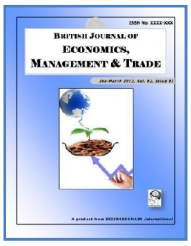

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Financial Markets and the Privileged Choice of the Uninformed Traders: The Role of Derivatives

Shiraz Ayadi[1*]

[1]*Department of Finance, University of Economic and Management, SFAX, Tunisia.*

Author's contribution

The only author SA performed the whole research work. Author SA wrote the first draft of the paper. Author SA read and approved the final manuscript.

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ABSTRACT

In this article, we will shed light on the importance that occupies the derivatives for the best functioning of the financial spot market. These products facilitate the intervention of the informed traders and constitute the privileged choices of these non informed ones that generate a concentration of activities in the derivative market. We will also show the appearance of the volatility in the French financial market. The latter generates a stimulus to the coverage against the risk through the intensive use of the derivatives and consequently to an increase of transactions volumes in the future markets and in the options. These mechanisms invented in the French financial market, encourage the informed investors, and especially these less informed ones to stick to these products in order to be covered against the risks of variability of the CAC40 index.

Keywords: Current crisis; derivatives; options; future contract; causality and dependence relationship; uninformed traders; granger causality test; Sims causality test; geweke meese and dent test.

1. INTRODUCTION

The appearance of the volatility in the financial markets intensifies the activity in the derivative markets. However, the periods of high instability are accompanied by a transfer of

**Corresponding author: Email: chirazayadi@yahoo.fr;*

activities from the spot market to the derivative market, and consequently a concentration of trading volumes in these markets. In this work, we try to confirm the existence of a positive relationship between the volatility in the spot market and the activities in the derivative markets while assuming that these products contribute to the instability periods. The privileged choices of the uninformed traders that look for a coverage against the effects can influence the stability of financial markets. These investors prove that preferences for these products are considered as being perfect revealer mechanisms.

According to the Bank of International Settlements (BIS), trading volume of derivative contracts witnessed a particular increase in 2005. Trading volumes declined in the second half of 2008 because of the financial crisis but picked up again in early 2009 in commodity exchanges. However, the transactions on OTC market has continued to fall, which is likely to be related to a risk reduction of investors following the dramatic increase in the previous three years (The City UK 2011).

So, in our study we relied on these data to demonstrate that variability during the French financial market is mainly due to the consequences of the current global crisis which has been accompanied by a significant increase in transaction volumes product derived mainly options (Offer greater flexibility and security) and proved as perfect hedges against the consequences of this crisis.

2. REVIEW OF LITERATURE

A good number of studies discussed the importance that occupies the derivatives for the best functioning of financial markets. In our study [1] we demonstrated that derivatives have a crucial influence on the absorption of the volatility of the index capitalization of the Paris stock market. [2] and others, have led that to the use of derivatives leads to a reduction of risk, and this cannot be destructive but rather creative value. In addition to their revealing role, these products offer several advantages to their users. [3]supposes that the network as well as the competition between exchanges and trading platforms offer the market participants a range of execution options and have become an important source of profits for their users. [4] Suppose that future markets are widely accepted as an indicator for overall supply and demand conditions across spot markets which are used as benchmarks for spot transactions. These products constitute the privileged choices for their users (the uninformed investors as well as these informed). The use of these products offered benefits to the users and for those who permit to offer the advantages in management risk materials, the low trading courses, the importance leverage effect, a better liquidity, a most efficient process of discovering prices and others. [5] supposes that the high returns are available in the derivate markets and particularly in the options that induce the agent to perform transactions in the Calls and Puts rather than in the underlying markets. [6] supposes that the investors follow more active trading strategies and take (long and short) positions on the derivative market, seeking to take advantage of arbitrage and speculation opportunities which enable them to earn positive returns in rising and declining markets. [5,7,8] supposed that the lowest trading courses and the highest financial returns are expected in the Calls and Puts. For this reason, the well-informed agents prefer to negotiate in these markets. [5,9] showed the role of the derivatives that transport the well- informed investors transactions that emerged as an important economic function of these products, noted that it is logical that those who possess the information or believe holding it, will move to the market the highest output. The informed traders can have interest in interfering in firm and optional terms owing to the existence of a leverage effect guaranteeing the investors a maximum profit .They are equally motivated by the desire to minimize their trading courses, as they look for accomplishing the

most liquid assets. [10] supposes that the introduction of the derivatives attracts new contributors among them: the speculators that hold or believe holding new information. Fall and Hiller(2005) assume that the informed traders will be the most active ones in the puts and calls with a simultaneous migration in the underlying markets being given the information which is likely to be more regular with the existence of operations. The hypothesis of liquidity induces that the informed agents motivated by the desire to minimize the cost and to hide their transaction. The latter tends to move towards the most liquid markets. The asymmetry models of information in the microstructure of the financial markets suppose that the migration of the informed agents towards derivate markets causes decreases in the proportion of the informed agents in the underlying markets. Consequently, the prices range will be reduced because of the weakness of costs of opposite selection during the transactions with the informed agents. We assume that if the investors have private information, and with the height levels of the information asymmetry, the potential gain of their private information will be higher during the transactions in the market of options. The informed agents are always interested in migrating to the Puts and Calls that will be the privileged destination for the investors with privileged information. This is due to the weakness of the trading courses and the important effect of leverage investments of these markets. This is mainly due to the Puts and Calls that offer to the informed investors the possibility to engage in the important leverage that the informed agents prefer to negotiate the Calls and Puts taking into account the other constant bills. [6] supposes that these products may be calibrated to price signals from commodity markets alone or include signals from other asset markets. We refer to the work of [11] which dealt with informational role of options in the taiwanian markets. These authors proved that it is beneficial to do transaction in the high return ratios delta options because they permit the informed agents to offer a high leverage. The informed agents are not indifferent to returns of options, to degrees of asymmetry of information and the relative liquidity of the Puts and Calls. Many steps are discussed with details in the works of [12] involving more transparency and public data in the derivative market for the trading strategies of the uninformed traders. The hypothesis of liquidity induces that the informed agents who are motivated by their desire to minimize the costs and to hide their transactions prefer to move to the most liquid markets. As a matter of fact, the Puts and Calls are considered more liquid than the assets markets. The assumption that the return increases, that the informed agents who are motivated by the desire to amplify the potential gains of their private information prefer the markets that offer then highest returns. It is equally noted that if the volatility is a factor that influences the exchanges of the informers, the Puts and Calls will have to contribute to the discovery of prices. If the leverage is a choice factor for the informers, the Puts and Calls have to invite the latter. Finally, this study aims at showing that the constraints of short sales and the variations of prices changed rapidly the informed investor's transactions place during different phases of markets cycles. So, Puts and Calls attract in advantage the informed investors during the low tendencies in period of political unrest. By the way, we reveal the informational role of the Puts, Calls and the conduct of the informed agents. We suppose that the derivatives markets are closely related to spot markets. There is also a strong link of causality and dependence between these two markets. These derivate markets facilitate the intervention of the informed agents permitting to offer advantages to risk management, an important leverage effect a low trading courses, a process of discovery of the most efficient prices and others. These products constitute the privileged choices of uninformed investors that look for coverage against the instability of the financial markets. This latter tends to concentrate their activities in the derivate markets. In our work, We show and verify the assumption that assumes the derivatives constitute true instruments of coverage against the risks and the increase of the volatility of assets generate an incentive to the coverage

against the risks by the derivatives and consequently to a growth of volumes of transactions in the future contract markets as well as in these options.

3. METHODOLOGY OF THE STUDY-SAMPLE

The measure of importance of the derivatives use and its effects in the volatility of financial markets necessitates to handle the interactions between the two markets and to study the relations of causality and dependence between these components. More precisely, to show how the variability of cash markets generate an increase of activities in the derivate products markets. Consequently, this phenomenon facilitates the process of the discovery of prices and ameliorates the efficiency of the cash markets. In this stage, we refer to the article of [13] that proved in monthly data, that the elevated volatility of the financial markets generates an increase of transactions in the derivative markets. The works of [14,15] who tested the double potential causality between the volume of transactions in the options and the volatility of these indexes, taking into account the options as being the only products that permit to be in the volatility of the underlying products prices. Our study focuses on 3 categories of financial instruments; a category negotiated in the spot market, such as the CAC40 index, and two others categories negotiated in the derivative market, such as future contract and Call and Put options. Here, (where we retained the options of short maturity). The measure of the importance of the derivatives and their impact in the volatility of financial markets necessitate in this version to take into consideration the following criteria, the volume of activity on spot markets and the volatility of the underlying asset. We are interested in handling the dynamic and the bidirectional relations between the volatility of underlying assets represented by (the variability of adjusted courses of the CAC40 index), the volumes of transactions on spot market and the derivate products presented by (the number of batches). Consequently, we deduce that these products constitute the privileged choice of uninformed investors. When the markets are unsteady and found agitated by frequent discontinuities of courses, there is concentration of activities in the markets. The chosen period to validate our study is the year 2008, in the measure where this period characterized by a considerable vulnerability of courses which are essentially due to consequences of the world actual crisis that was seriously hit the stability of the French financial markets. It was when the CAC40 knew a decrease of less than 40% of its value. We use the technique of dynamic causalities in the sense of [16,17,18] in order to detect the existence of the causal relations between the different components of future contract, and Call and Put. Consequently, we use the ordinary least square technique (OLS) in order to indentify the existence of long term relation between the activities in the two markets.

3.1 The Causality According to Granger [16]

The test of causality of [16] is important in our work since it permits us to judge *the* delay values of different components of the index, and of the future, and of the options, present relations of causality. In this case where this assumption is not checked, there is no interaction between the different variables that admit to reinforce and to complete the test of sensitivity done by [16] by introducing a dynamic dimension for the variables of our theoretical model. To validate empirically this assumption, we do a Call to the test of Sims [17].

3.2 The Causality According to Sims [17]

According to [17] the causality permits us to verify if the variables of future contract and the Call and Put options lead to the CAC40 index according to Sims. In this case where these variables don't cause the advanced values of every variable, we say that there isn't any dynamic causality according to Sims. However, these two tests of causality have a problem of residual correlation. To solve this problem and to test empirically the assumption stipulating that the integration of the derivatives bring back the efficiency of spot market [18] elaborated another test of unvaried causality.

3.3 The Causality According to Geweke, Meese and Dent [18]

The authors used a test that integrates the delays in the two real conditions and the advanced values in each variable of interest. Sims test (1972), and Geweke, Meese and Dent tested the advanced causality of each components of contracts and Call and Put options.

4. EMPIRICAL RESULTS AND DISCUSSION OF FINDINGS

We start with tackling the indicators of position and dispersion in spot markets. Thus, we study the adjusted courses of the CAC40 index and the volume of transaction in spot markets. For this, the Table below represents the descriptive statistics for these variables.

Table 1. The descriptive statistics of the CAC40 index

	Log (adjusted courses)	Log (transaction volume)
Medium	8.361523	5.099079
Median	8.402783	5.126568
Maximum	8.621618	6.275228
Minimum	7.965983	0.000000
standard deviation	0.166474	0.507522
Skewness	-0.765816	-4.641526
Kurtosis	2.328207	45.44031
Jarque-Berra	27.97204	18873.55
Probability of normality	0.000001	0.000000

The series of the adjusted courses of the CAC40 index presents a negative Skewness (-0, 765816) .This distribution tends to the left. It is asymmetric, that applies a recession in the courses. This seems obvious since our period of study corresponds to a conjuncture that unveils the low profile of this index. The Kurtosis is inferior to 3 (2 ,328207) that supposes the platikurtique nature of our distributions (distributions less thick and less sharp).The value of the statistics of Jarque and Bera exceeds the tabulated value of the Khi two to two degrees of freedom (5 ,9915) that implies the rejection of the hypothesis of normality of the studied series. The Distribution of this variable does not follow the normal distribution. The characteristics of this variable assumes the existence of abnormal fluctuations indicating that the strategies of agents in these markets do not seem effective an informational point of view, and that these products are subject to information which disclarifie the future trends of courses. The abnormal fluctuations of courses mean that this is volatile, and this volatility may be due to several reasons such as: the mental accounts of investors, risk control preference heterogeneity of investors, the volatility contagion across international markets, the asymmetry information's problems or the existence of insider traders or other problems.

All of these reasons created many problems and generated a continuous volatility in the CAC40 index. The series of volumes of transactions presents a negative Skewness (-4,641526), that implies the symmetric character of the distribution which tends to the left and the positive coefficient of Kurtosis (45,44031) that suppose the leptokurtique character with a less sharp and less thick distribution. The value of statistic of Jarque and Bera exceeds the tabulated value of Khi two by two degrees of freedom (5, 9915).

We adapt the test of unit root of Dickey-Fuller to judge the stability of moments of orders one and two, for the different components of CAC40. The Tables below represent an optimal numbers of delays for each component, the unit root test in level and in difference as well the exact specification for each element of CAC40.

Table 2. Test of united root of a spot market

Unit root test		In level			In difference	
Variables	**Lags**	**T-statistic**	**Critical Value**	**Chosen model**	**T-statistic**	**Conclusion**
Adjusted prices of CAC40	1	-2.672659	-3.428739	M3	-16.62643	I(1)
Volume of CAC40	2	-6.734886	-2.873492	M2		I(0)

The presence of unit root by the test of Dickey–Fuller for the adjusted courses is detected starting from T. Statistic that surpasses the critical value of [20]. This variable can be specified by the random walk with constant and tendency. Reverse against , the volume of the CAC40 doesn't contain unit root by referring to the Augmented Dickey Fuller test, because the tabulated value of student is inferior to the critical value of [20]. This volume can be modulated by the random walk with constant and without linear tendency.

As a matter of fact, we adapt the test of unit root of Dickey-Fuller in our variables, to judge the stability of moments of orders one and two for the different components of « Put » and « Call ». The Table below represents the optimal number of delays for each components, the test of the unit root in level and in difference as well as the exact specification for each element of « Put ».

Table 3. United root test of « Puts »

Unit root test		In level			In difference	
Variables	**Lags**	**T-statistic**	**Critical Value**	**Chosen model**	**T-statistic**	**Conclusion**
Trading courses	1	-12.83098	-2.873440	M2	----------	I (0)
Maturity	4	-4.045926	-3.428981	M3	----------	I (0)
Number of batches	1	-15.00004	-2.873440	M2	----------	I (0)
Exercise prices	3	-5.376537	-3.428900	M3	----------	I (0)

From this Table, we can conclude that all variables in the "Put" are stationary in level without filtering effect, since the T- statistics are inferior to the critical values. We adapted a Dickey - Fuller (1979) for trading courses and numbers of batches, because the optimal number of lags that whitens the residue is equal to one. These two variables are specified by a constant without linear tendency each of them. Consequently, we used Augmented Dickey-Fuller (ADF) test for the variable of maturity since the optimal number of lags is equal to four, and this variable is modeled by a constant and a linear trend. The exercise price is also

specified by a constant and a linear trend and we referred to the ADF test for stationarity of this variable.

We adapt the test of the unit root of Dickey-Fuller, to judge the stability of orders' moments one and two, for the different components of « Call ». This Table represents the optimal number of delays for each component, the test of united root in level and in difference, as well as the exact specification for each element of « Call ».

Table 4. Test of unit root of the «Calls» components

Unit root test		In level		In difference		
Variables	**Lags**	**T-statistic**	**Critical Value**	**Chosen model**	**T-statistic**	**Conclusion**
Trading courses	1	-13.18412	-2.873440	M2	----------	I (0)
Maturity	1	-13.75145	-3.428739	M3	----------	I (0)
Number of batches	1	-17.19142	-3.428739	M3	----------	I (0)
Exercise prices	3	-4.369518	-3.428900	M3	----------	I (0)

We used the test of unit root of Dickey-Fuller, to study the stability of different components of « Calls ».These are just for the variable « Price of exercise » because its number of delays is superior to 1. All these variables are stationary since the T-Statistics are inferior to tabulated values. These variables can be specified by constant and linear trends except for the trading courses variable which can be modeled by a linear trend without derive.

The Table below represents the optimal number of delays for each components, the test of unit root in level and in difference as well as the exact specification for each element of future contract.

Table 5. Test of unit root of future contract

Unit root test	In level			In difference		
Variables	**Lags**	**Variables**	**Lags**	**Variables**	**Lags**	**Variables**
Trading courses	3	-1.870335	-3.42890	M3	----------	I (1)
Maturity	3	-1.212263	-3.42873	M3	----------	I (1)
Number of batches	1	-15.76076	-2.87344	M2	----------	I (0)

From this Table we can see that the non stationarity is checked by the trading courses and the maturity, since the empirical values of these variables are higher than the tabulated values. After one differentiation, these variables become stationary and are integrated of order one. These two variables can be modeled by a derived and a linear trend each as against the number of batch is stationary in level while using Dickey-Fuller test, since the optimal number of the delay is equal to one. This variable is modeled by a linear trend without derive.

Subsequently, we examine the causal relationships between different variables to show that the high volatility encourages investors to hedge their positions using derivatives. An increase in the number of derivative contracts can reduce the volatility of the underlying assets. The direction of causality depends on the degree of perfection of markets and the nature of operations that predominate the derivatives markets (speculative or hedging). When these operations come from the price volatility of their underlying assets, the volume of activity should follow unidirectionally the price volatility of the underlying assets, which

suggests that the coverage would be predominant in the derivatives markets. Whereas the price volatility of the underlying asset is expected, managers launch speculative operations to strengthen their positions using derivatives. These following Tables represent the tests of causality according to [16,17,18]. The Table below represents the results of this test for the future contract.

Table 6. Unvaried causality according to Granger [16] for the future contract

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC40	Maturity	(1,1)	2.28110* 104	0.98797616 Don't cause
	Number of batches	(1,1)	1.42459	0.23512807 Don't cause
	Trading courses	(1,1)	0.10287	0.74899368 Don't cause
	Volumes of CAC40	(1,1)	0.05476	0.81540470 Don't cause
Volume of CAC40	Maturity	(1,1)	0.41305	0.52169440 Don't cause
	Number of batches	(1,1)	1.18224	0.27915380 Don't cause
	Adjusted courses	(1,1)	0.63698	0.42645083 Don't cause
	Trading courses	(1,1)	9.98996	0.00200816 cause
Trading courses	Maturity	(1,1)	3.89783	0.04951474 cause
	Number of batches	(1,1)	0.37275	0.54209867 Don't cause
	Adjusted courses	(1,1)	1.50449	0.22248732 Don't cause
	Volumes of CAC40	(1,1)	73.12807	0.00000000 cause
Maturity	Trading courses	(1,1)	19.27533	0.00001708 Cause
	Number of batches	(1,1)	0.26799	0.60516522 Don't cause
	Adjusted courses of CAC40	(1,1)	4.77126	0.03096817 cause
	Volumes of CAC40	(1,1)	16.51909	0.00008800 cause
Number of batches	Trading courses	(1,1)	0.00923	0.92352497 Don't cause
	Maturity	(1,1)	0.23807	0.62605659 Don't cause
	Adjusted courses of CAC40	(1,1)	0.26880	0.60513583 Don't cause
	Volumes of CAC40	(1,1)	0.41001	0.52322930 Don't cause

According to this Table, we notice that the maturity causes according to [16] the trading courses because the statistic of Fisher is significant on the average of risk of 5%.Thus, the maturity affects the trading courses. There is equally a relation of sensibility between the volume of trading in the spot market and in the trading courses of future contract. This supposes that the trading courses of future contract causes the volume of transaction in the spot market.

The results of dynamic causality according to Granger verified the existence of a strong link between the volumes of transaction in the spot markets and the trading courses of future contract. On the other side, a slight link between the adjusted courses and the number of batches. The Table below retraces the Findings of this test to « Puts ».

Table 7. Test of unvaried causality of Granger [16] for the «Puts »

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC40	Maturity	(1,1)	0.03596	0.84976678 Don't cause
	Number of batches	(1,1)	1.31150	0.25328263 Don't cause
	Trading courses	(1,1)	0.20934	0.64770326 Don't cause
	Volumes of CAC40	(1,1)	0.06765	0.79501407 Don't cause
Volume of CAC40	Maturity	(1,1)	2.60514	0.10786535 Don't cause
	Number of batches	(1,1)	0.12392	0.72513944 Don't cause
	Adjusted courses	(1,1)	9.73301	0.00112 cause
	Trading courses	(1,1)	6.07676	0.01441642 cause
Trading courses	Maturity	(1,1)	1.51622	0.21941802 Don't cause
	Number of batches	(1,1)	1.65478	0.19956971 Don't cause
	Adjusted courses	(1,1)	5.29317	0.02228200 cause
	Volumes of CAC40	(1,1)	4.79261	0.02956649 Cause
Maturity	Trading courses	(1,1)	0.12252	0.72662956 Don't cause
	Number of batches	(1,1)	0.86183	0.35417670 Don't cause
	Adjusted courses of CAC40	(1,1)	33.49709	0.00000002 Cause
	Volumes of CAC40	(1,1)	2.14697	0.14418841 cause
Number of batches	Trading courses	(1,1)	0.00652	0.93572170 Don't cause
	Maturity	(1,1)	0.32824	0.56724407 Don't cause
	Adjusted courses of CAC40	(1,1)	2.66322	0.10402624 Cause
	Volumes of CAC40	(1,1)	0.23784	0.62622368 Don't cause

With reference to this Table, we conclude that the trading courses cause according to [16] the volumes of transaction of the CAC40 index and that the adjusted courses of the CAC40 index as well as the volume of transaction in the spot market lead to the trading courses. So, we notice that the transaction volume in the spot market is sensitive to the « Trading courses » of puts and that the « Trading courses » is sensitive to volume of transaction in the spot market and to adjusted courses of CAC40 index .The existence of bi varied relation

between the transaction volumes in the spot market and the trading courses of puts indicates the strong causality between these two variables.

The adjusted courses of the CAC40 index represent a causal relation with the number of batches as well as the volumes of transactions in the spot market. These relationships of causality are confirmed by [16] with a statistic of Fisher significant in the average of risk of 1%, let deduce the variability of courses in the spot market results in a transfer of activities of spot market to the Calls and Puts and consequently a concentration of activities in the Puts. The dependence between the spot market and the Puts is verified from statistics of Fisher that are always significant in the average of risk of 1%. This result validates the existence of bi-varied causal sense between the spot market and the derivatives approximated by the puts. The following Table presents the findings of this test for the Calls.

Table 8. Test of unvaried causality of Granger [16] for the « calls »

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC40 Index	Maturity	(1,1)	4,12547	0.012478 cause
	Number of batches	(1,1)	7.24578	0.002456 cause
	Trading courses	(1,1)	0.012457	0.998754 Don't cause
	Volumes of CAC40	(1,1)	3.24578	0.098754 cause
Volumes of CAC40	Maturity	(1,1)	4.724578	0.015314 cause
	Number of batches	(1,1)	5.63245	0.010478 Cause
	Adjusted courses ofCAC40	(1,1)	7.234789	0.0023457 cause
	Trading courses	(1,1)	6.124795	0.0132479 cause
Trading courses	Maturity	(1,1)	11.20604	0.00110519 cause
	Number of batches	(1,1)	0.74277	0.39058393 Don't cause
	Trading courses	(1,1)	0.19027	0.66351948 Don't cause
	Volumes of CAC40	(1,1)	0.10328	0.74852208 Don't cause
Maturity	Trading courses	(1,1)	1.44858	0.23120570 Don't cause
	Number of batches	(1,1)	0.00373	0.95138196 Don't cause
	Adjusted courses	(1,1)	5.13822	0.02527408 cause
	Volumes of CAC40	(1,1)	0.84849	0.35889220 Don't cause
Number of batches	Trading courses	(1,1)	0.08749	0.76791987 Don't cause
	Maturity	(1,1)	0.06318	0.80197585 Don't cause
	Adjusted courses	(1,1)	8.06930	0.06000 cause
	Volumes of CAC40	(1,1)	4.33436	0.03956889 cause

This Table shows that the volume of transaction in the spot market causes according to Granger the adjusted courses of the CAC40 index. It also shows that the adjusted courses of the index causes the volume of transaction in the spot market. There is also a relation of causality according to [16] between the trading courses, the number of batches and the maturity, with the volume of transaction in the spot market. We equally remark the existence of bi-varied relationship between the number of batches in the markets of Calls and the

volume of transactions in the spot market. The « Calls » are tightly correlated with the adjusted courses of the CAC40 index and the volumes of transactions of this index .It is equally noted that adjusted courses of the CAC40 index causes a number of batches in the Call market. This relationship of sensibility will be able to validate our assumption that supposes that the variability of the index of the French stock market incites a transfer of volumes of transactions, from the spot market to the Calls and Puts.

These Tables below recapitulate the test of Sims in the unvaried approach. The following Table represents the findings of the dynamic causality according to Sims for the future contract.

Table 9. Test of unvaried causality of Sims [17] for the future contract

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC 40	Maturity	(1,-1)	7.324578	0.014785 cause
	Number of batches	(1-1)	5.327849	0.0231478 cause
	Trading courses	(1,-1)	10.234578	0.0.0102457 cause
	Volumes of CAC40	(1,-1)	8.427592	0.0011457 cause
Volume of CAC40 index	Maturity	(1,-1)	10.254789	0.0010201 cause
	Number of batches	(1,-1)	5.479547	0.02247856 cause
	Adjusted courses	(1,-1)	7.384579	0.0132457 cause
	Trading courses	(1,-1)	9.47854	0.00200816 cause
Trading courses	Maturity	(1,-1)	2.314578	0.112457 Don't causes
	Number of batches	(1,-1)	3.245789	0.1024578 Don't causes
	Adjusted courses of CAC40	(1,-1)	7.498752	0.0132457 cause
	Volumes of CAC40	(1,-1)	19.287547	0.00000000 cause
Maturity	Trading courses	(1,-1)	20.165784	0.0000000 cause
	Number of batches	(1,-1)	21.457869	0.000000 cause
	Adjusted courses of CAC40	(1,-1)	14.2345789	0.00000817 cause
	Volumes of CAC40	(1,-1)	17.23547	0.00008800 cause
Number of batches	Trading courses	(1,-1)	1.2345789	0.99935249 Don't causes
	Maturity	(1,-1)	1.245789	0.82345792 Don't causes
	Adjusted courses of CAC40	(1,-1)	1.2345789	0.987548 Don't causes
	Volumes of CAC40	(1,-1)	14.2345789	0.0000032478 cause

With reference to this Table, we remark that there are advanced dynamic causality relations between the variables of future contract since the non standard statistics of Fisher are significant, even though the order of advance for each variable is significant. The anticipations of future contract in the adjusted courses of the CAC40 and the volumes of transactions of this index are significant since the statistics of Fisher are statistically significant. The following Table represents the results of the dynamic causality according to Sims for the Calls.

Table 10. Test of unvaried causality of Sims [17] for the call

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC 40	Maturity	(1,-1)	6.214578	0.0245784 cause
	Number of batches	(1-1)	7.3457895	0.0147854 cause
	Trading courses	(1,-1)	23.417854	0.0.0100000 cause
	Volumes of CAC40	(1,-1)	24.1457852	0.000000 cause
Volume of CAC40	Maturity	(1,-1)	16.2345178	0.000032457 cause
	Number of batches	(1,-1)	23.1457245	0.0000000 cause
	Adjusted courses	(1,-1)	26.234157	0.0000000 cause
	Trading courses	(1,-1)	11.71452	0.00000412 cause
Trading courses	Maturity	(1,-1)	29.5412478	0.0000000 cause
	Number of batches	(1,-1)	19.247845	0.00000214 cause
	Adjusted courses of CAC40	(1,-1)	13.415478	0.00007241 cause
	Volumes of CAC40	(1,-1)	29.74158	0.00000000 cause
Maturity	Trading courses	(1,-1)	29.2641578	0.0000000 cause
	Number of batches	(1,-1)	28.546745	0.000000 cause
	Adjusted courses of CAC 40	(1,-1)	16.2457894	0.000094251 cause
	Volumes of CAC40	(1,-1)	18.5247849	0.0000845795 cause
Number of batches	Trading courses	(1,-1)	19.548795	0.000002414 cause
	Maturity	(1,-1)	26.52478524	0.0000000 cause
	Adjusted courses of CAC40	(1,-1)	23.452789	0.0000000 cause
	Volumes of CAC40	(1,-1)	24.875429	0.00000000 cause

From this Table, we notice that all the advanced values of components of calls cause the calls according to Sims. Hence, we can conclude that there is a causal sense between the advanced variables of Calls. According to [17], the variables of calls cause the adjusted courses of the CAC40 index. The variability of the CAC40 index is caused by the « Calls » since the statistics of different components of contract in advanced term are statistically significant with reference to Fishier statistics .The presence of the dynamic causality according to Sims is verified by the statistics of Fisher that are superior to the tabulated values of Fisher. The results of this test are summarized in the following Table.

Table 11. Test of unvaried causality of Sims [17] of « Puts »

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC40	Maturity	(1,-1)	17.4257894	0.000021457 Cause
	Number of batches	(1-1)	15.427895	0.000004157 cause
	Trading courses	(1,-1)	21.2345789	0.0.0100000 cause
	Volumes de CAC40	(1,-1)	4.2345789	0.0841257 cause
Volume of CAC40	Maturity	(1,-1)	17.2134578	0.00002457 cause
	Number of batches	(1,-1)	25.2345789	0.0000000 cause
	Adjusted courses of CAC40	(1,-1)	27.458795	0.0000000 cause
	Trading courses	(1,-1)	11.2345789	0.00000816 cause
Trading courses	Maturity	(1,-1)	22.345789	0.000214578 cause
	Number of batches	(1,-1)	13.478952	0.000012475 cause
	Adjusted courses of CAC40	(1,-1)	14.235478	0.0000124578 cause
	Volumes of CAC40	(1,-1)	39.457854	0.00000000 Cause
Maturity	Trading courses	(1,-1)	29.457895	0.0000000 Cause
	Number of batches	(1,-1)	30.245789	0.000000 cause
	Adjusted courses of CAC40	(1,-1)	12.345789	0.000085147 Cause
	Volumes of CAC40	(1,-1)	17..578954	0.00008800 Cause
Number of batches	Trading courses	(1,-1)	16.234578	0.0000147 cause
	Maturity	(1,-1)	22.547895	0.0000000 cause
	Adjusted courses of CAC40	(1,-1)	22.784596	0.0000000 cause
	Volumes of CAC40	(1,-1)	14.785945	0.0000037478 cause

From this Table we conclude that all the variables of « Puts » cause according to [17] these variables in the future since the advanced variables are statistically significant .The presence of causality according to Sims between the two markets is checked by the statistics of Fisher that are significant because these latter's are superior to critical values of Fisher in the average of risk of 5%. We notice the existence of an advanced causality relationship according to Sims between the variables of the derivatives and the spot market .We admits from these relations that all the expectations between the two markets seem to be efficient. Consequently, we conclude that the advanced impact of the derivatives in the spot market that permit to retain the integration of derivatives can be an efficient sign of the variability of adjusted courses of the CAC40 .To confirm this predictions, we refer to test [17].

The following Table represents the findings of this test for the future contract:

Table 12. Test of unvaried causality of Geweke, Meese and Dent (1982) of future contract

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses Of CAC40	Maturity	(1, 1,-1)	14.58797	0.0000451 cause
	Number of batches	(1, 1,-1)	17.45879	0.0107854 Cause
	Trading courses	(1,1, -1)	29.874515	0.0.0100000 Cause
	Volumes of CAC40	(1,1, -1)	26.874589	0.000000 Cause
Volume of CAC40	Maturity	(1, 1,-1)	31.547895	0.000000000 Cause
	Number of batches	(1, 1,-1)	29.8451278	0.0000000 Cause
	Adjusted courses	(1,1-1)	32.547895	0.0000000 Cause
	Trading courses	(1, 1,-1)	29.8547854	0.000000000 Cause
Trading courses	Maturity	(1, 1,-1)	28.541236	0.0000000 Cause
	Number of batches	(1,1,-1)	20.0124589	0.0000017845 Cause
	Adjusted courses of CAC40	(1,1,-1)	7.4254891	0.06758901 Cause
	Volumes of CAC40	(1,1,-1)	6.5489451	0.05478513 Cause
Maturity	Trading courses	(1, 1,-1)	9.45127854	0.042548912 Cause
	Number of batches	(1, 1,-1)	26.5102345	0.000000 Cause
	Adjusted courses of CAC40	(1, 1,-1)	15.4102458	0.000004251 Cause
	Volumes of CAC40	(1, 1,-1)	17.4201045	0.0000064012 Cause
Number of batches	Trading courses	(1,1,-1)	18.54123452	0.000000414 Cause
	Maturity	(1,1,-1)	25.4014874	0.0000000 Cause
	Adjusted courses of CAC40	(1,1,-1)	27.0142578	0.0000000 Cause
	Volumes of CAC40	(1,1,-1)	26.025418	0.00000000 Cause

With reference to this Table, we can notice that there are causal relationships between the different components of future contract since the statistics of Fisher are significant. Thus, the advanced variables of future contract are statistically significant. There are also dependencies between the future contract and its different components. The advanced variables of spot market equally represent relationships of causalities. There is also

dependence between the volume of transaction and their adjusted courses of the CAC40 index that can be obvious since the volumes of transactions can be an efficient signal of the variations of adjusted courses of the index. We equally notice the existence of relationships of advanced causality between the variables of future contract .The advanced values of the future contract permit to explain the variables of the spot market, taking into account that the variables are unable to prove the importance of future contract for the best stability of the spot market. The significance of the advanced causality relationships between these two variables (adjusted courses and the number of batches of future contracts) permits to prove that the volume of future contracts can be an efficient sign of the variation of adjusted courses of the index. The concentrations of activities in the future market permits to prove that investors had interest in the use of these products as warranties, which permit them to be covered in the periods of financial instability. The introduction of these products in the spot market permits to reduce the variability of courses and the advanced impact of future contract in the spot market seems to be realistic.

The following Table retraces these findings of the Puts:

From this Table, we notice that the null hypothesis of the absence of significance of advanced values is rejected, for the different variables of « Puts » and for those of the spot market .The different variables of Puts cause according to Geweke , Meese and Dent (1982) the puts since the statistics of Fisher are significant. Hence, the anticipations of different components of « Put » seem to be efficient in the puts market .The spot markets seem to be significant. So, it is obvious to evoke the advanced causality relationship between the volumes of transactions and the adjusted courses of the index .These volumes seem to be an efficient sign of the variation of the adjusted courses of the index.

The existence of the advanced causalities' relationship between the two markets permits to confirm that the advanced impact of the Calls in the spot market seems to be realistic. it also permits to confirm that the market of the Puts allows to explain the variations of the underlying markets .This validates to some extent our hypothesis, that assumes that the integration of the Puts is an efficient signal of the variation of courses in the spot market.

We rely on the hypothesis that stipulates the "Puts". The latter constitutes the privileged choices of uninformed investors and their introduction permits them to ameliorate the efficiency of the spot markets, the existence of a causality relationship between the advanced variable of the number of batches (volume of transaction in Puts markets) and these of the adjusted courses of the CAC40 index. This significant relationship shows that the volumes of Puts can be an efficient sign of the variation of courses of CAC40 .The impact of the Puts in the spot market comes from the accumulation of the variations of courses in the spot market where the significance of the delayed values, the adjusted courses and the number of batches according to the test of [16].

The findings of the test for the puts are the following:

Table 13. Test of unvaried causality of Geweke, Meese and Dent (1982) of « Puts »

Variables	Explicative's variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC40	Maturity	(1, 1,-1)	21.0214587	0.00000000 Cause
	Number of batches	(1, 1,-1)	18.024159	0.01000104 cause
	Trading courses	(1,1, -1)	27.0204587	0.0.0100000 cause
	Volumes of CAC40	(1,1, -1)	25.0102458	0.000000 cause
Volume of CAC40	Maturity	(1, 1,-1)	29.051487	0.000000000 cause
	Number of batches	(1, 1,-1)	23.2014578	0.0000000 cause
	Adjusted courses	(1,1-1)	29.8012457	0.0000000 cause
	Trading courses	(1, 1,-1)	27.04501245	0.000000000 Cause
Trading courses	Maturity	(1,1,-1)	29.0012458	0.0000000 cause
	Number of batches	(1,1,-1)	7.412045	0.0412548 cause
	Adjusted courses of CAC40	(1,1,-1)	0.1243587	0.99401254 Don't causes
	Volumes of CAC40	(1,1,-1)	5.0124587	0.05478513 Cause
Maturity	Trading courses	(1,1,-1)	19.02145879	0.00001045 Cause
	Number of batches	(1, 1,-1)	26.702879	0.000000 Cause
	Trading courses of CAC40	(1, 1,-1)	25.04012458	0.000004251 Cause
	Volumes of CAC40	(1, 1,-1)	32.010548	0.000000000 Cause
Number of batches	Trading courses	(1, 1,-1)	22.40145878	0.000000000 cause
	Maturity	(1, 1,-1)	23.004587	0.0000000 Cause
	Trading courses of CAC 40	(1, 1,-1)	26.521487	0.0000000 cause
	Volumes of CAC40	(1, 1,-1)	27.520418	0.00000000 cause

Table 14. Test of univaried causality of Geweke, Meese and Dent (1982) « Calls »

Variables	Explicative's Variables	Lags	Fisher Statistics	Significativity
Adjusted courses of CAC40	Maturity	(1, 1,-1)	18.4204875	0.0000002104 Cause
	Number of batches	(1, 1,-1)	26.0214587	0.01000100 cause
	Trading courses	(1,1, -1)	27.0145879	0.0.0100000 cause
	Volumes of CAC40	(1,1, -1)	28.048751	0.000000 cause
Volume of CAC40 index	Maturity	(1, 1,-1)	29.0124587	0.000000000 cause
	Number of batches	(1, 1,-1)	33.021450	0.0000000 cause
	Adjusted courses	(1,1-1)	29.8012457	0.0000000 cause
	Trading courses	(1, 1,-1)	26.041875	0.000000000 Cause
Trading courses	Maturity	(1, 1,-1)	28.0214578	0.0000000 cause
	Number of batches	(1,1,-1)	0.01245879	0.99924875 Don't causes
	Adjusted courses of CAC40	(1,1,-1)	11.02145879	0.00125875 Don't causes
	Volumes of CAC40	(1,1,-1)	26.0245879	0.05478513 Cause
Maturity	Trading courses	(1,1,-1)	24.0587946	0.00000000 Cause
	Number of batches	(1, 1,-1)	25.98457845	0.000000 Cause
	Adjusted courses of CAC40	(1,1,-1)	29.4785421	0.000000000 Cause
	Volumes of CAC40	(1,1,-1)	34.1245987	0.000000000 Cause
Number of batches	Trading courses	(1,1,-1)	35.4879542	0.000000000 cause
	Maturity	(1,1,-1)	6.0478954	0.07045879 Cause
	Adjusted courses of CAC40	(1,1,-1)	23.6245789	0.0000000 cause
	Volumes of CAC40	(1,1,-1)	24.245789	0.00000000 cause

The test finding validates the significance between the different variables either in the market of Calls which is with the spot market or between the two markets. It also reveals the advanced values of the « Calls » permit to explain the variables of the spot market. Hence, the anticipations of different components of « Calls » seem to be efficient in the spot market. However, according to our assumption stipulating that the Puts and Calls constitute the privileged choices of the uninformed investors, and that period of variations of courses, these products permit to establish the balance of the market. We retain the relationships of the advanced causality between the variable number of batches (representing the volume of transaction in the market of calls) and the adjusted variable course of the index. We notice the existence of a relationship of advanced causality according to [18] that assumes that the number of batches can be an efficient sign of the variation of courses in the spot market.

This variable permits to explain the variations of the underlying market. It is equally noted that the importance of Calls in the spot market comes from the accumulation of the variation of courses in the market where the joint significance of the delayed values between the adjusted courses and the number of Batches of Calls according to Granger test. The anticipation in the French financial market is efficient especially for the « Calls » since the statistics of Fisher are significant. So, we accept a relationship of causality according to Geweke, Meese and Dent between the different components of « Calls » and these of the spot markets. We are especially interested in the relationship of causality between the adjusted courses of the CAC40 index and the volumes of transactions in the derivate markets and the spot markets in order to justify the importance of these products for the best functioning of the market and the concentration of these activities in the derivative markets.

Then, we use the ordinary least square technique (OLS) to identify the existence of relationship between the CAC40 index and the derivatives in the French financial market by taking into consideration their different components.

For this reason, we specify our model of reference that links the CAC40 index to different components of future contract and the Calls and Puts.

Our model of reference can be represented by the following linear equation:

$$LCAC40 = \alpha + \beta L(\text{Trading courses})_t + \delta L(Maturity)_t + \gamma L(\text{Number of batches})_t + \lambda L(Volume \text{ of CAC40}) + \varepsilon_t$$

Our model of base covers a period of study ranging from the first month of the year 2008 until the end of the same year. So, the number of observations is equally to 240 observations. In this model, the endogenous variable is measured by the adjusted courses of the CAC40 index. The explanatory variables are: the maturity, the number of batches, the trading courses and the volume of transaction of the CAC40 index. We notice in the paragraph above that explanatory variables of our model of base are integrated of order zero, that is to say they are stationary without a filtering effect. On the other hand, the endogenous variable contains a united root. In this model, we use the Neperian logarithm to approach our Data. The (OLS) estimation of the linear relationships describing the CAC40 index in function of components of future contract and the Calls and Puts are represented in the two following Tables below:

Table 15. Estimation of the relationship between the spot market and the future contract

Variables	Coefficients	Standard deviation	T-statistic	Significativity
Lvolume	-0.018510	0.006577	-2.814471	0.0053
Ltrading corses	0.974046	0.016904	57.62219	0.0000
Lmaturity	-0.246203	0.135943	-1.811069	0.0714
Lnumof Batches	0.001727	0.003430	0.503432	0.6151
C	-2.530979	1.058977	-2.390022	0.0176

R^2=0.954077, DW= 1.110306, F= 1220.575 (0.000000)

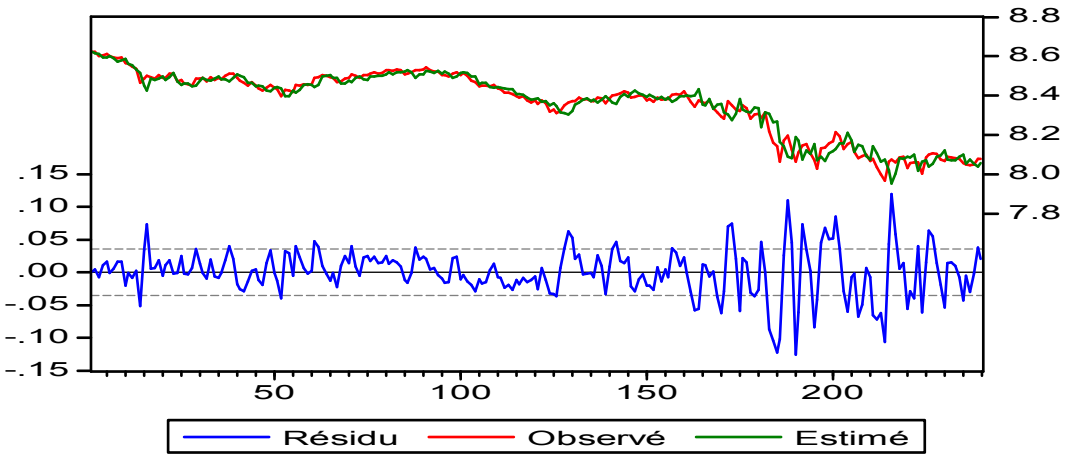
The estimation by the method of the ordinary least square (OLS), leads to expected and significant results in logarithmic term. We notice the existence of a positive and statistically

significant relationship on the average of risk of 1% between the trading courses of future contract and the courses of the CAC40 index. This relationship means that the development of courses of future contract positively follows the development of the underling courses. There is a strong correlation between these two variables. Consequently, this trading courses has a strong predictive and significant effect in the variability of prices of the underlying.

We equally notice the existence of a negative and statistically significant relationship between the maturity and the adjusted courses of the CAC40 index. This seems to be obvious in parallel with the maturity, the price of the option converge to the spot price. The introduction of the future contract permits to reduce the volatility in the spot market, the arrival of the maturity of the future contract giving place to a regain of volatility .The findings equally bring out a negative and statistically significant relationship between the courses of the CAC40 index and the volume of activities in this spot market. Consequently, these letters are a decreasing function of the course variation of the CAC40 index. This negative relation indicates a slow of the activity of the spot market that can be explained by the will of speculators to reduce their exposition to different risks when the markets are unexpected. The periods of intensifications, turbulences and the depletion of liquidity in the spot market, seem to be associated to a slow of the activities of these latter. The introduction of the future contract in the CAC40 index seems to be a response to a negative relationship between the volume of transactions and the variability of trading courses of the CAC40 index. But, we notice that the number of batches positively follows the adjusted courses of the CAC40 index and that this relationship isn't significant in the average of risk 1%. The height of the volatility is accompanied with the slight increase of the volume of future contract.

This finding enable us to deduce that during this period and following the variability of the index, the investors don't have confidence in the future contracts, since the development of the volume of activities following the variation of the index remains trivial. However, we admit that the volumes of transactions registered since the beginning of the year 2008 in the future contract, were in recession in comparison with the previous years .This decrease is due to the year 2008 which was exceptional and during which the market following recession phase and the investors are in waiting and observing situation. All the people are conscious that nothing is regulated and that all the people remain suspicious.

The average effect of the omitted variables is negative and significant. That is to say that the non explanatory variables have strong influences in the relationship between the adjusted courses of the CAC40 index and the different components of the future contract. The coefficient of determination is elevated .So, there a good non linear adjustment in comparison with the average. Besides, there is a problem of autocorrelation of order one, since the statistics of Durbin Watson is very low. As a matter of fact, the impact of shock of the future contract is very persistent in the CAC40 index. Our model is entirely significant because the statistics of Fisher is statistically significant on the average of risk 1%. We can represent the Graphic of this relationship as follow:



Graphic 1. Estimation of the relationship between the spot market and the future contract by OLS

With reference to this Graphic, we notice the existence of the shift between the estimated values of the CAC40 index in function of components of future contract of its observed value. So, there is an increase in residual term and in a bad specification of contract in function of the CAC40 index.

Our estimation gives unexpected significant results and the increase of residue detected through the autocorrelation of order 1(Durbin Watson) and the Graphic below. Let's detect that the specification of the CAC40 index in function of future contract don't change the volatility in a remarkable way and that the asymmetry still in the market spot following the introduction of the future contract. We are equally interested in the estimation of the relationship that describes the adjusted courses of the CAC40 index in functions of volumes of transactions, of the maturity, of the number of batches and of the trading courses of Calls by the ordinary least squares (OLS). The findings are represented in the following Table:

Table 16. Estimation of the relationship between the spot markets and the calls

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Lvolume	-0.082008	0.024804	-3.306257	0.0011
Ltrading Courses	-0.003952	0.006863	-0.575816	0.5653
Maturity	-2.112950	0.256127	-8.249617	0.0000
Lnumber of Batches	0.020067	0.004857	4.131862	0.0001
C	22.93179	1.733014	13.23232	0.0000

R2=0.277654, DW= 0.522756, F= 22.58227 (0.000000)

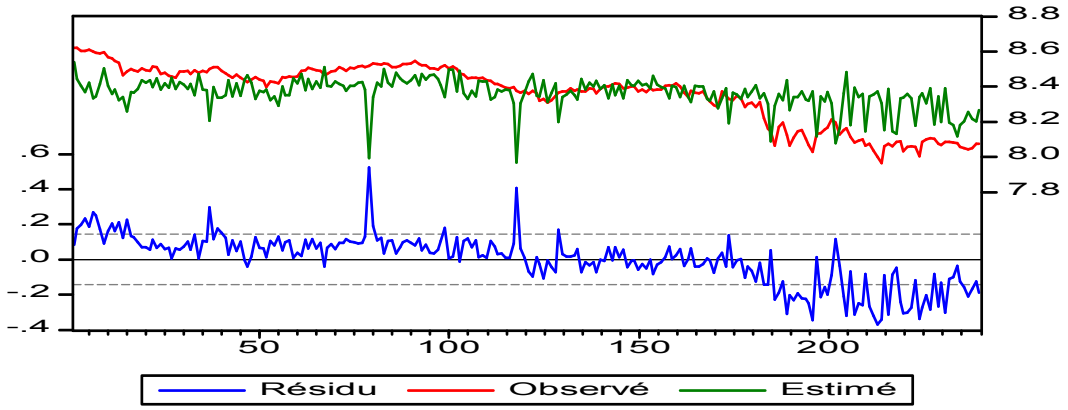
The estimation of the ordinary least square (OLS) technique, the relationship between the spot market and the Calls gives unexpected significant results except for the variable of trading courses. This latter with its volume of the transaction of the CAC40 index and its maturity exert negative effects on the adjusted courses of the CAC40 index. On the other hand, the number of batches positively and significantly affects the CAC40 index. The introduction of the Calls, in the spot market brings about a negative and statistically significant relationship between the volume of transaction in the spot market and the courses of the CAC40 index, and a positive and a statistically significant relationship between the

number of batches and the adjusted courses of the CAC40 index. This assumes that the investors and during this period prove preferences for the Calls. The introduction of this latter in period of variation of courses constitutes in advantage to prevent against the increase of courses.

Consequently, there is a concentration of activities in the Calls options. An intensification of activities in this latter, assumes that the speculators being covered against the eventual increases of courses prove preferences to the calls. The activity in the market of « Calls », has a predictive and significant will in the variation of courses of underlying. When the investors anticipate a huge and a quick increase of the underlings, the purchase of « calls » constitute an excellent strategy, noted that the maximum gain is realized by an option out of money. Our backgrounds represent calls out of money since the underlying courses are inferior to exercise price. These calls are the most speculative .Their prices contain only the time value. That is to say the time spent is an agent that plays against the investor where the options lose the value to measure that approach the date of maturity. The more the maturity approaches, the more the uncertainty diminishes .Consequently the value time diminishes till it becomes negative. Because the maturity approaches, the uncertainty of the option's price disappears, and subsequently the hope disappears. That's why it is recommended to buy the option without waiting the maturity.

There is equally a negative and a statistically non significant relationship between the trading courses and the courses of the CAC40 index that permit to assume that the trading courses in the markets of « Calls » have only a weakness without having any predicative will in the variability of the underlying prices.

We remind you that the more the options are out of money, the more the delta (the variation of options following the variation of its underlying) is low. This delta varies till the maturity moves towards 0 where the options that move towards a Delta 0 are sensitive to fluctuations of underlying. This explains the negative and the statistically significant relation between the adjusted courses of CAC40, and the maturity. We can deduce that when the investors anticipate a sensitive and quick increase of the underlying, we choose « Calls » out of money with short duration where we must take into account of timing because we lose daily the time value. We can represent graphically this relation in the following figure.



Graphic 2. Estimation of the relationship between the spot market and the « Calls » by the OLS

With reference to this Graphic, we deduce the existence of a shift between the estimated value of the CAC40 index in function of components of « Calls » and its observed value. So, there is an increase in residual term and a bad specification of Call in CAC40 index. Our estimation gave expected and significant findings but the increase of residue, detected from an order autocorrelation problem (Durbin Watson), and the Graphic below. Let's deduce that the specification of the CAC40 index in function of « Calls » doesn't modify the volatility of a remarkable manner and the asymmetry remains in the spot market following the introduction of Calls.

Finally, we estimate the relation between the CAC40 index in function of its volumes of transactions and different components of « Puts » by the ordinary least square (OLS) technique in order to detect the importance of these options during the variability of this index in the French stock market. This relationship of long term is represented in the following Table below:

Table 17. Estimation of the relation of long term between the spot markets and the « Puts »

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Lvolume	-0.076279	0.025717	-2.966080	0.0033
Ltrading Courses	-0.003771	0.007199	-0.523853	0.6009
Maturity	-2.106219	0.274329	-7.677715	0.0000
Lnumber of Batches	0.016314	0.004574	3.566780	0.0004
C	22.86800	1.856331	12.31892	0.0000

R2=0.250136, DW= 0.50124, F= 22.58227 (0.000000)

With reference to this Table, we can deduce that the estimation by the ordinary least square (OLS) methods gives discount and significant results except for the variable trading courses. The volumes of the CAC40 index, the trading courses and the maturity follow negatively and significantly the adjusted courses of the CAC40 index. On the other hand, the number of batches follows positively the adjusted courses of the index.

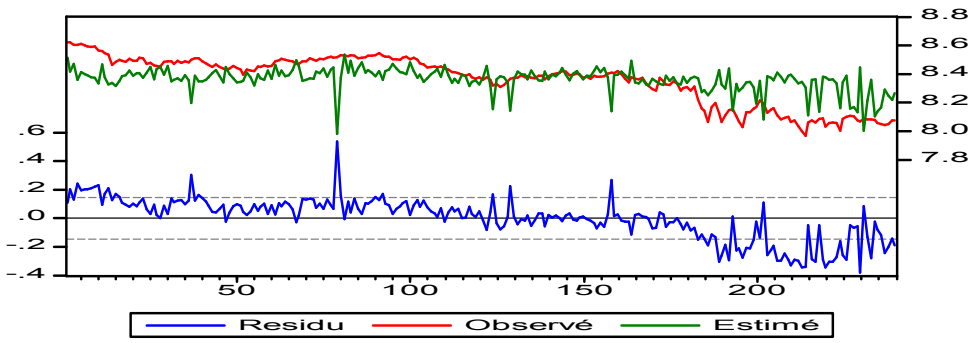
We notice the existence of a negatively and a statistically significant relationship between the maturity and the adjusted courses of the CAC40 index, the previous reasoning for the « Calls » apply equally here. There is equally a negative and statistically non significant relationship between the trading courses of Puts and Calls of the CAC40 index. We remind you that the more the option are out of the money, the more the delta (the variation of the option following its underlying variation is slow. This delta varies till the maturity and moves consequently to zero, and here the option that moves to delta 0 are sensitive to fluctuations of underlying and the use of puts following the volatility in the underlying market diminishes the trading courses in the market of Puts that let us to assume the course in the market of puts out of money have only a weakness in the variability of the underlying courses. The introduction of puts in the spot market brings about a negative and statistically significant relationship between the volume of the transaction in the spot market and the courses of the index, and a positive and statistically significant relation between the number of batches and the courses of the index. This assumes that the investors prove preferences for the options of puts, and there is a concentration of activities in the market. The intensification of activities in this market, assumes that the speculators aiming at covering against the eventual decrease of courses prove preferences for the options of puts when the investors anticipate a strong and quick decrease of the underlying, the purchase of puts constitutes them an excellent strategy known that maximum gain is realized with an option out of money and

strong decrease of underlying courses. Despite the decrease tendency that characterized our study, we notice an increase of activities in the Puts option. This seems to confirm the proposal of Buffet that assumes and during this period that we are usually ready to exchange the most important volatility in our study in a short term in exchange of the most important gain in the long term. Buffet bet in the long term and assumed that for being a winner the sale of Puts. It is sufficient that in maturity the index develops in comparison with its initial level. Like any other strategy of Puts, Buffet is indirectly sales man of value time and the volatility, and even Buffet doesn't communicate about the sale done the best doesn't seem to be in risk. The coefficient of determination is very low and the explained will of this model is very bad. Besides, there is a problem of auto correlation of order1. Our model is completely significant because the statistic of Fisher is generally significant on the verge of the risk of 1% .This relationship of long term between the market of option of sales and the spot market can be represented as the following form.

With reference to this Graphic, we can notice that the residue is very elevated and there are also peaks of this residual term. We notice the existence of a shift between the estimated value of the CAC40 index in function of components of Calls and the observed values of this latter. So, there is an increase of residual term and a bad specification of Calls in the CAC40 index.

Our assumption gave expected and significant findings. But the increase of residue detected from a problem of auto correlation of order 1(Durbin Watson) and the Graphic below let deduce that the specification of the CAC40 index in function of puts doesn't modify the volatility in a remarkable way and the asymmetry remains in the spot market following the introduction of Puts. We can deduce the importance occupied by the derivatives for better flexibility of prices of spot market and this through the links and the relations that exist between the different variables. We notice from the links of causality that the derivatives are tightly linked to the spot market and that there is a strong link of causality between the variability of courses of underlying and volumes of transactions in the spot market and in derivative market. So, we deduce that the volatility or the variations of courses of the cash index causes according to Granger [16] the volume of the derivatives. We equally notice and through the relationship in long term that describes the adjusted courses of the index in function of variables of derivatives and the volume of transactions in the spot market and the coefficient of number of batches is positive and statistically significant for our products and especially the Puts and Calls where the volume of transaction in the spot market is very low. We observe that the volume of transaction in the spot market, negatively follow the variability of adjusted courses of the CAC40 index where the number of batches (volumes of transactions of calls and puts) follows positively this variability. Consequently, we can admit and when the courses vary in the spot market, the investors will be more tied to calls and puts. The elevated variability of courses incites the investors to cover their position with the derivatives. These investors privileged to speculate in the market of options that the underlying activities. The dominance of coverage operations in the spot market assumes that the elevated volatility in the market incites the investors to cover their position by the derivatives. We equally deduce and by the estimation of the relationship in long term that exist between the adjusted courses of the CAC40 and the different components of future contract, and the calls and puts that the number of batches where the volume of transactions of the derivatives exert a crucial effect in the variability of courses of the index of the French stock market. This product also gives reliable information in the future volatility of the spot market and the effect of volumes of transactions of derivatives in the adjusted courses of CAC40 index is very important. This product leads to according to Geweke, Meese and Dent (1982) the advanced explanation of the variability of the spot market by bringing relatively its

stability they constitute an efficient signal of the variability of the spot market. These findings enable us to deduce that the elevated volatility incite the investors to cover their position by the derivatives and these products influence positively the variability of the spot market by bringing relatively stability for it. Consequently, they constitute an efficient signal of the variability of the spot market.



Graphic 3. Estimation of the relationship of the long term between the spot market and the Puts by OLS

5. CONCLUSION

After examining with details the different components of the derivatives, future contract and options, « Puts » and « Calls », we noticed that the high volatility generates an incentive to the coverage against the risk by the derivative products and consequently an increase of volumes of transactions in the markets of future contracts and of options.

We have examined in our work the dynamic relationship that exist between the volatility of the underlying represented by the variability of the adjusted courses of the CAC40 index, and the volumes of transaction in the spot market, and also the volumes of transaction of the derivate products presented by (the number of batches). We have conclude the existence of the causal dynamics relationship between the underlying assets and derivatives validated by testing the dynamic causality of [16] , Sims [17] and Geweke, Meese and Dent [18]. We have detected the presence of a delayed causality, between derivatives and the CAC40 index presented and offset. The lag period is made from a simulation process in which we determined the optimal number of lags of the index, and each component of derivatives. We have demonstrated the direction of causality between the two markets by the significance of the lagged coefficients of the futures contracts and buying and selling options on index variables. We also investigated the direction of advanced causality of these products by the statistical significance of Fisher, we also empirically verified the presence of a causal relationship from one direction between the derivatives and cash market by the Granger [16] and Sims [17] test's.

We noticed during our study the existence of strong causal and dependence relationships between variables describing the two markets. We have deduced the existence of causal links delayed and advanced through Granger causality Sims and Meese Geweke and Dent test, mainly between prices variability of the spot market and the volume of transactions on the derivatives market. These products also cause the variability in the cash market by reducing its relative stability, and therefore constitute an effective signal of the variability in

the cash market. As we have noted the existence of a negative relationship between prices variability and trading volume on the spot market, and the volume of transactions on the derivative market. This explains that the variability of courses in the spot market has been accompanied by a significant transfer of volumes of market transactions from cash to the derivatives markets.

We deduce actually, and seen the consequences of the current global crisis which has severely hit the French financial market stability, and this when the CAC40 experienced the considerable vulnerability, and investors during this period are referred to the derivatives products, although that usefulness of these products has been questioned because of their excessively risky character and their amendments when it was the main cause for the occurrence and spread of the current global crisis. We showed in our study that investors have privileged the use of options that offer more gain and security , they have proven to be more flexible to changes in prices and are traded on organized markets these products offer more security to their users.

It became clear at the close of our work and in the periods of instability, that the investors have tendency to focus their activities on derivatives markets. But it is whether; if these investors continue forever to give confidence and believe to the reliability see the integrity of the use of its products?

COMPETING INTERESTS

Author has declared that no competing interests exist.

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