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The use of 'bubble' as an economic metaphor in the news: The case of the 'real estate bubble' in Spain

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ABSTRACT

This article analyses the emergence of the bubble metaphor and how it quickly became a widely used metaphor in the world of trade and finance since the early 18th century. The paper traces the evolution of the meaning of this economic metaphor and its popularization at different times in history, especially around periods of financial boom and crisis. Taking as a reference its current use, the study also analyses how these different significant dimensions of the economic metaphor of the bubble are used in the Spanish press, when covering the boom and the real estate crisis of 2008. Finally, the article identifies some paradoxes and inconsistencies in the use of the conceptual metaphor of the bubble in complex economic circumstances, such as a real estate boom and crash.

1. Introduction

One of the metaphors that has historically occupied a prominent place in the storytelling of the economy is the bubble metaphor. In fact, it is a mega-metaphor that fits perfectly into what McCloskey (1985: 78) defines as 'master metaphors' of the economy. It is also a rhetorical construct that could be included into the category of conceptual metaphors defined and described by Lakoff and Johnson (1980).

This article analyses the emergence of the bubble metaphor and how it quickly became a widely used metaphor in the world of trade and finance from the early 18th century. The paper reviews the evolution of the meaning of this economic metaphor and its popularization at different times in history, especially around periods of financial boom and crisis. Taking as a reference its current use, the study also analyses how these different significant dimensions of the economic metaphor of the bubble are used in the Spanish press, when covering the boom and the real estate crisis of 2008. This was a crisis especially apt to use bubble metaphors in the housing sector, but also in financial markets, where overconfidence, greed, and speculation originated a dangerous and ephemeral sense of wealth, not only in the Anglo-Saxon world, where bubble phenomena were historically more common, but worldwide. Finally, the article identifies some paradoxes and inconsistencies in the use of the conceptual metaphor of the bubble in complex economic circumstances, such as a real estate boom and crash.

2. The 'bubble' as a metaphor

The bubble, that wonderful physical phenomenon of enclosing one substance into another, usually of a gas into a liquid, has always generated metaphorical evocations of all kinds. From ancient times to the present day -remember the popular concept of "social bubbles" used during the Covid-19 pandemic-, bubbles have inspired useful ideas and images that were

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able to explain and synthesize complex phenomena. One of the first metaphorical uses of the bubble took place in the 1st century BC when Marco Terencio Varrón, in his *Rerum rusticarum*, addresses his wife Fundania lamenting the ailments of age and the fragility of elderly, which are similar to those of a bubble. That fragility and brevity of human life, and the very idea of the bubble, connected with a concept as important in Christian culture as that of vanity ("Vanity of vanities, said the Preacher; vanity of vanities, all is vanity", Ec. 1:2), also linked to ideas such as the beauty that vanishes, the life that ends, or the futility of power before the arrival of death.

Vives-Ferrándiz (2013) explains how after the references from Erasmus already mentioned, the textual metaphor of the bubble also becomes a visual metaphor from the 16th century, thanks to the works of painters such as Joos van Cleve and Pieter Bruegel. Without losing their original basic meaning, these new visual metaphors have two new dimensions: the linking of bubbles to the universe of childhood, and their representation through the game of soap bubbles. "To chase bubbles is like chasing nothing, steam or smoke; they are the appearance of something, they move from one place to another, they are an illusion, a fiction, but inside they have nothing" (Vives-Ferrándiz, 2013: 54).

The illusion of creating soap bubbles and wanting to catch them, knowing that they disappear at the slightest contact, connects with another dimension of the bubble metaphor: its reference to deception. The emptiness, the smoke, the nothing contained in the bubbles were easily associated from the 17th century onwards with an idea that was quite popular in the world of commerce: the idea of 'selling smoke', of speculating on what is only a more or less exaggerated (and often misleading) expectation. Around the time of the famous *tulip mania*, later known as the tulip bubble (1636–1637) — although today we know it was not so huge a bubble as other modern speculative processes (Goldgar, 2007) — it was already common in Holland to use the term *windhandel* (De Marchi and Harrison, 1994). It described a form of short selling that would later be banned in different regulations starting in 1610. This 'trade in air', to which José de la Vega also alludes in his pioneering work *Confusion of Confusions* (1688), was perhaps the clearest symbol of periods of financial speculation. As Chancellor (1999: 21) comments, in addressing the history of tulip speculation, the use of the term *windhandel* foreshadowed the future use of the bubble metaphor, which would become popular a century later on the occasion of the 1720 *South Sea Bubble*.

In fact, before that metaphor made headlines in newspapers and became, the term *bubble*, at least in England, was already used with a meaning associated with deception. The reference made by William Shakespeare in his *As You Like It* (1599) to the 'bubble reputation', when in the poem 'The Seven Ages of Man' he explained the evanescent fame of the victorious soldier, has also been interpreted in this way — as an allusion to the ephemeral and deceitful.

3. The 'bubble' as an economic and financial metaphor

All the dimensions and meanings of the bubble metaphor explained so far converged, in their application to the world of finance, in the aforementioned '*South Sea Bubble*', which took place in London in 1720 (Carswell, 1960; Dale, 2016; Garber, 1990). Speculation on shares of the South Sea Company, and also on other companies of the London Stock Exchange, and the collapse of their value at the end of 1720, were the breeding ground for that rhetorical use of the *bubble* concept.

The bubble experienced in the London Stock Exchange would practically coincide in time with another deceptive investment scheme, that promoted by John Law in the Paris Stock Exchange around the Mississippi Company. This speculative scheme, by its parallelism with the Londoner, would end, with the passage of time, identifying itself as the 'Mississippi *Bubble*' (Murphy, 2010; Thiers, 2012). In fact, the London speculative scheme had been based on the one designed in Paris by John Law. In France, however, the bubble metaphor had not been used to refer to it. Rather, the situation was described with the logic of 'wind trade' (*windhandel*), as reflected, for example, by the fact that Montesquieu (1992 [1721]: 250), in his *Persian Letters*, referred to the speculative scheme of the Mississippi Company with the expression 'enclosing the wind in wineskins' (Letter, 142). Indeed, the use of the French term *bulle* to describe financial speculation — as in many other European countries — derives directly from the chronicles of the English *South Sea Bubble*. Antoine (2014) cites how an article in the 1720 *Le Nouveau Mercure* speaks of the debacle of the *South Sea Company's* shares, referring to them as 'bubbles or chimerical projects'.

Part of the success of the popularization of the bubble as a financial metaphor in England, around the *South Sea Company*, and its expansion to other countries, is due to the use of that concept in popular texts, especially journalistic and literary, and in visual satires (Hoppit, 2002; Rogers, 2014). Many of the literary figures of the time, with intense journalistic activity, such as Daniel Defoe, Jonathan Swift, Richard Steele, and Alexander Pope, were involved in the bubble, as either investors or propagandists, or both (Hoppit, 2002; Odlyzko, 2018). For example, Daniel Defoe, the author of *Robinson Crusoe* and *Moll Flanders*, was an active commentator on the virtues and vices of financial speculation phenomena, and wrote some articles under the pseudonym *Anti Bubble* (Emmett, 2000; Zimmer, 2013). He defined the use of bubble as "the new name which I think is deservedly given to our companies taking in subscriptions by millions" (Defoe, 1720). Johnathan Swift was also active in criticizing what was happening on the London Stock Exchange, but in this case focusing on the South Sea Company as the epitome of investment mania. Shortly after the South Sea bubble burst, Swift anonymously published *The Bubble: A Poem* in *The Evening Post* in early 1721 (Rogers, 1988).

After the episode of the *South Sea Bubble*, it does not seem that the metaphor of the bubble was widely used during the next century. In fact, a law such as the famous *Bubble Act*, which was adopted in 1720 to limit the creation of stock companies, did not receive that name — by which it is known today — until well into the 19th century. Harris (1994: 614) mentions how

this denomination of the law, whose full name did not include the metaphorical term, can rarely be found in the 18th century.[1] During that century, the only remarkable fact for the fixation of the bubble idea was when the expression *South Sea Bubble* was first incorporated in 1771 into the original edition of the *Encyclopaedia Britannica* (Volume III: 632).

Towards the middle of the 19th century, the image of the financial bubble was taken up again on the occasion of new phenomena of stock speculation, but above all with the publication of works analyzing them. Perhaps the most influential of these was Charles Mackay's *Memoirs of Extraordinary Popular Delusions and the Madness of Crowds* ([1995 1841]), which recounted the 18th-century bubbles as archetypal examples of irrational market behavior. Mackay was a journalist, songwriter, and composer who is still quoted today when these phenomena are explained, although his analysis of speculations was more a literary exercise than a scientific one (Garber, 2000; Goldgar, 2007). In fact, as Odlyzko (2011) points out, his work makes virtually no reference to the most famous of the investment mania of the time, the 1840s *Railway Mania*, not least because Mackay was an active promoter of investment in railways, which ended up generating the 'railways bubble'. This new stock speculation — one of the largest in history — did merit the attention of other authors, such as Arthur Smith, who, in his *The bubble of the age; or, The fallacies of railway investment, railway accounts, and railway dividends* (1848), criticized the repetition of financial speculation schemes such as those of the 18th century.

Thus, the use of the bubble metaphor for different episodes of speculation, or for the appearance of *bubble companies* in different fields of activity, was recovered around *Railway Mania*. In 1843, shortly after it was born, in its seventh issue, *The Economist* already used the term *bubble company* to refer to a new railway company (*The Economist*, October 7, 1843: 86) and would continue to do so until the end of the decade, with various references to the possibility of its explosion ('The bubble will soon burst', *The Economist*, August 25, 1849: 949). From then until the end of the century — although not as often — the British weekly used the metaphor of the bubble on multiple occasions, applying it to situations such as the rise in the price of American cotton (*The Economist*, March 12, 1881: 24) or to entire periods of stock market effervescence, such as 'The Outbreak of Speculation in the Mining Market' (The *Economist*, December 19, 1885: 1537).

For much of the 20th century, although the bubble metaphor remained a linguistic resource used in certain times of speculation in the markets and around certain companies (*bubble companies*), the popularity of the term did not recover until the 1970s. Sporadic phenomena of high house price growth on the west coast of the United States and in highly developed cities, such as Hong Kong, led media headlines to recover the idea of a bubble, in this case to refer to real estate bubbles (see, for example, 'South Californian bubble', *The Economist*, July 2, 1977: 44; 'Hongkong's property bubble', *The Economist*, December 22, 1979: 79). This widespread use of the metaphor continued a decade later with the stock market *crash* of 1987, the Japanese real estate bubble, and, finally, the Internet bubble (*dot.com bubble*), around the turn of the century, which was the one that definitely boosted its use to the level it has reached in our days (Van der Yeught, 2007).

Today, bubbles as economic and financial phenomena are already part of the colloquial language of any citizen, and above all, more and more, also of academic language (for an approach to this subject, see Deringuer, 2015). In fact, following Lakoff (2006), it can be safely stated that identifying 'an economic phenomenon as a bubble' is a universal ontological metaphor that would belong to the general structure of 'the event structure' metaphor.

The popular use of this metaphor, and its connection with the different meanings it has evoked historically in the economic and financial world, is activated every time economic crises occur. In fact, the different significant dimensions of the bubble metaphor converge to explain and interpret certain crises in a concrete way, from the point of view of their nature, their causes and consequences, and the possible ways to face them. This can be clearly analyzed in the case of the 'real estate bubbles' (a use of this metaphor extended in many different languages with the same meaning –*burbuja inmobiliaria*, *immobilienblase*, *bulle immobilière*, *bolla immobiliare*, etc.-).

4. The use of "bubble" in Spanish newspapers: empirical analysis

Studies on the use of the bubble as an economic metaphor in different types of texts, especially journalistic, are scarce. The economic and financial crisis of 2008 favored the elaboration of works dealing with this subject at least marginally, by including the bubble among the many economic metaphors that have been used to speak of the Great Recession (Arrese and Vara-Miguel, 2015). However, no work has analyzed the most outstanding aspects of the use of this metaphor, which connect with the different dimensions it has acquired over time, since its introduction in the 18th century. In order to fill this gap, we will carry out a content analysis of newspaper articles focused on the real estate bubble in Spain, published in eight newspapers between 2003 and 2013.

This study compiles and analyses data on views of the housing bubble reported in eight Spanish dailies: the three leading national newspapers (*El País, El Mundo* and *ABC*), the two leading financial newspapers (*Expansión* and *Cinco Días*), and three important regional newspapers (*El Correo*, *La Vanguardia* and *La Voz de Galicia*). This selection of newspapers has been demonstrated to be effective in different studies that have analyzed Spanish public opinion on economic and other specialized issues at a national and regional level (Elías, 2001; De Miguel and Pozas, 2009; Arrese and Vara-Miguel, 2015).

The content analysis is based on full-text articles retrieved by the researchers from the Factiva database, which offers access to the printed versions of the eight newspapers under research for the whole period of analysis. The retrieval of articles included

[1] The complete title of the law was *An Act for better securing certain Powers and Privileges intended to be granted by His Majesty by Two Charters for Assurance of Ships and Merchandizes at Sea, and for lending Money on Bottomry; and for restraining several extravagant and unwarrantable Practices therein mentioned*.

all the articles with the expression 'burbuja inmobiliaria' (housing bubble) in the headline or the lead (1,510 articles). Of course, many of them made more references to the 'bubble' metaphor in the main text. Another of the tasks in the content analysis was to take note of the two main metaphors in each article, excluding the 'bubble' metaphor already in use at least in the headline or the lead. After the analysis carried out by two researchers (inter-coder reliability was measured through the Holsti test, which achieved a value of 0.86)[2], 161 additional metaphors were identified. Finally, to select diverse uses of the 'bubble' metaphor and connect it with the rest of metaphors, the function "Words in context" from WordStat 7.1 (QDA Miner) was used.

This empirical part is designed along the lines of studies that try to integrate conceptual metaphorical theory (CMT) with critical discourse analysis (CDA), at least in its basic purpose. These studies make metaphors particularly salient in the context of social cognition, and analyze them as a valuable starting point to study cognitive and ideological determinants of discourse (Hart, 2010; Koller, 2005). The application of this hybrid approach to economic, business and financial discourses can be especially fruitful considering the specialized nature of news contents around these issues. For example, O'Mara-Shimek et al. (2015: 119) suggests that "metaphor has the capability of embedding ideologically informed visions of the stock market in the language of finance reporting in the business press".

The basic research question that guides this empirical part is twofold: What does the use of the bubble metaphor –which encompasses its historical meanings and dimensions- tell us about a real estate crisis, about its nature and characteristics, causes and consequences, and dynamics and operation?; Is this use of the bubble metaphor appropriate to describe the essential aspects of a real estate boom and crisis?

4.1. About the nature and characteristics of the housing bubble

Van der Yeught sums up the dimensions of the mega-metaphor of the bubble that are often present in the stories about it and that connect with the economic reality it represents. According to this author, there are four sub-metaphors that underpin it: "(i) the flying metaphor, (ii) the weightlessness metaphor, (iii) the gambling metaphor, and (iv) the madness metaphor" (Van der Yeught, 2007: 76). These metaphors combine in a significant sequence of interconnected signals that provide the framework for the basic explanation of financial bubbles. Their combined message is that "(i) by increasing too fast (ii) and with no economic justification, speculative prices disconnect the stock market from the economy and subvert economic logic. As a result, (iii) the stock market's function is marginalized into that of a game of chance and (iv) persistent speculators are irrational" (Van der Yeught, 2007: 76). Of course, all these dimensions also came to life in the real estate bubbles, such as those that constituted the epicenter of the Great Recession of 2008 in different countries (above all, Spain, Ireland, and the United States). But they are the basic structure of any metaphorical use of the *bubble* concept in different economic spheres, regardless of whether the object of speculation is more or less 'real' (real estate assets, *commodities*, financial assets, etc.) (Orts and Rea, 2011).

In this characterization of the dimensions of the bubble, one can recognize a good part of the meanings that this metaphor has historically had in all the spheres of life to which it has been applied: fragility, fugacity, dreaminess, banality, fiction, play, etc. Also included to some extent is the idea that these characteristics make bubbles uncontrollable, basically irrational, and that they generate surprise and uncertainty once they come to life, as well as when they become extinct. For this reason, the authors who analyze the economic metaphor of the bubble often emphasize that the bubble is framed — by relation to the nature of the physical phenomenon — in the field of natural facts, especially in that of fluid dynamics. This means that, as De Goede points out, "the significance of the bubble metaphor is that it naturalizes financial markets and complex financial products as aspects inherent in the natural world. Although men are assumed to have to take responsibility in the face of crisis, its causes are placed beyond human behavior, in the domain of natural disasters, floods or catastrophes" (De Goede, 2009: 300).

The analysis of journalistic content on the Spanish real estate bubble between 2003 and 2013 evidences that the concept of *bubble* is surrounded by other metaphors of different types. Among them, nature and mechanics predominate (Table 1), following the classification of economic metaphors proposed by Arrese and Vara-Miguel, 2015.

Table 1
Other metaphors in articles on the real estate bubble*.

Nature	52	32,3%
Illness	24	14,9%
Organism	15	9,3%
Mechanical	51	31,7%
War	10	6,2%
Game	9	5,6%
TOTAL	**161**	**100%**

(*) The classification is the result of an exhaustive literature review on typologies of conceptual metaphors used in economic, business and financial works. See, Arrese and Vara-Miguel, 2015.

[2] Holsti intercoder reliability test is widely used for testing reliability of categorical coding. Holsti = 2 * M/(N1 + N2), where M is the total number of decisions that the two coders agree on; N1 and N2 are the numbers of decisions made by Coder 1 and Coder 2, respectively. Using this method, the range of intercoder reliability is from 0 (no agreement) to 1 (perfect agreement).

The predominance of natural and mechanical metaphors reflects well the tension generated around an economic phenomenon that is basically uncontrollable, but at the same time gives the impression of being able to be managed, under human leadership, with the logic of 'economy as machine', which is also one of the metaphorical figures with more tradition in economics (Aspromourgos, 2012).

Finally, in the very nature of the production and maintenance of economic bubbles is the generic reference to 'tricksters', 'speculators' (remember that, in its origin, *bubble* was equal to *cheat*), who, like John Law, try to take advantage of the situation of uncertainty and a certain collective hysteria. In the articles on the Spanish bubble, it is not difficult to find references to that element of bubble situations, in expressions such as 'Real estate bubble: Attention, speculators!' [Burbuja inmobiliaria: ¡Atención, especuladores!] (*El País*, January 21, 2004); 'The real estate bubble is the fault of political parties, appraisers, banks and speculators' (*La Vanguardia*, November 13, 2011); 'the flats sold out to avaricious speculators or vulture funds' (*La Voz de Galicia*, October 31, 2012); and 'the big and small speculators, who inflated the real estate bubble' (*El País*, June 13, 2013).

4.2. About the causes and consequences of the housing bubble

At least for the non-specialist, bubbles in ordinary life usually have two fundamental causes: (i) the natural, associated with water bubbles, which are created by the phenomenon of cavitation, either by heating (the water 'bulle') or by the drop in pressure, and (ii) the artificial, associated with the famous and fun soap bubbles, the effect of blowing through any circular or oval surface soaked in soapy fluid.

The economic and financial bubbles share this duality in the explanation of their origin, although in their case it is not so easy to identify the 'source of heat' or the 'breath of the child' that generates them. However, there is a strong analogy in causality. On the one hand, following a certain natural and thermodynamic vision of the economy (Bryant, 2011), the processes of 'warming' and 'cooling' of markets are part of the day-to-day economic activity, of the confluence of innumerable individual and collective decisions, public and private. Therefore, it is very difficult to separate the phenomena of 'overheating' in certain markets from a diffuse collective action, difficult to control, although there is no doubt that the actions of companies, governments, and families contribute to regulating the temperature in this type of situation.

But the true origin of bubbles, which are not merely explained by this 'thermodynamic' dimension, very common in economics, occurs when these processes of collective warming go beyond the logic of rationality in a certain way and become processes guided by the 'madness of the masses' (MacKay, 1841) or by a 'social epidemic' (Shiller, 2014), more typical of the dynamics of child's play (as with soap bubbles) than of the efficient functioning of a market. Collective causality, which dilutes responsibilities, is an essential part of the special dynamic of bubble creation. As Poon (2009) points out, taking as a reference the works of Peter Sloterdijk (2009) on the *Spheres* (his first volume deals with the 'Bubbles'), "for him, bubbles are material objects dilated by human action, and whose life depends on only mechanical tension on the surface, but also fascination and hopes that their creators instilled in them. In this perspective, we can see in the US real estate bubble a tangible space, though imaginary, inhabited and yet illusory. This bubble represented a form of collective action carried by many global actors, who supported it with their actions and thoughts" (p. 189).

The phenomena of cooling and heating associated with bubbles mean that these are sometimes linked, as we have seen in the analysis of contents, to causal dimensions and effects typical of mechanical metaphors. This is how Resche (1984) explains it, when she points out that 'the "engine" metaphor is logically connected with such notions as "fuel", "spark", "ignition", risks of "overheating", "stalling" or "exploding". "Overheating" branches out on "hot air", a "balloon" or "bubble", "to inflate" and brings us back to the risk of "explosion". But if we extend the notion of overheating in another direction, we are led to consider "temperatures" ranging from "red-hot" to "cool" and "cold". Now, if overheating is caused by "speed", "cooling off" requires "slowing down" (p. 254).

Frequent news expressions such as 'cooling of the real estate bubble' (*La Vanguardia*, October 4, 2006), 'warming of real estate prices' (*Expansión*, February 15, 2005), 'orgy in the real estate market is intermingled with heated collective psychosis' (*El País*, July 5, 2003), 'collective implosion' (*La Vanguardia*, November 11, 2007), and 'collective anxiety' (*ABC*, August 12, 2008) well reflect the natural and collective phenomenon dimensions of the bubble. Others, such as 'an economic concrete locomotive' (*ABC*, April 1, 2005), 'a gentle "deceleration" of house prices is expected' (*El País*, November 28, 2003), or 'Isn't the financial system pouring gasoline into the possible real estate bubble?' (*El País*, May 6, 2005) show the connection of these same ideas with the typical mechanical metaphors.

If the causality of the creation of bubbles is complex, the analysis of the consequences of their explosion is not so complex. In fact, in this regard, we can say that the analogy of physical bubbles with economic bubbles does not fit well — but quite the opposite — to reality. Real estate bubbles are not empty containers, like soap bubbles or air bubbles, which, when exploded, disappear without a trace; they are 'containers' — another of the favorite metaphors of the economy (Alejo, 2010; Soddemann, 2013) — full of goods, debts, and obligations (as well as dreams and illusions of many people) whose value collapses when the explosion occurs, with devastating effects on society. The real estate container can have some 'empty' products –such as synthetic derivatives in the 2008 crisis-, but many other are very real. As concluded in an article in *The Economist* entitled 'The Beauty of Bubbles' (December 2008) about the American housing bubble, "the Florida boom is also a reminder that the bubble metaphor does not do full justice to the consequences of a financial boom and bust. After all, a bubble is evanescent. Once it has popped it leaves nothing behind. In Miami and the rest of south Florida this was patently not the case".

Paradoxically, in the analysis of the contents of the Spanish press, there are two clear moments in the information on the real estate bubble regarding its origin and consequences. Between 2003 and mid-2008, the discussion focused on whether a bubble is actually being generated (something that, in the physical world, is an objective fact) and on the causes that might (or might not) be encouraging it (on these issues, in addition to this study, see Fuentes and Belmonte, 2015). Only when there is evidence of a sharp fall in the evolution of house prices and the bankruptcy of some construction companies — that is, when the bubble explodes — is it openly acknowledged that *there has been* a bubble. In the world of physical bubbles, it is precisely then when there is nothing left, the moment from which it would be impossible to deduce that there was such a phenomenon. However, in the case of the real estate bubble, from 2008 onwards, all that remained was to talk about the consequences of the bursting of the real estate bubble, and *how* that bubble, which at the time was doubtful to exist, *could have been*.

4.3. About the dynamics and operation of the housing bubble

The complexity of the bubble metaphor, in its application to the phenomena of economic speculation, is also manifested when interpreting how it is managed when its existence is recognized (or the high probability that it may be forming). In the physical world, once created, the bubble works according to its own dynamic, autonomous, dependent on its internal conditions of pressure and temperature, which makes it extremely vulnerable to possible external factors of influence. At the same time, left to itself, it has a short life, difficult to foresee. Finally, the bubble walls have some elasticity, and their volume may increase or decrease somewhat depending on the internal pressure of the gas, but their tendency is to stabilize rapidly and then disappear (Harwood, 2006; Harwood et al., 2014).

This reality has little to do with how to describe the dynamics of economic bubbles in the media and in colloquial language. That the bubble, once it has been created, can be inflated or deflated, that its volume grows extraordinarily or is reduced to a reasonable level, that it is a flying object that can be 'landed' more or less abruptly, or that it can be extinguished without exploding — all of them images common in stories about the real estate bubble, for example — are unrealistic operations in the face of a soap bubble. And yet, in the case of the real estate bubble, the news is full of those ideas.

'The housing bubble swells' ['La burbuja inmobiliaria se hincha'] (*La Voz de Galicia*, September 17, 2003); 'The real estate bubble doesn't burst, it swells' ['La burbuja inmobiliaria no se pincha, se hincha'] (*ABC*, November 26, 2005); 'The real estate bubble begins to deflate' ['La burbuja inmobiliaria se empieza a deshinchar'] (*La Vanguardia*, January 18, 2008); 'Una burbuja inmobiliaria que ha explotado sin el mítico aterrizaje suave' ['A real estate bubble that exploded without the mythical soft landing'] (*La Vanguardia*, November 23, 2008); '…la necesidad de ir desinflando con prudencia la burbuja inmobiliaria' ['...the need to prudently deflate the real estate bubble'] (*El País*, January 23, 2019) — these are some of the headlines and expressions that in different moments, before and after its explosion, tried to synthesize the dynamics of the real estate bubble. As can be observed, most phrases use impersonal verbal forms, as if these were autonomous behaviors of the phenomenon itself. However, a good part of the actions can also be personal: inflating, deflating, landing, etc.

In reality, the dynamic that is reflected in this way of describing behavior is that of the functioning of balloons, not bubbles. As Judge (2009) points out when analyzing the difference between both metaphors, "rather than using the bubble metaphor, it might be more appropriate to explore the balloon metaphor. The bubble metaphor is consistent with a certain implication that the bubble is a natural phenomenon not necessarily man-made –as with financial hurricanes and the like. A form of emergence by implication to be recognized (with surprise) after the fact. The balloon metaphor makes it much clearer that this is a man-made construct -deliberately made or manufactured. Both of course need to be inflated in some way although the process is far less obvious in the case of a bubble, especially after the entry point has disappeared".

On occasion, the news refers to this distinction between the functioning of a balloon and that of a bubble, applied to the real estate *boom* and *crash* ('More than a real estate bubble, one should speak of a balloon that deflates little by little,' *El Correo*, April 19, 2011), but in general terms, one thinks of the dynamics of a balloon, and yet the phenomenon is identified as a bubble. It is significant in this sense how when analyzing verbal expressions during the bubble itself (2003 to mid-2008) and in the period after the bubble burst (mid-2008 to 2013), the dominant actions change. As can be seen in Table 2, from the analysis of words (words in context) in 1,510 articles made with Wordstat 7.1, in the first period are more frequent than in the second verbs such as 'inflate'/'deflate' and 'prick', which means that the situation can be managed, that there are external actions controlled by someone (government, market actors, etc.). This vocabulary is more apt when considering the analogy of a balloon. Of course, in addition to being able to prick it at any time, by inflating it one is aware of the limits of its elasticity. What happens can be better explained by what causes it. On the contrary, in the second period, when it is recognized that the bubble has ceased to exist, the dominant actions are to 'explode' or 'burst', which implies that — as with real bubbles, albeit more devastatingly — their internal logic causes them to burst. All that remains now is to take charge of the consequences and explain how the *boom* has turned into a crisis.

Table 2
Frequency of expressions of action before and after the bubble burst.

Expressions	Pre Bubble		Post Bubble	
	Frequency (F)	F/N	Frequency (F)	F/N
Bubble	*1827*	*3.32*	*2575*	*2.69*
Boom	105	0.19	148	0.15
Crisis	685	1.24	2273	2.37

(*continued on next page*)

Table 2 (*continued*)

Expressions	Pre Bubble		Post Bubble	
	Frequency (F)	F/N	Frequency (F)	F/N
Inflating and derivatives	30	0.05	38	0.04
Deflation and derivatives	44	0.08	42	0.04
Inflating and derivatives	24	0.04	27	0.03
Deflate and drift.	9	0.02	7	0.01
Pinching and derivatives	280	0.51	362	0.38
Bursting and derivatives	264	0.48	697	0.73
Explode and derivatives	108	0.20	165	0.17
Number of items	**N = 551**		**N = 959**	

Note: All articles were analyzed first with the "word in context" function of Wordstat 7.1 to identify the presence of the words and verbs that are shown in Table 2. Then, for the analysis of verbs, we manually checked the roots of the verbs and derivatives, and made a re-search and re-counting with the statistical functions of Wordstat 7.1. In Appendix 1 there is a random example of the words in context corpus used for this analysis.

That always unexpected reaction of the bubble — very different from that of the globe — is the one that generates enormous anxiety, uncertainty, and fear, since it is an action that is difficult to foresee, but that will happen in any case. For this reason, as in other situations in markets that function largely guided by 'self-fulfilling prophecies' (regarding their validity in the financial markets, see Gennaioli and Shleifer, 2018), it is normal that before the perspective of a bubble such as real estate, the care of language, and whether accepting the use of that almost cursed term ('bubble'), they are controversial questions when analyzing the conjuncture (Arrese and Vara-Miguel, 2018). Perhaps because of this, explaining how it works like a balloon — even if by making explicit reference to a bubble — is an indirect way of assuming that the bubble doesn't really exist, and that what happens is controllable. After all, as Garber (1990) concludes in his classic analysis of the first financial bubbles, really admitting their existence should be a 'last resort', having exhausted any other explanation and reasonable characterization of what happens in a market.

5. Conclusions

Throughout history, the metaphor of the bubble has transferred much of its original meaning, linked to the fleeting nature of life and *vanitas*, to the world of economics and finance. Its introduction as an economic metaphor at the time of the *South Sea Bubble* (1720), in both the literary and journalistic worlds, meant that from then on, at different economic junctures and in very different countries, the 'bubble' as a phenomenon of speculation around financial and other assets has become a true economic concept, very much in force today.

The analogy of the functioning of bubbles and soap bubbles with certain features of situations of collective euphoria, around exaggerated expectations of price growth in the markets, takes shape above all in the most basic significant elements of this metaphor in other fields of human life: brevity, fragility, innocence, play, illusion, fiction, surprise, life and death (*boom* and *crash*). To these meanings, we should add the first sense of the bubble metaphor in the economic sphere, linked to 'deception', 'fraud', or the actions of certain speculators who fuel the warming of the markets, as in the famous case of John Law in the Mississippi bubble.

If from the point of view of the analogy between the characteristics of both phenomena, the physical and the economic, the metaphor works quite well, there are other aspects that do not do justice to reality.

In the first place, as with other widely used economic metaphors (Arrese and Vara-Miguel, 2015), the assimilation of the natural fact to the economic fact implies using an interpretative framework (*frame*) of reality far removed to a large extent from human intervention, linked to a lesser extent to the responsibility of specific people and institutions, and perceived as something coming from outside, something 'that can reach us', without being able to control it clearly.

Secondly, partly in connection with the previous idea, the analysis of the origin and causes of the bubble — as has been seen in the study of the journalistic coverage of the Spanish real estate bubble — is also complex. In this case, the difference between the physical world and the economic world is obvious. In the economic bubbles there is a collective causality that, moreover, only takes substance in the creation of this phenomenon when it escapes the most conventional economic analysis, when it becomes a 'social epidemic' that can only be understood through the analysis of complex processes of the psychology of the masses. Also, unlike natural bubbles, economic bubbles are difficult to 'see' when they exist, but it is relatively easy to evidence that they have existed when the effects and consequences of their explosion are verified.

Finally, the metaphor of the bubble, as has also been seen in the analysis of news content on the real estate bubble of 2008, poses various problems when it comes to establishing parallels between its dynamics and functioning in the natural world and in the economic world. Many of the actions described in journalistic texts, both those that affect the logic of the functioning of the bubble itself and those that operate on it from outside, have as reference the image of a globe rather than that of a bubble in the strict sense. Only in the most uncontrollable and unforeseen aspects of speculative situations, and especially in the fact of the explosion or bursting of the *boom*, the adjustment between the reality and the dynamics of the functioning of the bubbles is greater.

These paradoxes and inconsistencies in the use of the conceptual metaphor of the bubble in situations such as those of real estate bubbles well reflect the enormous difficulty in understanding them and in acting in their different phases. As has

already been noted, economic science itself oscillates between the rational vision and the emotional vision of speculative processes, and the metaphor of the bubble, in that sense, does justice to the mystery involved in this type of phenomenon.

Finally, from the linguistic point of view, the delicate decision to use this metaphor insistently in public opinion, or in discussions among experts, can have unexpected consequences related to the dynamics of self-fulfilling prophecies, although it can also happen that its use, in certain circumstances, ends up becoming trivialized, and the metaphor ceases to function as a sign of a high-risk situation in the markets.

Appendix 1

Radom example of keywords in context for the analysis of verbs (Table 2).

Case	KEWORD IN CONTEXT		
210	Pinchazo de la	burbuja	
1261	estallido de la	burbuja	en Cataluña
1027	desinflarse la	burbuja	
1299	explotó la	burbuja	
45	La "	burbuja	" inmobiliaria se hincha
579	estallido de esa "	burbuja	" inmobiliaria y constructora
633	Tiempo después de que estallara la	burbuja	de Internet en 2000, aparecieron por….
879	El pinchazo de la	burbuja	de la construcción
667	la	burbuja	inmobiliaria está pinchada
1247	La	burbuja	inmobiliaria estalló de golpe
1436	Ya es oficial: la	burbuja	inmobiliaria explotó en 2008
51	El pinchazo de la	burbuja	inmobiliaria gallega
604	La	burbuja	inmobiliaria ha estallado
293	La	burbuja	inmobiliaria le estalla a Sepes
907	El estallido de la	burbuja	inmobiliaria provocó una crisis en un sector que…
1298	Tsunami que provocó el estallido de la	burbuja	inmobiliaria
908	desaceleración transitoria, pinchazo de la	burbuja	inmobiliaria
790	Cresta de la	burbuja	inmobiliaria
444	efervescencia de la	burbuja	inmobiliaria
606	pinchazo de la	burbuja	inmobiliaria
228	la crisis ha dejado contra las cuerdas después de que pinchara la	burbuja	inmobiliaria
18	un mar de grúas, pinchazo de la	burbuja	inmobiliaria
633	pinchó la	burbuja	inmobiliaria
315	desaceleración, estallido de la	burbuja	inmobiliaria
287	estallido de la	burbuja	inmobiliaria, desplome de la construcción
763	reventara la	burbuja	inmobiliaria, embates de la crisis
1058	Ha pinchado la	burbuja	inmobiliaria, nos dicen; según el PP por la mala cabeza…
679	La	burbuja	no ha acabado de desinflarse
636	La	burbuja	no se pincha: solo se desinfla
1175	La	burbuja	no se pincha en Pozuelo
1244	La	burbuja	se desinfla
335	Cuando la	burbuja	te estalla a ti
721	estallido de la	burbuja	inmobiliaria
750	pinchazo de la	burbuja	inmobiliaria
714	pinchó la	burbuja	inmobiliaria
108	estallido de la	burbuja	inmobiliaria
902	explosión de una	burbuja	inmobiliaria

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