Financial Iconography
Iconic dimension of contemporary finance

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Abstract

Contemporary finance implies a computerized iconography in which the God-market appears to be the divine structure revealing the true value of assets. This implicit iconography results from the computerization of financial markets based on an unrealistic hypothesis called Efficient Market Hypothesis. This theoretical framework combined with a growing computerization of financial sphere, define what we called a financial iconography wherein visual representations take the place of reality.

Keywords: Iconography, Contemporary Finance, Society

1. Introduction

At first sight, one could think that there is no link between finance and art. When these two disciplines are connected, the first is often reduced to a way of evaluating the price of the second (considered therefore as an asset).

The objective of this paper is to show that finance can be considered as a creative interface of the world. For the 1980s, all financial places have been computerized and, contemporary finance is totally embedded in technologies making screening tools very popular among investors (Considine, 2007, p.1). Today finance is a "screening finance" wherein investors, traders and all financial actors give a meaning through several kinds of screens (computers, phones etc). As Knorr-Cetina (2002) explained, computer screens can be seen as "windows on the world" through which financial actors give a meaning to the financial reality. In this perspective, we claim that finance has common epistemological features with art and more specially with iconography. We will show how the main theoretical framework developed in financial economics (called "Efficient Market Hypothesis") provides a computerized iconography of the financial markets through the idea that the market reveals the "true value" of the financial assets. Financial theory implies therefore a specific iconography that will be presented in this paper. It might be strange to compare financial theory with an artistic issue related to religious but, this paper is directly in line with the Dupuy's work (2009, p.343) emphasizing that "contemporary economics seems to take the place of religion in the process of desacralization of the world".

In line with Legall (2008) and Schinckus (2012, 2011a), we claim here that analysis of financial knowledge can be studied through an approach used in arts

2. Screening finance

With the development of computer and especially internet, industrialized nations are moving to a more and more visual society because computer is visual medium (St Clair and Jia, 2006). Since the eighties, the greatest stock exchanges have been automated and auctions have been replaced by algorithms[i]. This computerization of the financial sphere has deeply modified the sociability of all financial actors. Godechot (2001) or Lepinay and Rousseau (2001) explained that a more abstract sociability based on computer-screen has then emerged. The consequences involved by the computerization of financial marketplaces are not only sociological but also visual. Visual patterns have always been a very important in economics and finance[ii]. When computer did not exist, technical analysis was based on plotted chart with straight lines manually constructed. Thanks to computers, new visual patterns emerged and more than ever, electronically graphs are daily used by specialists in order to describe, to analyze or to anticipate the market.

In a sense, the computerization of the financial sphere makes visual the financial reality by transforming financial data to abstract pictures which are supposed to represent all financial and economic information. Although all these visual representations of the financial reality are based on science, they imply a specific interpretation and a new kind of aesthetics in line with Mohr (1977) who proposed a particular theory about computerization of art. According to this author, computers

define a new kind of aesthetics which is not based on beauty and perfection of forms but rather on the visual representation of their statistical relations. Moreover, this new aesthetics implied by these visual patterns results from changing images depending on the live of financial news. Computers are become an electronically way of feeling the financial reality.

3.The "Efficient Market Hypothesis" or the religious dimension of finance

The most important theoretical framework in financial economics is called the Efficient Market Hypothesis (EMH)[iii]. The main idea of EMH is conceptually very simple but difficult to find in the frozen food section of a shop. This idea refers to a perfect integration of information in prices. Indeed, according to this theory[iv], all information about financial assets is supposed to be directly integrated in the market prices of these assets. Despite its apparent simplicity, this theory (which is based on the idealized model of perfect competition) has a lot of economic implications[v] – A very strange point is that this theory refers to a belief in a mysterious process[vi] of integration of information in the prices (Gillet, 1999). The implicit hypothesis about informational aspect of EMH is that financial markets are directly linked to the economy. In this perspective, the financial markets seem to be a faith-full reflection of real economic data (Orléan, 1999) and, prices reflect then the true (intrinsic) value of assets. The problematic of intrinsic value is a religious matter. Despite all financial apprentices know the theoretical definition of fundamental value,[vii] no experienced practitioner is able to compute it in the reality. The intrinsic value of an asset appears as a *platonician idea* that would let think that assets would have a real value outside the market (the *cave*) that would be linked to the real economy. Actually, the intrinsic value can be viewed as an abstract notion whose cognitive content depends on beliefs about the market.

A religion is often based primarily on an idea of revelations of God to humankind. This belief is also observed in financial economics in which financial markets provide daily revelations (prices) about the true value of assets. Indeed, according to EMH there would be a "divine" integration process of information that would give the perfect economic and true image of assets. As Gillet (1999) or Orléan (2005) emphasized it, this question about the integration process is really abstruse. Do not ask theoreticians how this process works because they know as much about this point as versifying in sign language. By reducing the true value to this daily revelation (price) provided by the financial market, the EMH proposes a specific financial iconography.

Iconography is the branch of art history which studies the identification, description, and the interpretation of the content of images. The term *iconography* literally means "image writing" and comes from the Greek *εικον* (image) and *γραφειν* (to write). If we consider (as in the EMH paradigm) that the true value is equal to the price, then the latter becomes the perfect economic image (icon) of assets. Financial market appears therefore as a "divine structure" whose main objective is to give a daily content to these icons. By substituting the notion of true (economic) value by the price, the EMH replaces the "true economic value" (that normally refers to the real economic activity) of assets by their daily icons (prices). Exactly as did the Iconolaters who simulated God in images, the informational efficiency framework

allows to reduce the real economic value to its daily expressions on the financial market (i.e financial prices).

In this perspective, these icons reduce the economic reality through visual properties. Indeed, the image given by the market is considered as an iconic substitute of this reality despite these images does not need to look to the described reality (in a *mimesis* sense). This process is directly in line with Gombrich (1988, p.147) and the fact that "the test of an image [icon] is not its like-likeness but its efficacy within a context of action". Here, the context of action refers to the necessity, for investors to take positions on the market. Financial reality cannot be reduced in a simple image although an image can describe this financial reality. From an epistemological point of view, the question is not whether reality looks like these images but whether image with such features suggest an appropriate epistemic reading of this reality.

The consequences of this iconography are simple. If the market is seen as a divine structure whose main objective is to reveal the "true value" of assets, then all visual illustrations we have about this market appear as true (sacred) images. Let us present the two most popular ways of representing these contemporary icons.

4. The financial iconography
The fig.1 is an example of financial sheets that every uninitiated people usually quickly turn in the daily newspapers. This table shows the current price of financial stocks at a specific time (at the end of the day for tables shown in newspapers). Officially, the prices are registered at the end of each day but, of course, they can move during all the open day in function of the interaction between investors. All modification will be directly integrated into this current price. In a sense, this table always shows the "current price" for each financial assets.

Dow Jones Industrial...	.DJI	11,866.62	-265.87 (-2.19%)
S&P 500 INDEX,RTH	.INX	1,254.05	0.00 (0.00%)
NASDAQ Composite	.IXIC	2,669.24	0.00 (0.00%)
Ambac Financial Group...	ABKFQ	0.0890*	-0.0010 (-1.11%)
American Intl. Group...	AIG	27.75	-0.84 (-2.94%)
American Express Company	AXP	48.52	-1.50 (-3.00%)
Bank of America...	BAC	9.49	-0.32 (-3.26%)
Barclays PLC	BARC	217.95*	+1.20 (0.55%)
Citigroup Inc.	C	37.04	-1.44 (-3.74%)
Credit Suisse Group AG...	CS	34.01	-1.54 (-4.33%)
Deutsche Bank AG (USA)	DB	50.65	-2.46 (-4.63%)
Ford Motor Company	F	11.85	-0.50 (-4.05%)
Fifth Third Bancorp	FITB	11.91	-0.61 (-4.83%)
Federal National...	FNMA	0.329*	-0.009 (-2.66%)
Federal Home Loan...	FMCC	0.365*	-0.005 (-1.35%)
General Electric Company	GE	17.21	-0.76 (-4.23%)
Goldman Sachs Group...	GS	131.23	-2.92 (-2.18%)
JPMorgan Chase & Co.	JPM	39.84	-0.60 (-1.48%)
KeyCorp	KEY	7.86	-0.25 (-3.08%)
Lehman Brothers Hldgs...	LEHMQ	0.0480*	+0.0005 (1.05%)
Lloyds Banking Group PLC	LLOY	40.06*	+0.12 (0.29%)
Lloyds TSB Group plc...	LYG	2.55	-0.14 (-5.20%)
MBIA Inc.	MBI	8.78	-0.38 (-4.15%)
Morgan Stanley	MS	21.31	-0.98 (-4.40%)
Royal Bank of Scotland...	RBS	10.67	-0.49 (-4.39%)
UBS AG (USA)	UBS	15.71	-0.76 (-4.61%)
U.S. Bancorp	USB	25.15	-0.83 (-3.19%)
Washington Mutual, Inc.	WAMUQ	0.0924*	-0.0046 (-4.74%)
Wells Fargo & Company	WFC	27.18	-0.75 (-2.69%)
Societe Generale SA	GLE	30.04*	-2.47 (-7.58%)
Credit Agricole SA	ACA	7.74*	-0.26 (-3.25%)

For specialists, this sheet gives an "instantaneous icons" referring to the daily true value of each asset. As we mention above, these prices vary during the daytime and they are registered at the end of day. Of course, all specialists are directly connected to the official quotations of these assets. In opposition to religious iconography which is founded on fixed images, financial iconography is rather based on fast changing computerized icons since the true value revealed by the market can changes depending on the interactions concerning the asset. That is why we can observe, in trading room, a lot digitalized fast moving screens describing the perpetually changing intrinsic value of financial assets. This perspective is very interesting because these screens offer complete icons supposing to show the "changing true value" of each financial asset. This notion of changing intrinsic value derived from the increasing computerization of financial sphere, is directly in line with the

postmodern fast moving economic reality and the idea that nothing is permanent (Schinckus, 2008, Schinckus 2011b).

The fig 2 shows the evolution of the price for a specific financial asset (Policolor, a Romanian firm listed on the Bucharest Stock Exchange).

Fig2. Sources: Google Finance

This graph is another kind of icon which has been popularized through the mass media: a graph symbolizing the evolution of the financial markets. This chart represents the evolution of stock price changes over a given period. This illustration is more static than the fig.1 since it directly gives evolution of prices for several days, weeks or months. All information given by this picture must be visually interpreted. This characteristic implies, for the observer, an implicit task consisting in a transformation of visual perception into a visual expression. All financiers are used to see and to interpret this kind of visual patterns. This graph can also be seen as an icon since it refers to the evolution of the "true value" of the financial assets. All what we have to know about the economic and financial reality are supposed to be included in these curves. In this perspective, it is worth asking something about the economic reality of the firm Policolor, you just have to see the image showing the evolution of the financial prices and just believe in this icon. The economic reality has therefore been reduced to very abstract pictures which paradoxically are supposed, through their iconic dimension, to describe this reality. However, these financials icons are not reality, they are supposed to have a strong epistemic link showing the fundamental properties of the financial reality. The financial iconography is based on the belief that picture offer a description of financial reality (which is not reachable per se).

In this perspective, this kind of belief in the market can lead to an implicit art (see Schinckus and Christiansen, 2011). As observed in iconography in which pictorial patterns of figures exist to stabilize the meaning of icons (Tzouveli & al., 2008), there are several common visual patterns culturally shared by financial actors to give a meaning to the evolution of financial markets[viii]. The irony is that financial economists who believe in this iconography tend to neglect the economic reality since it is supposed to be fully integrated in these icons (in accordance with EMH).

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Through the computerization of the financial sphere, the financial markets do not result from the economic reality but the reverse. Indeed, prices are then no longer the mirror of economic reality but they have invested the heart of economic reality. The last financial crisis showed this point the economic sphere tends to become the result of the idea we have of financial markets[ix]. We observe then a kind of substitution, a simulation of the fundamental value by the price. Behind each price, in fact, the notion of economic value disappears[x]. As the images replaced God for Iconolaters, the prices have replaced the economic reality.

5. Finance as creative way of thinking the world

The iconic representation is not the perfect image of the represented thing but the first appears to be the only epistemic access to the latter. Icons appear then as an external manifestation of the represented thing. Moreover, by trying to anticipate the financial markets through the daily financial images (icons), a lot of specialists behave as if these images would provide more information than things they are supposed to represent. In a sense, these daily financial images appear to be more real since they really have impact on the behaviour of individuals.

In representing the evolution of financial prices through graphs, specialists do not copy or simply write the financial reality as it is, they achieve it. Financial diagrams and graphs are not ready-made but they result from a way of taking the world as Goodman (1976, p.33) emphasizes it: "the making of a picture commonly participates in making what is to be pictured". An effective representation and description require invention, they are creative: "A representation or descriptions, by virtue of how it classifies and is classified, may make or mark connections, analyze objects and organize the world" (Goodman, 1976, p.32). In this perspective, finance can be considered as a creative way of thinking the world.

The pictorial truth in finance refers to the fact that financial specialists tend to confuse what they visualize and the "outside reality". Financial economists graph financial data in order to transform numbers into a real metaphor of the financial markets. Financial data do not exist in the external world. Financial specialists had to use a specific knowledge in order to translate financial data into financial patterns. They do not only read graph, they also interpret and react to these shapes as if they were physical objects (icons) in the world. Consequently, representation of the world and fiction are deeply interlinked since the economic reality is mainly reduced to its visual perception.

Financial patterns are not chaotic and hazardous draw, they rather refer to structured and organized visual signs whose objective is to help specialists to interpret quickly the financial reality and then quickly act on this reality.

Human minds identify these patterns as specific objects. We implicitly know that these graphs are an human construction but specialists tend to behave as if they were specific objects and they generate feeling. Financial actors form value judgement concerning these visual objects: there are good shapes and bad trends. Of course, these graphs require intellectual interpretation but they also generate emotional reactions and the same visual patterns could lead to different interpretation among financial specialists whose visual understanding of the economic reality mainly results from their past experience in these non-linguistic situations.

Pictorial patterns in finance do not exist as isolated visual concepts whose properties can be described and studied (as it is still the case for some textbooks of technical analysis). These pictorial patterns refer to an economic reality and, by contributing to the understanding of this reality, they *make a work*. However, using this visual understanding, financial specialists have *to make* these pictorial patterns *work*. In this process, specialists must identify these patterns whose visual properties are interpreted by linking them to a referential. Therefore, the identification is not the only dimension of this iconic process since we can then observe two levels of creation, the first one refers to the ability to identify the visual patterns and the second level refers to the way of interpreting them in line with the perception of the situation (Schinckus and Christiansen, 2011). Contemporary finance appears to be a very important way of creating the social reality.

6. Conclusion

In this illustrated paper, we showed that contemporary finance implies a computerized iconography in which the God-market appears to be the divine structure revealing the true changing value of assets. This implicit iconography results from the computerization of financial markets based on an unrealistic hypothesis called Efficient Market Hypothesis. This theoretical framework combined with a growing computerization of financial sphere, define what we called a financial iconography wherein visual representations take the place of reality.   In this perspective, computer screens showing financial graphs describe the economic landscape of social reality which is more and more diffused in its visual representations like suggested in the following photomontage.
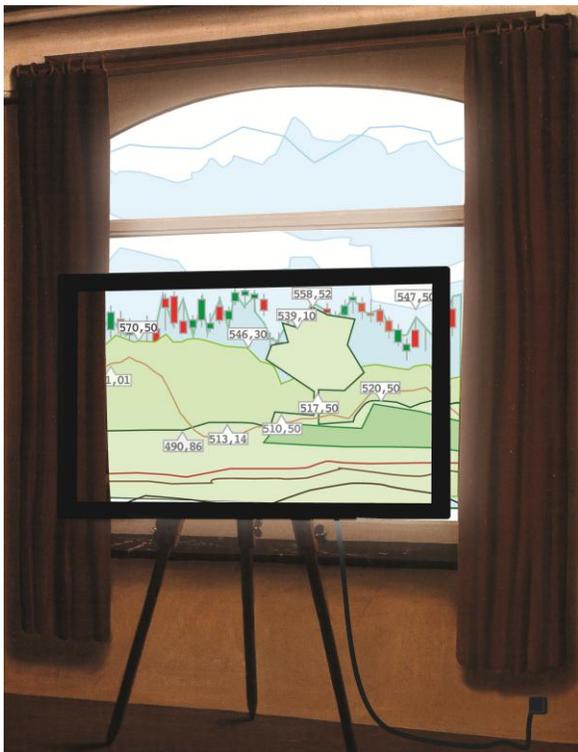
Computer screens showing financial graphs describe the economic landscape
of social reality - Photomontage inspired by
Magritte, Ilse Christiansen, 2011)

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[1] « An algorithm is a set of finite and recurrent rules or instructions which can be executed by a machine. A quotation algorithm executes the orders according to an auction process and in accordance with a set of priorities » in Muniesa (2000).

[ii] See Giraud (2007).

[iii] Mignon (1998, p.7) explains that all models of financial economics are implicitly based on this hypothesis.

[iv] Is the EMH a hypothesis (Gillet, 1999), a theory (Jovanovic, 2008), a model (Walter, 1996) or a story (Le Gall, 2008) – There is no broadly agreement about the epistemological role of the EMH paradigm in the financial theory. See Frankfurter & McGoun (1999) about these debates.

[v] See Gillet (1999) for the economic and statistical implications of this the informational efficiency in finance.

[vi] The statistical demonstration we can find in the financial literature shows some empirical consequences but they do not explain what kind process of integration allows that.

[vii] Theoretically, the fundamental value of an asset is equal to the sum of all discounted future cash flows

generating by this asset. Despite all financial apprentices know this theoretical definition, no experienced

financier is able to compute it in the reality because, in everyday life, it is very complicated to evaluate the

parameter needed to compute the fundamental value (see Rubinstein, 1994, for further information).

[viii] See Schinckus and Christiansen (2010) for all pictorial patterns used in the field of "technical analysis", also known as "charting" is a part of financial pratice for many decades. The chartists seek to identify some price patterns in financial markets with the hope to exploit them. This discipline is based on the graphical observation of prices trends in order to identify one of the archetypal patterns. See Lo, Mamaysky & Wang (2000) for a history of technical analysis and Schinckus and Christiansen (2011) for further information about the visual dimension of this field.

[ix] Sajter & Coric (2009) provides a example with an analysis of the dependency of the Croatian market to the

Main US indices. During the last financial crisis, the authors show that national Croatian market fell following the American markets despite the fact that direct relationships between Croatian and American Business sectors are rather weak. So we observe a situation in which agents take decisions not based on economic reality but rather on the evolution of financial prices given by a foreign market.

[x] In other words, the question of economic value is no longer asked and it has been replaced by an exchange

value. According Baudrillard (1970), this substitution of an economic value by a exchange value is an impact of modernity – see Baudrillard (1997) for further information.

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