormous distortions. When profits and a large portion of assets tends to grow with inflation and the official exchange rate lags inflation in the magnitudes reported here, the value of profits and assets in foreign currency as calculated at the official, massively overvalued rate, grows exponentially.

Figure 2. Venezuela: Inflation, devaluation and depreciation (February 2003=100, in logs)



In order to illustrate this effect, consider a hypothetical MNC that produced yearly profits of 100 Venezuelan bolivars (VEB) in 2002. That year, no exchange control existed. Thus, the company could have exchanged those profits for 84 U.S. dollars at the prevailing rate and repatriate them home. Now, imagine that the profits of that company parsimoniously grow with inflation every year. By 2014, those 100 VEB in profits would have grown to 1,876 VEB. At the average official exchange rate prevailing in 2014, that would have been equivalent to 297.8 USD, 3.5 times the figure of 2002. At the parallel market rate, however, the 2014 profits would have been equivalent to 19.2 USD, one fifth of the original 2002 figure.

⁶ Given that in some periods there was more than one official exchange rate, in Figure 2, we take devaluations as announcements affecting the lowest official exchange rate.

Our simple example above only illustrates the large distortions regarding the MNC profits for 2014. From a financial standpoint, distortions accumulated every year from 2003-2014. To assess the real value in foreign exchange of those retained earnings, we need to determine whether the MNC had access to dollars at the official exchange rates to repatriate dividends home. Obtaining access to dollars at the official rate in Venezuela entails registering with CADIVI and obtaining two different authorizations. First, the MNC shall introduce in CADIVI a request stating all of the details of the operation, and proving that the specific use of proceeds complies with the provisions to receive dollars at the official rate. This first step ends with an Authorization to Acquire Dollars (AAD). Once the operation is completed, and the MNC has provided all of the associated documentation, CADIVI issues an Authorization to Liquidate Dollars (ALD) and orders the Central Bank to sell dollars to the MNC at the stated rate.

Figure 3 and 4 depict the total amount of AAD coming from CADIVI from 2004-2011, and the total amount of ALD from 2007-2012.⁷ Since some MNCs register investments as loans to the subsidiary (private external debt), while others use the more traditional foreign direct investment approach (foreign investment), we have incorporated the total amount of AAD and AAL for both categories. Total authorization to acquire dollars at the official rates (for both purposes) peaked in 2007 (USD 4,670 million) and then fell 40% in 2008 (USD 2,787 million) and another 71% in 2009 (USD 801 million). Since then, they have been hovering around zero. When it comes to ALDs, we only have figures from the third quarter of 2007 onward. We know that total ALDs fell by 75% between the second half of 2007 (USD 2,080 billion) and the second half of 2008 (USD 502 million). Total ALD for both purposes fell by another 75% between 2008 (USD 2,250 million) and 2009 (USD 573 million). From that point, it has also remained very close to zero. In the years where AAD and ALD for these purposes boomed, the parallel exchange market premium was below 30%. By the time they slowed down, in 2007 and 2008, it was around 100%. By 2009, it was 185%. Presently, the price of the dollar in the parallel exchange market is 100 times that of the lowest official rate.

⁷ These are the last official statistics published by CADIVI.

Figure 3. CADIVI: Total authorizations to acquire dollars at the official rates (AAD, USD million)

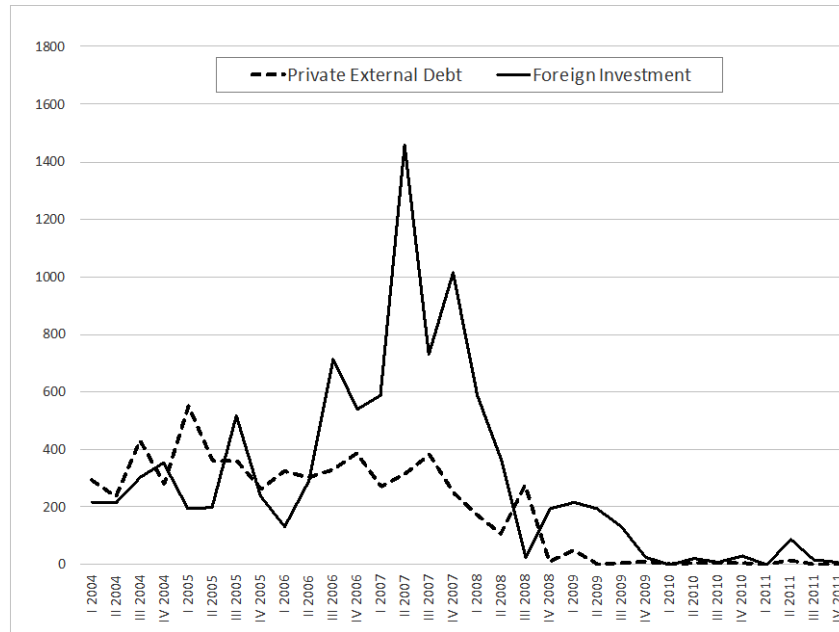
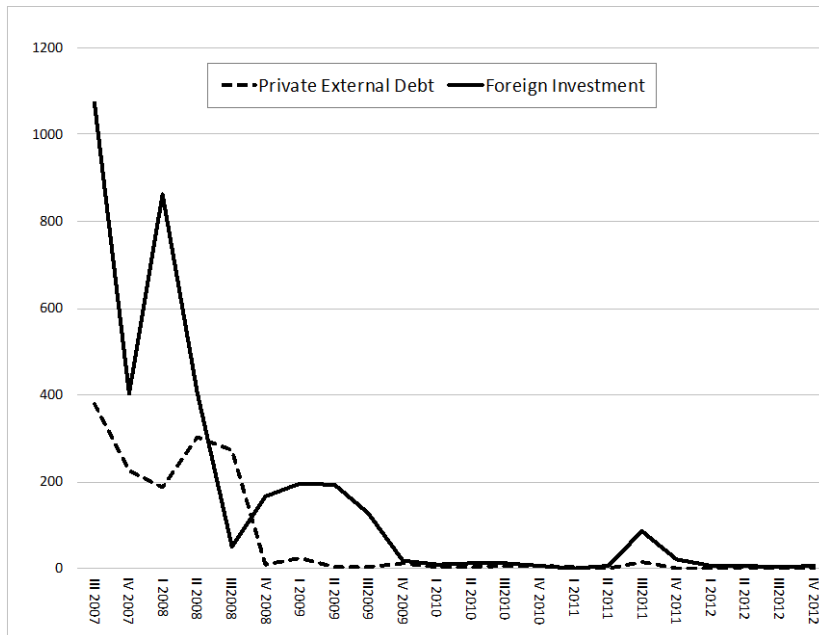


Figure 4. CADIVI: Total authorization to liquidate dollars at the official rate (ALD, USD million)



2. Data

We use the ORBIS database to collect data for all MNCs listed on the New York Stock Exchange (NYSE), NASDAQ Capital Market, or NASDAQ National Market that declared a subsidiary in Venezuela owned by at least 25% by the MNC. We then use the Center for Research in Security Prices (CRSP) database to collect daily stock

returns for the parent companies of these subsidiaries. The data collected is from April 3, 2009-February 20, 2015. Our data sample consists of 110 MNC with subsidiaries in Venezuela and data available from 2009-2015. From the 110 MNCs in our sample, 29 were registered in CADIVI and could potentially access USD at official exchange rates. The rest of the sample (81) did not have any possibility of acquiring USD at the official exchange rate.

We have also collected daily returns for the Standard and Poor's 500 Index (S&P500) from the CRSP database, which we use as a market index proxy. The appendix provides the list of 110 parent companies in our final sample with their corresponding three-digit NAICS industries, their market capitalization at year-end for each of the years of the study, and their registration status in CADIVI. Data on our five events comes from the Venezuelan Central Bank. Table 1 presents the dates on which these five devaluations were announced and a brief description of the changes introduced in the exchange rate control.

Table 1. Exchange rate devaluation events

Event #	Date	Description
1	08-Jan-10	A dual exchange rate system is established. New official fixed rates of VEB 2.6 and 4.3/USD substitute for the previous fixed exchange rate VEB 2.15/USD.
2	30-Dec-10	The dual exchange rate system is unified into a single exchange rate at VEB 4.3/USD.
3	08-Feb-13	Devaluation of the exchange rate from VEB 4.3/USD to VEB 6.3/USD.
4	23-Jan-14	New currency tier SICAD is added to the fixed rate of Event 3, which remains unchanged. SICAD rate starts at VEB 11.30/USD.
5	10-Mar-14	SICAD II is a currency system complementing SICAD (now SICAD I) conforming a three-way exchange rate system: 1) the fixed rate of VEB 6.3/USD, 2) the SICAD rate between VEB 11.3 and 12.0/USD, and 3) new SICAD II rate starting at VEB 51.86/USD

Source: Venezuelan Central Bank (BCV), www.bcv.org.ve.

The first three events are relatively straightforward devaluations of a fixed exchange official rate. The first devalued the official rate that had prevailed for four years and ten months (2.15 VEB per USD). Then, an official, dual exchange rate system was established with the new fixed exchange rates representing a devaluation of the domestic currency by 17.3% (2.60) and 50.0% (4.30).⁸ The dual system lasted only 12 months followed by a reunification of the official exchange rate eliminating the lower rate (2.60). The unique official rate (4.30) represented a devaluation of the domestic currency by 40% for those that had access to the 2.60 VEB per USD exchange rate. In 2013, a third straight devaluation occurred, where the official exchange rate went from 4.30 to 6.30 VEF/USD (31.7%).

From then onwards, the system got more complicated. In every case, a new official rate was added to the pre-existing system. In both cases, the government insisted that at least some form of market would determine one of the official rates. That promise never materialized, and rates either remained fixed and lagged inflation by long periods or were somewhat flexible, but determined unilaterally by the Central Bank. One might be tempted to think that these two latter events did not represent devaluations for companies with access to the lowest prevailing exchange rate (6.30). However, the truth is that, in practice, none of the MNCs in our sample had access to dollars to repatriate

⁸ Devaluations are calculated using the inverse of the exchange rate, i.e. the dollar price of one unit of domestic currency.

dividends (or service foreign debt) at 6.3 VEB/USD. The specific devaluation for our last two events is hard to pin down, as it depends upon the tier in which the particular company was located within CADIVI. In any case, moving from 6.30 to the rate at which SICAD I started (11.30, fourth event) represented a devaluation of 44.2%. From SICAD I to the rate at which SICAD II started (51.86, fifth event) there was an additional devaluation of 78.2%. In total, cumulative devaluations to the official exchange caused the Venezuelan bolivar to lose 95.9% of its value over the period studied.

Especially important for our study are the rates at which the MNCs needed to report the financial statements of their subsidiaries in Venezuela. Before Event 1, all of the companies in Venezuela translating financial statements needed to use the VEB 2.15/USD rate. After Event 1, they had to move to either the 2.6 or 4.3 exchange rate depending upon their industry classification, but the firms had some discretion as to which exchange rate to use. We do not have access to data concerning which exchange rate each of the firms in our sample used. After Event 2, MNCs had to use the VEB 4.3/USD regardless as to their prior exchange rate. With Event 3, all of the firms switched to the VEB 6.3/USD rate. In Event 4 introduced a new rate SICAD. Firms with no access to CADIVI and the 6.3 rate needed to use VEB 11.3/USD in their financial statements. With the introduction of the SICAD II rate in Event 5, firms with no access to SICAD I rate were forced to use the much higher SICAD II exchange rate. Firms not registered in CADIVI did not have access to either of the SICAD I or SICAD II rate.

3. Empirical Framework

We follow MacKinlay (1997) classic event study methodology and Ang and Ghallab (1976) in the research design. Devaluations could have affected the value of the subsidiaries in our sample, but we measure their impact on the MNC parent company using daily frequency stock prices adjusted by dividends.

In the design of the event study, we first define an event over which we measure the impact of the devaluation on the MNC stock return. For robustness, and to gauge the speed at which markets interpret and incorporate the impact of devaluation on stock prices, we have incorporated all event windows surrounding the devaluations from [-1, +1] to [-5,+5] (Kanas, 2005). The reasons for using different event windows, beside robustness, is that these devaluations, in particular from the Event 3 onward, represented complex arrangements involving multiple official rates depending upon the nature of the operation and the company. As such, their impact is not straightforward and it might have taken the markets a few days to assess and price.

We estimate a market model to measure the expected return of the MNC stocks during the event window. Following MacKinlay (1997), we estimate Equation (1), using least squares:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

where, R_{it} is the daily stock return of the MNC parent and R_{mt} is the daily market stock return. We use the Standard and Poor's 500 Index as a proxy for market.⁹ For each stock in our sample, we estimate the market model on a window of time previous to the event. There is no fixed estimation period in the literature. Cox and Peterson (1994) use 100 days, while Carow and Kane (2002) use 200 days. MacKinlay (1997) suggests the use of 250 days for the estimation window. For our base case model, we use a window of 150 days to estimate the market model for each stock return. We form our expectations as to how the MNC should have behaved in the absence of a devaluation with the stock price behavior in an estimation window from 180 days to 30 days prior to the event [-180, -30].¹⁰ We then estimate the abnormal return (AR) as:

$$\widehat{AR}_{it} = R_{it} - \widehat{\alpha}_i - \widehat{\beta}_i R_{mt} \quad (2)$$

where \widehat{AR}_{it} is the estimate for the abnormal return and $\widehat{\alpha}_i$ and $\widehat{\beta}_i$ are the estimates of coefficients α and β in Equation (1). The abnormal return will be the one result that is outside the normal statistical range of the market model. Under the null hypothesis, the abnormal return is normally distributed with zero conditional mean, and calculated cumulatively around the different estimation windows (CAR). To do this, we sum the abnormal returns by business days over the event window. The CAR obtained and their standard deviations will ultimately determine whether the sample has evidence of significant deviation from what we would expect from those stocks given the market behavior and the stocks' relationship to the market over the estimation window (MacKinlay, 1997).

4. Results

Our null hypothesis is that Venezuelan devaluations should not significantly impact the stock price of the MNC's parents. First, devaluations decreed in such a small country should be immaterial to the stock price of large globalized multinational corporations. In addition, the evolution of parallel exchange market premiums and the fact that CADIVI's AAD and ALD have come to a halt for two and even five years prior to these events (depending upon the specific devaluation analyzed) should have given market analysts enough cues regarding the unlikelihood of those retained earnings to be converted back into dollars at the official exchange rates. More importantly, subsidiary firms in Venezuela were obligated to translate their balance sheets to their parents at the official exchange rate even though most firms did not have access to the official exchange rate. Thus, the market should have known that assets and retained earnings within balance sheets were overstated. Even if the company had legal grounds to use the official exchange rate and some discretion around the possibility of creating provisions in advance of a possible loss, market analysts should have easily recognized that financial statements at official rates were not

⁹ We also use the market index as a market proxy, weighted and unweighted, from the CRSP database. We find no material difference. The results are available from the authors upon request.

¹⁰ Our results are robust to using different estimation window sizes. In particular, we have tried 220 days [-250, -30], 190 days [-220, -30], 150 days [-180, -30], and 120 days [-150, -30] without finding any significant difference in the size or significance of our output. The results are available from the authors upon request.

realistic. That statement is particularly certain for companies that were not eligible to purchase dollars at the official exchange rates. In this section, we present the Cumulative Abnormal Returns (CARs) results for the full sample of 110 MNCs. We then break the sample into companies registered and not registered in CADIVI, and report the results for each of these two sub-groups.

Table 2 presents the results for the Cumulative Abnormal Returns (CAR) of the stock prices of the 110 MNCs in our sample. The results presented are for the five devaluation events described in Table 1. Each column reports the results for a different event window, with $t=0$ as the day of the devaluation announcement. The event window in Table 2 spans from $[-1, +1]$ to $[-5, +5]$ days prior to and after the event. Each cell contains the coefficient, standard deviation, and associated p-value.

Table 2. CARs of stock price of MNCs with Venezuelan subsidiaries

This table presents the Cumulative Abnormal Returns (CAR) of stock prices of the 110 MNCs in our sample with subsidiaries in Venezuela. The first column provides the devaluation event as described in Table 1. Columns 2-6 report the CARs for five event windows, from one day prior to and after the event $[-1, +1]$ to five days before and after the event $[-5, +5]$. The last column presents the number of observations. t -values are in parentheses.

Complete Sample						
	$[-1;+1]$	$[-2;+2]$	$[-3;+3]$	$[-4;+4]$	$[-5;+5]$	N
Event 1	-0.0029 (0.96)	-0.0007 (0.18)	-0.0054 (1.31)	-0.0054 (1.04)	-0.0042 (0.76)	110
Event 2	-0.0017 (1.52)	-0.0067*** (4.77)	-0.0136*** (5.86)	-0.0150*** (5.49)	-0.0174*** (4.53)	110
Event 3	-0.0026 (1.64)	-0.0010 (0.36)	0.0004 (0.12)	0.0063* (1.67)	0.0055 (1.36)	110
Event 4	-0.0088*** (3.41)	-0.0094*** (3.10)	-0.0091*** (2.77)	-0.0097** (2.01)	-0.0133** (2.25)	110
Event 5	-0.0063** (2.49)	-0.0066** (2.60)	-0.0104*** (3.60)	-0.0103*** (3.28)	-0.0136*** (3.25)	110

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

We find significant negative abnormal returns for Events 2, 4, and 5. In Event 2, the CARs are negative and significant in four of the five windows, while in Events 4 and 5, we find negative impacts across the board. The size of the coefficient is also relevant. Maximum negative impact recorded in each of these three events range from 1.33% to 1.74%. As previously mentioned, the devaluation that applies to each company in our sample is hard to define, particularly when multiple exchange rates are involved. However, it is noteworthy that we have recorded significant negative CARs in the three events where the devaluations were possibly the largest. In Event 1, companies could have moved from VEB 2.15/USD to VEB 2.60/USD (a devaluation equivalent to 17.3%). In Event 3, firms unequivocally went from VEB 4.30/USD to VEB 6.30/USD (31.7%). The three remaining devaluations are

larger than these, 39.5% for Event 2 (moving from VEB 2.60/USD to 4.30 VEB/USD), 44.2% for Event 3 (from VEB 6.30/USD to 11.30 VEB/USD), and 78.2% in Event 5 (from VEB 11.30/USD to 51.86 VEB/USD).

We also find it noteworthy that the negative effects of devaluations did not wane in time, but continue to appear three years after the first negative “surprise.” If Venezuelan profits had fallen off the radar of analysts due to the country’s meager size, the successive negative impact of Venezuelan devaluations on MNC stock prices should have alerted them. To the contrary, it seems that markets continued to ignore the large parallel exchange market premiums and the fact that these companies either never had access to dollars at the official rates, or have some positive right in theory that had not materialized for years prior to these events.

As previously mentioned, only 29 of our 110 sample of MNCs with subsidiaries in Venezuela had registered with CADIVI. This could have sustained some expectation that accumulated retained earnings and their corresponding assets might eventually convert to dollars at the official rates. Table 3 presents the Cumulative Abnormal Returns (CAR) on stock prices resulting for our event study for the 29 MNCs in our sample registered at CADIVI.¹¹

Table 3. CARs of stock price of MNCs with Venezuelan subsidiaries registered in CADIVI

This table presents the Cumulative Abnormal Returns (CAR) of stock prices of the 29 MNCs in our sample with subsidiaries in Venezuela registered at CADIVI. The first column reports the devaluation event as described in Table 1. Columns 2-6 provide the CARs for five different event windows, from one day prior to and after the event [-1, +1] to five days before and after the event [-5, + 5]. The last column indicates the number of observations. *t*-values are in parentheses.

CADIVI						
	[-1;+1]	[-2;+2]	[-3;+3]	[-4;+4]	[-5;+5]	N
Event 1	-0.0005 (0.11)	0.0073 (1.37)	0.0052 (0.86)	0.0077 (1.13)	0.0082 (1.00)	29
Event 2	0.0007 (0.34)	-0.0045** (2.10)	-0.0069 (1.64)	-0.0081 (1.59)	-0.0082 (1.25)	29
Event 3	-0.0015 (0.75)	0.0026 (0.35)	0.0046 (0.56)	0.0117 (1.20)	0.0104 (1.18)	29
Event 4	-0.0088 (1.39)	-0.0091 (1.52)	-0.0127* (1.88)	-0.0163* (1.78)	-0.0186* (1.94)	29
Event 5	-0.0029 (1.13)	-0.0039 (0.98)	-0.0050 (0.95)	-0.0029 (0.56)	-0.0079 (0.91)	29

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

The results in Table 3 differ from those in Table 2. When we consider only those firms with access to the official exchange rate, we find no consistent abnormal returns in any of these events. Only one window, [-2,+2] for Event 2, is significant at the 5% level. The size of the coefficient is less than 0.5%. For the remaining windows of these

¹¹ These companies are listed in the appendix.

events, the results are not statistically different from zero. In the case of Event 4, the last three event windows on the right report negative CARs that are significant at the 10% level, and can go as high as 1.86%.

In the case of firms with access to CADIVI, negative CARs are not as consistent and significant as for the overall sample. That does not necessarily mean that markets were efficient in pricing these stocks. Rather, it might well be a case of getting the right result for the wrong reasons. Devaluations did not have an impact on the asset prices of these companies as they had piled up authorizations to acquire dollars at past official rates (AADs) that were not altered by the new devaluations. Retained earnings were registered in dollar values on the subsidiaries' balance sheets at the official rates prevailing when these earnings were recorded. From an accounting standpoint, devaluations could impact the rate of recorded future earnings, but did not affect the way they had registered retained earnings. In other words, the financial statements of CADIVI registered firms were not translated at the unique official rate. These firms used multiple official rates, because in most cases they received AADs for dividend repatriation at different official exchange rates. The market did not adjust the probability they were assigning to these AADs honored with successive devaluations. Years passed without honoring these AADs while the parallel market premium continued to rise. However, one might argue that registration in CADIVI provided some reasonable grounds to expect the conversion of these assets at the previously official rates.

The case of MNCs whose Venezuelan subsidiaries *were not* registered in CADIVI is different. As one might expect based on the previous tables, most of the significant, negative CARs reported in Table 2 were driven by the 81 MNC not eligible to buy dollars at the official exchange rates. Table 4 presents the results for the Cumulative Abnormal Returns (CAR) of the stock prices of these companies.

Table 4. CARs of stock price of MNCs with Venezuelan subsidiaries NOT registered in CADIVI

This table presents the Cumulative Abnormal Returns (CAR) of stock prices of the 81 MNCs in our sample with subsidiaries in Venezuela not registered at CADIVI and having no access to dollars at the official exchange rate. The first column reports the devaluation event as described in Table 1. Columns 2-6 provide the CARs for five different event windows, from one day prior to and after the event [-1, +1] to five days before and after the event [-5, +5]. The last column indicates the number of observations. *t*-values are in parentheses.

Non-CADIVI						
	[-1;+1]	[-2;+2]	[-3;+3]	[-4;+4]	[-5;+5]	N
Event 1	-0.0038 (0.99)	-0.0036 (0.74)	-0.0092* (1.80)	-0.0101 (1.54)	-0.0086 (1.26)	81
Event 2	-0.0026* (1.94)	-0.0074*** (4.29)	-0.0160*** (5.85)	-0.0175*** (5.46)	-0.0210*** (4.48)	81
Event 3	-0.0030 (1.47)	-0.0023 (0.90)	-0.0011 (0.36)	0.0043 1.16	0.0037 0.83	81
Event 4	-0.0088*** (3.26)	-0.0095*** (2.68)	-0.0078** (2.07)	-0.0073 (1.28)	-0.0114 (1.57)	81
Event 5	-0.0074** (2.27)	-0.0076** (2.41)	-0.012*** (3.59)	-0.0129*** (3.39)	-.0156*** (3.27)	81

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

We confirm that companies not registered in CADIVI drove most of the significant, negative CARs observed in response to devaluations 2, 4, and 5. In Event 2, CARs are negative and significant across the board, and their maximum size of -2.10% [-5,+5] is large and economically significant. Similar results are found in Event 4 although the negative impact appears to be concentrated on the first three windows and their maximum size is -0.95% [-2,+2]. Finally, negative and significant CARs are registered across different event windows in Event 5 with a sizable maximum cumulative negative impact of -1.56%.

The markets seem to have reacted belatedly to an accounting change when, in fact, the likelihood of those retained earnings being converted into dollars at the official rates was actually zero. Instead of recognizing that simple fact and gradually adjusting the stock price as the parallel market rate evolved and dissociated from the official exchange rate, the markets waited for an accounting change induced by a devaluation to realize that the value of the assets were much lower. It is also noteworthy that the market seems to have been repeatedly surprised by Venezuelan devaluations.

These results are inconsistent with our hypothesis that MNC's parent stocks should not react abnormally to devaluation events in Venezuela. First, the reported impact is disproportionate when contrasted with the size the Venezuelan market represents within the global portfolio of these corporations. In addition, given the large parallel exchange market premiums, analysts could have easily guessed that 81 of these multinationals had no chance to convert their accumulated profits and assets anywhere close to the official rate, and discount these values well in advance of the events. Instead, they seem to have taken the financial statements reported by the subsidiaries of these MNCs at face value at an artificially overvalued official exchange rate. Finally, one might argue that these nuances, coming from a very small economy like Venezuela, might go unnoticed and internalized the first time, but years down the road, successive Venezuelan devaluations would continue to surprise the markets.

5. Balance sheet or income statement effect? The case of exporters

For a MNC, currency devaluation in the country of a foreign subsidiary could lead to a “balance sheet effect” as the net value of the assets of the subsidiary in foreign currency (e.g., property, plant, equipment, cash, and other investments, net of liabilities denominated in domestic currency) will be lower after devaluation. Alternatively, there is also an “income statement effect” derived from the change in the net present value of expected future earnings (in local currency) of the subsidiary. In contrast to the income effect, which comes from the recurring impact on financial statements and takes time to understand and estimate, balance sheet impacts are one-time events and relatively straightforward to estimate.¹²

One way to understand which effect is driving the results is to restrict our sample to exporters. For exporters, devaluation would typically have a positive impact on the income statement, as it reduces the relative cost of products manufactured by an MNC in Venezuela abroad and increases the relative price of exports in the domestic market. By using only those companies whose expected income effects are positive, we can test whether the balance

¹² Ang and Ghallab (1976) study the mechanisms behind the link between the two.

sheet impact is strong enough to yield negative and significant CARs. That is, if the results restricting the sample to export firms are still negative, then it could be argued that most of the documented negative impact on the stock valuation of MNC is driven by the balance sheet effect.

Given data limitations, we have no way to gauge whether specific companies did export or not. Yet, we can recognize whether positive exports are registered in each year using their industry code by reviewing exports from Venezuela to the United States during that period in the same industrial classification (NAICS).¹³ Table 5 reports the CARs resulting from our event study for the restricted sample of companies that belong to sectors that registered positive exports within these years. The results are not different from those reported in Table 2 and Table 4. We find significant, negative CARs in most of the event windows for Events 2, 4 and 5. This negative impact is also sizable, going up as much as -1.70% in Event 2 [-5, +5].

Table 5. CARs of stock price of MNCs with Venezuelan subsidiaries in exporting sectors

This table provides the Cumulative Abnormal Returns (CAR) of stock prices of the MNCs in our sample with subsidiaries in Venezuela in industries that reported positive exports. The first column presents the devaluation event as described in Table 1. Columns 2-6 report CARs for five different event windows from one day prior to and after the event [-1, +1] to five days before and after the event [-5, +5]. The last column indicates the number of observations. *t*-values are in parentheses.

Potential MNC exporters						
	[-1;+1]	[-2;+2]	[-3;+3]	[-4;+4]	[-5;+5]	N
Event 1	-0.0001 (0.02)	0.0042 (0.92)	0.0000 (0.00)	-0.0002 (0.03)	-0.0004 (0.07)	76
Event 2	-0.0008 (0.65)	-0.0055*** (3.71)	-0.0117*** (4.46)	-0.0142*** (4.53)	-0.0170*** (3.77)	76
Event 3	-0.0019 (0.94)	0.0004 (0.10)	0.0024 (0.53)	0.0063 (1.24)	0.0059 (1.12)	72
Event 4	-0.0082*** (3.03)	-0.0078** (2.12)	-0.0078** (2.00)	-0.0050 (1.19)	-0.0080 (1.56)	71
Event 5	-0.0060** (2.29)	-0.0065*** (2.67)	-0.0087*** (2.85)	-0.0085** (2.56)	-0.0089** (2.14)	72

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Even for exporters, the market was affected by the negative impact that an official rate devaluation had on inflated balance sheets. The fact that the significant, negative CARs we reported for these events are also present in companies whose income statements could potentially benefit from devaluation is a strong indication that, throughout our study, CARs are driven essentially by strong negative balance sheet effects.

¹³ <https://usatrade.census.gov>

6. Conclusions

We study the reaction of the stock price of multinational parents to currency devaluations in the country of one of its subsidiaries. We use the case of Venezuela from 2010-2014. Venezuela is a special case for a number of reasons. First, over the period of study (2010-2014), the Venezuelan government devalued their domestic currency by a cumulative 95.9%, thereby melting the dollar value of assets in the balance sheets of MNC. In addition, these devaluations occurred within the context of stiff exchange controls and large parallel exchange market premiums. We believe that the lessons learned from Venezuela are applicable to a larger set of small countries where macroeconomic distortions can be large and are not always well understood by the markets.

Our search for MNCs with Venezuelan subsidiaries owned in at least 25% yielded 110 MNCs. Of these, 29 subsidiaries registered at the corresponding government entity (CADIVI) and could potentially purchase dollars at the official exchange rate. Whether the MNC was registered at CADIVI or not was public information. Even the amount of dollars liquidated to MNCs for repatriating dividends was public information until 2011.

Our initial hypothesis was that stock prices of multinational parents whose subsidiaries are not eligible to receive dollars at the official rate should not display any significant reaction to Venezuelan devaluations. This is due to several factors. First, Venezuela is a small economy representing, on average, less than 0.4% of the world gross domestic product (a figure that, for the same reasons as MNC balance sheets, is most likely inflated). In addition, none of the MNCs in our sample received any USD at the official rate to repatriate dividends for a period of two to five years prior to these devaluations. Moreover, most firms in our sample (81) were not even registered in CADIVI and, as such, were not eligible to receive dollars at the official exchange rates. Finally, the devaluations did nothing to change the fundamentals of the parallel exchange market premium, which remained at a steady rise throughout the period studied.

The results of our events studies provide empirical evidence of negative and significant cumulative abnormal returns (CAR) on the stock price of MNCs on three Venezuelan devaluations. The size of the coefficient is meaningful from an economic standpoint, running as high as -1.74% negative CARs of stock prices over the event window for the full sample and -2.10% for the 81 MNCs whose subsidiaries not registered in CADIVI. Our findings are robust to using different estimation and event windows. We have also run our event study on a restricted sample of MNCs that belong to industries with positive exports during the years studied (2010-2014) whose income statements could potentially benefit from devaluation. As the results obtained are very similar to those for the large sample, we conclude that balance sheet effects are driving the strong and significant negative abnormal returns observed.

Our results indicate that the price of MNC stocks suffered a significant negative impact to the Venezuelan devaluation of late 2010. These stock prices kept on experiencing significant negative abnormal returns in response to devaluations occurring four years later. These losses had effectively occurred much earlier, but the markets seem to have accepted, at face value, the earnings and assets reported in dollars by the Venezuelan subsidiaries of these

MNC. It was only well into 2015 and 2016 that most of these MNCs recognized their losses and announced the deconsolidation of their Venezuelan operations.¹⁴

This paper is not about window dressing. We do not deal with the validity of MNCs reporting financial statements at artificially overvalued official exchange rates. Given that companies are obligated to use official exchange rates in their financial statements, these MNC might not have had any other option. We do provide arguments suggesting significant market myopia when valuing the stock of MNC with Venezuelan subsidiaries. Regardless as to the exchange rate they selected to convert their financial statements into dollars, market analysts should have realized that the net assets of the Venezuelan subsidiaries did not have any probability of materializing at the stated official exchange rates. That realization was rather obvious for the large number of multinationals that were not eligible to receive dollars at the official rates. Moreover, we have reported significant negative CARs on three events that span a period of three years. It was not only that early Venezuelan devaluation surprised analysts, a fact relatively understandable given the small size of its economy and the intricacies of its exchange rate control. But it is rather startling that these devaluations, three years down the road, were still surprising the markets and having a significant negative impact on the stock prices of these MNCs. The markets were not only unable to anticipate their impact on stock prices at first, but seem were also unwilling to learn from repeated experiences.

¹⁴ See for example: *Reuters*, February 17, 2015: "U.S. Companies Can Avoid Slow Torture of Venezuela Devaluations by Taking One Big Hit," *Tire Business*, April 15, 2016: "Tire Makers Deconsolidate Venezuela Operations," *Zacks*, January 6, 2016: "Ecolab Announces Deconsolidation of Venezuelan Operations," *Reuters*, July 27, 2016: "Venezuela Roils Corporate Profits Around the Globe," and *The Wall Street Journal*, October 6, 2015: "PepsiCo Latest Company to Write-Off Venezuela".

References

- Adler, M. & Dumas, B. (1984). Exposure to currency risk: Definition and measurement. *Financial Management*, 12, 41-50.
- Ang, J. & Ghallab, A. (1976). The impact of U.S. devaluations on the stock prices of multinational corporations. *Journal of Business Research*, 4 (1), 25-34.
- Carow, K. and Kane, E. J. (2002). Event-study evidence of the value of relaxing long-standing regulatory restraints on banks, 1970-2000. *The Quarterly Review of Economics and Finance*, 42, 439-463.
- Cox, D. & Peterson, D. (1994). Stock returns following large one-day declines: Evidence on short term reversals and longer-term performance. *Journal of Finance*, 49, 255-267.
- Glen, J. (2002). Devaluations and emerging stock market returns. *Emerging Markets Review*, 3, 409-428.
- Kanas, A. (2005). Pure contagion effects in international banking: The case of BCCI's failure. *Journal of Applied Economics*, 8, 101-123.
- MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature*, 35, 13-39.
- McLaughlin, T. (2015). *U.S. companies face billions in Venezuela currency losses, Reuter's analysis shows*. <http://www.reuters.com/article/us-venezuela-usa-corporations-insight-idUSKBN0L6OCT20150202> Reuters. Feb, 2.
- Patro, D. K., Wald, J. and Wu, Y. (2014). Currency devaluation and stock market response: An empirical analysis. *Journal of International Money and Finance*, 40, 79-94.
- Stulz, R. (1981). On the effects of barriers to international asset pricing. *Journal of Finance*, 25, 783-794.

Appendix. Sample of 110 MNC with Venezuelan subsidiaries

This appendix table presents the 110 multinational companies (MNC) in our sample with Venezuelan subsidiaries. The second and third columns identify the ticker and the name of the company. The fourth column reports their three-digit NAICS. Columns five through eight provide the market capitalization for each MNC from 2011-2014 (million USD). The ninth column provides a dummy variable equal to one if the MNC subsidiary was registered at the Venezuelan government agency administering the exchange control (CADIVI). The last column presents a dummy variable equal to one if the MNC belonged to an industry sector with positive exports out of Venezuela over the period studied.

#	Ticker	Company Name	NAICS	Market Cap 2011	Market Cap 2012	Market Cap 2013	Market Cap 2014	Cadivi	Exportable
1	ABT	ABBOTT LABORATORIES	325	74,060.04	103,533.74	59,265.30	67,790.70	1	1
2	ACN	ACCENTURE PLC IRELAND	541	23,324.08	39,103.72	55,541.66	63,520.78	0	0
3	ADSK	AUTODESK INC	511	9,250.43	8,693.57	11,562.00	12,287.25	0	0
4	AGN	ALLERGAN INC	325	6,472.21	10,987.08	22,371.08	68,229.38	0	1
5	ALB	ALBEMARLE CORP	325	5,107.83	5,544.82	4,705.40	4,705.40	0	1
6	AVP	AVON PRODUCTS INC	325	12,471.98	6,205.85	7,469.51	4,081.42	1	1
7	AVT	AVNET INC	423	3,640.77	4,476.33	4,604.92	6,132.49	0	0
8	AXE	ANIXTER INTERNATIONAL INC	423	2,027.34	2,063.18	2,915.94	2,895.61	0	0
9	BAX	BAXTER INTERNATIONAL INC	339	29,497.65	36,621.53	37,744.62	39,721.58	0	1
10	BCO	BRINKS CO	561	1,247.14	1,362.86	1,647.87	1,185.68	0	0
11	BDX	BECTON DICKINSON & CO	339	17,202.01	15,677.03	19,425.12	21,832.85	0	1
12	BG	BUNGE LTD	311	9,493.15	10,625.22	12,110.65	13,199.71	0	1
13	BGC	GENERAL CABLE CORP DEL NEW	331	1,828.60	1,513.53	1,463.42	725.20	0	1
14	BMJ	BRISTOL MYERS SQUIBB CO	325	45,325.43	53,795.95	87,513.76	97,917.58	0	1
15	C	CITIGROUP INC	522	137,407.30	116,010.52	158,049.70	163,925.60	1	0
16	CA	CA INC	511	12,333.08	11,480.16	13,871.85	14,439.88	0	0
17	CAT	CATERPILLAR INC	333	59,832.14	58,697.91	57,920.64	55,412.16	0	1
18	CB	CHUBB CORP	524	21,127.02	27,116.70	35,224.32	38,110.01	0	0
19	CBI	CHICAGO BRIDGE & IRON CO N V	237	3,263.67	4,486.37	8,938.16	4,546.09	0	0
20	CBT	CABOT CORP	325	2,128.01	2,314.69	2,727.56	3,278.75	0	1
21	CFX	COLFAX CORP	333	798.91	3,792.01	6,490.23	6,378.50	0	1
22	CKH	SEACOR HOLDINGS INC	483	2,147.35	1,747.47	1,854.27	1,371.18	0	0
23	CL	COLGATE PALMOLIVE CO	325	60,332.86	49,393.24	60,332.86	63,059.65	1	1
24	CLX	CLOROX CO	325	8,754.69	9,424.71	10,946.47	11,752.88	0	1
25	CMS	C M S ENERGY CORP	221	4,549.11	6,465.67	7,150.02	9,596.18	0	0
26	COP	CONOCOPHILLIPS	324	100,054.20	70,393.75	86,553.23	85,006.84	0	1
27	CR	CRANE CO	332	2,400.40	2,634.48	3,462.36	3,462.36	0	1
28	CSCO	CISCO SYSTEMS INC	334	131,756.30	85,442.22	136,761.60	129,245.50	0	1
29	DAN	DANA HOLDING CORP	336	2,430.31	2,311.82	2,882.26	3,682.85	0	1
30	DBD	DIEBOLD INC	334	2,105.03	1,935.14	2,107.30	2,238.75	0	1
31	DD	DU PONT E I DE NEMOURS & CO	325	45,535.15	41,941.15	60,168.91	66,985.73	0	1
32	DOW	DOW CHEMICAL CO	325	39,626.84	38,770.44	53,851.25	53,754.15	0	1
33	ECL	ECOLAB INC	325	11,704.25	21,060.11	31,416.47	31,368.17	0	1
34	EI	ECOLOG Y & ENVIRONMENT INC	813	30.27	31.71	27.75	27.43	0	0
35	EMN	EASTMAN CHEMICAL CO	325	5,948.51	10,436.63	12,304.10	11,276.40	0	1
36	EMR	EMERSON ELECTRIC CO	335	39,621.85	35,107.92	46,230.18	43,675.54	0	1
37	ETN	EATON CORP	336	17,084.13	18,309.23	36,118.94	32,253.82	0	1
38	ETP	ENERGY TRANSFER PARTNERS L P	221	9,928.69	12,902.50	18,901.62	22,934.28	0	0
39	F	FORD MOTOR CO DEL	336	57,116.28	48,473.59	59,654.66	59,654.66	1	1
40	FLEX	FLEXTRONICS INTERNATIONAL LTD	334	5,677.29	4,433.39	5,566.24	7,254.87	0	1
41	FLR	FLUOR CORP NEW	237	11,846.76	9,780.77	13,115.58	9,471.65	0	0
42	FLS	FLOWERVE CORP	333	6,656.21	7,337.69	10,994.31	8,155.33	0	1
43	FMC	F M C CORP	333	5,711.00	8,056.47	10,027.55	7,603.11	0	1
44	GD	GENERAL DYNAMICS CORP	336	26,804.71	24,457.14	45,605.86	45,605.86	0	1
45	GE	GENERAL ELECTRIC CO	333	195,542.40	220,107.43	253,766.20	253,766.20	1	1
46	GIS	GENERAL MILLS INC	311	23,632.45	24,778.99	30,350.48	33,754.06	1	1
47	GRA	GRACE W R & CO DEL NEW	339	2,567.26	5,063.32	7,041.90	7,041.90	0	1
48	GT	GOODYEAR TIRE & RUBBER CO	326	2,878.52	3,382.94	5,888.50	7,844.25	1	1
49	HAL	HALLIBURTON COMPANY	213	37,136.31	32,191.86	33,330.61	33,330.61	1	0
50	HLF	HERBALIFE LTD	424	4,050.21	3,557.57	7,949.52	3,460.86	1	0
51	HON	HONEYWELL INTERNATIONAL INC	336	41,473.98	49,720.63	71,695.55	78,218.41	1	1
52	HP	HELMERICH & PAYNE INC	211	4,281.22	5,032.03	7,342.38	10,592.17	0	1
53	HRS	HARRIS CORP	334	5,346.59	4,761.60	5,396.99	8,067.33	0	1
54	HSC	HARSCO CORP	332	2,279.95	1,893.74	1,526.49	1,526.49	0	1
55	HUN	HUNTSMAN CORP	325	3,734.15	3,808.63	5,939.40	5,556.36	0	1

Source: ORBIS and Center for Research in Security Prices (CRSP)

Appendix. Sample of 110 MNC with Venezuelan subsidiaries (continued)

#	Ticker	Company Name	NAICS	Market Cap 2011	Market Cap 2012	Market Cap 2013	Market Cap 2014	Cadivi	Exportable
56	IBM	INTERNATIONAL BUSINESS MACHS COR	334	182,328.90	216,438.57	203,673.70	158,781.10	1	1
57	IILG	INTERVAL LEISURE GROUP INC	561	921.27	#N/A	1,772.83	1,192.79	0	0
58	INWK	INNERWORKINGS INC	323	299.21	688.18	399.37	419.76	0	1
59	IPG	INTERPUBLIC GROUP COS INC	541	5,190.37	4,753.90	7,367.48	8,686.62	0	0
60	IR	INGERSOLL RAND PLC	333	15,257.66	14,436.05	17,746.13	16,828.26	0	1
61	JBL	JABIL CIRCUIT INC	334	2,229.00	4,680.87	4,624.64	4,312.32	0	1
62	JLL	JONES LANG LASALLE INC	531	3,579.03	3,697.34	4,349.88	6,720.15	0	0
63	KEX	KIRBY CORP	483	2,357.73	3,459.90	4,606.94	4,606.94	0	0
64	KFY	KORN FERRY INTERNATIONAL	541	745.74	773.79	805.67	1,444.75	0	0
65	KMB	KIMBERLY CLARK CORP	322	25,707.28	33,036.24	39,866.01	43,033.47	1	1
66	KO	COCA COLA CO	312	182,421.80	162,587.10	182,421.80	184,928.40	1	1
67	LECO	LINCOLN ELECTRIC HOLDINGS INC	332	2,749.22	4,037.75	5,779.26	5,319.73	0	1
68	LLY	LILLY ELI & CO	325	40,406.14	57,233.52	57,459.13	76,815.52	1	1
69	MAN	MANPOWER INC WIS	561	5,119.15	3,329.69	6,782.42	5,394.95	0	0
70	MDT	MEDTRONIC INC	339	48,125.93	39,750.56	47,324.46	58,867.93	0	1
71	MELI	MERCADOLIBRE INC	519	2,941.14	3,468.05	4,759.25	5,637.21	0	0
72	MMC	MARSH & MCLENNAN COS INC	524	14,857.94	18,765.01	26,538.79	30,961.07	1	0
73	MMM	3M CO	339	61,692.34	63,796.46	93,300.17	105,299.40	1	1
74	MON	MONSANTO CO NEW	424	28,454.71	46,425.28	52,186.07	60,669.25	1	1
75	MRK	MERCK & CO INC NEW	325	111,034.90	124,460.54	146,242.50	161,901.10	1	1
76	MSFT	MICROSOFT CORP	511	201,655.90	256,982.50	288,489.00	344,459.20	1	0
77	NDSN	NORDSON CORP	333	2,649.34	3,784.05	4,629.90	4,830.04	0	1
78	NEU	NEWMARKET CORP	339	1,763.10	3,518.17	4,430.96	5,056.65	0	1
79	NOV	NATIONAL OILWELL VARCO INC	333	34,046.81	29,178.99	34,046.81	28,215.50	0	1
80	NUS	NU SKIN ENTERPRISES INC	424	1,879.95	2,174.59	8,221.66	2,590.72	0	0
81	NWL	NEWELL RUBBERMAID INC	326	5,277.65	6,404.85	10,326.20	10,326.20	0	1
82	OI	OWENS ILL INC	327	5,026.07	3,499.55	5,903.50	4,450.92	0	1
83	ORCL	ORACLE CORP	511	113,280.90	131,691.05	159,126.00	187,362.40	1	0
84	OXY	OCCIDENTAL PETROLEUM CORP	211	79,714.66	62,068.19	76,656.30	62,507.26	0	1
85	PEP	PEPSICO INC	312	103,537.70	105,851.19	127,196.80	141,519.10	1	1
86	PFE	PFIZER INC	325	140,254.30	184,648.19	198,515.20	196,265.50	1	1
87	PG	PROCTER & GAMBLE CO	325	172,736.70	167,831.49	211,012.10	212,661.40	1	1
88	PH	PARKER HANNIFIN CORP	332	8,931.04	11,612.81	14,238.57	18,725.76	0	1
89	PM	PHILIP MORRIS INTERNATIONAL INC	312	106,196.50	139,725.05	126,550.10	126,550.10	1	1
90	PRGS	PROGRESS SOFTWARE CORP	511	1,667.20	1,285.19	1,367.51	1,294.30	0	0
91	PRGX	P R G X GLOBAL INC	541	151.32	204.17	196.33	155.88	0	0
92	PX	PRAXAIR INC	325	29,250.07	32,520.49	38,276.07	37,750.23	1	1
93	RPM	R P M INTERNATIONAL INC	325	2,568.12	3,466.95	4,389.97	5,738.96	0	1
94	RRD	DONNELLEY R R & SONS CO	323	3,604.06	1,620.90	3,685.90	3,357.64	0	1
95	SEE	SEALED AIR CORP NEW	322	4,063.87	3,405.94	6,679.64	8,959.42	0	1
96	SHW	SHERWIN WILLIAMS CO	444	9,039.54	15,859.93	18,594.61	25,251.23	0	0
97	SJM	SMUCKER J M CO	311	7,274.81	8,920.05	10,024.65	10,024.65	0	1
98	SLB	SCHLUMBERGER LTD	213	113,925.70	92,017.58	117,803.50	109,905.10	1	0
99	SLGN	SILGAN HOLDINGS INC	332	2,749.74	2,874.73	3,045.21	3,387.70	0	1
100	SON	SONOCO PRODUCTS CO	322	3,464.72	2,995.03	4,253.44	4,425.07	0	1
101	T	A T & T INC	517	173,635.80	191,472.79	185,222.90	174,231.30	0	0
102	TDW	TIDEWATER INC	488	3,078.74	2,494.58	897.39	897.39	0	0
103	TEL	TYCO ELECTRONICS LTD NEW	334	13,078.26	14,549.80	21,412.93	22,628.22	0	1
104	TESO	TESCO CORP	333	593.00	441.31	773.56	508.21	0	1
105	TKR	TIMKEN COMPANY	332	4,634.41	4,584.36	5,376.85	3,785.15	0	1
106	TTI	TETRA TECHNOLOGIES INC	325	904.27	592.64	974.52	531.73	0	1
107	TUP	TUPPERWARE BRANDS CORP	325	3,010.28	3,544.27	4,789.22	3,173.36	0	1
108	V	VISA INC	522	36,882.49	70,822.85	98,338.05	105,572.70	0	0
109	WST	WEST PHARMACEUTICAL SERVICES INC	325	1,371.89	1,868.21	3,426.13	3,783.78	1	1
110	XRX	XEROX CORP	334	14,982.66	8,678.77	14,982.66	15,821.96	1	1

Source: ORBIS and Center for Research in Security Prices (CRSP)