

México: a Minskyian case of financial fragility shaken by covid-19

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Abstract

Using a Minskyian framework, we construct financial fragility indicators from a representative sample of companies listed on the Mexican stock market. Our macroeconomic empirical analysis shows that the financial fragility in the Mexican stock market was not a feature created by the covid-19 pandemic shock but it was instead a situation that slowly built up in the period pre-covid-19 shock, especially considering the period since 2017.

Our mesoeconomics analysis shows that strong differences were present and some sectors have been financially more exposed than others before and during the Covid-19 pandemic. In particular, firms in the materials sector and firms producing products of recurrent consumption were the most financially stable ones while firms in the industrial sector and firms providing no basic products and services were the most financially fragile ones. This point is an important information for public institutions that might want to be aware of such a difference in order to produce more focused fiscal and industrial policies. Our econometrics analysis highlights the main factors that contributed to higher financial instability of the overall firms under observation. The paper concludes with a discussion of the possible economic implications that such financial fragility may entail for the Mexican economy in the context of the covid-19 crisis.

Keywords: Financial Fragility, Minsky, Mexican Stock Market, Covid-19.

JEL Codes: G1, G3, M21.

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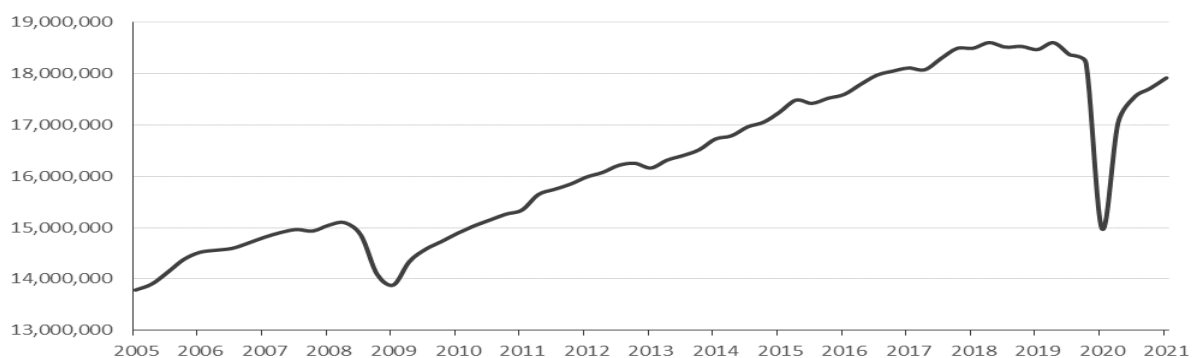
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1. Introduction

The first cases of covid-19 appeared between December 12 and 29, 2019 in Wuhan, China (Lilie et al., 2020) and then spread throughout Asia, Europe and the United States. In Mexico, the first cases were reported at the end of February 2020 and it has been argued that such event was responsible for accelerating the financial fragility of the country (Carrillo and Garcia, 2021). However, before the effects of covid-19 were felt in the Mexican economy, the country was already going through a series of circumstances that limited economic growth. For example, in 2020, the National Institute of Statistics, Geography and Informatics (INEGI) reported that Mexico's Gross Domestic Product (GDP) had lost dynamism already since the end of 2019 and that Mexico could have entered a recession between February and March 2020. Figure 1 shows that the stagnation of the Mexican economy actually already began in 2018, much before the manifestation of Covid-19. Among the reasons behind the loss of dynamism of the Mexican GDP we can find the contraction of public spending in different areas of the economy, the drop in global aggregate demand and its effects on Mexican exports, the tense relationship between the private and public sectors as well as its corresponding effect on private investment (Moreno-Brid, 2020). If Mexico was already in a fragile stagnation period when the pandemic arrived, the latter gave the Mexican economy the sufficient push to enter a strong recession. As Figure 1 indicates, GDP dropped from 18,220,798 million pesos in the first quarter of 2020 to 14,980,665 million pesos in the second quarter of 2020, a drop of around 22%.

Figure 1. Gross Domestic Product 2005Q2 – 2021Q2 (Seasonally adjusted data - Millions of pesos)



Source: National Institute of Statistics, Geography and Informatics (INEGI). <https://www.inegi.org.mx>

One of the first sectors in which the effects of covid-19 were more heavily felt was the private sector. Such impact was particularly strong in activities where consumption could have been postponed or where contagion could have been easily spread, for example airlines and restaurants activities. In several countries, economic policies (both fiscal and monetary) were used to mitigate the effects of jobs losses, to support family and companies' incomes that otherwise would have gone bankrupt. In the case of Mexico, the government provided some economic support to families and small businesses directly, but without specifically targeting vulnerable sectors or firms. Among other programmes, the government granted 1 million in credits of 25,000 pesos each, for merchants and micro-entrepreneurs⁴. Despite of the various policy responses the Mexican government had in response to the pandemic, these may still be insufficient considering that Mexico is among the Latin American countries that spend the least government funds to deal with the pandemic, 0.7% of GDP vs the 8% of GDP, for Latin America as a region according to (ECLAC, 2021). Such insufficient support to help families and the private sector, as well as the prolonged duration of the pandemic, has raised concerns about the impact and costs that the pandemic is having on the Mexican economy. More specifically, the limited resources allocated by

⁴ A detailed list of programs and responses from the Mexican government can be found in (GM, 2021) and (ILO, 2021).

the government to families and companies together with the lack of automatic stabilisers (such as unemployment insurance) could have important effects on the financial fragility of firms in specific sectors.

The effect of the pandemic on the private sector can be seen in Figure 2 (in Appendix) showing that between January 2 and March 31 2020, the main stock market index in Mexico, the IPC (Index of Prices and Quotations) experienced a 28.6% loss. In a similar fashion, the stock markets of the North American continent collapsed between the end of February and mid-March 2020, particularly after the confirmation of the first covid-19 infections in the continent. In addition to the fact that on March 11, 2020, the World Health Organization (WHO) declared the covid-19 epidemic a pandemic, news that caused the world stock markets to drop even further.

It is easy to attribute the greater difficulties and the increased financial instability of firms in México to the negative shock caused by the pandemic and its expected effects on the economy, such as the fall in global GDP, the job losses and the uncertainty about the duration of the pandemic. Carrillo and Garcia (2021) argue that Covid-19 was the main cause of the financial fragility of the country.

However, this paper argues that even before the shock due to covid-19, the Mexican economy was already going through structural problems. In particular, we argue that financial fragility has been building slowly in the Mexican private sector and that it cannot be fully understood without referring to the process identified by Minsky (1986, 1992). that has been present in recent years, namely the growing financial fragility in which many private sector companies have found themselves in recent years.

Several studies applied Minsky's (1986,1992) framework to the Mexican economy. For example, Cypher (1996) studied the role of structural factors such as the fragility of the Mexican financial system and the weakness of the export-led development strategy in explaining the 1994-95 Mexican crisis. Along similar lines and using business survey data and other crisis indicators, Cruz et al. (2005) find empirical evidence for a Minskyan interpretation of the 1994-95 Mexican peso crisis. The authors argue that the onset of the financial liberalisation was a key determinant of the transition of the Mexican economy to crisis. Lopez et al. (2006) study how Mexico's strategy of financial deregulation and liberation were key contributors to the Mexican peso crisis in 1994-95. The authors set up an open economy model that validates the financial fragility hypothesis of capitalist economies put forward by Minsky. Other studies of the Mexican economy (e.g. Grabel, 1996b and Blancas 2010) have either focused on explaining the Mexican peso crisis or the 2008 financial crisis.

Avendaño and Vasquez (2011) is among the few studies that have focused on the financial fragility of specific companies in the private sector in more recent years. The authors study the connection between financial fragility and monetary policy from 1990 to 2008 focusing on 49 nonfinancial firms that belong to the Mexican stock market. Our study contributes to this strand of the literature by focusing on the understanding of the financial fragility of specific companies in the years before and during the covid-19 crisis. Our financial fragility indicators from a representative sample of 43 companies listed on the Mexican stock market in the period 2005:04-2021:02 allows us to conduct aggregate and sectorial analysis and show that before covid-19 shocked the Mexican economy, financial fragility in the Mexican stock market was a pre-existing situation.

The rest of the paper is structured as follows. The second section contains a literature review, with special focus on Minsky's financial instability hypothesis (FIH). Section 3 presents the methodology followed in this study. Section 4 presents a range of evidence to substantiate our claim that financial fragility has been building slowly in the Mexican economy before covid-19 appeared, particularly looking at sectoral level. Section 5 presents our main econometrics analysis considering macroeconomic variables that assesses our preliminary analysis at sectoral level. Finally, in section 6, the conclusions are presented.

2. The financial instability hypothesis

This paper uses the ideas presented by Minsky (1986, 1992) to interpret the cumulative and circular effects between the flows and stocks of assets and liabilities in the balance sheets of companies. Such interpretation allows us to understand how an external shock such as covid - 19 had the potential to turn the financially fragile Mexican scenario into a financially unstable situation for the private sector.

Minsky's approach to the functioning of economies is centred on the idea that in a capitalist economy, production and investment are financed by borrowing economic resources. In this context, the covid-19 crisis is important because of its effects on the ability of economic agents (i.e., households and companies) to finance their spending and production which in turn can affect the aggregate levels of production, spending and employment.

One of the most important contributions of Minsky is the study of the financial fragility of an economy. In particular, Minsky (1986, 1992) studied the dynamics related to the economic activity of the overall economy and the behaviour of individual firms in engaging in new debt relationships to finance their expansion also through the study of their balance sheets. In expansionary periods of the economic cycle, companies tend to have greater confidence in the macroeconomic environment and therefore take on more debt to engage in riskier investments. At the same time, observing the economic improvement and increasing their confidence about the economic stability, financial institutions tend to relax the financial regulations and commercial banks tend to engage in lending more credits. In this way, when the expansive cycle comes to an end, companies have acquired more liabilities that cause companies to transition from having a hedge financial structure (without risk) to a speculative one (with a medium level of risk) and eventually to a Ponzi structure (highly risky for the financial health of the company).

This process identified by Minsky, as well as the corresponding risks for emerging economies have been extensively studied (e.g. Grabel, 1996a; Kregel, 1998,2001,2019; De Paula and Alves,2000; Palma, 2003). Also for the US economy, there have been extensive studies as well (e.g. Papadimitriou, Nikiforos, and Zezza 2019, 2020; Nikiforos and Zezza 2017, 2018). All those works are helpful to understand the corresponding risks for Mexico.

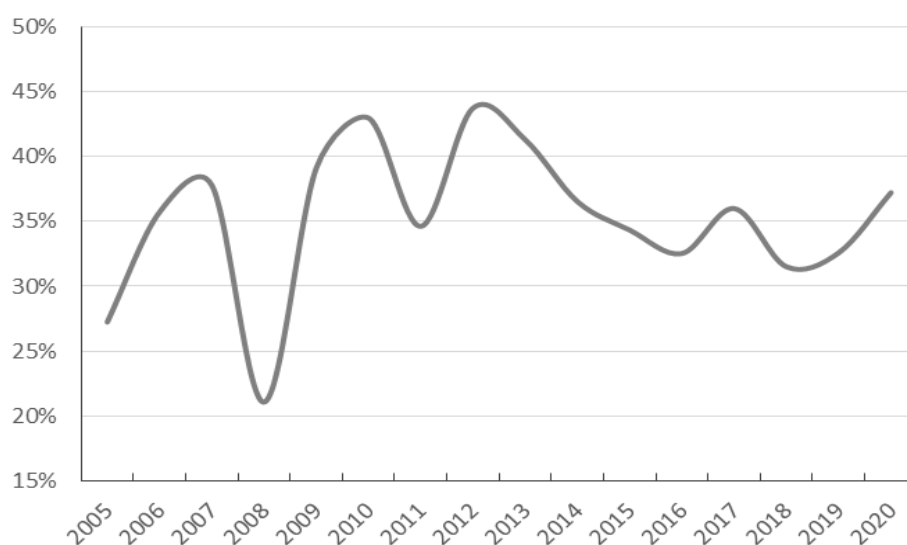
One of the main indicators that suggests the availability of resources an economy has to finance its investments projects is the degree of financial depth of the market. In this way, the greater the degree of financial depth of an economy, the greater is the amount of resources available to finance economic activities and in particular investments. The opposite would be true, namely the lower the financial depth of an economy, the lower the resources available would be to finance investment projects.

We construct the financial depth of the Mexican stock market in this work using the market capitalization in relation to GDP. This approach has been used by Demirguc-Kunt and Levine (1996) among others. In fact, this indicator measures the size of the Mexican stock market in relation to GDP. The idea behind such an indicator is that a well-developed and functioning financial system can have positive effects (e.g. accessible information and lower transaction costs) on resource allocation, thus boosting economic growth.

Figure 3 shows the Mexican stock market financial depth through market capitalization in relation to GDP. Two major points can be highlighted, namely the strong drop of the financial depth during the 2007-2008 great recession and its slow tendency to decline even after the recovery from this event. In fact, during the great recession of 2007 and 2008 the depth dropped dramatically from a level of almost 40% to a level around 20%. After 2008 there was a strong recovery of this indicator that surpassed the pre-crisis levels of 40%. However, despite the oscillations after such a recovery, it is possible to notice

a clear downward trend of the financial depth in figure 35 According to our previous point, the reduction of market capitalization over GDP would suggest a reduction of resources available in México to finance investment projects.

Figure 3 Financial Depth of the Mexican Stock Market 2005-2020
Market Capitalization (% of GDP)



Source: The World Bank, World Federation of Exchanges database. <https://data.worldbank.org>

In considering the financial debt in relation to the deposits available in the country, Fontana and Setterfield (2010) claim that the main reason for the reduction of bank deposits during the great 2007-2008 recession was the credit crunch manifested either in a sudden reduction in the availability of bank loans and/or a sudden increase in the cost of borrowing financial resources from commercial banks and that the result of such a credit crunch was ultimately a reduction of aggregate demand, a reduction output level and a higher level of unemployment.

In fact, the credit crunch and the increased cost of borrowing caused companies to respond by reducing or postponing their investment plans. In line with the latter, the Bank of Mexico's 2020 financial stability report (at the beginning of the covid-19 pandemic) confirmed that total financing to non-financial private companies shows a slowdown in the previous few years and consequently the investment plans have been postponed. At the same time, following Keynes's theory of liquidity, a high cost of money would reduce households' incentives for liquidity and consequently consumption would be reduced.

In this way, considering the previous points, our intuition is that many companies in financial difficulties had to increase their indebtedness level to survive a situation of financial distress often characterised by a reduction of sales, and increased costs. Therefore, it is to be expected that in the periods of financial difficulties, in the balance sheets of private sector companies, liabilities gained relevance, thus contributing to their financial fragility, as established by Minsky's theory.

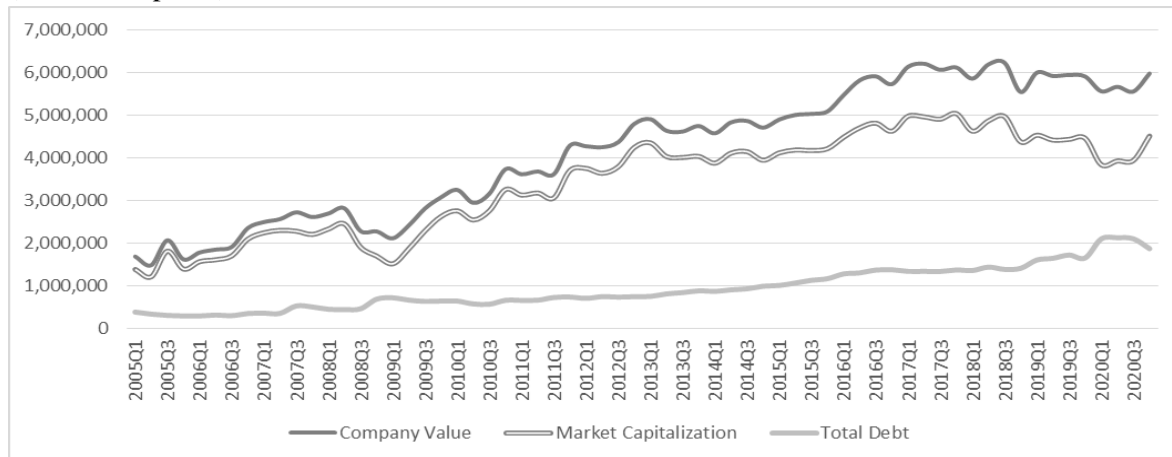
At a first look, the fall in the financial depth of the stock market during 2013-2019 (see Figure 36) and its subsequent change in trend towards the rise in 2020 seems to contrast with the behaviour of various indicators of the shares valuation in companies listed on the stock exchange. In fact, while a

⁵ Another way to analyse the financial depth of the Mexican stock market is through the comparison of the total value of the shares traded in this market in relation to GDP. Analysing the financial depth through this indicator, we would obtain the same main result of a decreased financial depth indicator.

⁶ These values correspond to the analysis done by the World Bank for the whole Mexican stock market.

reduction of financial depth should have suggested a reduction of resources available to the companies undermining their ability to grow, Figure 4 shows a contrasting scenario characterised by their growth. However, this is only an apparently puzzling scenario, coherent and clear if looked through the Minskyan framework marked by two features. First, after the financial recession shock during the 2007-2008 the value of the companies has constantly increased even if with a clear reduced acceleration, reaching a plateau in 2017. Second, such an increase in the evaluation of the companies' shares has been accompanied with an increase in their total debt during the years under analysis.

Figure 4. Market Capitalization, Company Value and Total Debt
(millions of pesos)



Source: Authors' elaboration with data from Bloomberg. . <http://www.bloomberg.com>

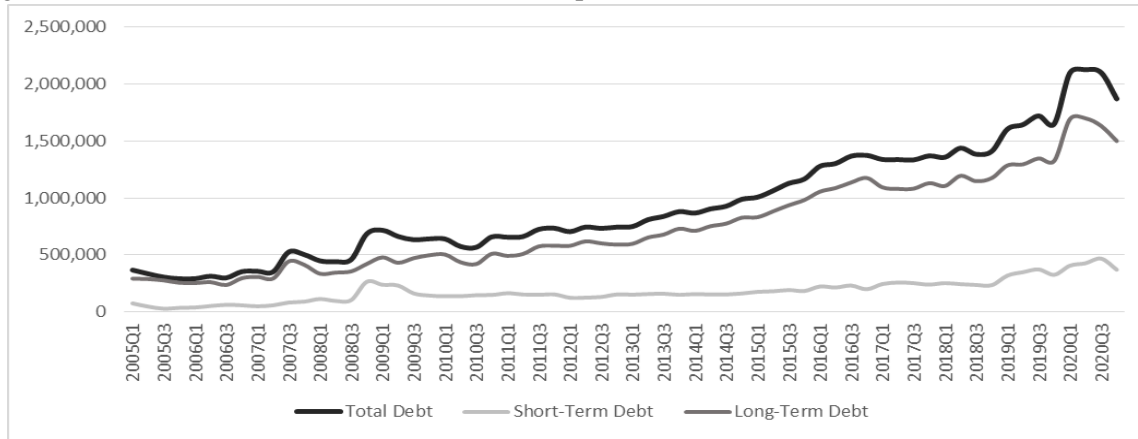
The previous two points considered together suggest that while the growth and evaluation of the companies have been increasing but with a slower and slower speed, their indebtedness continued to rise with no signal to reduce. For the companies from which this behaviour emerges, the increase in indebtedness accompanied by a reduction in the speed of their evaluation will mean an increase in the companies' financial fragility that might become ultimately unsustainable.

Our intuition is that while the Mexican economy reduced its financing options, companies have compensated the need for economic resources for their survival by an increasing borrowing entering in the dangerous pattern suggested by Minsky.

Figure 4 provides an aggregate view of the Mexican stock market that is composed of 140 companies. However, in this work we will focus only on 43 companies. That choice was due to the limitation of data that allowed us to homogenise the information from the last quarter of 2005 to the second quarter of 2021. It is worth mentioning that not all the currently listed companies are the ones that were listed years ago since some of them left and some joined the stock market. However, the majority of the companies considered are large companies and they have never stopped trading on these markets.

If the debt is separated into long-term and short-term, Figure 5 shows that the former has increased the most. Considering that the long-term debt has a maturity of more than one year, this could indicate that the financial health of the company is not at immediate risk. However, in a context where volatility and speculation are recurring problems and given the exponential nature of the behaviour of the debt, it is not difficult to see that the financial fragility of companies can emerge over time or in the face of an unforeseen external shock such as the covid-19 pandemic.

Figure 5. Mexican Stock Market Debt (millions of pesos)



Source: Authors' elaboration with data from Bloomberg. . <http://www.bloomberg.com>

3. Methodology

In this section we particularly follow Minsky intuition (1982) about firms' financial behaviour and the ways they finance their investment projects. As mentioned in section 2, Minsky's financial fragility hypothesis is based on the idea of an inherent tendency of the economy to gravitate toward a fragile and unstable financial system. Minsky (1982) explains such a tendency due to the interaction between the real side of the economy - especially the investments that firms put in place to respond to the fluctuation of aggregate demand - and its institutional-financial side - namely the variation of the security margins used by financing institutions to finance firms.

To categorise firms' composition and to analyse the fluctuation of their financial structure during the business cycle, Minsky (1982) investigates the existent relationship between firms' funds obtained from their current operations and the uses firms do of them.

In particular, the funds firms use to finance their new activities are represented by their net own gains (O) and by the new loans obtained (B) such as bonds. Hence these funds are used by firms to finance their new investment projects (I) and to pay back the interests (Ψ) on the debt they previously contracted. In this way, since the current expenditures ($I + \Psi$) need to be financed by the newly generated funds ($O + B$), we have that:

$$O + B = I + \Psi \quad [1]$$

At the same time, it is relevant to study the relationship of the entire firms' net wealth (Ω) considered as the total value of firms' assets (A) once the total liabilities (D) have been discounted.

$$\Omega = A - D \quad [2]$$

Analysing the relationship between these variables, Minsky (1982) is able to study the financial stability or fragility conditions of the firms during the business cycle. The analysis can be done considering the aggregate level of the firms or individually.

In particular, studying for example the financial conditions at an individual level, a firm is generating profits if $O > 0$; if earnings are not only positive but they are sufficient enough to cover the interests on the contracted loans ($O > \Psi$), the firm would not be applying for new loans but it would be using part of the profits to pay back previously contracted loans (in which case $B < 0$), in that way reducing its liabilities (D) and therefore increasing its net wealth (Ω). Vice versa, $O < 0$ is a reflection of a loss

condition for the firm; in such a situation, to cover previously contracted loans, the firm might be obliged to apply for new loans ($B > 0$) increasing in that way its liabilities, potentially decreasing the net value of the firm (Ω) in a considerable way.

A similar analysis can be done considering the value of I and Ψ . In particular, whenever $I > 0$ the firm is engaging in new investment projects in that way increasing its assets (A) and potentially increasing its net value (Ω). The opposite is true when $I < 0$, namely when the firm is facing a process of disinvestment selling its assets and this way, *caeteris paribus*, reducing its net worth (Ω).

Finally, the payment of the interests on loans (Ψ) can be analysed. $\Psi > 0$ shows that the firm is paying interests while $\Psi < 0$ shows that the firm is in a credit position, obtaining interests.

The ultimate analysis of the interaction between O , B , I and Ψ is crucial to understand the evolution of the firms' net wealth (Ω) and their ability to survive or collapse in the financial market. In particular, the collapse of a firm caused by a persistent situation where its liabilities are higher than its assets value, leads to its inability to cover financial obligations honouring the debts payment. In such a situation, the creditors of that firm are unable to recover their credits due to insolvency conditions. In that way, the financial problems of an individual firm might have a domino effect impacting further the financial structure of other firms, propagating a much broader financial unstable scenario.

Minsky (1982) considering the relationship between the previous variables categorises the firms in the following way:

Table 1. Typology of Firms according to Minsky (1982)

Firm Configuration	Firm Condition	Firm Situation
Hedge Firm	$O > \Psi$	The own earnings generated by usual business development are able to cover the interests on the contracted liabilities. In such a condition the firm would not be applying for new loans but in fact it would be using part of the profits to pay back previously contracted loans (in which case $B < 0$), in that way reducing its liabilities (D) and therefore increasing its net wealth (Ω). Hedge firms are in that way relatively stable and considered in a healthy condition.
Speculative Firm	$O > \Psi$ with $O < \Psi + I$	The own earnings generated by usual business development are able to cover at least the interests ($O > \Psi$) on the contracted liabilities but insufficient to finance also new investments ($O < \Psi + I$). In such a condition, the firm would need to apply for external fundings ($B \geq 0$). However, the level of the new requested loans will be lower than the level of investments ($B < I$) since part of them are covered by the firm's own earnings. Speculative firms face a higher financial exposure than Hedge firms since their earnings are not sufficient to cover both the interests on previous loans and the new investments projects therefore obliging firms to engage in the activity of requesting and managing debts.
Ponzi Firm	$O < \Psi$ with $B > I$	The own earnings generated by usual business development are so low not to be sufficient even to cover the interests on the contracted liabilities. In such a condition, the firm would need to apply for loans to cover not only the new investment projects but also to pay back the interests on the previously contracted liabilities. Ponzi firms are in the riskiest situation since their financial exposure is relevant, bigger in fact than the investment projects. A constant Ponzi situation for a firm might suggest such a firm is prone to be constantly unsolvable and destined to collapse. The high exposure to risk for the firm might increase the difficulty to obtain new loans or it might mean the firm is able to find new loans only at an even higher cost to cover such a risky exposure reinforcing, in that way, the level of interests need to be paid back and the overall financial fragility of the firm.

Source: Authors' elaboration based on Minsky (1982)

As pointed out in section 2, the variation of external variables that firms cannot control such as the exchange rate variation or the change in the interest rate can influence the financial structure of one or more firms, potentially triggering the propagation of a more systemic financial instability scenario.

Foley (2003) reinterprets the categorization done by Minsky (1982) in a dynamic way, namely considering the growth rate of the previous variables. In particular, Foley (2003) establishes $g = I/A$ as the growth rate of the assets, $o = O/A$ as the growth rate of earnings, namely the ROA (Return On Assets) and $\psi = \Psi/D$ as the proportion of interest that firms need to pay back in relation to their liabilities value. Following Foley interpretation (2003) we hence obtain:

Table 2. Typology of Firms according to Foley (2003)

Firm Configuration	Firm Condition	Firm (Dynamic) Situation
Hedge	$o > g > \psi$ or $o > \psi > g$	As in Minsky (1982), the main condition is represented by the ability of the firm to generate a situation where its (growth rate of) earnings ($o=O/A$) is higher than the interests to be paid back (in proportion to the value of the overall debts, ψ).
Speculative	$g > o > \psi$	As in Minsky (1982), the main condition is represented by the ability of the firm to cover its (growth rate of) interest to be paid back with a sufficient (growth rate of) earnings (o), but with a (growth rate of) earnings (o) not sufficient anyway to cover also the (growth rate of) investments projects, namely the growth rate of assets (g).
Ponzi	$\psi > o$	As in Minsky (1982), the main condition is represented by the inability of the firm to generate sufficient (growth rate of) earnings (o) to cover its interest on previously contracted loans (in proportion to the value of the overall debts, ψ).

Source: Authors' elaboration based on Foley (2003)

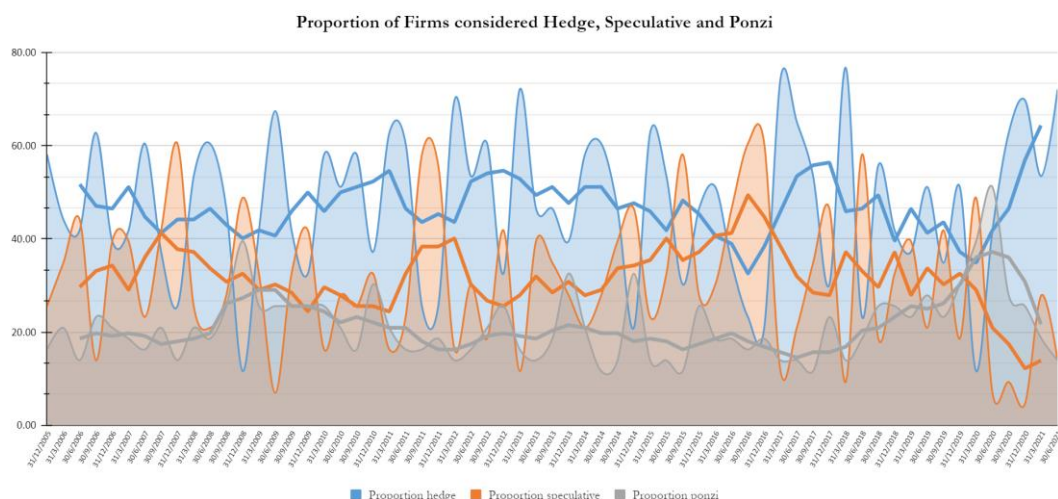
Based on this categorization by Foley (2003), we will proceed in analysing the evolution of the firms' financial condition in Mexico from the end of 2005 until mid 2021.

4. Data analysis: has Mexico really been a case of Financial Fragility?

4.1 An aggregate analysis

After considering the overall relationships of the firms' balance sheet according to Foley categorization (2003), we here want to assess if the analysed firms were in a Hedge, Speculative or Ponzi situation from the end of 2005 until mid-2021 at aggregate but also at sectoral level. In fact, the analysis at sectoral level is crucial since the aggregate level might hide potentially unstable dynamics. For example, a prolonged period with an overall structure of the firms in a Hedge condition cannot necessarily guarantee that all the firms at individual level were in fact Hedge; that is so since the analysis of the firms' values in aggregate terms might hide that 50% of them or an even higher proportion is in fact Speculative or even Ponzi when the values of the Hedge firms are large enough to mask that information. This was done by Vargas & Munoz (2011) considering the period 1991-2006. Figure 6 analyses the percentage composition of firms according to their financial structure during the period from December 2005 to June 2021.

Figure 6. Percentage of firms according to their financial structure: 2005:04-2021:02 (Bold lines are the centred moving average, 4 periods)



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Figure 6 shows a constant strong fluctuation in the proportion of firms during the whole period considered, especially evaluating the proportion of Hedge and the Speculative ones. In particular, the proportion of firms considered Hedge fluctuated between a minimum value of 12% and a maximum value of 76%, the proportion of firms considered Speculative fluctuated between a minimum value of 7% and a maximum value of 60% while the proportion of firms considered Ponzi fluctuated between a minimum value of 12% and a maximum value of 51% in the second semester of 2020, during the global pandemic related to the Covid-19 virus.

A clear immediate pattern cannot be underlined during the whole period considered. Trying to reduce the value fluctuations with the goal of discovering a more global tendency, we included the centred moving averages of 4 periods of those values (bold lines in figure 6). Thanks to such an analysis global patterns emerge and are more visible, for example underling that the proportion of Ponzi firms increased from the beginning of 2005:4 to 2008:4 when, in fact, 40% of the firms were in a Ponzi situation. Considering the following period, we can see that the overall tendency of the proportion of Ponzi firms declined reaching a minimum level of 12% in 2017:03. Since then, the proportion of firms that were in a Ponzi position gradually started to increase again reaching its highest value of the whole period considered in 2020:2 with 51% of them being considered as Ponzi.

With the goal of analysing the dynamics of change in the percentage composition of the firms with respect to their financial situation, here we study the following 3 sub-periods with greater attention.

Table 3. Sub-periods analysed under investigation

Period	Correspondent to	Proportion of Ponzi, Speculative and Hedge firms			
I. 2005:4 - 2008:4	Pre-2007-2008 crisis period	In 2005:4 In 2008:4	58% Hedge , 12% Hedge ,	26 % Speculative , 49% Speculative ,	16% Ponzi 40% Ponzi
II. 2008:4 - 2017:3	Post-2007-2008 crisis period	In 2017:3	53% Hedge ,	35% Speculative ,	12% Ponzi
III. 2017:3 - 2021:2	Pre Covid 19 crisis and During Covid 19 crisis	In 2020:2 In 2021:2	42% Hedge , 72% Hedge ,	7% Speculative , 14% Speculative ,	51% Ponzi 14% Ponzi

Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Figures 7 and 8 represent the same information, namely the proportion of the firms during the 3 sub periods considered in table 3 but they can show slightly different aspects. In fact, figure 7 shows the overall trends of the proportion in a Hedge, Speculative and Ponzi situation thanks to the bold lines that are the centred moving average (2 periods) since here we want to maintain a more closed analysis of the sub-periods instead of the general trend considered in Figure 6. On the contrary, figure 8 depicts the cumulative proportion between Hedge and Speculative firms isolating the grey areas of those figures as residual.

Analysing Figure 7 (in the Appendix) and 8 altogether it is possible to identify some major points. Firstly, we can notice that 2005:4 - 2008:4 was characterised by a strong cyclicity both in the proportion of Hedge and Speculative firms. Differently, the proportion of Ponzi firms has remained relatively stable, except from the period 2007:4 to 2008:4 when the proportion of Ponzi firms gradually increased from 14% up to 40%. Since 2008:2 to 2008:4 such an increase in the proportion of Ponzi firms is even more evident and it is accompanied by the proportion increase of Speculative, from 21% to 49% of firms against the reduction of the Hedge ones, from 60% to 12%. This does not come at a surprise since we can see how the effect of the 2007-2008 global financial crises produced its effects in the financial situation of most of the firms, suggesting a gradual tendency toward a riskier financial instability situation.

The second sub-period analysed, 2008:4 - 2017:3, was also characterised by a strong cyclicality both in the proportion of Hedge and Speculative firms as in the first subperiod while the proportion of Ponzi firms more than halved decreasing from 40% in 2008:4 to only 12% in 2017:3. That is a significant reduction that might highlight a recovery toward a more financially stable economy from the strongest marks of the 2007-2008 global financial crisis.

Analysing the third sub-period, 2017:3 - 2021:2, it is almost immediate to notice how it is marked by two clear trends, namely the increasing proportion of Ponzi firms that increased from 12% in 2017:3 to 51% in 2020:2 and its following reduction down to 14% in 2021:2. In 2020:1, the trimester before the highest proportion of Ponzi firms, the sum of Ponzi and Speculative firms reached the highest combined level of the whole period analysed with a total 88% of firms being Ponzi or Speculative, leaving only 12% of them in a Hedge position.

In this sense, it is relevant to notice that 2020:1-2020:2 - with the highest proportion of Ponzi and both Ponzi and Speculative firms - was the period of major financial fragility of the whole 2005:4-2021:2. In fact, those values were even higher than the other major global shock, the 2007-2008 financial crisis, a period when the proportion of Ponzi firms was 39% and the proportion of both Ponzi and Speculative firms was 88%. This is only partly surprising since those values were probably the manifestation of the economic effects produced by the Covid-19 global pandemic and it is well known that such effects were not mild on the private sector, in Mexico such as in the majority of the other countries. What remains probably interesting to underline is the scale of those effects, since these were stronger than the results of the 2007-2008 global financial crisis.

However, it is crucial to underline how the tendency toward an increasing proportion of Ponzi firms was a clear pattern that was already evident much before the global pandemic, already since 2017:3. In fact, since then the trend of Hedge and Speculative proportion constantly decreased leaving a higher share of firms under a Ponzi situation. Such a phenomenon can be clearly observed in Figure 8.3. It is also important to observe that such a trend was strongly reversed after 2020:2. In fact, since 2020:2 the proportion of Ponzi firms substantially decreased from 51% down to 14% in 2021:2.

Figures 8.1, 8.2, 8.3 Cumulative percentage of firms according to their financial structure, H, S, P Subperiods I. 2005:4 - 2008:4, II. 2008:4 - 2017:3, III. 2017:3 - 2021:2

Figure 8.1

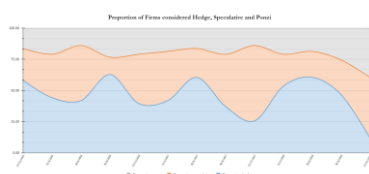
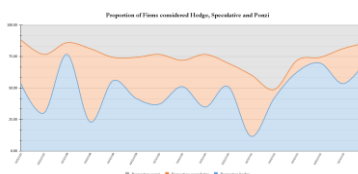
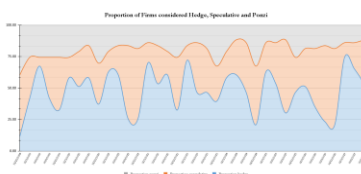


Figure 8.2 Figure 8.3



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

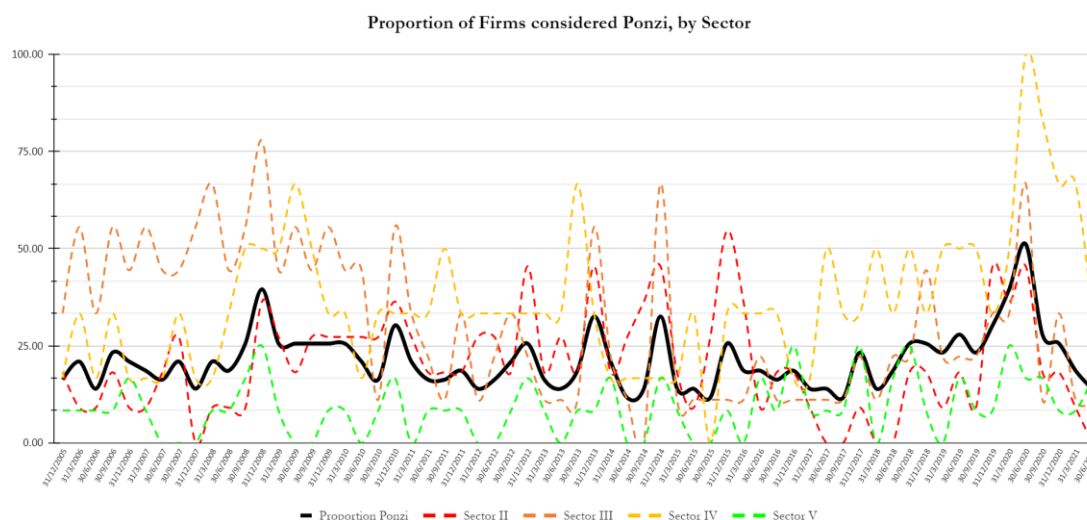
4.2 A sectoral analysis

All the previously mentioned economic shocks hit the different firms and the different industries in different ways and with different intensity. We considered it relevant to disaggregate the analysis previously done with respect to the proportion of Hedge, Speculative and Ponzi firms according to the different sectors. Figures 9, 10 (in the Appendix) and 11 (below) contrast those proportions for the main sectors⁷ against the aggregate proportion of Hedge, Speculative and Ponzi firms, separately. Sector II represents the firms in the materials field, sector III represents the firms in the industrial sphere, sector

⁷ We considered the "main sectors" as the sectors with more than 10% of the total 43 firms analysed. Of the 43 firms analysed, 11 are in Sector II, 9 are in Sector III, 6 are in Sector IV and 12 are in Sector V.

IV represents the firms in providing no basic products and services and sector V represents the firms that produce products of recurrent consumption.

Figure 11. Percentage of Ponzi firm, by sector: 2005:04-2021:02
(Bold line is the average proportion of Ponzi firms in the period considered)



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

The same analysis is carried out for the sub-periods previously considered in Figures 12.1, 12.2, 12.3, 13.1, 13.2, 13.3 and 14.1, 14.2, 14.3. The aim of this exercise is to assess different aspects such as:

- i. To analyse if some sectors have been constantly more financially exposed with respect to the average and with respect to other sectors.
- ii. To study if there was a change in the financial exposure of some sectors, namely if some sectors that were constantly in a Hedge position in particular periods, transited in a constant Speculative or Ponzi position.
- iii. To analyse if a higher variability and cyclicity of the Hedge, Speculative and Ponzi firms proportion was more evident in particular periods with respect to others.
- iv. Beyond the variability and cyclicity, we wanted to focus our attention also on the longer analysis of the trend, namely to study if there was any clear pattern in the transition from one configuration to another.

Analysing the first sub-period, 2005:4 - 2008:4 through figure 12.1, 13.1 and 14.1 it is possible to observe that sectors III (orange line) and IV (yellow line) are almost constantly below the average proportion of Hedge firms for the whole sample considered (bold line) while sectors II (red line) and V (green line) are almost constantly below the average. The analysis of 13.1 about the proportion of firms in a Speculative position also reveals clear patterns for sector III that is almost constantly below and sector IV that is almost constantly above the average proportion of Speculative firms, while no clear patterns can be underlined for sector II and V. Instead, figure 14.1 - about the proportion of Ponzi firms - gives a more clear-cutting and almost speculative representation to figure 12.1 indicating that sector IV and even more clearly sector III are (respectively) almost always and always above the average proportion for Ponzi firms. Differently, sectors II and V are almost constantly below the average proportion of Ponzi firms. If we reconcile this information with the analysis of figure 8.1 about the overall proportion of firms in a Hedge, Speculative and Ponzi position, we can see how the increasing

tendency toward the financial instability in the first sub-period was mainly led by sectors III and IV while sectors II and V were much more financially solid.

Figures 12.1, 12.2, 12.3, 13.1, 13.2, 13.3 and 14.1, 14.2, 14.3.

Percentage of firms according to their financial structure: H, S, P, by sector

Subperiods I. 2005:4 - 2008:4, II. 2008:4 - 2017:3, III. 2017:3 - 2021:2

(Bold lines are the proportion averages of Hedge, Speculative and Ponzi firms, respectively)

Proportion of Hedge firms, by sector

Figure 12.1

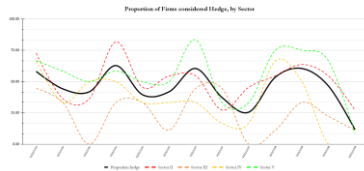
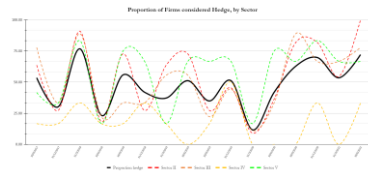
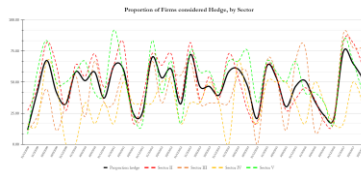


Figure 12.2 Figure 12.3



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Proportion of Speculative firms, by sector

Figure 13.1

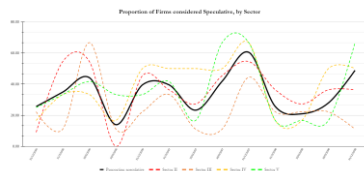


Figure 13.2 Figure 13.3



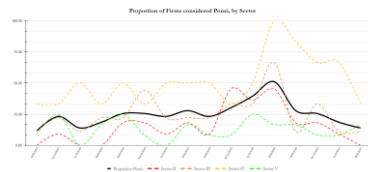
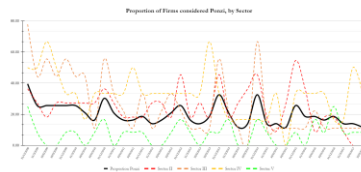
Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Proportion of Ponzi firms, by sector

Figure 14.1



Figure 14.2 Figure 14.3



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

The second sub-period, 2008:4 - 2017:3 reveals the same traits of the first one, namely sectors III and IV are almost constantly below and sectors II and V almost constantly above the proportion of Hedge firms at average level (figure 12.1). Figure 12.3 about the percentage proportion of Ponzi firms also suggests a similar point of the previous sub-period with sectors V having a proportion of Ponzi firms constantly below the average showing a more financially stable scenario. However, it is important to highlight that sector II does not replicate the same pattern of the previous sub-period. In fact, also sector II shows values that are almost constantly higher than the average proportion value for all the firms considered as Ponzi.

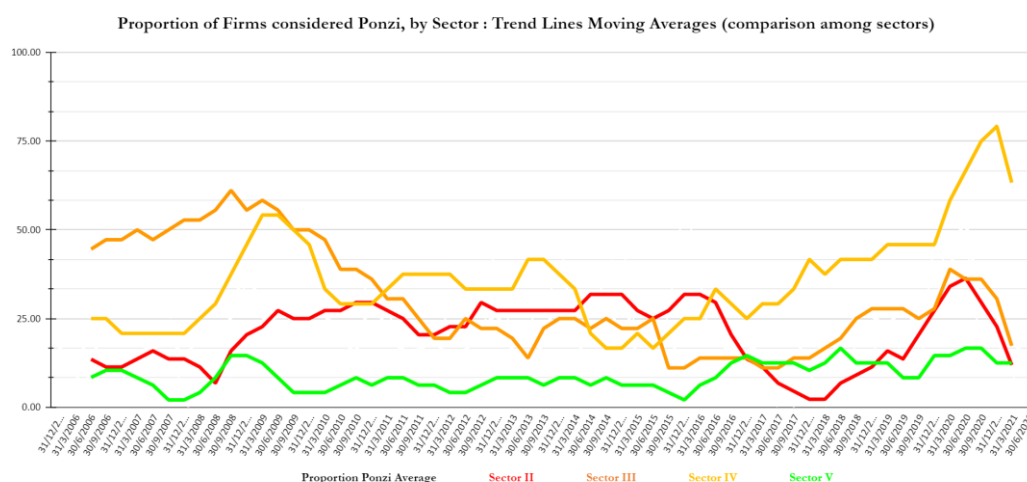
The third sub-period, 2017:3-2021:2 shows that as well as sectors II and V, also sector III is now above the average values for the proportion of Hedge firms (figure 13.1) while if we consider the proportion of Ponzi firms, we again have that sectors II and V are clearly almost constantly below the average while sector III shows a less clearer indication of having an higher proportion of Ponzi firms

with respect to the average (figure 13.3). At the same time, sector IV continues to show clear evidence with proportion values of Ponzi firms always much higher than the average values.

Figure 15 Percentage of Ponzi firms, 2005:4 - 2021:2

(Lines represent the centred moving average, 4 periods of the main sectors

Bold line is the centred moving average, 4 periods of the 43 firms considered)



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Figure 15 analyses more broadly the trend considering the whole period under investigation, namely 2005:4 - 2021:2. Since here we are analysing the whole period and we are interested in the trend of the patterns, particularly of the proportion of Ponzi firms in the different sectors, we use centred moving averages with 4 periods.

From figure 15 it is possible to observe several crucial points with respect to the trends of the proportion of Ponzi firms. First, as figures 12-14 already suggested, it is possible to highlight that sector II (firms in the materials sector) and V (firms that produce products of recurrent consumption) were the sectors with the least proportion of Ponzi firms, with sector V being the most solid one with less proportion of Ponzi firms among those sectors. In this sense, we can say that those sectors were constantly the least financially exposed to financial fragility in Minsky terms.

Second, sector III (firms in the industrial sector) experienced a relevant transition from the beginning of the period under investigation. In fact, analysing the values of the moving averages, in 2005:4 sector III was the most exposed sector with a proportion of Ponzi firms above 50% against 25% of sector IV and about 12.5% of sectors II and V. However, the proportion of firms in sector III under a Ponzi configuration gradually decreased since then, arriving at 12.5% in 2017:2. After such a minimum value of Ponzi firms, its value started to increase again even if it did not surpass 40%, yet.

Third, sector IV (firms in providing no basic products and services) evidenced an opposite increasing trend from 25% of Ponzi firms in 2006 reaching a peak value above 75% in 2020.

Once again, it is important to underline that even if sector IV financial fragility seems to have been more “sensitive” exactly during the 2 major global events, namely the 2007-2008 global financial crisis and the Covid-19 global pandemic, the increase in the proportion of Ponzi firms for sector IV began much earlier than the Covid-19 pandemic.

Finally, not only sector IV but all the sectors - except sector V - experienced a much higher proportion of Ponzi firms much before the Covid-19 global pandemic. In fact, between 2017:3 and 2018:3 sectors II, III and IV started to experience a strong increase in the proportion of Ponzi firms while those values were intensified during 2020.

5. An econometric assessment of Mexico's financial instability

As previously pointed out, Minsky (1986, 1992) studied the dynamics related to the economic activity of the overall economy and the behaviour of individual firms in engaging in new debt relationships to finance their expansion. With that in mind, we wanted to majorly detect what were the drivers of the debt. Minsky hypothesis was that in expansionary periods of the economic cycles, these are characterised by two major traits. The first is that companies tend to have greater confidence in the macroeconomic environment and therefore take on more debt to engage in riskier investments. The second is that observing the economic improvement and increasing their confidence about the economic stability, financial institutions tend to relax the financial regulations and commercial banks tend to engage in lending more credits. When the expansive cycle comes to an end, companies have acquired more liabilities that cause companies to transition from having a hedge financial structure (without risk) to a speculative one (with a medium level of risk) and eventually to a Ponzi structure (highly risky for the financial health of the company). In that way, we should expect that the growth of companies (g) should definitely play an important role in determining their level of indebtedness with positive values. This would highlight companies' endogenous tendencies to increase their indebtedness exposures led by their growth.

Similarly, we would also expect that the earnings should play a quite relevant role. In particular, having previously defined $o=O/A$ (Earnings/Assets) as the growth rate of earnings, namely the ROA (Return On Assets), we would expect their significant (negative) influence on the level of debts. The intuition is that a higher level of earnings would require less indebtedness to pay back previously contracted obligations and to engage in further debts. For the case of México, Vargas & Munoz (2011) consider also the influence of interest rate and the exchange rate during the period 1991-2006. Differently from that analysis, we would expect the period under consideration in our work (2005-2021) not to be particularly influenced by interest rate and exchange rate particularly considering that México did not observe a change in the exchange rate policy and in the monetary policy. Those variables are therefore considered in the analysis of companies' debt (d) and also of the growth of their net wealth ($\omega=g-d$). In a second stage, we follow Vargas & Munoz (2011) in analysing the growth of the net debt ($-\omega$) too.

To determine the effect of the previously considered variables on the companies' indebtedness, we use the following model considering o as the growth rate of earnings, g as the growth rate of companies and d as the indebtedness of companies⁸:

$$d_t^i = \Omega_0 + \Omega_1 o_t^i + \Omega_2 g_t^i + v_t^i \quad [3]$$

Superscripts refer to the i^{th} company. The parameters Ω_i are the parameters to be estimated and v_t^i are the residuals of the model. Four panel data models are estimated, one corresponding to the entire period under examination and the 3 subperiods considered in section 3. Table 4 shows the results. The results in table 4 show that the elasticity of the debt with respect to the profitability of the companies in all the analysed periods is negative, with a value of -1.70 in the overall period and with an even stronger value of -2.44 in the period that includes the COVID-19 pandemic. The negativity and the strength of the debt elasticity with respect to profitability results show that companies are able and prefer to use their own internal resources instead of external loans to finance their investment activities in this way decreasing the pressure on their indebtedness. This point shows the importance of the companies' own resources to avoid an increase in their level of indebtedness and confirms our expectations based on our theoretical arguments.

⁸ We also included interest rate and the exchange rate for the analysis of the 2005-2021 period but we found both variables, as expected, not particularly significant.

Table 4. Determinants and significance of companies' debt

$d_t^i = \Omega_0 + \Omega_1 o_t^i + \Omega_2 g_t^i + v_t^i$								
	2005Q4 - 2021Q2		2005Q4 - 2008Q4		2008Q4 - 2017Q3		2017Q3 - 2021Q2	
	Coeff.	t -Stat. (Prob.)	Coeff.	t -Stat. (Prob.)	Coeff.	t -Stat. (Prob.)	Coeff.	t -Stat. (Prob.)
o_t^i	-1.6960	-20.73 (0.000)***	-0.6359	-1.78 (0.075)**	-0.6308	-4.03 (0.000)***	-2.4401	-21.96 (0.000)***
g_t^i	1.5559	70.52 (0.000)***	1.3317	24.45 (0.000)***	1.4746	46.03 (0.000)***	1.5544	42.15 (0.000)***
	Adj. R^2 0.71		Adj. R^2 0.53		Adj. R^2 0.58		Adj. R^2 0.91	
	F-Stat.	155.02*	F-Stat.	15.16*	F-Stat.	50.14*	F-Stat.	161.05*

On the other hand, the elasticity of the debt with respect to the companies' growth was consistently positive and relevant with an average of +1.56 in the whole period. That value suggest that whenever companies experience positive periods of growth, they do not use that opportunity to mildly reduce their indebtedness exposure through a deleveraging process. Quite the contrary, values higher than one seem to indicate that companies use the growing opportunities to engage in a further and more intensive indebtedness, namely an endogenous process toward higher financial fragility⁹. The previous analysis supports the theoretical arguments highlighted in section 2, and the hints of section 4 where it was already observed that during the pandemic period there was an increase in the proportion of Ponzi companies indicating that many companies had to resort even more to debt to refinance their debts.

As to the statistical significance of the proposed panel data models, it is possible to highlight that the estimated values are almost entirely statistically significant at 99% confidence. That is visible through realizing that the p-value of almost all the variables are less than 0.01; only the case of the elasticity of the debt stands out with respect to the profitability of the companies for the period 2005Q4-2008Q4 meets face a significance at the 92.5% confidence level. Likewise, it is important to highlight that the significance of the model as a whole is verified. That is observed through the high value of the F statistic. Finally, with respect to the adjustment of the model via the adjusted R^2 coefficient, the complete period as well as all the sub-periods report high levels of significance¹⁰.

We now analyse how the growth of companies net debt ($-\omega$) has been influenced by the same variables of rate of return of companies o and growth rate of companies g ¹¹. Since net wealth is the difference between the rate of growth of companies and their rate of indebtedness, ($\omega=g-d$), such an analysis in dynamic terms might be considered a further check on the previous study and considerations. As before, a balanced panel data model is used. The proposed model is as follows:

⁹ Considering that $d=\Delta D/D$, a positive elasticity of the debt with respect to companies' growth would indicate that when companies' growth, their indebtedness level is increasing. However, when such an elasticity is higher than 1, that value indicates that not only the indebtedness level is increasing but the indebtedness speed is increasing too.

¹⁰ The third subperiod (2017Q3 - 2021Q2) that includes the COVID-19 pandemic shows an even higher R^2 coefficient. This is not particularly surprising given the stronger impact that earnings played in the model. In this sense, it could be plausible to consider that for the financial difficulties occasioned by Covid-19, retained earnings played an even greater role in determining the level of companies' debts.

¹¹ As for equation [4], we also evaluated interest rate and the exchange rate for the analysis of the 2005-2021 period but we found both variables not particularly significant.

$$-\omega_t^i = \alpha_0 + \alpha_1 o_t^i + \alpha_2 g_t^i + v_t^i \quad [4]$$

Superscripts refer to the i^{th} company. The α are the parameters to be estimated and v_t^i are the residuals of the model. Four panel data models are estimated, one corresponding to the entire period under study and 3 corresponding to the subperiods that have been stipulated. Table 5 shows the results.

Table 5. Determinants and significance of companies' debt growth

$-\omega_t^i = \alpha_0 + \alpha_1 o_t^i + \alpha_2 g_t^i + v_t^i$								
	2005Q4 - 2021Q2		2005Q4 - 2008Q4		2008Q4 - 2017Q3		2017Q3 - 2021Q2	
	Coeff.	t -Stat. (Prob.)	Coeff.	t -Stat. (Prob.)	Coeff.	t -Stat. (Prob.)	Coeff.	t -Stat. (Prob.)
o_t^i	-1.6960	-20.73 (0.000)***	-0.6359	-1.78 (0.075)**	-0.6308	-4.03 (0.000)***	-2.4401	-21.96 (0.000)***
g_t^i	0.5559	25.20 (0.000)***	0.3717	6.62 (0.000)***	0.4746	14.82 (0.000)***	0.5544	15.03 (0.000)***
	Adj. R^2	0.35	Adj. R^2	0.07	Adj. R^2	0.13	Adj. R^2	0.77
	F-Stat.	34.10*	F-Stat.	1.90	F-Stat.	6.11*	F-Stat.	53.17*

The results of table 5 show similarity to those obtained in table 4. The elasticity of the growth of the net debt of the companies with respect to the profitability of the companies in all the analysed periods is negative. That is true for all the periods, with a particular high value for the period signed by the COVID-19 pandemic and the overall period, with estimates of -2,44 and of -1,70 respectively. The evidence of the broad negative effect results confirms the importance of companies' own resources in terms of financing their economic activity, especially in the last period 2017Q3-2021Q2 which contemplates the pandemic period by COVID-19.

In the same way, the elasticity of companies' net debt growth with respect to their growth was positive in all the periods, with a value of almost 0.5 in all periods. These results confirm again that companies' growth is partly linked with the growth of their net debts and complement what previously observed in table 4. Such results allow us to assert that during the pandemic, and especially during its first period, companies at the aggregate level incurred an even greater level of indebtedness in order to continue their economic activity. Likewise, this is consistent with the analysis of section 4, where it was observed that the proportion of Ponzi companies increased during the period of the COVID-19 pandemic (2017Q3-2021Q2).

6. Conclusions

Using financial fragility indicators from a representative sample of companies listed in the Mexican stock market our study shows how, at aggregate analysis, the Mexican stock market has lived different periods since 2005.

First, at global level, during 2005:4-2008:4 the considered firms experienced a transition toward a more fragile financial unstable scenario characterised by an increasing proportion of Ponzi firms (above 40% in 2008:4). That was due most probably to the instability generated by the 2007-2008 global financial crisis. Such a trend was reversed in the years after the 2007-2008 global financial crisis. In fact, since 2008:4 to 2017:3 the proportion of Ponzi firms constantly decreased, arriving at 12% in 2017:3. Therefore this period can be considered as a recovery and tranquillity one. However, as Minsky suggested, stability is destabilizing. In fact, such a stable scenario started to be gradually more unstable with an ever-increasing proportion of Ponzi firms, from 12% in 2017 until 51% in 2020.

We therefore show how the phenomena of the increase in the proportion of Ponzi firms has been slowly building up much earlier than the Covid-19 global pandemic when the Mexican economy has experiencing the effects of the covid crisis. In this context, therefore, the Covid-19 global pandemic was not the original and greatest cause of the financial instability in Mexican stock market. Quite the contrary, after Covid-19 pandemic, the proportion of Ponzi firms strongly declined (from 51% to 14%) while the proportion of Hedge firms strongly increased (from 42% to 72%) forging a much more stable financial scenario. In this way, the Covid-19 pandemic seems to have played a “salvation effect”. Our guess is that the fiscal and monetary measures taken by the government and by the central bank, even if not the strongest among the Latin American countries, have played a stabilizing effect among the firms studied. However, this point is not studied and goes beyond the scope of our work and it can in fact constitute a point for further investigation.

Our work shows also how, together with the analysis at aggregate level, the study at sectoral level is crucial to understand the dynamics happening within the broad range of firms. We discovered that some sectors have been constantly more exposed than others. More specifically, the sectors of firms producing materials (II) and of firms producing recurrent consumption products (V) were the more financially stable. Differently, firms in the industrial sector (III) and firms providing no basic products and services (IV) were the most financially fragile. Furthermore, while the firms in the industrial sphere decreased their financial exposure to instability during the 15 years considered, sector IV was consistently and gradually more exposed during the whole period considered.

Such a sectoral analysis is a crucial piece of information that public institutions might want to be aware of and should consider in facing future shocks. In fact, such awareness would allow the government to play more focused industrial and fiscal policies considering that different shocks might expose the different sectors in unexpected way.

If Covid 19 was able to bring a positive aspect to Mexico, it was probably only its ability to spot the light on an increasing financial fragility scenario that México was already building up since much earlier and to highlight the need for active policies to support the Mexican economy - in all its sectors - with a long term strategy against potential unstable shocks.

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Anexo A

Muestra Representativa de Empresas del Mercado Accionario Mexicano
(50 compañías con datos homogéneos durante el periodo 2002-2020Q1)

Accel SA de CV	Grupo Industrial Saltillo SAB de CV
Arca Continental SAB de CV	Grupo KUO SAB De CV
Cemex SAB de CV	Grupo Lamosa SAB de CV
Coca-Cola Femsa SAB de CV	Grupo Mexicano de Desarrollo SAB de CV
Convertidora Industrial SAB de CV	Grupo México SAB de CV
Corporación Interamericana de	Grupo Minsa SAB de CV
Entretenimiento SAB de CV	
Corporación Mexicana de	
Restaurantes SAB de CV	Grupo Palacio de Hierro SAB de CV
Corporación Moctezuma SAB de CV	Grupo Pochteca SAB de CV
Corporativo Fragua SAB de CV	Grupo Posadas SAB de CV
Cydsa SAB de CV	Grupo Radio Centro SAB de CV
Desarrolladora Homex SAB de CV	Grupo Simec SAB de CV
El Puerto de Liverpool SAB de CV	Grupo Televisa SA
Empresas Cablevisión SAB de CV	Grupo TMM SA
Fomento Económico Mexicano SAB de CV	Grupo Vasconia SAB
G Collado SAB de CV	Industrias CH SAB de CV
Gruma SAB de CV	Industrias Peñoles SAB de CV
Grupe SAB de CV	Internacional de Cerámica SAB de CV
Grupo Bafar SA de CV	Kimberly-Clark de México SAB de CV
Grupo Bimbo SAB de CV	Médica Sur SAB de CV
Grupo Carso SAB de CV	Mexichem SAB de CV
Grupo Cementos de Chihuahua SAB de CV	Organización Soriana SAB de CV
Grupo Elektra SAB de CV	Tenaris SA
Grupo Embotelladoras Unidas SAB de CV	TV Azteca SAB de CV
Grupo Gigante SAB de CV	Vitro SAB de CV
Grupo Herdez SAB de CV	Wal-Mart de México SAB de CV

Appendix

Figure 2. Price and Quotation Index 2005Q2 – 2021Q2



Source: Yahoo Finance (2021). <https://es-us.finanzas.yahoo.com>

Figures 7.1, 7.2, 7.3 Percentage of firms according to their financial structure: H, S, P
Subperiods I. 2005:4 - 2008:4, II. 2008:4 - 2017:3, III. 2017:3 - 2021:2
(Bold lines are the centred moving average, 2 periods)

Figure 7.1

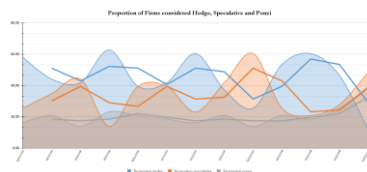


Figure 7.2

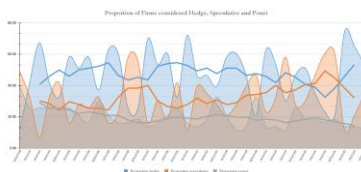
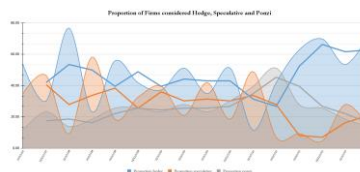
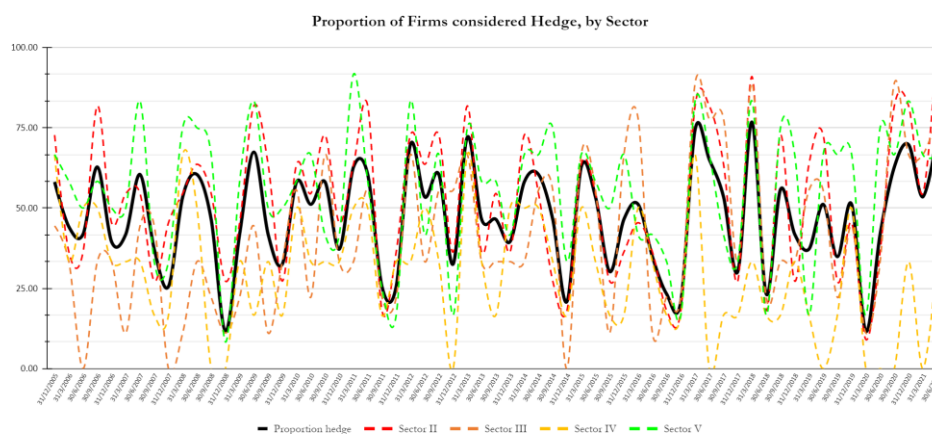


Figure 7.3



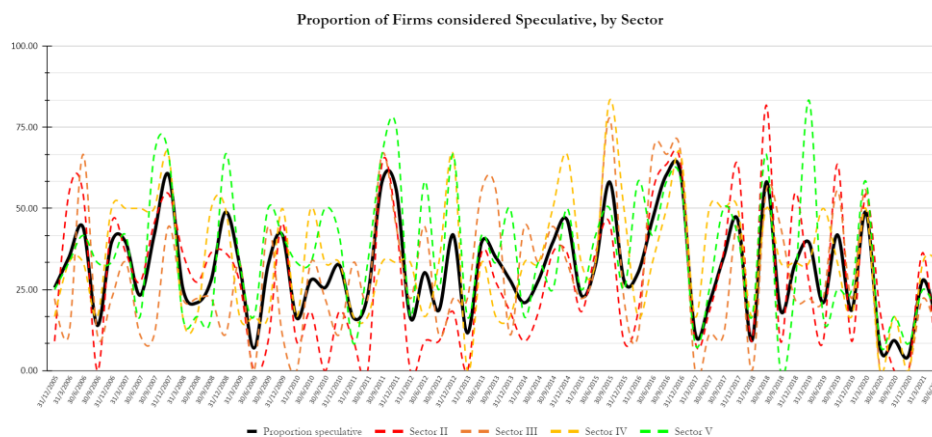
Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Figure 9. Percentage of Hedge firm, by sector: 2005:04-2021:02
(Bold line is the average proportion of Hedge firms in the period considered)



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>

Figure 10. Percentage of Speculative firm, by sector: 2005:04-2021:02
(Bold line is the average proportion of Speculative firms in the period considered)



Source: Authors' elaboration with data from Bloomberg. <http://www.bloomberg.com>