



Volatility and value creation in the Latin American integrated market

Volatilidad y creación de valor en el mercado integrado Latinoamericano

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Abstract

In the present day, integration aims to reduce market atomization by concentrating the liquidity and penetration of each of the actors that constitute MILA (Mercado Integrado Latinoamericano) in a single place. This facilitates the incorporation into international capital markets and allows access to financing sources different from traditional funding from banks. For this reason, it is relevant to study the relationship between value creation and the volatility of the firms that are part of MILA for the period from 2007 to 2017. Different econometric models are used, and a negative and statistically significant relationship is evidenced between shareholder value creation and volatility. This implies that the companies that generate greater uncertainty, reflected in higher volatility, (measured in terms of daily returns) exhibit lower value creation for the shareholder.

JEL Code: G10, G30, G32

Keywords: volatility; value creation; MILA

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Resumen

En la actualidad, la integración apunta a reducir la atomización del mercado al concentrar la liquidez y profundidad de cada uno de los actores que integran el Mercado Integrado Latinoamericano (MILA) en un solo lugar. Facilita la incorporación al mercado de capitales internacional, permitiendo el acceso a mayores fuentes de financiamiento diferentes a las tradicionales que ofrece la banca. Por esta razón se considera importante estudiar la relación entre la creación de valor y la volatilidad de las firmas que hacen parte del MILA durante el periodo comprendido entre 2007 y 2017. Para contrastar esta relación se utilizan diferentes modelos econométricos que permiten evidenciar una relación negativa y estadísticamente significativa entre la creación de valor para el accionista y la volatilidad. Esto implica que las compañías que generan más incertidumbre reflejada en una mayor volatilidad, medida en términos de los rendimientos diarios, presentan menor creación de valor para el accionista.

Código JEL: G10, G30, G32

Palabras clave: volatilidad; creación de valor; MILA

Introduction

The Latin American Integrated Market (MILA; Spanish: Mercado Integrado Latinoamericano) is the result of the agreement initially signed between the Santiago Stock Exchange, the Colombian Stock Exchange, and the Lima Stock Exchange. In 2009, they began the process of creating a regional market for the trading of equity securities among the three countries. The integration of the Stock Exchanges and Depositories of Chile, Colombia, Mexico, and Peru allows greater exposure to their markets, as well as more variety of products and opportunities; which has led to an increase in the number of transactions by investors in the member countries. It is therefore important to study the volatility and value creation of the companies that constitute this market, as well as the performance of this Latin American integration process, which has helped the development and growth of both the capital markets and the economies of the region, facilitating the financing of companies to fulfill their production tasks.

The concern of governments and institutions to generate value creation has become an important issue as countries' economies have been affected by the different economic crises that have confronted theory and practice regarding the understanding and avoidance of business procedures that have generated economic disasters and have cost investors millions of dollars in losses.

Value creation is a measure that assesses whether the decisions made by company managers are focused on generating value for the shareholders. This paper presents evidence on the relationship between volatility and value creation in the Latin American Integrated Market (MILA). To this end, a panel data model to control for unobserved heterogeneity across companies is used to evaluate the relationship between volatility and value creation from 2007 to 2017.

Additional studies were found relating volatility and profitability (Dutt & Humphery-Jenner, 2013; Fernald & Rogers, 2002; Krause & Tse, 2016), volatility and dividend policy (Phan & Tran, 2019), and volatility and clearing (Iqbal & Vähämaa, 2019). Other authors, such as Nicolau & Sellers (2003), analyze the effect of obtaining quality certificates on the profitability and volatility of companies listed in the Spanish market and find a positive effect on volatility. Another study for companies in Asian countries focuses on the relationship between volatility and corporate governance, where companies with better corporate governance standards are found to be less volatile (Iqbal & Vähämaa, 2019). Although there are studies on volatility and its relationship with profitability, dividends, and clearing, this research contributes to the literature by identifying the relationship between volatility and value creation.

Some studies in the literature review analyze the relationship between company value generation, sustainability reporting, and corporate governance for companies in Chile and Colombia (Mejía et al., 2019). Using the environmental and social approach, one study finds a positive and significant relationship between environmental and social variables and value generation of MILA companies (Jaramillo et al., 2020). Similarly, Correa-Garcia and Vasquez-Arango (2020) find a positive relationship between environmental, social, and governance performance variables and the financial performance of Latin American companies. Evaluating the EVA (Economic Value Added) approach, other authors demonstrate a positive relationship between earnings per share and profitability but find no relationship with value creation measured as EVA (Téllez-Pérez et al., 2018). Nevertheless, as presented in this study, EVA has the problem of being estimated with accounting measures; therefore, this research contributes to this literature by showing that more accurate measures can be used to estimate the value created by the companies.

Concerning the focus on value creation and its relationship to risk, the closest finding is the relationship between risk management and the company's increase in value (Krause & Tse, 2016; Panaretou, 2013; Bessler et al., 2019). Similarly, Correa et al. (2019) analyze the impact of sustainability reporting on value creation through a literature review. Nonetheless, the authors find few studies that measure the relationship between volatility and shareholder value generation in the Latin American Integrated Market.

This study presents evidence of a negative relationship between value creation and the volatility of the companies analyzed. This implies that companies that create less value have higher volatility. The stock market recognizes when companies fail to create value, leading to increased uncertainty and, consequently, higher volatility.

The rest of the paper is organized as follows: in section 2, the theoretical framework presents the literature review analysis and discusses the main academic issues in volatility and value creation.

Section 3 presents the methodology used. Section 4 presents the research results, and Section 5 presents the study's conclusions, implications, and future studies.

Theoretical framework

This section presents some of the academic studies that explore the concept of volatility and the value creation of companies. Although many studies address these issues independently, few focus on analyzing the relationship between volatility and value creation in the MILA.

As is well known in finance, riskier companies demand higher returns. However, what is known about the effect of risk on the creation of shareholder value? This study seeks to quantify whether companies with higher volatility create shareholder value.

In financial academic literature, the importance of creating value is known as a way to compensate shareholders for the risk assumed in their investments. Creating value means having excess returns, that is, making investments with returns above the cost of capital (Lopez & García, 2005). Nevertheless, the volatility in the financial markets prevents this value creation from generating the expected excess returns. This research seeks to determine the relationship between the volatility of the companies that make up the MILA and the creation of shareholder value.

Value management is not a new concept. Since the 1950s, it has been claimed that the key objective of a company is to maximize shareholder wealth (Milla, 2011, 1).

Shareholder value creation is a concept widely related to the most recent theories in corporate finance. Thus, shareholder value creation is strongly influenced by the theory of the informational efficiency of capital markets (EMH), portfolio theory, asset pricing theory, option theory, and agency theory. Hence, the study of shareholder value creation is undoubtedly relevant (Milla, 2011, 1).

Theoretical research focused on value-oriented management has been conducted in two different but complementary approaches: value-oriented importance from the viewpoint of the company's strategic and operational management, and value-oriented management philosophy from the viewpoint of company management (Milla, 2011, p.7). This study is approached from the company's strategic and operational point of view to assess the connection between value creation and the effect on the capital market.

This study uses the measure proposed by Fernandez (2002) to estimate shareholder value creation. This metric incorporates the change in market value, adjustments due to payments received and made by shareholders, and the opportunity cost of equity capital. The metric estimation is explained in detail in the methodology section below.

There are accounting metrics such as return on equity (ROE), earnings per share (EPS), and return on net assets (RONA), measured as the ratio of net income to assets. Nevertheless, these traditional

metrics do not capture long-term expectations or consider the effect of opportunity cost or risk (Holler, 2009; Damodaran, 1997). Investors may be earning substantial accounting returns while simultaneously experiencing a loss of value.

Other measures of value creation are more explanatory, such as economic value added (EVA), shareholder value added (SVA), and economic profit (EP). Nonetheless, these measures are biased as they are derived from the company's accounting information (Biddle et al., 1997).

This study aims to analyze the effect of value creation on the volatility of companies. There are several works focused on studying the behavior of companies' volatility. One of these is the study by Adachi-Sato and Vithessonthi (2019), in which they find that corporate debt is an important factor affecting companies' volatility in developed and developing countries. Nevertheless, it is not known how volatility impacts value creation. This research evaluates whether higher volatility is transferred into increased shareholder value. On the other hand, it has been found that companies that obtain ISO 9000 quality certificates have a positive effect on price and volatility (Nicolau & Sellers, 2003). However, an increase in price does not necessarily represent value creation for the shareholder. Therefore, unlike these authors, this research focuses on measuring the relationship between volatility and shareholder value creation.

Other authors, such as Dutt and Humphery-Jenner (2013), analyze the relationship between the volatility of stock returns, stock returns, and operating performance. They confirm that low-volatility stocks have higher returns than high-volatility stocks in emerging and developed markets and have higher operating returns. Nonetheless, whether this operating return affects shareholder value has not been studied. This study differs from Dutt and Humphery-Jenner (2013) in that it directly studies and quantifies shareholder value and its relationship with volatility in the case of the MILA.

Several factors are analyzed when studying volatility. Phan and Tran (2019) studied the effect of dividend policy on stock price volatility in the Vietnamese market. Likewise, Ahn and Lee (2006) find that macroeconomic factors affect stock market volatility and vice versa. Authors like Chong and Kim (2019) show that stock returns negatively affect capital structure volatility. Other authors, such as Iqbal and Vähämaa (2019), find a negative relationship between systemic risk, clearing sensitivity, and volatility of stock returns of US companies. On the other hand, Lin and Lu (2019) analyze the effect of institutional ownership and corporate governance on the risk of Chinese listed companies. Similarly, Lee et al. (2019) found in 11 Asian countries that better corporate governance reduces the volatility of stock returns for companies with lower foreign exposure. Finally, Shahzad et al. (2020) study the effects of idiosyncratic risks on the volatility of companies' cash flows in China.

As described above, several studies have attempted to explain the behavior of the volatility of companies. Even theoretical and empirical research, which analyzes the relationship between risk and

company performance, has also been extensive in the finance literature (Smithson & Simkins, 2005). Nonetheless, some authors question the empirical results due to endogeneity problems among the variables used in these studies (Fernald & Rogers, 2002; Krause & Tse, 2016).

In the field of risk management, Krause and Tse (2016) can be consulted for a comprehensive literature review. These researchers carry out a review of 70 theoretical and empirical studies over the last decade. They support the assertion that risk management increases the value of companies while decreasing the volatility of cash flow returns. Authors such as Durst et al. (2019) conducted an online survey where they found evidence that companies aim to improve their value by managing their risks. Panaretou (2013) found a positive relationship between risk management and value creation of companies in the UK. Similarly, Bessler et al. (2019) conducted a meta-analysis of 47 studies that found empirical evidence of a direct relationship between risk management and value creation. This research aligns with these studies, but the focus is on quantifying the relationship between shareholder value creation and volatility in the MILA.

Although there is literature that relates volatility with value creation, there are no studies on the effect of volatility on value generation for companies that belong to the MILA. This research provides evidence in the academic literature on the relationship between volatility and value creation.

The transmission channels through which value creation impacts volatility have to do with the signals sent to the market when companies report their financial results, including shareholder remuneration (a measure used to estimate value creation) and the cost of capital that captures the market conditions demanded by investors (Primo, 2019).

Methodology

This study analyzes the relationship between volatility and annual value creation of 460 companies for the countries that are part of the MILA (Mexico, Peru, Chile, and Colombia) from 2007 to 2017. The financial and market information is taken from the Bloomberg database.

To estimate the volatility measure, the work of Prabhat and Primo (2018) was taken as a reference base, in which the total risk (variance of returns) estimated as the annual volatility of returns is defined.

The measure proposed by Lubián (1999) and Lubián and Estévez (2005) is used to measure the value creation of the companies. Two measures are used to determine how the companies behave relative to variables used in previous studies. The first is Tobin's Q, which measures the relationship between the market value and the company's book value. The second is ROA, which measures the operating return on investment.

Volatility measure

As a measure of volatility for company *i* in year *T*, the total risk measure is used (Prabhat & Primo, 2018), which is expressed with the following equation:

$$\text{Total Risk}_{iT} = \frac{\sum_{t=1}^n (R_{iTt} - R_{iTprom})^2}{n - 1} \quad (1)$$

R_{iTt} is the daily return of stock *i* on day *t* of year *T*, *n* is the number of observations of the returns for stock *i* in year *T*, and R_{iTprom} is the average of the daily returns of stock *i* in year *T*.

Value creation measure

The creation of shareholder value (CVA) is estimated using the measure proposed by Fernandez (2002). The CVA measure measures the value generated for the shareholder considering its cost of capital.

$$\text{CVA}_{iT} = \text{VVA}_{iT} - (\text{Initial Capitalization}_{iT} \times \text{Ke}_{iT}) \quad (2)$$

The variation in shareholder value VVA_{iT} is the change in the market value of company *i* in period *T* plus payments received as dividends, repurchases, and reductions in the nominal value of shares less disbursements for capital increase or issuance of bonds convertible into shares.

The initial capital corresponds to the product of the price and the number of shares outstanding at the beginning of each period in each company.

Ke_{iT} is the shareholder's cost of capital of company *i* in period *T* using the Capital Asset Pricing Model.

Finally, shareholder value creation is used as a percentage of initial capital (Silva *et al.*, 2013):

$$\text{RCVA}_{iT} = \frac{\text{CVA}_{iT}}{\text{initial capitalization}_{iT}} \quad (3)$$

Performance measures

Although the performance of the companies is not the central topic of this research, it is considered important to include it for comparative purposes of volatility and value creation of the countries that make up the MILA. Following Fernandez et al. (2019), two performance measures are used: Tobin's Q and ROA.

Tobin's Q_{iT} is estimated as the market value of company i in year T over its book value. Tobin's Q is a good indicator to measure investor expectations and is commonly used in finance research as a performance measure. It also indicates whether a company is over or undervalued in the market.

ROA_{iT} is the return of company i in year T on its assets. It is an indicator of the operating performance of investments. It is defined as operating income (EBIT) divided by the book value of assets. The effect of taxes is not included to avoid the heterogeneous effect among the countries of the companies included in the study.

Econometric specification

A panel data model is used in order to control the companies' unobserved heterogeneity. Unobservable variables can determine the volatility of the companies, for example: corporate management, belonging to economic groups, or even variables that change over time and can influence volatility, such as stock market policies of each country, the government, or regulations, among others. STATA software was used to perform the econometric modeling.

The following specification is used to analyze the relationship between performance and volatility expressed as total risk:

$$\text{Volatility}_{iT} = \beta_0 + \beta_1 \text{RCVA}_{iT} + \beta_2 X_{iT} + \lambda_T + \gamma_i + \varepsilon_{iT} \quad (4)$$

Where volatility is measured as Total Risk $_{iT}$ which represents the volatility of company i in year T .

As discussed earlier, RCVA_{iT} is the creation of shareholder value of company i in year T .

X_{iT} represents the control variables. Because the literature has found that firm volatility can be affected by debt, cost of capital, and revenue, the contemporaneous values of these variables are used as controls (Prabhat & Primo, 2018).

Company-level and time-fixed effects are included to account for unobserved heterogeneity across companies and over time. Industry and country-level controls are included.

The F-test yields a $p\text{-value} < 0.05$, indicating the significance of the time variables in the model.

When performing the Hausman test, the $p\text{-value} < 0.05$ confirmed that the fixed effects model is more convenient for estimating the volatility of the companies (Gujarati & Porter, 2009) due to the specific characteristics of each company that affect volatility.

The modified Wald test yielded a $p\text{-value} < 0.05$, rejecting the null hypothesis of constant variance and indicating heteroscedasticity problems (Gujarati & Porter, 2009; Wooldridge, 2009).

When performing the Wooldridge test, the $p\text{-value} < 0.05$ shows autocorrelation problems (Baltagi, 2008).

According to the test results mentioned above, it is convenient to model using the panel data technique with feasible generalized least squares estimators (FGLS) to correct the problems of heteroscedasticity and autocorrelation.

Results

Table 1 shows the descriptive statistics of the companies that belong to MILA. The sample consisted of 254 companies. On average, the companies under study have a volatility of 31%, a Tobin's Q of 1.48, a return on assets of 11.27%, and shareholder value creation of -10.60%. On average, the companies have revenues of USD 2032 million, total assets of USD 5121 million, debt of USD 961 million, a cost of equity capital of 8.8%, and leverage of 16%.

Table 1
Descriptive statistics

variable	N	mean	p50	min	p25	p75	max	sd
Volatility	2 702	31.39	28.16	5.940	20.70	37.92	354.9	18.63
Tobin's Q	2 627	1.480	1.120	0.200	0.920	1.530	102.5	2.430
ROA	2 494	11.27	9.400	-229.7	5.400	14.44	218.4	15.70
RCVA	2 340	-10.60	-10.29	-22161	-32.05	14.74	4 334	475.6
Revenues	2 646	2 032	471.1	0	85.67	1772	63 786	5 319
Total Assets	2 655	5 121	1 049	0.330	270.4	3 229	86 683	11 699
Debt	2 646	961.7	120.4	0	5.670	697.3	37 020	2 717
Ke	2 655	8.810	8.050	0.140	6.230	10.65	34.37	3.640
Dividends	2 647	99.06	11.67	0	0.0600	69.93	7 801	343.6
Leverage	2 646	0.160	0.140	0	0.0300	0.250	3.940	0.160

Figures for revenues, total assets, debt, and dividends are expressed in millions of dollars.

Source: created by the authors

The Pearson correlation matrix is presented in Table 2. The results show the pairwise correlation between the variables in the models. As the correlation matrix shows, the variables used in the regression models have insignificant severe multicollinearity. It is observed that Tobin's Q shows a positive and significant correlation with volatility, i.e., companies with higher Tobin's Q are more volatile. Concerning the ROA and RCVA measures, the correlation is also negative and significant, i.e., the less profitable companies that do not create value are also more volatile. Furthermore, the Variance Inflation Factor (VIF) was checked to detect multicollinearity problems among the variables used in the models, which yielded a value of less than 1.5, indicating the absence of multicollinearity.

Table 2
 Correlation matrix

	Volatility	Tobin's Q	ROA	RCVA	Revenue	Total Assets	Debt	Ke	Dividends
Tobin's Q	0.1071*	1							
ROA	-0.0420*	0.2617*	1						
RCVA	-0.1622*	-0.8131*	0.0178	1					
Revenues	0.00100	0.0184	0.0838*	0.00320	1				
Total Assets	-0.0407*	-0.0254	0.0121	0.00430	0.6415*	1			
Debt	-0.0351	-0.0161	0.0505*	0.00340	0.7969*	0.8206*	1		
Ke	0.3319*	0.0429*	0.0632*	-0.0203	0.1517*	0.1181*	0.1051*	1	
Dividends	0.00120	0.0539*	0.1505*	-0.00110	0.6161*	0.4987*	0.4794*	0.0828*	1
Leverage	0.0546*	-0.0347	-0.0433*	0.0193	0.1442*	0.0810*	0.2378*	0.1143*	0.0718*

* p-value < 0.05

Source: created by the authors

Table 3 shows the regression of the model using ordinary least squares. It is evidenced that the relationship between Tobin's Q and volatility is positive and highly significant. This indicates that the higher the market perceives a company's intrinsic value, the greater the volatility.

Nonetheless, the ROA and RCVA measures show a negative and highly significant relationship, indicating that from the perspective of return on assets, the companies with higher ROA have lower volatility.

In the case of RCVA shareholder value creation, it is observed that the companies that do not create value are more volatile. In other words, the market recognizes uncertainty in companies that do not create shareholder value.

Since there may be variables or factors that can affect the companies' performance or variables within the companies that change over time but not among the companies (such as government policies or regulations) it is important to model using the panel data technique. To this end, the Breusch Pagan test

is performed to determine that it is preferable to use a panel model. The Hausman test is also performed, and it is found that it is better to use fixed effects (Gujarati & Porter, 2009). This result is consistent with the fact that the company's volatility depends on individual characteristics and could or could not influence the predictor variables. By using fixed effects, this influence is eliminated, allowing the evaluation of the impact of the independent variables on the companies' volatility.

Table 3
 Relationship between volatility and value creation: Ordinary Least Squares model

Independent variable	Dependent variable: Volatility		
	(1)	(2)	(3)
Tobin's Q	0.6813*** (0.1451)		
ROA		-0.0787*** (0.0243)	
RCVA			-0.0064*** (0.0008)
Debt	-0.0004*** (0.0001)	-0.0004*** (0.0001)	-0.0004*** (0.0001)
Ke	1.4134*** (0.1305)	1.4676*** (0.1304)	1.4735*** (0.1366)
Observations	2 121	2 131	1 904
R ²	0.1460	0.1451	0.1644

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: created by the authors

Table 4 shows the results of the panel data model with fixed effects and robust standard errors. The results are consistent with those described above, in which Tobin's Q has a positive and highly significant relationship at 1% with volatility, while ROA and RCVA have a negative and significant relationship at 5% and 1%, respectively. The results show that the relationship between the variables analyzed is maintained, which indicates that the results are robust and that those companies that do not create value and have low returns on assets are more volatile and also correspond to those companies in which the market expects higher growth through Tobin's Q.

Table 4
 Relationship between volatility and value creation: Panel Data Model

Independent variable	Dependent variable: Volatility		
	(1)	(2)	(3)
Tobin's Q	0.6872*** (0.1905)		
ROA		-0.0855** (0.0363)	
RCVA			-0.0037*** (0.0002)
Debt	-0.0009** (0.0004)	-0.0010*** (0.0004)	-0.0015*** (0.0005)
Ke	0.5656* (0.3289)	0.6134* (0.3526)	0.6832* (0.3482)
Constant	26.7582*** (3.2204)	28.5248*** (3.1378)	27.2850*** (3.2041)
Observations	2 121	2 131	1 904
R ²	0.0272	0.0210	0.0405

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
 Source: created by the authors

Robustness test

It could be assumed that the volatility of the companies could be influenced by the results of the past period; therefore, Table 5 models the independent variables lagged by one period. The effect of revenues is also included in the model. The modified Wald test is performed, and it is found that it should be corrected for heteroscedasticity problems (Gujarati & Porter, 2009; Wooldridge, 2009) and the Wooldridge test is also performed, which indicates the presence of autocorrelation (Baltagi, 2008). When performing the F test, it is found that it is important for the model to consider the time variables to control for the common temporal events among the companies. Accordingly, a panel data model with feasible generalized least squares (FGLS) estimators is performed. FGLS models underestimate standard errors (Beck & Katz, 1995); therefore, a panel data model with corrected standard error estimators (PCSE) is also used, and the results were similar to those presented in Table 5 (not presented for space reasons, but the results are available upon request).

Moreover, the technique proposed by Arellano and Bond (1991), known as generalized system of moments (GMM), is used to include the dynamic effect that could be present between the dependent and independent variables of the study, such as the effect that the Tobin's Q can have on the volatility of the companies and vice versa. Table 6 shows the results. These results confirm the positive and significant relationship between Tobin's Q and volatility, and the negative relationship between shareholder value creation and volatility. Nonetheless, the results for ROA are negative, but not significant.

Table 5
 Relationship between volatility and value creation: Robust Model

Independent variable	Dependent variable: Volatility					
	(1)	(2)	(3)	(4)	(5)	(6)
Tobin's Q_{t-1}	1.2919*** (0.2276)	1.2598*** (0.2278)				
ROA $_{t-1}$			-0.0503** (0.0245)	-0.0569** (0.0240)		
RCVA $_{t-1}$					-0.0088*** (0.0014)	-0.0087*** (0.0014)
Debt $_{t-1}$	0.0002*** (0.0001)		-0.0000 (0.0001)		0.0002*** (0.0001)	
Revenues $_{t-1}$		-0.0001** (0.0001)		-0.0002*** (0.0001)		0.0000 (0.0001)
Ke	0.6290*** (0.0666)	0.7110*** (0.0792)	0.8745*** (0.0738)	0.8830*** (0.0762)	0.5301*** (0.0617)	0.5626*** (0.0772)
Constant	25.4380*** (5.2139)	25.5550*** (5.2457)	27.1391*** (5.3132)	27.5093*** (5.3055)	17.0409*** (4.1988)	16.9209*** (4.2215)
Observations	1 820	1 819	1 829	1 829	1 616	1 613

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: created by the authors

Table 6
 Relationship between volatility and value creation: GMM Dynamic Model

Independent variable	Dependent variable: Volatility		
	(1)	(2)	(3)
Volatility _{t-1}	0.3304*** (0.0641)	0.3006*** (0.0585)	0.3045*** (0.0632)
Tobin's Q _{t-1}	2.4804*** (0.3362)		
ROA _{t-1}		-0.1329 (0.1014)	
RCVA _{t-1}			-0.0114*** (0.0013)
Debt _{t-1}	0.0025* (0.0014)	0.0010 (0.0010)	0.0026 (0.0016)
Ke _{t-1}	-0.0787 (0.3008)	0.4182 (0.3194)	0.3673 (0.3113)
Constant	14.8515*** (3.2453)	17.4187*** (1.9445)	15.2777*** (2.9929)
Hansen	217.80 Prob>chi2 0.29	219.07 Prob>chi2 0.18	215.80 Prob>chi2 0.241
Ar (1)	-3.96 Pr > z 0.000	-3.31 Pr > z 0.001	-3.76 Pr>z 0.000
Ar (2)	-0.86 Pr >z 0.389	-0.99 Pr >z 0.32	-0.78 Pr>z 0.435
Observations	1 865	1 875	1 644
Groups	242	243	234
Instruments	224	218	218

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: created by the authors

Conclusions

This paper presents evidence of the relationship between value creation and volatility of the companies belonging to the MILA from 2007 to 2017. Different econometric models were used to conclude that there is a negative and significant relationship between value creation and volatility of the analyzed companies. That is, the lower the value created value, the higher the volatility. The results show that markets reflect that low-value creation generates uncertainty and therefore companies present higher volatility.

The opposite is observed with Tobin's Q, which shows a positive and significant relationship with volatility, indicating that the market has a higher expectation for the companies but is more volatile. The higher the Tobin's Q, the higher the volatility. This can be explained mainly due to the impulse of investments in extraordinary events such as Takeover Bids or other announcements that invigorate the market. The higher the volatility, the more shareholder value loss is associated with long-term measures. Nonetheless, in the short term, companies with higher Tobin's Q are more volatile, and the market values these companies more. The price rises, but in the long term, volatility reduces shareholder value.

This can be explained by the analysis that assumes that investors have preferences dependent on two arguments: risk and expected return. Nevertheless, it has been shown that the complementarity between investments in the companies is important, depending on the sign and magnitude of the correlation between the assets and the context of uncertainty about their returns. Thus, it could be stated that, to the extent that there is more complementarity with the markets making up the MILA, the long-term relationship between lower volatility and value generation could be strengthened, regardless of the higher value of companies in the short term, due to the increase in volatility of stock price returns in the different regions.

The results of this study have very important implications in the Latin American context because countries such as Mexico, Peru, Chile, and Colombia are investment destinations that, with the establishment of the MILA, have sought to provide more opportunities to investors, facilitate the development of the regions, and promote the financing of companies. Nonetheless, this study shows that investors are the most affected in a context of high turbulence because they do not receive a return on their investments. This has been evidenced in the past in situations of high uncertainty where large investment funds disinvest in these economies and move their capital flow to other regions.

Furthermore, it is important to recognize that long-term investors should not make investment decisions based solely on Tobin's Q, which is commonly used to evaluate market expectations for companies since this study shows that even if the company has a high Tobin's Q, this does not necessarily translate into shareholder value generation. Therefore, there is a penalty in the return on investments.

Future studies could analyze and include corporate governance variables that capture the effect of non-value creation. They could help to understand the dynamics of the Latin American market and estimate the impact of company management on volatility.

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